Applications of Blockchain Technology for Consumer Trust: A Multi-Sectoral Analysis

THESIS

Submitted in partial fulfilment
of the requirements for the degree of
DOCTOR OF PHILOSOPHY

by

SHREYA SANGAL

2020PHXF0039P

Under the Supervision of
Prof. Achint Nigam
&
Under the Co-supervision of
Prof. Sangeeta Sharma

BIRLA INSTITUTE OF TECHNOLOGY AND SCIENCE, PILANI

2024

BIRLA INSTITUTE OF TECHNOLOGY AND SCIENCE, PILANI

CERTIFICATE

This is to certify that the thesis entitled **Applications of Blockchain Technology for Consumer Trust: A Multi-Sectoral Analysis** submitted by **Ms. Shreya Sangal** ID No. **2020PHXF0039P** for the award of Ph.D. of the Institute embodies original work done by her under my supervision.

Signature of the Supervisor	Signature of the Co-supervisor
Name in capital letters	Name in capital letters
Designation	Designation
Date:	Date:

ABSTRACT

Consumer trust has gained vast importance in recent years, yet a lack of consensus still exists among scholars concerning the meaning of trust. Lack of trust is a barrier to the widespread adoption of e-commerce and omnichannel businesses. When the consumers are unfamiliar with the seller, brand, or web-based vendor, transacting with them becomes challenging. Trust develops a feeling of security among consumers, influencing their positive behaviors. Lack of trust is common across many industries, particularly when there is no physical interaction between buyers and sellers, when there's an information asymmetry between them, or when products are second-hand.

In such cases, consumers are less likely to complete transactions. This hesitation can lead to lower sales, reduced customer retention, and negative word-of-mouth, all of which can severely impact a business's growth and reputation. In such industries, the lack of trust can make it even more challenging for businesses to attract and retain customers. Without trust, consumers may seek out competitors or avoid certain market segments altogether, ultimately hindering a business's ability to thrive in the digital economy.

The application of disruptive technologies provides a promising solution to the problem of lack of trust among consumers. The research proposes the application of blockchain technology (BCT), which is known as a trust-based mechanism for building trust in multiple sectors. This research examines BCT's role in influencing consumers' trust and purchase intentions in three sectors, i.e., a) omnichannel healthcare, b) online second-hand automobile peer-to-peer platforms, and c) online beauty products market. The thesis integrates five theories—Swift trust theory, Trust-based marketing theory, organizational information processing theory, Self-determination theory, and

resource-based view—across six studies to address the objectives of the studies. Each theory contributes to a comprehensive understanding of the findings of different studies.

Following the mixed-method approach in the studies, the research first explores the challenges faced by the healthcare sector, second-hand automobiles, and beauty products markets using the Delphi technique, focus group discussions, and personal interviews. Next, through a survey and two experiments, the role of BCT in influencing consumers' buying intentions is quantitatively examined in each sector. The aim is also to understand the moderating roles of vehicle age and brand popularity in our studies. To the best of our knowledge, not many studies have worked on applying BCT for building trust. No studies in the literature studied the moderating role of vehicle age or brand popularity in affecting the relationship between the application of BCT and intention to buy; no studies have been conducted so far to study this problem in the above-stated sectors, with Generation Z as their target respondents in the context of emerging economies.

Consequently, through this research, the aim is to consolidate the findings and propose a holistic framework for the thesis that can provide a definitive approach to future researchers in conducting similar studies in different sectors, geographies, and target respondents.

This research specifies four objectives:

1) *To examine the role of Blockchain Technology (BCT) in improving patients' swift trust and continued usage intentions in omnichannel healthcare systems.*

2) To examine the role of blockchain technology in improving consumers' trust and their intention to buy second-hand automobiles from online P2P platforms.

3) To examine the role of blockchain technology in improving consumers' trust and their intention to buy unpopular beauty product brands.

4) To propose a holistic framework for the studies.

The results obtained from the thesis show that BCT positively influences the continued usage intention of omnichannel healthcare systems. Also, BCT has demonstrated a positive effect on the quality of information available on the platforms to users, leading to improved trust in users and a higher purchase intention of second-hand cars. The research has also posited a positive effect of BCT on the purchase intention of unpopular brands of beauty products sold online. Finally, the research's theoretical and practical implications are discussed.

Keywords: Consumer trust, blockchain technology, omnichannel healthcare, second-hand automobiles, beauty market, swift trust, trust-based marketing, conditional process analysis.

ACKNOWLEDGEMENT

As I stand on the threshold of this academic milestone, I am filled with gratitude for the countless individuals whose unwavering encouragement, expertise, and support have propelled me through the challenges and triumphs of doctoral research. It is a great privilege to take the opportunity to thank all those who have directly or indirectly helped me in this endeavor.

First of all, I would like to express my deepest gratitude to the Almighty God for granting me strength, wisdom, and perseverance throughout this academic journey. My words cannot express my sincere gratitude to my supervisor, Prof. Achint Nigam (Assistant Professor, Department of Management), BITS Pilani, for his unflinching supervision. His meticulous guidance, expertise, and feedback have been invaluable. I thank him for creating opportunities for my academic and personal development and for solving any obstacles on the way. I will always be thankful for his support, thick and thin, which has enhanced my learning. I'm profoundly grateful to my co-supervisor, Prof. Sangeeta Sharma (Professor, Department of Humanities and Social Sciences), BITS Pilani, for her constructive feedback and unwavering support. She's always been cheerful and kept motivating me during my research. Her insightful feedback and dedication to my academic growth have been instrumental in shaping this work. I am deeply indebted to her for her encouragement, patience, and belief in my abilities. I am also extremely thankful to Prof. Abhishek Behl (Assistant Professor, MDI Gurgaon) for his mentorship and unconditional support and for generously providing his expertise to my studies. I am deeply appreciative of his enriching feedback, patience, and dedication to fostering my growth.

I am grateful to the members of my Doctoral Advisory Committee, Prof. Navneet Goyal and Prof. Praveen Goyal, for taking the time to read my thesis and providing constructive comments at every

stage. I'd also like to thank our Doctoral Research Committee, Department of Management, for their guidance and support.

I express my gratitude to Prof. V. Ramgopal Rao, Vice-Chancellor, and Prof. Sudhirkumar Barai, Director, for providing me with a very pleasant and enjoyable environment and allowing me to pursue my research work successfully. I am immensely thankful to the Deputy Director, Deans, and Associate Deans of Birla Institute of Technology and Science (BITS), Pilani, for providing me with the necessary facilities and financial support. I also express my sincere regards to the Dean and Associate Dean, Academic Research Division, BITS Pilani, Pilani Campus, for their motivation and encouragement. I'd also like to thank my institute, BITS Pilani, for selecting me for the Ph.D. program and facilitating all the necessities required for a scholar's comfortable journey.

I am thankful to all the respectable faculty members and the office staff of the Department of Management, BITS Pilani, for their support and generous help during my doctoral journey. Besides the support of the faculty members, there is a network of people who made my PhD journey happier and helped me in its successful completion.

Words fail to express my humble gratitude and profound regard to my parents- my father (Dr. Sanjiv Sangal), who has always been my role model. He always encouraged me to work harder and manage multi-tasking, and he has been the best source of motivation; my mother (Mrs. Neelam Sangal) for her love and belief in me. She always taught me to never give up and celebrate the little wins: my brother, Shiv, who's always there to cheer me up on a phone call every morning, and my sister, Palak, with whom I felt like home at BITS. I could not have undertaken this Ph.D. trajectory successfully without their love, encouragement, patience, and blessings.

Few people always stand beside you in your ups and downs; it's tough to recall all of them, but some of them are very special. I extend special thanks to my dear friends and fellow researchers, Bhumika and Srinidhi, whose companionship has consistently motivated me to strive for improvement. It's truly remarkable how just conversing with them has had the power to alleviate all stress. Our small celebrations and day trips have brought unexpected moments of joy to my journey, and our midnight coffee sessions have enabled us to work for longer hours. I'd also like to thank my dear friends Atharv and Krishna for their constant inspiration and the cherished moments I shared with them.

Finally, I'd like to thank my lab mates at the Department of Management, who made my research environment lively and friendly. I couldn't think of more reliable, engaging, and empowering colleagues. They were also a source of true motivation. I am also grateful to my flatmates, Palak and Shrishti, with whom I could create a warm, peaceful, and comfortable place to live.

Table of Contents

LIST OF FIGURES

LIST OF TABLES

LIST OF ABBREVIATIONS

Abbreviations	Full Forms
BCT	Blockchain Technology
FMCG	Fast-Moving Consumer Goods
OHS	Omnichannel Healthcare Systems
OIPT	Organization Information Processing Theory
P2P	Peer-to-Peer
RBV	Resource-based View
SHP	Second-hand Products
STT	Swift Trust Theory
TBMT	Trust-based Marketing Theory
SDT	Self Determination Theory
ITB	Intention To Buy
IQ	Information Quality
TU	Trust In Users
OTT	Optimism Towards Technology
ITT	Insecurity Towards Technology
PPQ	Perceived Product Quality
PBC	Perceived Behavioral Control
PR	Price
CUI	Continued Usage Intentions
B2C	Business-to-Customer
CPA	Conditional Process Analysis
PLS-SEM	Partial Least Square Structural Equation Modelling
TRST	Trust
ST	Swift Trust
ABDC	Australian Business Deans Council
PRISMA	Preferred Reporting Items For Systematic Reviews And Meta-Analysis

CHAPTER 1- INTRODUCTION

The world is rapidly evolving through digital transformation, with technological advancements driving significant changes in the business landscape. New technologies like Blockchain, AI, the Internet of Things, Augmented Reality, Metaverse, and Big Data are permeating several industries like healthcare, supply chain, manufacturing, etc. (Buhalis et al., 2023; T. Choi et al., 2022; Harvey et al., 2018). New technologies are used to develop state-of-the-art digital solutions to capitalize on the new market opportunities arising from the changing internal and external environment. New technologies are also used to solve issues that hamper business growth. One such issue that exists is consumer trust. The traditional trust-building practices carried out by marketers are no longer as effective, as consumers have become smarter, curious, and more conscious about the products and services they intend to buy nowadays. In the rapidly evolving digital landscape, where emerging technologies reshape industries, trust remains a critical factor influencing consumer behavior, shaping purchasing decisions and brand loyalty. Without trust, even the most innovative products struggle to gain traction in the market. It prompts us to dig deeper into the concept of consumer trust. This thesis work limits its scope to studying consumer trust issues in three sectors- healthcare, second-hand products, and FMCG. The thesis further explores the role new-age technologies like BCT can play in solving consumer trust issues in these sectors.

For this multi-sectoral research, we have worked in three sectors where a lack of trust exists among the users (various stakeholders). The first sector is omnichannel healthcare systems, the second is online Peer-to-peer (P2P) platforms selling second-hand automobiles, and the third is online Fast-moving consumer goods (FMCG) platforms, within which the online beauty products market is chosen for the experiment. As this research is multi-sectoral, each sector's objectives and questions

have been framed and mentioned separately. The overview of consumer trust in the three sectors is discussed next.

1.1 Omnichannel Healthcare System

Disruptive situations, like the COVID-19 pandemic, have brought various changes in communication and information technology in many organizations. It has become a reality check for the healthcare systems concerning their overall readiness to deal with disruptive situations (Bayram et al., 2020; Shinde et al., 2024). A need has arisen to set up telehealth and remote health monitoring and develop a proper omnichannel healthcare system to expand the reach of healthcare services to a larger number of patients and handle the situations in a systematic way. Virtual healthcare services have proved to be a new yet effective way to deliver chronic, acute, primary, and specialty care in times of emergency (Arul et al., 2021). Additionally, clinicians can spend more time on their patients as the workload of administrative tasks gets reduced (Javaid et al., 2020).

An omnichannel business is "*a strategy that operates in diverse physical and online channels with a synergistic integration to offer customers a seamless and uninterrupted shopping journey"* (Chang et al., 2023, p.3). Omnichannel healthcare provides a hybrid (integrated) model of patient care that allows patients and healthcare providers to communicate using both physical and virtual channels. Such an approach in healthcare delivery brings agility and helps healthcare providers to act rapidly. Improved care settings can be leveraged using the right information about the patients at the right time (V. Chang et al., 2023). The issue lies in making reliable healthcare information easily available to all the stakeholders.

In emergency situations during the pandemic, while some patients adapted to omnichannel healthcare, others lost trust in healthcare stakeholders (Barnes, 2020). A relationship between

healthcare providers and patients is a must. Such a relationship is based on trust, which in healthcare is described as a voluntary acceptance of patients' vulnerability and expecting the healthcare provider to do the best for them (Gopichandran, 2013). Without such a relationship, the patients may be vulnerable and unable to decide when selecting healthcare providers. Studies have examined patients' trust in outpatient settings through medical care, insurers, method of payment, hospital staff, etc. (Ferreira da Silva & Moro, 2021; Meng et al., 2020). Researchers have shown a growing interest in the role of trust in healthcare, but very few studies have thrown light on developing the patients' trust in healthcare providers and the system (Dubey et al., 2020; Gopichandran, 2013).

Technological advances can improve trust between the stakeholders in a healthcare system (Engelhardt, 2017; McGraw et al., 2009). Digital technologies like the Internet of Things (Arul et al., 2021), artificial intelligence (Asan et al., 2020), blockchain technology (Sharma et al., 2021), 3D printing (Pravin & Sudhir, 2018), robotics (Kyrarini et al., 2021), and machine learning (Char et al., 2020) are being adopted in the healthcare sector (Bayram et al., 2020). Out of these disruptive digital technologies, blockchain has shown its promise for information security and management (Rapezzi et al., 2024). BCT is equipped with multiple capabilities to transform the healthcare ecosystem. One is to aggregate information, store it in a decentralized repository, and track and trace the data across the organizations. Second, to validate this information from different stakeholders in the value chain; and third, to use smart contracts to automate the processes, among others (Sharma et al., 2021). The next section provides an overview of Online Second-hand product selling P2P platforms.

1.2 Online Second-hand Product selling P2P Platforms

The platform economy involves the creation of online structures suited to enable a range of human activities. "*A platform is defined as one in which social and economic interactions are mediated online*" (Baltimore *et al*., 2016, p.65). It improves the way we work, socialize, and create value for the economy. A Peer-to-Peer (P2P) platform is a frictionless channel through which exchanges between parties (buyers and sellers) take place directly, without any intermediary intervention (Park et al., 2021). Such platforms have digitally transformed the trading of second-hand products (SHPs). According to The Association of Resale Professionals (2021), the annual resale revenue in the US amounts to approximately $17.5bn (Ahn & Kwon, 2022). The Indian P2P platform company OLX[1], which operates in more than 40 countries, has an 85% market share in P2P online trading, with six billion monthly page views and 40 million monthly active users.

The SHP market is separate from the first-hand product one in that the products sold in the former have been previously owned and used at least once (Chang et al., 2019). It is also considered different from refurbishing and remanufacturing, whereby used products are brought back to close to new working conditions and then sold again at prices lower than those of comparable new ones, either with or without warranty. Products popularly sold second-hand include automobiles, apparel, furniture, gadgets, electronics, machinery, and books (Chang et al., 2019; Jain et al., 2022). Consumers look for SHPs not only because of their needs, flexibility in terms of shopping, or functionality but also because of their reasonable pricing, and they appear to be 'as good as new,' making them good value for money (Chang *et al*., 2019).

[1] https://www.olx.in/ [Accessed on 4th June, 2023]

With increasing options for finance and independent vehicle needs, the used car market is rising considerably. The new-to-used car ratio has changed from 1:1.2 to 1:2.2 in recent years (Mordor Intelligence, 2023). According to Grand View Research, 2022, the global pre-owned car market size was estimated at USD 1.66 trillion in 2022 and is expected to reach a compound annual growth rate (CAGR) of 6.1% from 2023 to 2030. Whereas the Indian second-hand cars market size is estimated at USD 31.62 billion in 2024 and is expected to reach USD 63.87 billion by 2029, at a CAGR of 15.10% (Mordor Intelligence, 2023). Out of all second-hand products being traded, automobiles were considered for this study, as they were the most commonly bought and sold category on OLX (P & A, 2022).

The strong demand for SHPs and overall technological (digital channel) advancements in marketing channels have provided buyers and sellers with newer ways of finding and exchanging SHPs. This demand has created space for online P2P platforms. With these advancements, users find it easy to share and obtain information about SHPs to transact for them online (Ahn and Kwon, 2022).

In the SHP P2P markets, the problem of information asymmetry exists. In the offline SHP market, buyers and sellers can meet and jointly examine the used products physically for quality, features, and functioning, as well as try them. The lowering of information asymmetry due to physical meetings reduces risk. However, their geographical reach may be impractical or uneconomical, as they may have to travel to distant places specifically to buy SHPs (Nigam, Sangal et al., 2022; Zhao et al., 2022). In the online purchasing of SHPs, higher perceived information asymmetry causes greater uncertainty compared to its offline counterpart (Akerlof, 1978; Fernando et al., 2018). On a P2P SHP selling platform, buyers and sellers connect virtually, and information

asymmetry increases due to the impossibility of engaging in a face-to-face examination of the products and due to the incomplete information (e.g., individual buyer/seller identity) mutually available to the transacting parties. Users perform the documentation process independently without formal verification (Ahn & Kwon, 2022). Any fake and misleading information provided, facts about the products being sold concealed by the sellers, over-evaluation of the value of SHPs, and the buyers' and sellers' identities are common sources of transaction barriers (Fernando et al., 2018). These barriers push platform companies to adopt trust-based marketing in order to establish long-term relationships between the transacting parties (buyers/sellers) for business continuity (Ozbal et al., 2020). Also, as the buyers and sellers meet virtually on P2P platforms, along with some initial level of trust (swift trust) necessary to initiate a purchase, a long-term trust-based relationship is also necessary for continued engagement (Dubey et al., 2019; Ozbal et al., 2020). The next section provides an overview of the online FMCG Market.

1.3 Online FMCG Market

The global e-commerce ecosystem is on the rise. The e-commerce industry is facing growing competition from giants as well as newcomers. Online retail purchases account for 20.8% of the total retail purchases globally in 2023, which is expected to grow to 24% by 2026. The global e-commerce market is $6.3 trillion, which is expected to grow to over $8.1 trillion by 2026. 57.6% of the internet users shop online weekly (62.3% in India) (Forbes, 2023). Notably, e-commerce is set to remain the fastest-growing sales channel, growing at a remarkable rate of 12% per year between 2022 and 2027. According to a report by IBM, the e-commerce industry was pushed five years ahead due to the pandemic, while physical departmental stores have faced a consequential decline (IBM US Retail Index, 2020). Sectors such as FMCG, health and pharma, fashion, and electronics have experienced generous growth during this period, with an average growth in sales

of 133% (Statista, 2021). The ever-increasing penetration of smartphones and 4G connectivity with cheap data rates in India is an indication that the future of e-commerce is even brighter.

By adopting the digital wagon, many domestic manufacturers started selling products online. Purchases of domestically manufactured products make a country's economy more sustainable (Walia et al., 2019). Thousands of companies began using massive advertising to increase their sales. But to their dismay, the customers' enthusiasm for purchasing these products is generally low (Sabou et al., 2017). A hike in lack of trust is seen due to this massive usage of e-commerce portals. Customers faced quality issues, among others, with the products delivered online (Liao & Zeng, 2021).

In the FMCG sector, the household, personal care, and beauty segment accounts for roughly 50% of the entire market and has become a promising sector in recent years (*Indian Retailer, 2024*). The global beauty and personal care products market size was estimated at USD 557.24 billion in 2023 and is expected to grow at a compound annual growth rate (CAGR) of 7.7% from 2024 to 2030 (*Grand View Research, 2023*). The Indian beauty and cosmetics market is anticipated to experience an annual growth rate of 3.86% and a substantial 143% increase in volume year over year (*Statista*, 2024). Despite facing global economic crises and a turbulent macroeconomic environment, the beauty industry has demonstrated resilience in all its categories (Lavuri et al., 2022). It has now become an attractive sector, drawing interest from prominent financiers to A-list celebrities for good reason (*McKinsey*, 2023). In recent years, the beauty industry has seen a dominant influence from female consumers. With significant purchasing power, they prioritize safety and health considerations when it comes to beauty care (Pudaruth et al., 2015).

The days when the buyers used to hop shop-to-shop to buy beauty are departing. Nowadays, Generation Z's first experience with beauty products takes place online (Hameed & Mathur, 2020). This makes the focus of buyers and sellers in the beauty industry quickly shift to e-commerce. With the digital transition and integration of technologies like Artificial Intelligence (AI) and Augmented Reality (AR), the online retail sector in the beauty industry is improving by providing an immersive and personalized experience to their customers, like 'try-before-you-buy' (Babin et al., 2021). When buyers get innumerable brand options in beauty products to buy from, their choices depend on various factors, including the product and label design, the information provided on packaging, ingredients, benefits, and reasonability of price, among others (Priporas et al., 2017). Such features make them perceive the quality of the product. Once the consumer is able to trust the product, they may intend to buy the product.

When it comes to skincare and beauty products, trust is at a low level due to the fears residing in consumers' minds. These fears include cheap copies, fake claims by brands, adulteration, and the side effects of various harsh/carcinogenic chemicals like paraben, triclosan, and formaldehyde, to name a few, which are heavily found in today's products, causing allergies and skin damage (Rubin & Brod, 2019). Marketers provide certifications, claims, and safety assurances to build consumer trust, such as dermatologically tested, recommended by experts, scientifically backed, ethical business practices, etc. (Cao et al., 2023). 73% of women agree it's not always clear what certain ingredients in skincare products do. 70% of beauty consumers say they are overwhelmed by too many product choices (Healthline Media, 2022).

Marketers may implement new ways to gain the trust of the new generations who do not fall for these buzzwords. The application of new technologies is one such solution when considering Generation Z as our target market. One such disruptive technology known for building trust among

users is blockchain. BCT-based e-commerce platforms can provide authentic information and reduce the time and cost of searching for product information for consumers (Hu et al., 2022). BCT makes product manufacturing and supply chain information transparent and traceable, reducing the chances of fraud (Hu et al., 2022).

Brands play an important role in influencing buyers' purchase decisions in the beauty products market. Branding research measures different brands as popular or unpopular brands (Critchlow et al., 2020; Jungblut & Johnen, 2022; Low & Lamb, 2000). Brands have also been measured based on new and established brands (Round & Roper, 2015; Salamandic et al., 2015). For this research, the beauty brands are categorized into two different categories: popular brands (or established brands) and unpopular brands (this also includes the new brands which have been recently launched and are not yet popular and well-known to customers). For our research, we consider the beauty products category to include beauty, skincare, haircare, and cosmetic products. This area holds a great scope of research where the modern challenges in e-commerce can be studied in-depth, and solutions can be provided through BCT. So, through this research, the aim is to determine to what extent blockchain-enabled e-commerce platforms help generate consumers' intention to buy beauty products online. In the next section, we discuss the scope of the research.

1.4 Scope of the Research

This research focuses on examining the role of BCT in three different sectors. Accordingly, the thesis work develops and validates three models that present the relationship between BCT and consumers' purchase and usage intentions. Through the multi-sectoral studies, the mediating effects of information quality, perceived product quality, and trust are studied. Additionally, the conditional effects of perceived credibility, perceived behavior control, brand popularity for beauty brands, and the age of used vehicles are also studied.

The scope of this research is spread across Generation Z consumers residing in emerging economies. Emerging economies are countries that are rapidly expanding and developing due to high production levels and industrialization. Emerging economies include countries like India, Argentina, Saudi Arabia, Brazil, China, and Egypt, to name a few. The data for our survey and experiments was collected from 20 emerging economies, as mentioned by the IMF (*Miles to Go*, 2021).

The research proposes a holistic framework that provides insights into the commonalities of BCT implementation in three sectors to enhance the purchase and usage intentions of products and services across different sectors.

The studies provide theoretical contributions to two theories of trust, namely, Swift Trust Theory (STT) and Trust-based Marketing Theory (TBMT). An integration of TBMT with STT provides fresh avenues to the online beauty industry literature for developing consumer trust. It extends Organizational Information Processing Theory (OIPT) in the domain of blockchain capabilities and healthcare. By applying the theoretical constructs of the Resource-Based View (RBV) and TBMT, this study sheds light on developing theoretical perspectives of current challenges and concerns regarding blockchain adoption in second-hand automobile transactions. Further, the studies also extend self-determination theory in exploring the online purchase behavior of Generation Z females for branded and new-brand beauty products.

The next section presents the outline of the thesis.

1.5 Outline of the Thesis

Chapter 1: Introduction

This chapter provides a broad introductory background of the thesis and an overview of the three sectors in which the studies are conducted. The chapter defines the need, rationale, urgency, and scope of the research.

Chapter 2: Literature Review

This chapter presents a detailed review of the various concepts that connect with research objectives. The review of the literature is divided into five sections. First is consumer trust and information asymmetry, followed by the second section about blockchain technology. The next three sections explain the applications of BCT in each of the three sectors studied in this research. The selection of papers from the extant literature is presented using the PRISMA model. The chapter also states the research gaps and research questions of the respective studies. Finally, this chapter also states the four research objectives of the thesis.

Chapter 3: Theoretical Underpinnings

This chapter discusses the five theories selected for this research, namely, Swift Trust Theory (STT), Trust-based Marketing Theory (TBMT), Organizational Information Processing Theory (OIPT), Resource-based View (RBV), and Self Determination Theory (SDT). As the studies are conducted in 3 different sectors, a dual theoretical lens has been used based on the needs of each study.

Chapter 4: Qualitative Studies

This thesis has studied every industry first through a qualitative approach and then empirical studies. Qualitative studies were conducted to explore the challenges in the three sectors studied and identify the variables for conductive quantitative studies. This chapter details the research design, findings, and discussion of the three qualitative studies.

Chapter 5: Quantitative Studies

After exploratory studies, this thesis has studied every industry through empirical studies using surveys and experiments. This chapter details the hypothesis development and research model for all three quantitative studies conducted for this thesis. This chapter also talks about the research design, findings, and discussion of the three quantitative studies.

Chapter 6: Holistic Framework

This chapter proposes a holistic framework from the findings of the three sectors studied (omnichannel healthcare, the second-hand automobiles market, and the online beauty products market) to combine the learning and findings from all the studies.

Chapter 7: Implications, Limitations, and Future Research Directions

The chapter then details the theoretical and practical implications of the studies' findings. It also details the key limitations of the research, along with the research directions that future researchers can undertake.

Chapter 8: Conclusion

This chapter summarizes the six multi-sectoral studies exploring the impact of blockchain technology (BCT) on consumer usage and buying behaviors in the healthcare, automobile, and beauty sectors.

CHAPTER 2- LITERATURE REVIEW

Chapter Overview: This section includes the review of the literature that is divided into five sections. First is consumer trust and information asymmetry, followed by the second section about blockchain technology. The next three sections explain the applications of BCT in each of the three sectors studied in this research. The selection of papers from the extant literature is presented using the PRISMA model. The chapter also states the research gaps and research questions of the respective studies. Finally, this chapter also states the four research objectives of the thesis.

2.1 Consumer Trust and Information Asymmetry

The importance of trust is acknowledged widely, yet a lack of consensus still exists among scholars concerning the meaning of trust. Trust, as defined by Mayer et al., 1995, p.2, is "*the willingness of a party to be vulnerable to the actions of another party based on the expectation that the other will perform a particular action important to the trustor, irrespective of the ability to monitor or control that other party***."** (Moorman et al., 1992, p.315) define trust as "*a willingness to rely on an exchange partner in whom one has confidence.*"

Consumer trust is at an all-time low level, and trust in marketers is steadily declining. It has reached a point where it can negatively affect the corporate reputation and, hence, the brand image of companies (Quan et al., 2023). Disappointingly, trust has become a major issue in the marketing environment, especially in e-commerce settings. This affects the ability to conduct much more business than what is currently being done via online mediums. One major reason behind lack of trust is the information asymmetry among stakeholders.

Information asymmetry arises when one party possesses more information in a transaction (Fernando *et al*., 2018; Sangal *et al*., 2022). Various supply chains often face the problem of

asymmetric information, which complicates stakeholder interactions (Vosooghidizaji et al., 2020). In traditional exchanges, verification procedures are necessary because not all parties have access to the same information about past and present transactions. Additionally, the history of exchanges is typically managed by intermediaries, leading to uncertainty among participants and, hence, information asymmetry (Tan & Saraniemi, 2022). It is also seen in online businesses where the stakeholders connect virtually (Myers, 2020). Markets like automobiles, insurance, healthcare, finance, and rental markets have identified asymmetric information as a major reason for their slow growth (Gunnsteinsson, 2020; Myers, 2020; Nigam, Sangal, et al., 2022). These markets need modern solutions to deal with this problem, which is the focus of our thesis. Swift trust among the stakeholders can help improve the customer trust caused by information asymmetry to some extent, as it is a temporary form of trust between two or more parties that exists for a defined purpose or goal. But that's not all; companies need to upgrade their marketing strategies to build long-term trust among consumers (Shayganmehr et al., 2021).

Prior studies have tried to discover the antecedents of trust in e-commerce. Sarkar et al., 2020 identified eleven antecedents of trust in mobile commerce that are- perceived usefulness, perceived ease of use, system quality, information quality, user interface, perceived security, perceived risk, structural assurance, ubiquity, service quality, and disposition to trust. Mayer et al., 1995 concluded three dimensions of consumer trust – competence, integrity, and benevolence to build consumer trust. (Chen & Dhillon, 2003), Identified the sources of consumer trust, which include the consumer's personal characteristics, features of the firm and the website, and the engagement of consumers with the firm and the website. Online purchase behavior is the outcome of the overall intention to trust. A more consumer-oriented information privacy model is important for doing business on the Internet. If consumers have control over their personal information, businesses

would be rewarded with higher consumer trust and improved loyalty (Al-Debei et al., 2015). Hence, trust is essential for successfully carrying out transactions in both physical and virtual spaces (Bauman & Bachmann, 2017).

The success of adopting any technology depends on users' trust in that technology (Lankton et al., 2015). The level of trust can identify the level of reliance on any technology (Glikson & Woolley, 2020). Prior research states that people easily trust things online; they easily download unknown software that might be dangerous for their data, indulge in e-auctions e-commerce, and easily share their information on various portals online (Bauman & Bachmann, 2017). Studies also mention that people do not trust online media ads and apps, find online transactions risky, and share data online unsafe (Lankton et al., 2015). The question arises: Can we trust technology? Can the creators of such technological systems trust the technology?

Given the technological choices the businesses have these days, choosing the right technology is important. Businesses can scale up faster if they implement the right technology into their operations and vice versa (Lankton et al., 2015). The application of technologies is popular not only in developed economies like the US but can also be easily seen today in emerging economies. With the high potential of these technologies, exploring them would benefit the adopters in terms of lower costs and better efficiencies (Choi et al., 2022). The research explores the role of newer technologies in improving marketing practices in different sectors, mainly focusing on their effect on consumer trust and buying intentions. Blockchain is one such technology that is often discussed in the context of trust (Frizzo-Barker et al., 2020; Tan & Saraniemi, 2022). Users need to ensure the trustworthiness of blockchain technology (BCT) in order to increase its adoption in various industries. Developing the understandability of any platform is very crucial for trust. A user needs

to be communicated clearly about the trustworthiness of a technology or a platform if he lacks affinity with that particular technology.

This thesis plans to examine the role BCT can play in making business processes efficient and marketing practices more trustworthy. The focus is on how BCT can help establish trust among different users on different online/hybrid platforms. Throughout the studies, the scope of work is limited to emerging economies. To the best of our knowledge, not many studies have dealt with BCT in the context of emerging economies (Queiroz et al., 2021; Samad et al., 2023). Further, the research is restricted to Generation Z for all studies. Being a novel study, we limit it to Generation Z as they are most likely to be innovators/early adopters of the new technologies (Priporas et al., 2017; Sangal et al., 2022b). Next, we provide an overview of blockchain technology.

2.2 Introduction to Blockchain Technology

Since its inception, blockchain has been of keen interest to academicians, practitioners, and researchers worldwide. Blockchain was first used in its most popular application, i.e., bitcoin, a cryptocurrency, due to which it became widely noticeable to the public (Nakamoto, 2008). It is a set of distributed ledgers with an append-only data structure regulated by a set of nodes (Casino et al., 2019). A block is formed for every transaction that takes place and is stored in these nodes. Such transactions are recorded in the decentralized ledger, where the information is distributed among all the nodes participating in the blockchain (Dionysis et al., 2022; G. Li et al., 2021). It is known as distributed ledger technology (Acciarini et al., 2023). BCT offers some distinctive characteristics (Liang et al., 2021). The major characteristics of this technology understood from the previous research are as follows:

1. **Traceability and Immutability:** Every piece of information, once stored, is permanently saved on the blockchain and is traceable. This characteristic helps users to trace the authenticity

of the information available in the decentralized blockchain database and detect frauds, if any. Due to the immutability of blockchain, data saved on the blockchain cannot be edited or replaced and can only be appended. By using cryptographic keys, the identity of the users cannot be revealed (Baralla et al., 2021; Cao et al., 2023).

2. **Permissionless and Secure:** The Blockchain consensus mechanism and the cryptographic public key are difficult to trace, hack, or break. It is a very secure system. Moreover, one does not need to seek permission from any authority to use blockchain. It is a permissionless system that can be used through suitable clients (Ding et al., 2020; Kuo et al., 2020).
3. **Transparency:** Another crucial aspect of blockchain technology is its transparency, enabling users to access and track the actual information (Baralla et al., 2021; Rapezzi et al., 2024).
4. **Anonymity:** Anyone can verify the integrity of the data. Also, while obtaining transaction information, one cannot derive the user's real identity (Tapscott & Euchner, 2019).
5. **Decentralization:** The decentralized nature of BCT transfers the control of data and decision-making to a distributed network of computer systems. Being decentralized ledgers, blockchain networks make interoperability possible for users' information (Rapezzi et al., 2024)
6. **Verifiability:** BCT helps in verifiability of the information. The validity and authenticity of transactions can be verified using this foundation technology. This also develops trust among the users. Anyone can download the blockchain-based application, run it, and use it to manage online transactions (Kouhizadeh et al., 2021).

Due to these characteristics, this disruptive technology has gained potential for application in varied industries like beauty and healthcare (Agbo & Mahmoud, 2020; Arul et al., 2021), supply chain (Cao et al., 2023), economics (Bezovski, 2021), IoT (C.-L. Chen et al., 2021; Humayun et al., 2020), marketing (Rapezzi et al., 2024) among others.

2.2.1 Benefits and risks of blockchain technology

Blockchain technology offers numerous benefits, with its most cited advantage being establishing trust between entities (Ferreira da Silva & Moro, 2021), achieved without the involvement of a central authority. This enables seamless, direct sharing of information among multiple parties within an ecosystem. Another leading benefit of this emerging technology is its improved security and privacy. It provides end-to-end encryption and prevents fraud and unauthorized actions. Blockchain integration guarantees the integrity of the data and builds mutual trust between e-commerce entities. This technology can improve consumer surplus and social welfare in monopoly and duopoly markets (Liang et al., 2021). Blockchain is being used in the areas of media and advertising, loyalty programs, e-commerce, payments, digital marketing, performance management, fraud prevention, automation, etc. (Tan & Saraniemi, 2023). Due to its immutability and security characteristics, it is expected to develop consumer trust and improve the performance of e-commerce and online advertising. Blockchain can help better consumer targeting and enhance performance management in online advertising and e-commerce (Hawlitschek et al., 2018). Companies like Deloitte India have also explored blockchain technology to build their loyalty programs (Deloitte, 2020). Many firms look forward to tokenization to integrate their loyalty programs (Kouhizadeh et al., 2021; J. Y. Lee, 2019).

Blockchain technology poses several risks, one of which is the lack of standardization due to its diverse frameworks. Integrating its protocols into projects can be challenging due to the rapid expansion of this emerging technology across different sectors (Malhotra et al., 2022; Zamani et al., 2020). On using a public blockchain, the data is made accessible to everyone publicly through true decentralization. This might pose a risk for the producers as their competitors might get access to the products' complete formulations and internal details. Competitors might take undue

advantage of such information, which can lead to a rise in counterfeit goods. Hence, the business owners are suggested to use private blockchain mechanisms. The consensus mechanisms employed in blockchain technology involve substantial energy consumption due to the utilization of high-performance mining machines. This presents a potential environmental risk (Zamani et al., 2020). Additionally, blockchain usage carries various legal risks across different nations, including regulatory and data privacy concerns. The detailed literature review of applications of blockchain technology in the three sectors is mentioned next.

2.3 Blockchain in Healthcare Systems

In conducting the review of literature, the thesis follows the Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA) Model for study selection, and the process is explained in the next section (Moher, 2009).

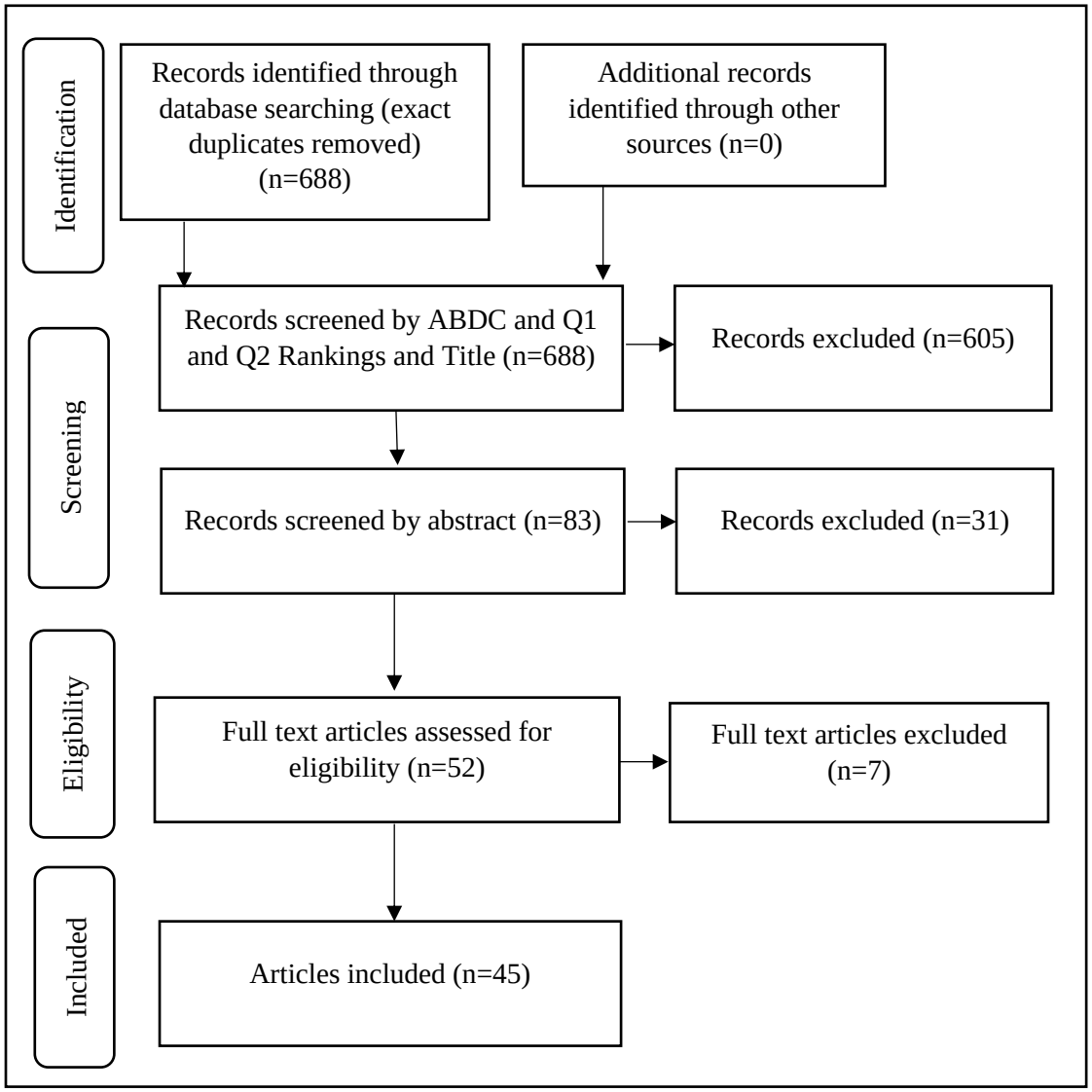
2.3.1 PRISMA Model

Eligibility criteria

All the primary research articles that discussed blockchain in healthcare from the year 2017 onwards were taken into consideration. The conference proceedings and abstracts, newspaper articles, and web articles were excluded from the selection. The time period from 2016 to 2024 was selected as the implementation of blockchain technology in the area of healthcare has become more prominent since 2016. Articles published in English were only included in the review. Only the research articles published in ABDC- A*, A, B, or C category journals and Q1 & Q2 were included in the current study. Articles related to the technicalities of blockchain and its software development were excluded from the study. Only published and peer-reviewed articles were included in our research (Moher, 2009).

***Figure 2.1 PRISMA flow diagram of the study selection process for OHS* (Moher, 2009)**

Source: Author's creation



Search strategy

Scopus, Web of Science, and Google Scholar were used as the search source for this study. The search was first carried out between 6th November and 25th November 2021 and was repeated every three months to find out any new studies.

Study Selection Process

The studies obtained from the database were filtered using three steps. 1) identification, through which the search queries were applied to find out the relevant papers and remove duplicate studies; 2) screening, which includes the screening of ABDC and Q1 and Q2 rankings of the respective journals in which the articles were published and the titles and abstracts of these articles to exclude the irrelevant papers; 3) eligibility, in which the full text of the papers was read to identify if they are relevant for the current research. The PRISMA diagram is illustrated in Figure 2.1.

Data extraction and data synthesis

Relevant data like title, author name, year of publication, journal, keywords, objective, and findings were extracted from the papers, and narrative synthesis was conducted. Duplicate studies were removed.

In line with the studies mentioned in the recent literature reviews, it is observed that very few empirical studies in the past have focused on the role of blockchain in improving trust in healthcare organizations. No studies have specifically mentioned the usage of BCT for OHS. Also, no existing research has specified the relationship between swift trust and the intention to use OHS. This study develops a research model to study how omnichannel healthcare partners can improve upon their BCT capabilities to gain patients' trust and improve continued usage intentions of OHS using the dual theoretical lenses of ST and OIPT, which are discussed in the next chapter.

Omnichannel healthcare creates a seamless process of interaction by removing many barriers for patients, thereby improving the growth of healthcare businesses (Chang et al., 2023). Such an approach needs the intervention of new and disruptive technologies to create a trustworthy and

engaging experience for patients. Blockchain is one such promising technology that facilitates transparency and trust in the system (Attaran, 2020; Nigam, Sangal, et al., 2022).

2.3.2 Current applications of blockchain in the healthcare industry

BCT has multiple use cases in the healthcare industry. Its decentralized nature reduces the dependency of patients on third parties (Chung & Jung, 2019; Sadeghi & Mahmoudi, 2024). It also ensures that the stakeholders are interconnected with each other and everyone can access the same Electronic Health Records (EHRs). Blockchain provides security and reliability for the information stored (Behl, Jayawardena, et al., 2022; Shi et al., 2020). This brings audibility and accountability into the data as any historical record or transaction made on the blockchain can be traced easily. The patients can know who can access their data and for what purposes; this ensures that their personal privacy is maintained through blockchain. Interoperability, access control, provenance, and data integrity are critical for cross-institutional operations in healthcare (Abu-elezz et al., 2020; Hasselgren et al., 2020). Previous research explains the benefits of using blockchain in the healthcare sector for securing patient data over a peer-to-peer (P2P) network, assisting physicians in monitoring patient data, minimizing the chances of a data breach, and so forth (Ahmad et al., 2021; Patel, 2019; Shi et al., 2020). To ensure confidentiality, privacy, and anonymity in the healthcare ecosystem, a smart contract-based scalable authentication scheme for the Internet of Medical Things (IoMT) devices has been designed on consortium blockchain to protect patients from counterfeit devices (Akkaoui, 2021). Patient-centric blockchain smart contracts have been designed as a solution to integrity management for patients and healthcare providers (Chelladurai et al., 2021; Kuo et al., 2021). When used for user data management, smart contracts take less time. As per IBM's recent study on 200 executives in life sciences, more than

70 percent of respondents believed that BCT could help overcome inefficiencies in bureaucratic systems that are slowing down the pace of innovation (Attaran, 2020).

Healthcare organizations are investing in BCT as they envision its wide applications in the field of longitudinal healthcare records, automated health claims adjudication, online patient access, sharing patients' health data, clinical trials, clinical consent management, preventing drug counterfeiting, master patient index, revenue cycle management, biomedical research, remote patient monitoring applications, and precision medicine (Casino et al., 2019; Jung & Pfister, 2020; Kamble et al., 2019). EHR management based on BCT acts as a protocol through which privacy and security can be maintained when accessing data. Studies show how the ever-growing health records of patients can be stored indefinitely using blockchain, as well as the taxonomy and challenges related to the same (Shi et al., 2020). Blockchain can also provide a system for managing the provenance of all kinds of complex healthcare documents in a standardized format (Margheri et al., 2020; Stafford & Treiblmaier, 2020)

The study classifies blockchain applications in the healthcare industry into three stages – the pre-consultation stage, consultation stage, and post-consultation stage – which are discussed further.

Applications in the pre-consultation stage.

Consumers require accurate information to make the right decisions and prevent delayed treatments and fraud. Two important characteristics of blockchain – traceability, and transparency– help obtain complete information about the hospital, its services and availability, facilities, and staff members, which help the consumers select the hospital (Stafford & Treiblmaier, 2020). With the application of BCT in various healthcare organizations, making the information available at a common decentralized platform, consumers can easily select suitable hospitals and medical

professionals. Choosing the right healthcare professional is equally necessary for a patient. Their qualifications are the foremost concern to ensure that they are capable enough of looking into the problem and prescribing the required treatment. With BCT, their qualification-related information can be verified to make prudent decisions (Ahmad et al., 2021). Further, at times, the process of booking appointments can be long, complex, and tiring, where the patients have to wait for several days and make multiple calls before finally booking an appointment with a doctor. Booking appointments through BCT-based applications helps reduce manual efforts, prevent insider fraud (Mackey et al., 2020), and speed up the process. Patients and doctors may interact digitally before a physical meeting in the omnichannel settings. Since the challenge of security of patient information exists here, public and private keys can be used to communicate, share documents, and transact with each other (Iyanna et al., 2022). The use of blockchain for the electronic management of records, such as in creating, storing, and managing patients' medical records and personal data, helps analyze clinical trends and improves the quality of care (Hussein et al., 2021). Digitalization reduces the manual efforts of the service providers, enhances their connectivity with the patients, and provides future development opportunities (Prokofieva & Miah, 2019). Blockchain empowers patients and allows them to control their data sharing, processing, and usage (Kaur et al., 2023). MedRec, an MIT Media Lab Project with Beth Israel Deaconess Medical Center, gives patients the right to control who can access their data through Blockchain (Azaria et al., 2016). IBM's project HealthChain is another application developed using Blockchain for Electronic Medical Records (Chang et al., 2023; Patel, 2019).

Applications in the Consultation Stage.

Digitalization has not yet completely eliminated the physical face-to-face consultations with the doctor. Patients visit specialists to examine and treat the disease or health issue and take prescribed

treatment. Patients have to face the issue of repeated diagnosis at the new medical centers when switching to a different hospital. BCT adoption provides interoperability between hospitals, and the medical data can be accessed anywhere in no time (Agbo & Mahmoud, 2020). Also, the reports are immutable and cannot be changed once stored (Firdaus et al., 2019; Hussein et al., 2021). Burstiq is a US-based data aggregation platform that integrates and stores consumers' health-related information from their mobile devices and sensors. It learns about the users and tries to adapt to the user's behavior patterns. BCT is being used in seamless health information exchange between healthcare organizations, facilitating clinical trial management and pharma supply chain management by preventing cases of counterfeit drugs (Mackey & Nayyar, 2017). BCT also improves processes and payments (Abu-elezz et al., 2020; Roman-Belmonte et al., 2018). All the transactions can be recorded in a distributed ledger through BCT, and payments can be made more secure by storing them on a blockchain network (Zheng et al., 2018). Using BCT, the medication prescribed by the doctor can be communicated directly to the associated chemist, who can then provide the medication accordingly. This reduces the errors of selling the wrong medicines to patients (Prokofieva & Miah, 2019). Previous studies have shown the role of blockchain-based applications in ensuring transparency, trust in data sharing, improved clinical decision-making, and improved efficiency of admin processes (Shi et al., 2020; Zheng et al., 2018). Dutch municipalities are using smart contracts and tokens to provide healthcare services to their citizens (Haleem et al., 2021; Yaqoob et al., 2022). Amazon Web Services (AWS) also mentioned the use of blockchain for potential applications in healthcare data, smart contracts, and so forth (Patel, 2019). Dclinic is another healthcare blockchain platform that integrates healthcare systems, clinics, and hospitals (De Aguiar et al., 2020; Zaabar et al., 2021). It offers virtual clinics to doctors where

they can onboard patients, provide consultation services, and provide online payment options (Attaran, 2020; Hasselgren et al., 2020)

Applications in the post-consultation stage.

After the physical diagnosis, the updated medical reports are to be uploaded to a database. The issue of privacy and confidentiality arises when the hospitals might use the patient's medical data for undisclosed purposes (Kuo et al., 2021). This risk can be prevented by the use of one-way cryptography, where the information can be secured and accessed only when allowed by the specified participant (Christidis et al., 2021). This also reduces the burden of unnecessary paperwork required to manage separate files of the patients, which is prone to human errors, delays, and even fraud. Online databases help in saving costs, making the process tamperproof. A way to improve the speed of work is by automating processes like sending regular notifications and reminders to reduce the workload of service providers (Haleem et al., 2021; Stafford & Treiblmaier, 2020). Such reminders and messages enhance the overall consumer experience and help them keep track of their appointments. This also benefits the hospitals as the patients stay updated and make routine visits. BCT removes the intermediaries from the processes and automates them through its decentralized ledger system using smart contracts (Massaro, 2021). Smart contracts can automate and speed up processes (Christidis et al., 2021). While orders can be made for medicines from the prescribed chemists online and the mHealth apps from the comfort of their homes, a risk of receiving wrong, damaged, expired, or counterfeit medicines exists when medicines are ordered remotely. Through BCT, the authentic details of the medication can be sourced before making an online purchase, which builds patients' trust. BCT in the pharmaceutical supply chain and logistics enables healthcare stakeholders to track the whereabouts of medicines and healthcare devices (Karamchandani et al., 2020; Mackey & Nayyar, 2017). Also, it links the

pharma supply chain from the manufacturer via chemists to the final consumer to keep track of the product delivery. Currently, the insurance processes lack the required level of transparency (Chang et al., 2023). Some patients tend to make false statements concerning their medical reports for obtaining insurance claims. Researchers have proposed a blockchain-based personal healthcare data management system for sharing health data among insurance companies for better management of medical insurance due to its feature of immutability (Y. Liu et al., 2024). Through cryptographic authentication, these claiming activities and the documents are made transparent for the concerned parties. The existing literature also explains the use of blockchain for recording diagnostic reports (Alqaralleh et al., 2021; Firdaus et al., 2019), healthcare data analytics (Chung & Jung, 2019; Kamble et al., 2019), and pharmaceuticals medical research. Further, for healthcare supplies, processes like invoicing, placing orders, delivery, and logistics in the intake and distribution of pharma products can be standardized and optimized using BCT (Agbo & Mahmoud, 2020). While blockchain seems to be the technology of the future to transform the current healthcare systems, some of the emerging challenges in the healthcare industry are studied that this disruptive technology can solve.

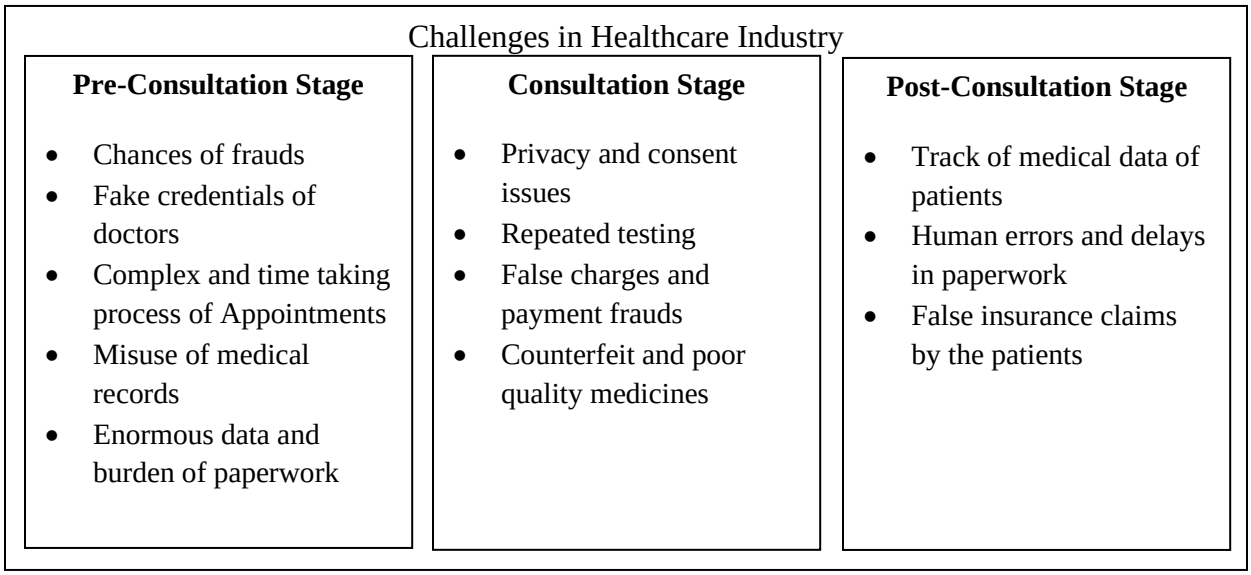
2.3.3 Emerging challenges in healthcare

The healthcare supply chains are fragmented, and a data disconnect exists among healthcare organizations (Jayaraman et al., 2019). There is a need to improve the way the data is recorded, stored, and shared. Cases of patient data breaches by hackers raise the alarm for secure healthcare systems (India Today, 2022). High demand and rising costs of healthcare devices and equipment also generate a need for more secure healthcare supply chain systems (Jayaraman et al., 2019). The main challenges identified in previous studies were product supply shortages monitoring, product recalls, product expirations, and counterfeiting. Moreover, maintaining trust, security,

efficiency, traceability, and global accessibility has become an important concern for healthcare supply chains to assure patient safety (Jayaraman et al., 2019; Kouhizadeh et al., 2021). Though the challenges and promises in healthcare and their technology-oriented solutions have been discussed in the past (Agbo & Mahmoud, 2020), hardly any studies suggest how omnichannel healthcare partners can gain patients' swift trust and improve the usage of OHS. So, differing from previous studies (Asan et al., 2020; Char et al., 2020), our studies aim to provide a solution to this problem through BCT.

The challenges identified through the review of the literature have been classified according to the pre-consultation, consultation, and post-consultation stages (shown in Figure 2.2).

Figure 2.2: Challenges faced in healthcare (stage-wise)



Source: Author's creation

Though the challenges and promises in healthcare and their technology-oriented solutions have been discussed in the past (Agbo & Mahmoud, 2020), hardly any studies suggest how omnichannel healthcare partners can gain patients' swift trust and improve the usage of OHS. So, differing from

previous studies (Asan et al., 2020; Char et al., 2020), this study aims to provide a solution to this problem through BCT.

Research gaps: Omnichannel healthcare is not discussed much in extant literature. After reviewing the existing literature, we can say that, to the best of our knowledge, no previous studies have discussed the role of BCT in improving the effectiveness and coordination of omnichannel healthcare from Generation Z consumers' perspectives in an emerging economies context. Also, no studies so far have examined the mediating roles of information quality and swift trust in omnichannel healthcare systems.

To address these research gaps in the proposed studies 1 and 2, we attempt to find answers to the following research questions (RQs):

1) What are the challenges in implementing an omnichannel healthcare system in an emerging economy?

2) To what extent can blockchain technology facilitate an omnichannel healthcare system in an emerging economy?

3) To what extent can blockchain technology affect information quality and patients' swift trust toward healthcare partners in omnichannel healthcare systems?

4) To what extent can blockchain technology affect the continued usage intention of omnichannel healthcare systems?

2.4 Online Second-hand product market

2.4.1 PRISMA Model

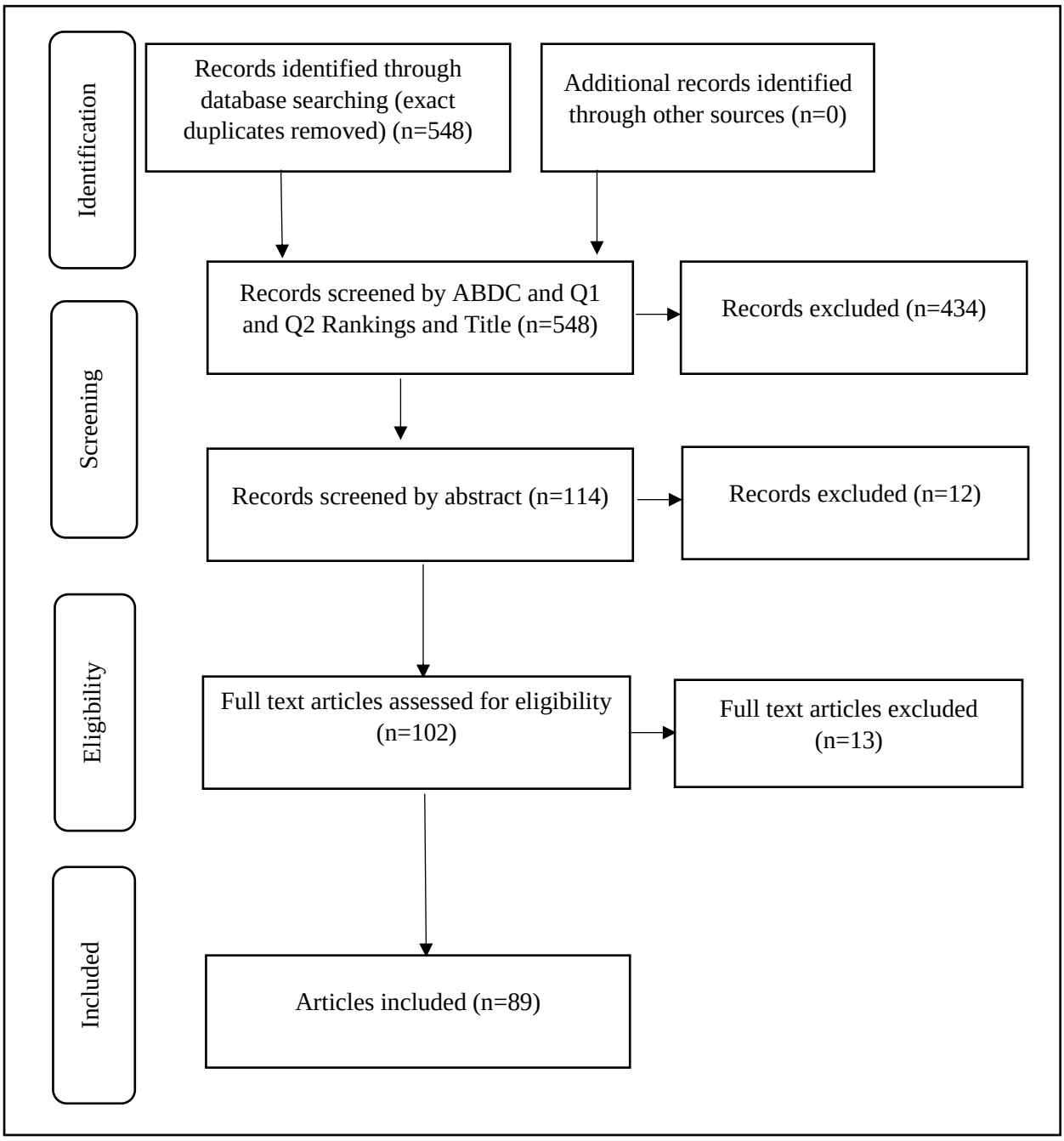


Figure 2.3: PRISMA flow diagram of the study selection process for the online SHPs market (Moher, 2009)

Eligibility criteria: All the primary research articles related to second-hand goods markets from 2001 onwards were taken into consideration. The conference proceedings and abstracts, newspaper articles, and web articles were excluded from the selection. Only the articles published in the English language were included in the review. The research articles published in ABDC ranked A*, A, B, or C journals and Q1 & Q2 journals were considered for the current study. Only the published and peer-reviewed articles were included in the research (Cubbon et al., 2021; Moher, 2009).

***Search strategy*:** Scopus, Web of Science, and Google Scholar databases were used as the search source for this study. The search query included the combination of keywords like second-hand goods, second-hand products, pre-owned goods, pre-loved goods, secondary marketplace, platform economy, digital platforms, online platforms, blockchain technology, and distributed ledger. The search was first carried out between 5th March and 25th June 2022 and was repeated every three months to find any new research articles (See PRISMA Model in Figure 2.3).

***Study selection process*:** The studies obtained from the database were filtered using three steps. The steps are the same as explained above.

Data extraction and data synthesis: Relevant data like title, author name, year of publication, journal, keywords, objective, and findings were extracted from the papers, and narrative synthesis was conducted.

2.4.2 Theoretical background- online second-hand products market

Second-hand purchases have existed since the mid of the fourteenth century (Borusiak et al., 2020). Later, in the 2000s, the exchange of SHPs saw de-stigmatization and gained popularity again soon (Calvo-Porral et al., 2024; Casalin & Dia, 2019; Mukherjee et al., 2020). Second-hand markets have been studied in varied aspects in the past (Pandey et al., 2024). These research areas include

closed-loop supply chains (Beh et al., 2016; Kogan, 2011; Sane-Zerang et al., 2020), finance (Zhao et al., 2022), environment and sustainability (Ahn & Kwon, 2022; Borusiak et al., 2020; Laurenti & Acuña, 2020; Parguel et al., 2017; S. C. Silva et al., 2021; Xue et al., 2018), the economics of SHPs (Frota Neto et al., 2016; Z. Lu & Shang, 2019; Wilts et al., 2021), entrepreneurial aspects (Mhango & Niehm, 2005), technological aspects (Ben Amor & Ben Yahia, 2022; Jain et al., 2022; Subramanian & Thampy, 2021) among others.

The consumer buying culture has changed over the years. Nowadays, people like to temporarily hold the goods and replace them when they wish to update them. Consumers usually own a number of products that they think are no longer in need (Calvo-Porral et al., 2023; Wilts et al., 2021). Materialistic and environment-concerned consumers tend to be more subject to transact for SHPs from P2P platforms (Parguel et al., 2017). Some popular online classified advertisement P2P platforms are US-based *Offerup, Craigslist,* and *Letgo*, Australia-based *Gumtree,* Japan's *Mercari,* Singapore-based *Carousell,* France's *Leboncoin,* and India's *OLX* and *Quikr.* Many of them are present globally and are highly profitable (Padmavathy et al., 2019).

The availability of cost-effective internet in recent years has made online shopping more convenient and popular (Kim et al., 2008). The transaction efficiency of SHPs has also improved. The chat feature lets the buyers communicate with the sellers directly on P2P platforms, which can help in providing better engagement and building interpersonal relations (Chang et al., 2019). Buyers look at various factors like depreciation and scarcity when buying SHPs. Studies state that reference price helps assess the SHPs' price in relation to a particular price level (Biswas & Blair, 1991; Park et al., 2020). The SHPs selling stores have started to attract a good range of customers. This growing market for SHPs provides an opportunity to access a larger market and helps maintain legitimacy among the customers (Schadenberg & Folmer, 2022). Sectors like second-

hand electronics and automobiles are growing multifold. The high-quality luxury products industry has gained a multi-billion-dollar market and is expected to touch 25bn USD of the total resale market in 2025 (Silva et al., 2022). Yet, online private institutions dealing in second-hand cars might not always be able to overcome the market failure caused by asymmetry in information, which makes the intervention of new technologies necessary (Sultan, 2010). Mercari, a USA-based secondary marketplace app, uses artificial intelligence to secure its users from fraudulent activities, whereas eBay provides customer service to ensure better buyer protection.

However, the trust of users is not completely established since the risk of buying counterfeit or defective SHPs prevails when the product is not completely identifiable virtually (Moriuchi & Takahashi, 2022). Hence, retaining customers and increasing profits are major challenges faced by second-hand markets (Gopalakrishnan & Matthews, 2018; Sihvonen & Turunen, 2016). Studies on second-hand clothing revealed that contamination is one major cause of the negative image of SHPs and that providing the product history can help build trust, perceived benefits, attitudes, and transaction intentions toward second-hand fashion (Kim et al., 2021). Resale value consciousness is another important dimension when buying luxury SHPs. Recent research on the motivations and consequences of purchasing SHPs by the rural and sub-urban (RSU) base of the pyramid (BOP) consumer states that users from such areas prefer personal sources for SHP exchanges (Mukherjee et al., 2020). Economic factors, apathy to buy cheap brands, social recognition, and pester power are factors that motivate them**.** Studies have also discussed the effects of anthropomorphism on SHP prices, which means emotional connections with products and hesitating in ending that relationship (Dai et al., 2021; J. Kim & Swaminathan, 2021). Online buyers were found to be less frugal and perceived lower levels of acquisition value for SHPs when compared to new goods. Most of them like to buy SHPs with non-sensory attributes (search goods like electronics) via

second-hand platforms (Fernando et al., 2018; Sihvonen & Turunen, 2016). The rising number of sales channels has also influenced the transaction behavior of sellers and buyers, as one can be a seller one day and a buyer the other day (Mukherjee et al., 2020; Turunen & Pöyry, 2019).

2.4.3 Trust in second-hand transactions

This study defines Trust as "*the willingness of a party to be vulnerable to the actions of another party based on the expectation that the other will perform a particular action important to the trustor, irrespective of the ability to monitor or control that other party*" (Brown et al., 2004, p. 712). Alternative consumption (which includes second-hand shopping, auctions, flea markets, thrift shops, etc.) started growing in the 1990s, which created a parallel market for used products. Intermediating agents tried to fill the gap of the lack of confidence and trust between buyers and sellers. Many consumers are hesitant to buy SHPs online due to a lack of trust in the seller or the platform (Chantelat & Vignal, 2005; Yrjölä et al., 2021). According to a study, an interesting introduction, aesthetic images, and accurate descriptions of products can help strengthen the impression of the classified advertisements posted by sellers (Kim et al., 2021). However, the higher the cost of the product, the higher the risk of transacting, creating a trust gap. Some SHPs selling P2P platforms are trying to overcome this risk by using certifications and extended warranties. Such certifications, when provided by the seller or the platform itself, might not be able to bridge this trust gap (Ross et al., 2023). Studies have discussed the integrative effect of community and e-commerce on building the "trustworthiness" of online second-hand transaction platforms. (Luo et al., 2020). Establishing trust, effort, and accessibility makes them purchase SHPs (Baxter & Childs, 2017; Fjeldstad, 2017). SHP sales can generate win-win outcomes for the firms as well as for the environment (Xue et al., 2018). Hence, this study explores the

implementation of BCT as a viable technological solution for establishing trust in the platforms as well as the users in promoting transaction intention on the online P2P platforms dealing in SHPs.

2.4.4 Blockchain technology for online platforms

Many counterfeit goods are being sold online via different platforms, which are imitated to look like genuine products. Moreover, fake reviews and false images are used to support such products, which causes consumers to lose trust. It is difficult to transact for counterfeited goods via BCT as their record is not present on the blockchain. Any false or misleading information can be immediately detected (Butera et al., 2023; Subramanian & Thampy, 2021).

We expect that using a BCT-based system of product verification in the second-hand market would build trust among buyers and eliminate the threat of counterfeit and fake products. SHP buyers expect the declaration of all the product details and its usage history by its first user (Francisco & Swanson, 2018). When the product ownership changes, it will be recorded on the blockchain, and the digital approval of the buyer and seller would be taken. BCT can bring many value propositions to buyers and help them trace and track their products. As the implementation of BCT into such platforms is in its infancy stage, the sellers need to understand the buyer behaviors, motives, and intentions for faster adoption of BCT on online platforms. Performance expectancy, facilitating conditions, and attitude describe the adoption of SHPs' purchases using blockchain-enabled P2P platforms (Jain et al., 2022). According to a recent study, BCT promotes behavioral intention toward online second-hand shopping and hence promotes sustainable consumption by reducing waste (Jain et al., 2022) and ensures providing reliable information by automating the tracking of goods throughout their lifecycles (Zavolokina et al., 2020; Z. Zhang et al., 2023).

Research Gaps: So far, no studies have tried to look into the possibility of building trust in online P2P platforms selling second-hand automobiles using BCT. No studies were found that test this

relationship conditional to the vehicle age. To the best of our knowledge, no similar study has been conducted in the economies that are studied in this research, i.e., emerging economies. Also, the purchase behaviors of second-hand automobiles from the Generation Z perspective have yet to be explored.

To address the above research gaps, we attempt to find out the answers to the following research questions (RQs) through the proposed studies 3 and 4:

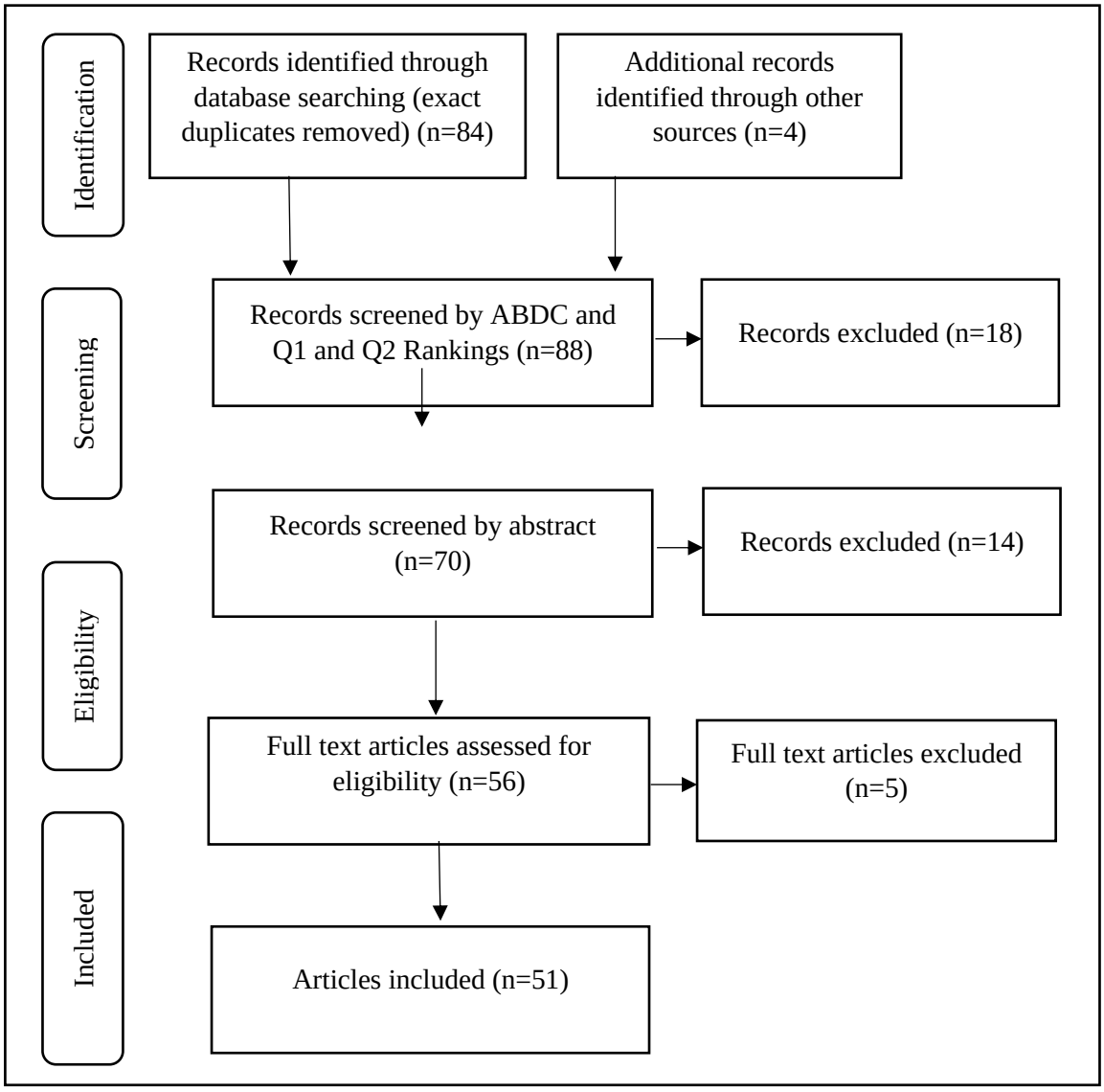
1. *To what extent can BCT affect customer purchase intention and marketing performance of firms dealing in pre-owned automobile products in emerging economies?*
2. *To what extent do information quality and trust in users mediate the relation between the application of blockchain and the intention to buy second-hand automobiles on online P2P platforms?*
3. *To what extent does the age of the vehicle moderate the direct and indirect effect of BCT on the intention to buy second-hand automobiles on online P2P platforms?*

2.5 Online Beauty Products Market

2.5.1 PRISMA Model

Eligibility criteria: All the primary research articles related to FMCG (food products, beauty, personal care, grocery, etc.) markets from 2010 onwards were taken into consideration. The conference proceedings and abstracts, newspaper articles, and web articles were excluded from the selection. Only the articles published in English were included in the review. The research articles published in ABDC ranked A*, A, B, or C and Q1 & Q2 journals were considered for the current study. We included only the published and peer-reviewed articles in our research (Cubbon et al., 2021; Moher, 2009).

Figure 2.4: PRISMA flow diagram of the study selection process for the online beauty products market (Moher, 2009)



Search strategy: Scopus, Web of Science, and Google Scholar databases were used as the search source for this study. The search query included a combination of keywords such as e-commerce, beauty products, cosmetics, FMCG, grocery, and food products, as well as digital platforms, online platforms, blockchain technology, and distributed ledger. The search was first carried out between

1st February and 30th April 2023 and was repeated every three months to find any new research articles (See PRISMA Model in Figure 2.4) (Cubbon et al., 2021; Moher, 2009).

***Study selection process*:** The studies obtained from the database were filtered using three steps. The steps are the same as explained above.

***Data extraction and data synthesis*:** Relevant data like title, author name, year of publication, journal, keywords, objective, and findings were extracted from the papers, and narrative synthesis was conducted.

2.5.2 Popular Brands v/s Unpopular Brands

There is a constant debate over the purchase of popular brands v/s unpopular brands in the beauty industry. According to a study, the market is divided into two segments of consumers (high-end and low-end market): one who buys only popular brands and the others who buy lower-priced unpopular products (Lu et al., 2022; Pan, 2020). More consumers have begun to prefer the former due to the expected high quality compared to the latter (W. Lu et al., 2022; Niros et al., 2022). Branding gives rise to a risk-averse behavior and makes consumers assume that the quality of a particular brand's product today will be the same as previous consumption of the same product (Iazzi & Santovito, 2016). A gradual increase in Generation Z consumers who consciously purchase beauty products, considering factors like quality, price, ingredients, etc. Today, new brands, which may be less popular, offer improved quality and add more value to their product, which requires a reassessment of the consumers' perceptions of popular and unpopular brands (Walsh et al., 2012). The provenance of such products can be verified by the users on the website if the brands take the right measures (Baralla et al., 2021). Credence attributes also affect consumers' preferences. Studies explain that credence has a negative brand effect on brand equity.

High Information quality of new brands may increase the credibility of the product (Kucherov & Zhiltsova, 2021; Ubilava et al., 2011). More information would put both the established and unpopular brands on the same level psychologically. With the growth in the number and variety of goods sold by live streamers, consumers have become more prone to fall into traps of counterfeits and cheap products (Gao et al., 2022). Popular brands have a higher capacity for product innovation and better marketing support, which creates consumer trust (Chimhundu et al., 2015). Additionally, branding may present a risk-aversed behavior among consumers (Iazzi & Santovito, 2016).

2.5.3 Blockchain and consumer trust in e-commerce

In e-commerce, the transactions take place online and virtually, and the companies may face moral hazards and opportunistic behaviors. The encryption and consensus mechanisms of blockchain, where each step in the supply chain can be logged and tracked, provide authenticity, security, and unforgeability (Jiang & Chen, 2021; Y. Liu et al., 2024). Blockchain's role extends far beyond its ability to create novel products and services. It also establishes trust and transparency, reduces the need for intermediaries, safeguards privacy and data ownership, manages digital identities, helps improve customer relationship management, revolutionizes advertising, and combats click fraud. BCT is, hence, an effective solution to eliminate information asymmetry (He et al., 2023).

Counterfeits hamper trust and harm the Brand's image. As consumers rely on the information provided by the other party before making a purchase decision, trust becomes necessary (He et al., 2023). The primary obstacle hindering the growth of online shopping is the erosion of trust among consumers. This lack of trust stems from doubts about the authenticity of products, lack of

confidence in cross-border websites, skepticism towards sellers, uncertainty regarding logistics, and payment security concerns (Al-Debei et al., 2015).

BCT offers a platform for monitoring product details, allowing for traceability in the management of supply chain operations (Hu et al., 2022; Kalbouneh et al., 2023). The technology facilitates peer-to-peer information technology interactions, effectively mitigating risks related to third-party interference. These risks encompass hacking, compromised privacy, instability in financial institutions, and conflicts within supply chain partnerships. BCT helps consumers with genuine and clear product details, diminishing the time and effort required to search for product information (Treiblmaier & Garaus, 2023). When permissionless blockchains are implemented, the information is available publicly, and anyone can verify it. This promotes transparency and trustworthiness as the data, once written in the system, is unchangeable (Baralla et al., 2021). Through a single code and interface, individuals can access pertinent details about a product, including its place of origin, environmental impact, product specifics, traceability, distribution process, logistics, and more (Tapscott & Euchner, 2019). Extant literature has studied the role of blockchain in the FMCG sector in food products like organic coffee, honey, packed meat, etc. (Dionysis et al., 2022; Suresh Kumar et al., 2022; Tharatipyakul et al., 2022; Treiblmaier & Garaus, 2023).

Research Gaps: To the best of our knowledge, no studies have empirically explored the online purchase behaviors of Generation Z for beauty products. The current literature has not yet offered an opportunity to discover the purchase intention of unpopular beauty brands and the impact of blockchain on establishing consumer trust. This study aims to understand the role of BCT on the purchase behaviors of beauty product consumers in emerging economies. To address the above

research gaps, we attempt to find out the answers to the following research questions (RQs) in studies 5 and 6 -

1. What is the current consumer behavior of Generation Z females from an emerging economy for branded and new-brand beauty products sold online?

2. To what extent does the application of blockchain help generate consumers' intention to buy unpopular brands of beauty products?

3. To what extent do perceived product quality and trust mediate the relation between the application of blockchain and the intention to buy beauty products?

4. To what extent does brand popularity moderate the direct and indirect effect of the application of BCT on the intention to buy beauty products online?

2.6 Research Objectives

The objectives for our research are defined as follows:

1) *To examine the role of blockchain technology in improving patients' swift trust and continued usage intentions in omnichannel healthcare systems.*

2) To examine the role of blockchain technology in improving consumers' trust and their intention to buy second-hand automobiles from online P2P platforms.

3) To examine the role of the blockchain technology in improving consumers' trust and their intention to buy unpopular beauty product brands.

4) To propose a holistic framework for the studies.

The next chapter provides an overview of the theoretical underpinnings used for our studies.

CHAPTER 3- THEORETICAL UNDERPINNINGS

Chapter overview: For this research, five theories were selected, namely, Swift Trust Theory (STT), Trust-based Marketing Theory (TBMT), Organizational Information Processing Theory (OIPT), Resource-based View (RBV), and Self Determination Theory (SDT). A multi-theoretical approach was needed for the thesis, as the studies were conducted in 3 different sectors (omnichannel healthcare, second-hand automobiles, and online beauty market). A dual theoretical lens has been used for each study based on the context of the study. All five theories are discussed below.

3.1 Swift Trust Theory

"*Swift trust is a form of trust occurring in temporary organizational structures, which can include quick starting groups or teams*" (Behl et al., 2020, p.2). Swift Trust theory was provided by (Meyerson et al., 1996)**.** It explains the presumptive form of trust between two or more parties who interact for a short span of time for a clear goal or purpose, the success of which is dependent on how well the coupling of activity is coordinated. Swift trust is a unique kind of trust that takes place between temporary groups. For the purpose of this thesis, swift trust is required among the stakeholders since working together requires trust at a certain level, and the participants need to trust each other quickly, given the context of the studies. The swift trust between two parties is essential in any ecosystem if they meet for a short period of time, and they may not have the luxury to interact regularly to build a conventional long-term relationship (Dubey et al., 2020). Due to the limited time period, the stakeholders develop temporary trust on the basis of their perceptions, personal experiences, and the information gained from different sources. Swift trust can be considered a unique form of collective perceptions that manage risk, uncertainty, vulnerability,

and expectations (Dubey et al., 2019). The difference between swift trust and conventional trust is that the former is based on perceptions rather than the interpersonal relationships between the parties. This theory is used for this research as it helps us explain the temporary teams' functioning in omnichannel healthcare, the online second-hand automobiles market, and the online beauty products market.

The healthcare industry is a data and personnel-intensive industry where trust between different stakeholders is critical for smooth operations since it is a problem-driven sector (Dubey et al., 2020). The healthcare providers and patients interact with each other, which requires a preliminary level of trust for a patient to consult the doctor. In omnichannel healthcare, where some of the processes are conducted virtually and in-person services are merged with online interactions, the presence of swift trust is critical for patients' engagement with a healthcare organization. Due to the limited period, the patients develop temporary trust based on their perceptions, personal experiences, and the information gained from different sources.

Further, Swift trust can be considered a unique form of collective perceptions that manage risk, uncertainty, vulnerability, and expectations, especially in virtual settings like online pre-owned automobiles markets and online beauty products markets where the buyers and sellers based in different locations meet for the first time online, for a possible transaction (Leung et al., 2022; Shayganmehr et al., 2021). BCT's key role is to build trust among different stakeholders (Meng et al., 2020). So, this theoretical lens would help us explain how groups that come together in different contexts for a limited period of time can benefit by using technologies like BCT to generate trust between stakeholders for the completion of the task at hand.

3.2 Trust Based Marketing Theory

Trust-based marketing theory (TBMT) plays a vital role in marketing by strengthening consumer-to-business relationships for long-term coordination. In a community, trust establishes order. Mayer et al., 1995 created a model to describe the building and maintaining of trust relationships, which decreases the perceived risks by the parties that, in turn, contributes to increased risk-taking capability by all parties in the relationship. This perspective is critical because the focus of this study is also to understand how geographically spread individuals/teams/organizations can coordinate to achieve their respective goals in the longer term.

The trust component in the TBMT for second-hand automobiles and beauty products plays a vital role in developing a positive relationship with a loyal customer base (Urban, 2003). In exchange relations, trust (interpersonal) is considered essential because it is an element of social capital and has a significant impact on firm performance, customer satisfaction, competitive advantage, and other economic outcomes, including lower transaction costs and reduced search costs (Maji & Bandyopadhyay, 2018; Mayer et al., 1995; Sangal et al., 2022b). Without trust, a social actor can create adverse outcomes in each interaction (DAVIDOVIC, 2020; Ozbal et al., 2020). Second-hand automobile markets are dependent on a consumer's perception of risk and the actions that follow (Maji & Bandyopadhyay, 2018). Consumer trust has a positive effect on purchase intentions. At the same time, it has a negative effect on consumers' perceptions of risk. Moreover, as consumer perception of risk decreases, consumer purchase intention increases. TBMT is also used to foster customer relationships through open communication and unbiased knowledge (Kim et al., 2008).

Previous studies have applied TBMT to branding (Davidovic, 2020), e-commerce, and big data (Baah-Peprah & Shneor, 2022). TBMT has also been used in studies on impulse purchasing in

emergencies (Nigam *et al*., 2022a) and enhancing P2P digital brand equity (Ozbal et al., 2020). Overall, our review of the TBMT literature suggests that the theory has been mostly applied to the establishment/examination of trust in relation to the purchase and transaction behaviors of consumers, which made it a relevant theory for our study. The platform companies need to consider long-term relationships with the platform. To develop longer-lasting trust, platform companies need to engage in trust-based marketing, providing true and fair details to platform users, enabling them to build conventional relationships with the platform itself.

In the online beauty products sector, push marketing doesn't work for long-term consumer engagement with the brand. In comparison, when the consumer develops trust with the brand, the association is strong, and it becomes difficult for other brands to attract the customer (Becerra & Korgaonkar, 2011; Tan & Sutherland, 2004; Urban et al., 1998, 2009; Zhang, 2006). In the beauty industry context, TBMT is important as e-commerce is a triangulation of three entities – manufacturer, seller, and buyer. Trust between these entities is more important in the case of products sold by new or unpopular brands that do not have strong brand credentials (Urban, 2003; Urban et al., 2009). This theoretical lens would help in studying the perspective of long-term trust among online platform users, while the previous lens of STT will help us interpret the initial trust formation. These two lenses of TBMT and STT will combine and allow us to study the short-term and long-term components of trust formation when businesses adopt technologies like BCT.

3.3 Organization Information Processing Theory

OIPT focuses on three crucial concepts for an organization: information processing needs, information processing capabilities, and a fit between both for obtaining superior performance (Galbraith, 1974; Srinivasan & Swink, 2018; Wong et al., 2020). Organizations have a plethora of information coming to them, but not all the information is helpful in the working of organizations.

In current times, the flow of information has increased rapidly (Bai et al., 2024). Therefore, the organizations need to segregate the relevant information. Organizations fail to process the correct information as they do not have the right capability to process it. There should be a fit between the information obtained by the organizations and the ability to process it. This is critical for optimal performance (Gattiker & Goodhue, 2004; Giri & Manohar, 2021; Struijk et al., 2023). In a highly uncertain environment with rapidly changing market conditions, it becomes essential for the organization to enhance its information flow and processing capabilities. The higher the uncertainty of the task, the more the decision-makers require information processing while executing the tasks to obtain optimal performance (Galbraith, 1974).

In the healthcare industry, heaps of structured and unstructured healthcare data are produced daily and need to be processed efficiently to draw meaningful insights, predict patient patterns and behaviors, and create application-based and service-based solutions (Chand Bhatt et al., 2021). Managing digital health-related information efficiently is a major concern for healthcare stakeholders in the omnichannel healthcare setup, where many operations are conducted in hybrid mode (Struijk et al., 2023). Information processing is crucial for every organization amidst uncertainties like pandemics. Using disruptive technologies like BCT in various operations can help these organizations improve their overall information processing capabilities, leading to improved trust and usage intention.

3.4 Resource-Based View

The RBV focuses on the idea of the firm's difficult-to-copy characteristics as sources of superior efficiency and competitive advantage (Giustiziero et al., 2023; Madhani, 2010). Resources that are valuable, uncommon, inimitable, and non-substitutable enable companies to build and retain competitive advantages and use these resources and competitive advantages to achieve superior

results (Madhani, 2010). Since Jay Barney's seminal paper on the RBV and sustained competitive advantage in 1991 (J. Barney, 1991), this study stream has dominated strategic management research for nearly three decades. This theory serves the dual purpose of linking marketers' managerial capabilities and marketing strategies for sustainable competitive advantage (J. B. Barney, 2021; Giustiziero et al., 2023).

Adoption of any technology by businesses to improve sales may not always work unless the technology solves a critical problem the organization faces. In the online pre-owned automobiles market, we propose that if BCT is used to track a product's life cycle, that is, when it was manufactured, purchased, and used by the first and subsequent owners, the information asymmetry currently present in the pre-owned cars selling P2P platforms can be significantly reduced. As a tool, BCT can serve as a critical resource for the automobile industry, which can, in turn, serve as a source of trust for the individual.

3.5 Self-Determination Theory

SDT is a theory that defines an individual's motivation and personality. It talks about three basic psychological needs: competence, autonomy, and relatedness (Ryan & Deci, 2000). These needs are essential for individual functioning and personal growth, and one feels highly motivated when these needs are met (Deci et al., 2017; Ryan & Vansteenkiste, 2023). It says that humans evolve on a continuous basis for their personality enhancement and self-regulation of their behaviors (Ng et al., 2012). Every individual is motivated towards any action due to some extrinsic factors as well as intrinsic factors. Similarly, their purchase behavior is influenced by both extrinsic and intrinsic motivation. Extrinsic factors include product prices, offers, discounts, etc., which are generally provided on initial purchases on e-commerce sites to attract new visitors (first-time discounts, seasonal sales, early bird offers, flash sales, etc.), whereas intrinsic factors include

situations when the consumer actually feels the relatedness, competence, autonomy while making decisions. Extrinsic motivation may push consumers to buy initially, but intrinsic motivation influences individuals to make repeat purchases in the longer run and sustain their choices and preferences. In the online beauty market, we propose that Generation Z consumers are likely to buy such products of unpopular brands that provide complete detailed information on the manufacturing, raw materials, supply chain, and efficacy data over the popular brands that do not provide such data. Also, their autonomous decisions are more rewarding and lead to higher motivation (Ryan & Vansteenkiste, 2023).

To sum up, in this thesis, STT and OIPT will answer the objectives of studies 1 and 4, i.e., the role of BCT in the omnichannel healthcare system. RBV and TBMT will answer the objectives of study 2, i.e., the role of BCT in the online second-hand automobiles market. STT and TBMT will answer the objectives of studies 5 and 6, i.e., the online second-hand automobiles and beauty products markets. Finally, the theoretical lens of SDT, along with TBMT, helps us conduct our qualitative research in the online beauty products market.

On the basis of the above theoretical underpinnings, we try to answer the broad research problem, ***"To what extent do new age technologies like BCT influence the business processes?****"*.

The next chapter discusses the three qualitative studies conducted for this thesis.

CHAPTER 4- QUALITATIVE STUDIES

Chapter Overview: This chapter talks about the research design, analysis, results, and discussion of the three qualitative studies. Basically, every industry is studied first through a qualitative approach using a Delphi study for the healthcare industry and focus group discussions and personal interviews for the second-hand goods and beauty products market. Next, empirical studies were conducted that are discussed in the next chapter. The studies are arranged in order of the three industries: a) Omnichannel healthcare, b) Second-hand automobile (P2P) market, and c) Online beauty products market.

4.1 A Qualitative Study in Omnichannel Healthcare (Study 1)

4.1.1 Research Design

A qualitative technique was used to answer the specific RQs mentioned in Chapter 2, based on the novel blockchain phenomenon. A study of extant literature was conducted to understand and analyze the current status of research in the adoption of blockchain in healthcare, its applications, and the challenges faced by the industry. Based on the analyzed literature, six key characteristics of BCT, the benefits of blockchain for healthcare, and the challenges in healthcare were determined. Next, the challenges faced in omnichannel healthcare were identified through a series of surveys, which served as the first round of the Delphi study (Dadkhah et al., 2022; Mahanty et al., 2021; Schlecht et al., 2020). Two researchers were involved in the process. The data obtained from these sources were thoroughly analyzed, and the results were checked for content and face validity. The aim was to prepare a conceptual model to facilitate an omnichannel healthcare system.

The Delphi technique was conducted with 24 healthcare IT and management experts as respondents. This technique is a widely used method to obtain information and consensus from the experts within their domain of expertise. It helps achieve the convergence of opinions of expert respondents on any real-world issue (Singh et al., 2022; Tiberius et al., 2022). In this technique, firstly, a group of experts in the desired field are consulted anonymously. This process involves multiple steps with feedback on the results, allowing the respondents to reconsider their opinions. The Delphi technique was selected for this study, as through this method, we could collect converging insights from a group of healthcare expert respondents on the challenges emerging in omnichannel healthcare. Due to the global pandemic scenario, the online mode was preferred for this Delphi study. The respondents were divided into subpanels for the two rounds. A careful selection of experts is a prerequisite for a Delphi study (Singh et al., 2022). The Delphi participants were purposively screened based on their proven expertise in healthcare and IT. Due to the exploratory nature of this study, a panel of experts who had their roles and responsibilities in the technical operations or members from the top management in healthcare organizations was selected for the study. These participants were selected based on judgment and were distributed into two subpanels of 12 members each. The first subpanel included 12 experts from IT, and the second subpanel included 12 participants from healthcare management from 12 different hospitals across tier 1 and tier 2 cities in India. While selecting the professionals, care was taken that all the respondents were from the manager-level responsibilities. We believe the profiles of the experts were exceptional. Both groups participated in two rounds of the Delphi study. Table 4.1 presents the participants of the study.

A qualitative survey was conducted to reach a group consensus and obtain the converging opinions of experts on the challenges in the omnichannel healthcare industry in emerging economies. The

survey was communicated through emails, prior to which these experts were invited to participate in the study through a formal invitation. The invitation included a brief of the Delphi study, its procedures, and instructions. Through a set of two questionnaires used for collecting data, the survey's focus was to gain uniform opinions on challenges and to develop a conceptual framework for the adoption of BCT in omnichannel healthcare. The questionnaires were developed using the projections found during the literature review. Both questionnaires were pretested with six practitioners following standard methodological procedures (Tiberius et al., 2022).

The first questionnaire was sent to the respondents to fill out individually; their individual responses were then aggregated and sent back to the group to revise their answers and provide additional comments. This process was repeated until stability and consensus were reached in their responses.

The same process was followed for the second questionnaire (See Table 4.2). Two weeks were given to the experts to respond for every round (Mahanty et al., 2021). The qualitative study included content analysis of the data obtained, which was processed using NVivo version 10.0 software. The results obtained were drafted into a document and shared with the experts who participated in the study, and their comments were asked to be discussed with our research team.

Their feedback explained that the study was fairly able to obtain the initial opinions of the experts throughout the Delphi study. The first and second-round results were compared to ensure stability, that is, consistency of responses in the successive surveys. On calculating Spearman's rank-order correlation coefficient (ρ) value, it was found that the assessment reached stability ($\rho \geq 0.75$) in every subpanel, which states reasonable consistency in the responses.

Table 4.1: Participants in the Delphi Study

S.no.	Participant Code	Age	City	Department
1	DITP1	40	Delhi	IT
2	DITP2	38	Chennai	IT
3	DITP3	40	Mumbai	IT
4	DITP4	41	Dehradun	IT
5	DITP5	41	Hyderabad	IT
6	DITP6	55	Lucknow	IT
7	DITP7	54	Jaipur	IT
8	DITP8	39	Noida	IT
9	DITP9	50	Delhi	IT
10	DIT10	46	Kolkata	IT
11	DIT11	45	Mumbai	IT
12	DIT12	48	Mumbai	IT
13	DMP01	40	Lucknow	Management
14	DMP02	38	Jaipur	Management
15	DMP03	40	Hyderabad	Management
16	DMP04	41	Kolkata	Management
17	DMP05	41	Delhi	Management
18	DMP06	55	Noida	Management
19	DMP07	54	Chennai	Management
20	DMP08	39	Bangalore	Management
21	DMP09	50	Delhi	Management
22	DMP10	46	Jaipur	Management
23	DMP11	45	Kolkata	Management
24	DMP12	55	Delhi	Management

Table 4.2: Rounds in the Delphi Study

Group	Field	Number in the first round	Number in the second round
1	Healthcare IT	12	12
2	Healthcare Management	12	12
Total Participants		24	24

4.1.2 Findings and Conceptual Framework

Challenges for the omnichannel healthcare industry

Our analysis delineates the challenges for the omnichannel healthcare industry in an emerging economy. These challenges are classified into technical, operational, and legal based on the findings of our Delphi study (Pu & Lam, 2021).

Technical challenges*:* IT experts discussed the emerging technical challenges in healthcare that can possibly act as a barrier to omnichannel healthcare. Overall, the challenges exist due to the poor information processing capabilities of healthcare organizations (Gligor et al., 2021). These challenges include the complexity of tracking medicines and medical devices from the supply chain to delivery, maintaining authenticity, and keeping track across the channels to reduce unnecessary expenses on repurchasing and recording all the transactions (Jayaraman et al., 2019; Massaro, 2021).

Further, some experts commented on how automation is required to ease various processes for an omnichannel setup. "*For omnichannel healthcare, automation is a must. We have observed delays in various operations across channels within and among the organizations. With automation, the speed and accuracy of the activities of the healthcare industry can be gradually improved*" (DITP4). Overcoming these technical challenges can help improve the routine operations in hospitals. These challenges, if not addressed, may get more complicated in an omnichannel setup.

Operational challenges*:* Technological advances have promoted the use of telehealth services in the past, but a balance has to be created between virtual and in-person for omnichannel healthcare services. In omnichannel healthcare delivery, the patients will not rely on the in-person services alone. The organizations need to provide tailored care according to the patients, even in virtual settings. Regular monitoring of patients, which is currently relatively easy in person, will possibly

become a challenge in omnichannel healthcare. Mapping patient patterns and trends needs proper planning and information processing capabilities when the data are generated in abundance from multiple sources (Gligor et al., 2021; Zaabar et al., 2021). "*A major challenge arising in omnichannel healthcare is the generation of enormous health data both online and offline. Such large data needs fast processing and availability across channels*" (DMP07). Fragmented digital data management may lead to more errors and delays.

Healthcare ecosystems in emerging economies currently lack interoperability among multiple healthcare centers. Patients in omnichannel healthcare, while switching to a new hospital, may need to explain their problem from scratch and undergo the tests again (Chelladurai et al., 2021; Massaro, 2021). Different healthcare centers currently cannot access patients' medical history unless the patients themselves carry along the reports (Hansen & Baroody, 2020). "*The main challenge I see with omnichannel healthcare is the availability of reports and other historical data for confidential access*" (DMP05). Further, managing the costs and timelines of patients in an omnichannel arrangement will also be needed. "*I need to closely think about the patient journey when they move from one channel to the other*" (DMP09). With an omnichannel setup, the healthcare industry is likely to see more operational breakdowns unless technological interventions are made.

Legal challenges: The biggest legal challenge observed in the healthcare sector at present is neglecting consent. In some organizations, proper consent is not taken from the patients, specifically for clinical trials (Balasubramanian et al., 2021; Jung & Pfister, 2020). There have also been cases of fake documentation with false patient consent for clinical trials. Further, the underwriting activities and reporting of incidents for insurance claims lack accuracy and require technological integration to ensure improved processes (Yaqoob et al., 2022). In addition,

maintaining the privacy of patients' data is a major concern, especially in telehealth, where cases of data leaks are not uncommon. These challenges of privacy, consent, and insurance claims can be exacerbated by an omnichannel setup. "*Implementation barriers in omnichannel healthcare are real. Stakeholders are resistant to adopting activities where legal challenges exist. The processes and culture may strike against the organizations*" (DMP02). We propose a solution to these challenges through the application of BCT in an omnichannel healthcare system and develop a conceptual framework for emerging economies.

4.1.3 Conceptual framework

Using the findings from the Delphi study, a conceptual framework was developed to provide a holistic view of blockchain adoption in the implementation of omnichannel healthcare in an emerging economy, as shown in Figure 4.1.

To the best of our knowledge, this conceptual framework is the pioneer in integrating all possible channels in the area of healthcare using BCT. Our conceptual framework is made up of five dimensions: characteristics of blockchain, benefits of blockchain in the healthcare industry, the applications of blockchain in healthcare (pre-consultation stage, consultation stage, and post-consultation stage), stakeholders in the healthcare industry, and challenges faced by the industry. The entire application of blockchain in the healthcare industry revolves around four broad benefits: information sharing, data management, processing of transactions, and automation. The final goal of the study was to integrate these benefits into a unified omnichannel system.

The research results explain that the characteristics of blockchain can help form the benefits of this technology for the proposed omnichannel healthcare sector. The characteristics of blockchain include immutability, security, decentralization, transparency, traceability, and interoperability (Stafford & Treiblmaier, 2020; Tapscott & Euchner, 2019). The relationship between these

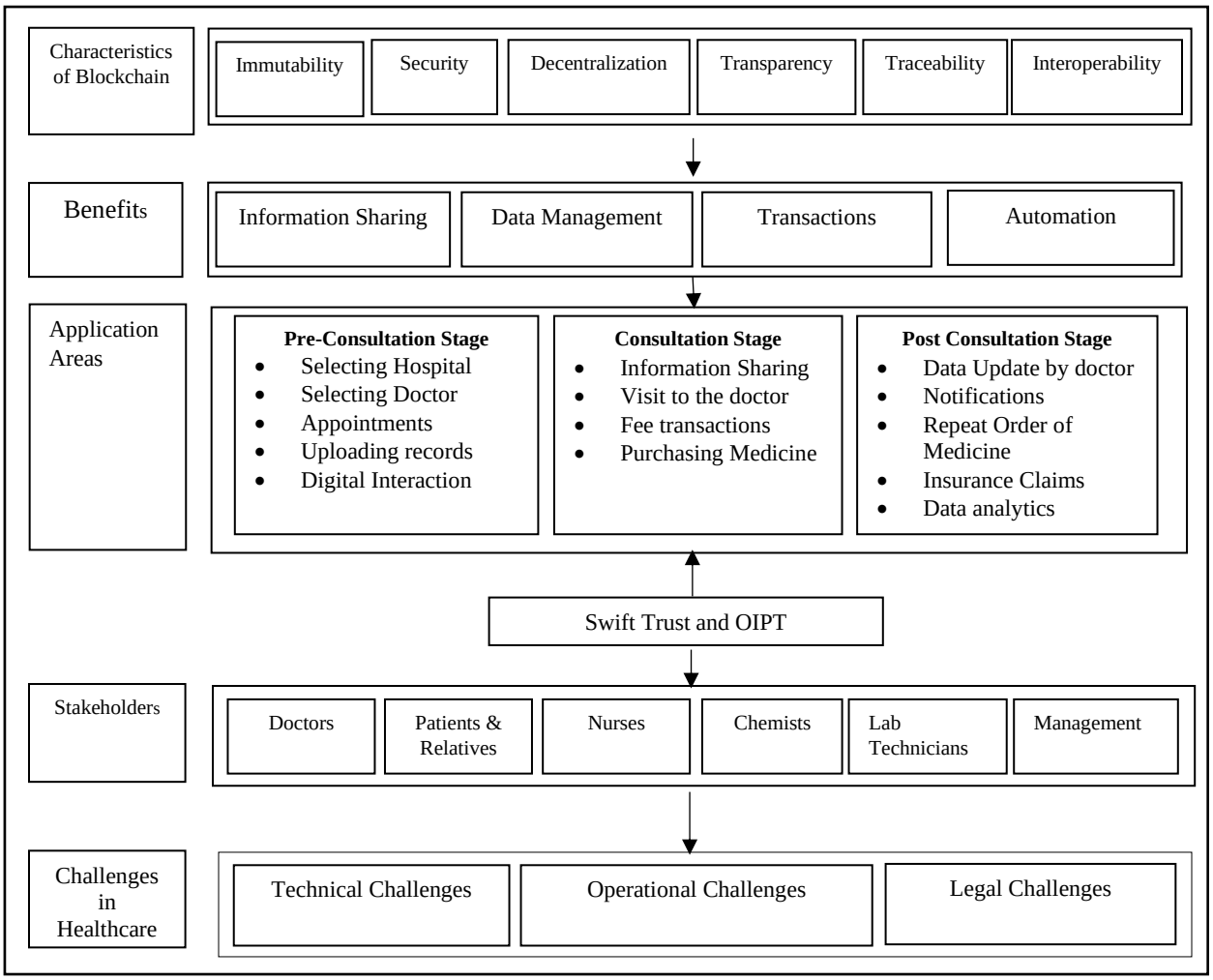
characteristics and the benefits explains how BCT can benefit the omnichannel healthcare processes to address the challenges and problems in the healthcare industry.

When implementing technologies like BCT, patients, doctors, and hospitals will be able to provide security in data interaction and supervise the healthcare professionals working in an omnichannel setup. This aligns with the OIPT, which states that organizations need to improve their information flow and processing capabilities to obtain optimal performance. Moreover, the credibility of the doctors can be established by providing patients access to their qualification credentials that are authenticated through BCT (Sharma et al., 2021). This has become important after multiple cases of fraud were observed recently. Such credibility creates a quick trust between the consumer and the doctor. This falls in line with the swift trust theory (Dubey et al., 2020).

"*For omnichannel healthcare, our patients' health-related data, as well as the credentials of our healthcare professionals, require privacy, security, immutability, and transparency to safeguard the interest of both parties but at the same time build trust between them. The medical health records of the consumers should be stored in a common secure and tamper-proof database which can be accessed by different health organizations on consumers' consent*" (DMP01).

Further, the characteristics of BCT will help improve various processes among the stakeholders in omnichannel healthcare. For example, immutability ensures that no one in the system can change, remove, or hack the data once stored on the block, whereas traceability helps track the supply chain information about the products and identify counterfeits (Ahmad et al., 2021; V. Chang et al., 2023). Interoperability makes it easier for healthcare providers across various healthcare centers to access the patient's medical history.

Figure 4.1: Conceptual Framework for Adoption of Blockchain in Omnichannel Healthcare



Source: Author's creation

"*In the post-pandemic world, the need for interoperability among healthcare organizations has arisen; the consumers today do not like to hop to multiple healthcare centers with their medical reports and get the diagnostic tests done repeatedly*" (DMP03). These characteristics are not provided by any other system or technology in practice. Using BCT, electronic health records (EHRs) can be updated on every interaction in the database in omnichannel healthcare and will be

accessible to all healthcare providers based on patient consent. "*Hospitals generate huge amounts of data every year. Systematic health records management is the need of the hour at every healthcare facility. Standardized patient data sharing is required in the future omnichannel healthcare industry*" (DITP2).

Automation in omnichannel healthcare would facilitate regular automated notifications, reminders, and confirmation emails and messages to the patients during their entire journey. Data auto-updates on every transaction across all the stakeholders would reduce manual efforts to a great extent. Smart contracts can be used in omnichannel healthcare for a higher level of automation (Azoev et al., 2019). Further, the processing of transactions in omnichannel healthcare can be made simpler when the consumers can effortlessly pay the consultation fee and buy medicines through secure payment mechanisms made using BCT across channels. Tokenization can be utilized to make payments for higher transparency and acceptance across channels (Morrow & Zarrebini, 2019). "*Using tokens to avail services across channels will possibly ease the fee collection process. Using tokens will allow patients to avail services seamlessly*" (DMP10). Such measures will improve transparency within omnichannel healthcare. As a major characteristic of BCT, transparency will help build swift trust between patients and healthcare organizations (Rapezzi et al., 2024).

Finally, the framework also includes the role of stakeholders in the adoption of BCT. Their knowledge, skills, attitudes, and the power they possess in the organization significantly impact the adoption of any technology in any organization. The capabilities of omnichannel healthcare stakeholders need to be considered before adopting any disruptive technologies into the system in emerging economies. There are chances of conflicts and issues when initially implementing the new technologies. "*In our organization, our stakeholders have the most crucial role to play.*

Sometimes, these individuals are not ready to accept the new technological advancements in the system. Their resistance or ignorance to the changing technologies leads to stagnation or down gradation of services" (DITP3).

Overall, the findings show a tentative positive association between the characteristics of blockchain and its benefits in the healthcare industry. Hence, we propose that the characteristics of BCT are positively associated with 1) information sharing (Proposition 1), 2) data management (Proposition 2), 3) processing of transactions (Proposition 3), and 4) automation (Proposition 4) in omnichannel healthcare in emerging economies context, which is further positively linked to 5) consumer trust (Proposition 5).

The whole idea here is to build consumer (patient) trust and improve the organization's information processing capabilities. Integration and digitalization of different channels at various levels – educating patients online to spread awareness and launching healthcare campaigns – has also improved patient experiences. This well-planned omnichannel model would help improve the engagement of consumers and the overall quality of healthcare and revenues, as well as reduce costs for MedTech firms in emerging economies.

4.2 A Qualitative Study in Online Second-hand product selling P2P platforms (Study 2)

4.2.1 Research Design

The theoretical constructs of the elemental RBV and TBMT were used to study current challenges and to adopt digital mediums while purchasing pre-owned automobiles. Further, we explore BCT as a solution for these challenges. Finally, the concerns of pre-owned automobile industry participants are explored in case BCT is adopted as a resource. An interpretive approach is followed, and qualitative methods are used to understand how individuals interpret their actions (Clarke & Braun, 2018). This approach allowed us to focus on real-life experiences in real-world settings (Creswell & Poth, 2016)**.** We explore why a digitally savvy user finds digitally transacting for pre-owned automobiles challenging.

Eight FGDs and five PIs were conducted and recorded using virtual platforms (Table 4.3). PIs were conducted with the managers (intermediaries) working in the pre-owned automobile space. The work relied primarily on FGDs because they allowed the exploration of the complex interplay of motivation, attitude, and learning based on the interaction among participants (Creswell & Poth, 2016). The participants were segmented as past and current buyers and past and current sellers. The FGDs and PIs were conducted virtually in September 2021. The virtual medium was preferred over the traditional in-person FGDs to attract participants from different geographical regions (Halliday et al., 2021; Stewart et al., 2007)**.** Each FGD was conducted with eight participants. The participants were between the ages of 18 and 40 years (Generation Y and Z). Each FGD, on average, lasted about 90 minutes. Theoretical saturation was observed after two FGDs per group, and no new insights were gained (Corbin & Strauss, 2014). It was ensured that in every panel, one of the moderators had a technical working knowledge of BCT and assisted the participants in understanding BCT and its applications, if needed.

The participants were invited by placing advertisements on various social media sites, stating our requirements for the FGDs. We purposively screened the tentative participants' responses based on their experience in either selling or purchasing pre-owned automobiles between March 2020 and August 2021. To prevent self-reporting bias in the process, we mentioned in our advertisements that we need participants who have bought/sold or are looking to purchase/sell pre-owned passenger automobiles (two-wheelers and cars) as well as those who have not done either of these activities via digital channels (Scott & Balthrop, 2020). For screening the participants, items from different marketing scales, such as the technology readiness index scale, technology usage discomfort, technology usage motivation, etc., were used (Parasuraman, 2000). Questions (items) such as, 'For you, products and services that use the newest technologies are much more convenient to use,' 'You like to use the most advanced technology available,' 'You enjoy the challenge of figuring out high-tech gadgets,' 'Sometimes you think technology systems are not designed for ordinary people,' 'To you, technology seems to fail at the worst possible time,' 'Using BCT (technology) would provide me a feeling of independence,' etc. were asked (Parasuraman, 2000).

We tried to maintain respondent homogeneity in our FGDs, as past research has established that participants discuss more freely when they can connect easily with other participants. Therefore, participants were grouped into buyers and sellers focus groups based on the time elapsed since they transacted in the pre-owned automobile market (Braun & Clarke, 2012, 2019**).** A structured moderator guide was prepared to assist the FGD process. NVivo software was used to analyze the verbatim and followed the Thematic Analysis (TA) procedure. TA broadly consists of three steps: systematic reading, interpretation, and arrangement of data bits into themes (Braun & Clarke, 2019**).** The text was analyzed by following the three-step process of comprehension, synthesizing,

and theorizing. Each of the transcripts was read individually and then compared to find out the commonalities and differences between them and thus identified the themes. Before finalizing the themes, it was checked whether the themes were in order and minor changes were made if needed. The FGD and PI transcripts were compared with their recordings for accuracy before analyzing them to establish descriptive validity. Further, a 'part-to-whole' and 'whole-to-part' approach was followed to ensure we had interpretive validity. Using this approach ensured that the analysis did not go out of the context of the study (Kim et al., 2008)**.** Lastly, to ensure the study's credibility and trustworthiness, the same questions were asked using a standard questionnaire (Appendix A).

Table 4.3: Brief description of various FGD and PI conducted.

Item	Description
FGD − 1 & 5	Individuals who have sold a vehicle between March 2020 and August 2021
FGD − 2 & 6	Individuals who have currently listed a vehicle for sale.
FGD − 3 & 7	Individuals who have purchased a pre-owned vehicle between March 2020 and August 2021.
FGD − 4 & 8	Individuals who are currently looking to buy a pre-owned vehicle.
PI	Current managers of organized online/omnichannel retailers of pre-owned vehicles.

4.2.2 Findings and Discussion

Findings based on the three major themes

Our goal in this study was to explore the challenges buyers, sellers, and intermediaries of pre-owned automobiles in emerging economies face while transacting via digital channels despite technological advancements (Fernando et al., 2018). Further, we explored how BCT could address these challenges. Finally, we will discuss concerns about whether BCT should be adopted by the pre-owned automobile industry. We present our findings from the qualitative procedures under three themes. The first theme, 'current challenges in the pre-owned automobile transactions,'

discusses the various challenges faced by buyers, sellers, and intermediaries in pre-owned digital markets. The second theme, 'scope of blockchain in pre-owned automobile transactions,' outlines how blockchain can address some challenges and add value to the pre-owned automobile market. The final theme, 'Concerns regarding blockchain adoption in pre-owned automobile transactions,' discusses how the current market dynamics may change if the pre-owned automobile marketplace adopts the blockchain.

Current challenges in the pre-owned automobile transactions: The pre-owned digital marketplace is divided into two broad classes. On the one hand, the individual parties can transact independently on listing websites such as OLX and Quikr or use the services of online aggregators (intermediaries) such as Car Dekho, Bike Dekho, Cars24, etc. Websites such as OLX do not provide any assistance for transferring ownership (P & A, 2022). Digital aggregators such as Car Dekho assist with automobile transfer paperwork, automobile pre-check, etc. On websites such as OLX, the transfer of automobiles takes place directly between the parties, while in the case of intermediaries, the intermediaries may stock pre-owned automobiles and sell them at a later date. Despite these developments, buyers and sellers are not enthusiastic about adopting digital channels for selling and purchasing pre-owned automobiles as expected (Ross et al., 2023). We discuss the insights related to the challenges faced by the buyers, sellers, and intermediaries.

From the buyers' perspective: The pandemic, government rules, and rising commodity costs have increased the demand for pre-owned automobiles. Purchasing new automobiles has become difficult because of changing government norms related to automobile safety and emission standards and the recent multifold spike in commodity prices. "*The cost of the new automobile has increased manifold ... automobile manufacturers have increased their prices by 10% or more*" (F3P7). As a result, many buyers have shown a strong interest in the pre-owned automobile market.

‘*Travelling via public transport became a complete no-no for me. Purchasing a new automobile was out of our budget, so I decided to look for a pre-owned automobile*’ (F4P3).

The decision to purchase a pre-owned automobile becomes challenging as it depends on what is on sale in the market. Unlike a new automobile, for which a prospective customer can directly approach a showroom of preferred brands and begin the automobile selection process, the pre-owned automobile market depends on active sellers (Luo et al., 2020). Participants shared that a buyer may not be able to find the desired automobile brand and need to decide what is on sale at the time. “*I wanted to buy a bike from Honda that was less than five years old but wasn’t able to find one*” (F6P8). ‘*I was looking for an automatic four-wheeler under 0.7 million INR... I had to extend our budget*.’ (F3P4).

Further, the decision must be made where to look for a pre-owned automobile. The participants of the buyer FGDs shared that they had the options of brand-authorized pre-owned retailers, online second-hand websites (aggregators and no-frill), and offline independent agents. The prices of the automobiles differed with the medium they decided to purchase. ‘*The brand-authorized sellers charge you the most and have a very less scope of negotiation while independent (direct) sellers may have a fairer and appropriate asking price*’ (F4P5). The price may not always be fair and easy to assess. ‘*There is no way to determine a fair price for a pre-owned automobile precisely. It is more of a subjective perception than an objective evaluation*’ (F3P5). Subjectivity comes into play in the process as buyers have inhibitions related to pre-owned automobiles sold digitally or otherwise. Buyers are not sure how the previous owner used the automobile throughout the ownership (Butera et al., 2023; Yrjölä et al., 2021). They are skeptical of automobile modification, timely servicing, and maintenance (using genuine parts) of a pre-owned automobile. *‘Owners install aftermarket parts to enhance performance, which may make the warranty void*’ (F4P6).

'*Age and odometer reading are two factors that determine the value of an automobile. While age cannot be tampered with easily due to proof of registration, the odometer reading is tampered with easily before reselling*' (F3P7). '*If the automobile is serviced at an unauthorized service center, there is no proper service history*' (F4P3). '*Accidental automobiles are repaired and sold; the severity of the accident is hard to assess*' (F7P8).

These challenges are faced by buyers in both offline and online purchases of pre-owned automobiles. The online medium makes the transaction opaque. '*Online re-commerce gives access to many more automobiles, but completing the transaction online is risky. The claimed automobile condition may not be correct*' (F3P2). '*Stolen automobiles are frequently sold online by forging papers*' (F4P3). *'... difficult to find out if the online seller is genuine or not*' (F8P6). Overall, most of the participants in the buyer FGDs agreed that despite the modern technological advancements, their problem with transacting for pre-owned automobiles on digital platforms is linked with information asymmetry. Though the world has gone digital, technological adoption has yet to address this problem.

From the sellers' perspective: Our second set of FGDs comprised respondents who had sold automobiles in the past or were currently intending to sell one. In the view of the participants, it is not easy for automobile owners to find the right buyer. When a seller directly puts a digital advertisement on sites such as OLX, they are flooded with messages from multiple users who express their desire to purchase the automobile and ask for more details (P & A, 2022). The sellers feel skeptical about disclosing automobile and personal details to every user on digital platforms. When they try to find more information on the user (prospective buyer) profile page, they generally do not see any. '*I feel uncomfortable dealing with profiles that have arbitrary names or no profile picture. If these pre-owned websites make some mandatory background checks rather than putting*

a disclaimer that transacts at your own risk, digital adoption in the second-hand market would see an exponential rise' (F2P2).

Genuine sellers try to digitally sell automobiles directly to interested buyers. One of the participants shared, '*I had a two-wheeler in a mint condition... difficult to convince the buyers that this is genuine information*' (F5P3). Further, sellers need to trade off better prices for their automobiles vs. selling to a genuine buyer. Improper use of pre-owned automobiles in the past makes the current seller skeptical of buyers who offer high prices (Padmavathy et al., 2019; Santos & Cavalcante, 2022). '*Frequently, pre-owned automobiles are misused*' (F5P6). Further, the sellers were contacted by automobile aggregators in the pre-owned automobile market to assist them in selling the automobiles. The agents of such companies initially do not reveal their intention till they get as many details as possible about the current owner and the automobile status. Sellers who want to avoid such agents feel disappointed due to incomplete information. '*Marketers of pre-owned automobiles (intermediaries) will try to connect with me, to act as an agent*' (F2P3). Despite a general dislike for intermediaries, to avoid the hassle of dealing with multiple buyers and choosing one of them, some sellers prefer to sell their automobiles at a lower price to pre-owned automobile aggregators. The aggregators use their standard marketing tactics and underprice the automobile from the price the buyer intends to get. This leads to dissatisfaction for the seller. '*I sold my car to an authorized dealer. I got way less than what I could have made in selling the car myself*' (F6P1). Overall, as in the case of the buyers, the sellers agreed that their problem is linked with information asymmetry, and the digital market for pre-owned automobiles is anything but transparent despite the digital progress made since the pandemic (Calvo-Porral et al., 2023; Park et al., 2020).

From the intermediaries' perspective: The intermediaries also suffer from information asymmetry issues. Some omnichannel intermediaries own automobile inspection centers to check the condition of automobiles, while others rely on local garages with whom they have an agreement. Despite these facilities, the managers shared that the current owners may hide facts. '*I have to be skeptical with the clients. Even with the latest technology, it is not always possible to assess the condition of the automobile'* (IP3). They acknowledged that having ownership of automobile inspection centers is costly, but trusting an independent third party also involves an element of risk. '*... sometimes these third parties have cut a deal with the customer directly, leading to loss of revenue'* (IP4). Further, the managers agreed that they offer sellers a lower value as insurance to cover for a possible defect with the next buyer due to this information asymmetry. Achieving customer satisfaction for the managers of the pre-owned automobile market is tedious. '*When you deal with both the buyer and seller, you have to be smart while aiming for maximum satisfaction of both the parties'* (IP4).

This section discussed the challenges that the buyers, sellers, and intermediaries currently face in the digital/omnichannel pre-owned automobile market. In the next section, we discuss the value addition with blockchain for pre-owned automobile transactions.

Scope of blockchain in the pre-owned automobile transactions: During the discussion, the moderators specifically focused on BCT adoption after the purchase by the first owner, that is, all the records of services, repairs, insurance, pollution checks, etc., to be maintained via BCT that can be shared with the future buyers by the current owners of the automobiles (Shen et al., 2020). In this section, we discuss the insights related to the scope of blockchain from the perspectives of buyers, sellers, and intermediaries.

From the buyers' perspective: Buyers had a positive opinion on adopting BCT as a critical resource in the pre-owned automobile market. They expressed that they would most likely feel more confident while making a decision and completing transactions digitally with BCT in place. '*If I get automobile history from a trusted source, it will help in my decision-making immensel*y' (F7P5). Further, they felt that BCT would be more trustworthy than intermediaries' word-of-mouth assurances and marketing tactics. '*Intermediaries cajole us to believe that the automobile being sold is a value buy, which is a very subjective assessment'* (F8P3). We also explored the possibility of completing the transaction digitally, that is, without a physical inspection of the pre-owned automobile. On this point, the participants were slightly hesitant due to their inexperience with BCT. Still, they supported the idea that BCT would reduce their decision-making time and enhance their confidence in dealing with geographically spread sellers. '*If such a technology is adopted, I would still like to see the automobile before making a payment, but unlike now, I will consider sellers from different cities and states'* (F7P1). We expect the current hesitation of the buyers to subside with the experience of actual usage of BCT.

From the sellers' perspective: The sellers also appreciated the benefits of BCT. The sellers' primary concern in finding a genuine buyer could be resolved via BCT. Under the current scope of BCT, sellers of pre-owned automobiles appreciate that such a technology would provide authentic information about the next buyer (Shen et al., 2020). Sellers would feel more comfortable interacting and sharing in-depth information about the automobile with the parties they chose to transact with. *'We may not need to sell via intermediaries. If we can authenticate a buyer, we could deal directly'* (F1P6). '*BCT possibly can take care of a lot of fraud*' (F6P7). If any issues arise later, sellers would also be able to trace the automobile ownership. Further, keeping a record of automobile usage on a trustworthy technology platform will allow them to demand and obtain

higher prices for automobiles, as information asymmetry would be done away with. Lastly, the sellers will keep their identity and automobile details confidential from the intermediaries and disclose them only to select people.

From the intermediaries' perspective: Intermediaries had mixed feelings about adopting BCT as a resource. We discuss their support for BCT in this section, and their concerns will be addressed in the next section. Managers shared that with BCT, their evaluation process will be simplified and become more transparent. *'... If we can find the automobile history from a reliable source, we can offer better prices to the seller*' (IP3). BCT will allow managers to obtain rich data on automobile conditions, which, coupled with current technologies, will result in a fast, transparent, and smooth business function. Further, few BCT managers foresee that they will possibly get more business, as they would offer better prices to the sellers. *'I think adopting blockchain will improve customer satisfaction'* (IP5). '*With BCT, customers may try to transact with more geographically separated customers. This may lead to a different business opportunity for us'* (IP1). Further, the managers expressed that adopting BCT can help them in tracing the automobile sale status. Some of the intermediaries do not purchase the automobiles outright (asset-light model) from the customer. Instead, they find a client for the customer and earn a commission on the sale. Such intermediaries would like to adopt BCT so that the primary seller cannot deal with multiple intermediaries or buyers know the automobiles' whereabouts before discussing with them.

In this section, we saw how blockchain, if used as a resource by pre-owned automobile participants, can address some challenges and improve the overall business model of the pre-owned automobile sector. In the next section, we discuss some of the concerns that the participants shared related to blockchain implementation.

Concerns regarding blockchain adoption in pre-owned automobile transactions

Individual buyer and seller participants were unable to highlight any significant concerns regarding BCT other than possible technical difficulties. The pre-owned automobile retailers (intermediaries) were the most skeptical about adopting blockchain. They perceive blockchain more as a threat than an ally. '*Our business relies on the poor information that exists in the market about the pre-owned automobiles ... If we adopt BCT, our profits will be possibly squeezed*' (IP4). Further, making the process end-to-end transparent can lead to poaching by competitors. Intermediary managers who had technical knowledge of BCT debated the public and private nature of the ledger. '*Public or private ledger will be a matter of concern for us. We would never want to have our data shared via a public ledger'* (IP5). The concerns regarding blockchain adoption in pre-owned automobile transactions also include the role of network externalities. A critical mass of users must adopt BCT for it to work (Dubey et al., 2020; Hossain, 2017). Lastly, managers were concerned about the cost of BCT adoption and feared that they would lose their competitive edge if competitors adopted BCT and they didn't.

4.2.3 Proposed model for future research

Based on the discussion in the previous sections, we propose a model for future studies (Figure 4.2). We propose that in the context of pre-owned automobiles, BCT can have a positive influence on establishing initial trust between independent parties in a digital environment (Proposition-1). With the confirmed identity of the participants along with the data of automobiles available via a trusted technology, the trust needed to move ahead with the transaction can be easily established. Further, in the context of pre-owned automobiles, initial trust can have a positive influence on purchase intention (Proposition 2). With the initial trust between participants, there would be less perceived risk for the failure of the transaction, which can reinforce the purchase intention. Finally,

in the presence of BCT, the intermediaries' influence can be insignificant for trust and purchase intention (Proposition-3). The traditional role of intermediaries in the pre-owned marketplace was to mediate the transaction. Intermediaries remove the hassle of finding a buyer/seller. Primarily, participants preferred intermediaries as there is no source of trust, especially in the context of digital media and high-involvement purchases. With a technological alternative (BCT) available, the current role of intermediaries can possibly diminish.

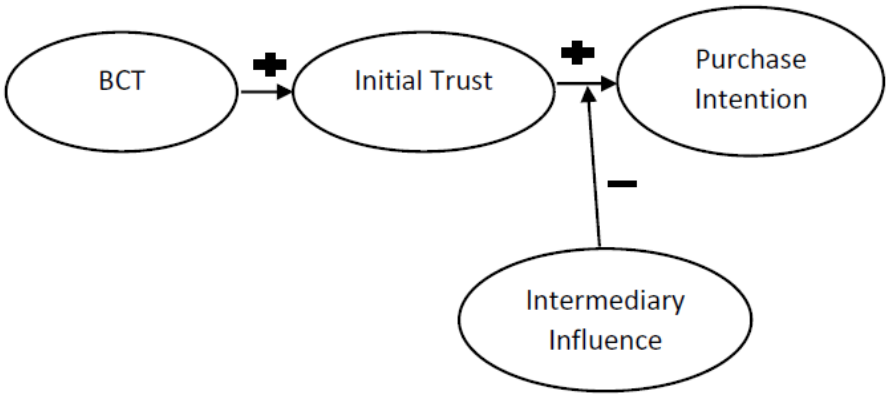


Figure 4.2: Proposed model for future research
Source: Author's Creation

4.3 A Qualitative Study in Online FMCG Markets (Study 3)

4.3.1 Research Design

This study aims to understand Generation Z females' online purchase intentions toward beauty products, focusing majorly on branded v/s new-brand (unpopular) products. There was a need to understand their perceptions in detail and find the gaps. The authors follow an interpretive approach to interpret the social life-world actions of the respondents (Stockdale & Standing, 2006). As the study focuses on discovering how Generation Z female consumers interpret their purchase behavior (decide to buy beauty products online), a qualitative method was used for the study. The

benefit of using a qualitative procedure is that the respondents can discuss their real-life lived instances (experiences of online purchases of branded and new brand beauty products).

In this qualitative research, five focus group discussions (FGDs) were conducted to collect relevant insights from the consumers. In all**,** 42 participants were recruited after the screening, out of which four could not make it to the FGDs. A total of 38 participants finally participated in the FGDs. Every group had 7-8 members between 16-24. This narrow age group was selected to focus on the views of Generation Z females in detail. Similar demographics were grouped together so that the discussions were more interactive (Hartman, 2004; Stewart et al., 2007). FGDs were preferred because they help to identify the composite motivations behind the behaviors of participants. Also, FGDs help understand the subject and generate new insights from the respondents' point of view (Corbin & Strauss, 2014; Hartman, 2004). The FGDs lasted for around 1.5 hours each. Audio and videos of these were recorded. Five FGDs were considered as sufficient as after five focus group discussions, it was felt that the state of theoretical saturation had reached, and no new insights were generated from the FGDs (Corbin & Strauss, 2014; Creswell & Poth, 2016).

Advertisements floated across social media platforms like Facebook and Instagram to recruit participants for the FGDs. The participants were purposively screened based on their attitudes towards online purchases, purchase frequency of beauty products, and openness to purchasing new brands via online mode. The authors, to eliminate self-reporting bias from the FGDs, communicated that they were looking for participants who make choices between branded products and products from new and unpopular brands while buying beauty products online (Higuchi et al., 2019; Scott & Balthrop, 2020). All the participants were made aware of the basics of BCT and its applications by showing some simple YouTube videos at the start of the FGD. A structured FGD guide was used to assist the moderators during the FGD process. The authors also

used some projective techniques to make the discussions more informative. Some questions were asked that help respondents project their feelings through a third person, for example, '*Why do you think a consumer may not buy a genuine unpopular/new-brand product?*' Such tactics help bring out feelings that are otherwise hard to express (Ramsey et al., 2006).

In the screening process, questions were taken from established scales to understand the behaviors and attitudes of Generation Z female consumers towards online shopping. Questions In the online context - 'I am concerned about vendor legitimacy,' 'I am concerned about seller legitimacy,' and 'I am concerned about how much I can trust the vendor' were asked (Torkzadeh & Dhillon, 2002). Qualifying questions were also asked of the participants, '*Do you shop beauty products online?*' and '*What is your approximate order frequency for beauty products online on a monthly basis?*' to know if they are regular online shoppers in the beauty category (See Appendix A).

4.3.2 Data Analysis

Data obtained from the FGDs were analyzed using NVivo version 10.0 software for transcript analysis using a thematic analysis approach, which assisted in grouping the ideas obtained into common themes from the entire data (Braun & Clarke, 2019; Clarke & Braun, 2018). A three-step approach was used for further text analysis, i.e., comprehension, synthesizing, and theorizing (Morse, 1997). The authors first made a clear understanding of the phenomenon (comprehension). Next, they read each transcript individually to identify the themes within each FGD, followed by a comparison with other FGDs for commonalities and differences, and categorized the separate themes (synthesizing). Finally, the themes were reduced to fewer themes by looking at their differences and similarities again and grouping them accordingly (theorizing).

The validity of this study was ensured using different techniques like interpretative validity, descriptive validity, and credibility. To ensure the accuracy of transcription, the recordings were

compared with the transcripts. Part-to-whole and whole-to-part processes were carried out to check the accuracy of interpretations and ensure the correct meanings were interpreted. The authors ensured consistency throughout the FGDs; the same set of questions were asked to all the participants to add more trustworthiness to the study's findings (Hartman, 2004; Stewart et al., 2007). A systematic process of coding was used, as explained earlier.

Additionally, two coders were used to ensure the reasonability and logic of the data collected. Their independently coded data and analysis were compared, and the interpretations that both agreed on were accepted.

4.3.3 Findings

Encouraging consumers to purchase hedonic products online is challenging for established brands and even more challenging for new brands (Dhar & Wertenbroch, 2000; Kivetz & Zheng, 2017; Kim & Peterson, 2017; Silva et al., 2019). In the current post-pandemic world, when the current trend of shopping is shifting to e-commerce, and there is a significant increase in the number of new brands sold online, it is essential to see how consumers purchase hedonic products sold online. Though prior studies have studied consumer preference for branded and unbranded products, no study has dealt explicitly with post-pandemic consumer behavior for unpopular brands in the beauty segment in emerging economies. The authors' aim of this study was to understand the consumer behavior of female Generation Z consumers in the case of beauty products for new/unpopular and established brands in emerging economies. The authors specifically aimed to understand how females of Generation Z purchase beauty products sold online, what challenges they face, and to what extent technologies like BCT can help in the purchase process.

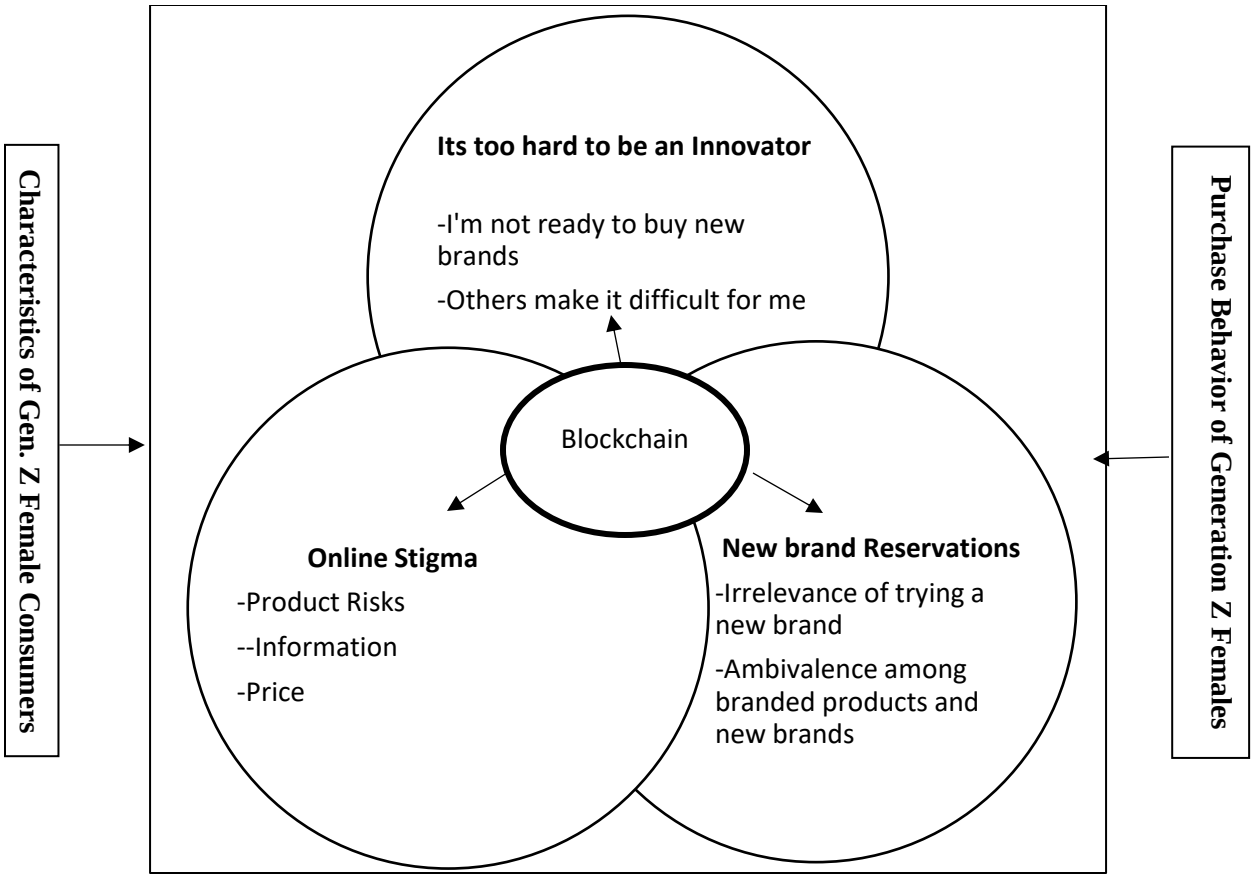


Figure 4.3: Summary of findings of the study
Source: Author's creation

The authors present findings from the qualitative procedures under four themes: It's too hard to be an innovator", "Online stigma (in general open to new brands but not online)," "New-brand reservations." and "BCT and new brands purchase decisions." The first theme, "It's too hard to be an innovator," discusses why Generation Z females find it difficult to be among the first people to try a new brand product, which leads to inaction. The second theme, "Online stigma," focuses on the hesitations customers have while purchasing products of new brands from online vs. offline stores. The third theme, "New-brand reservations," is based on the inability of the consumer to differentiate between branded and new brand products and inertia with old brands. Finally, the last

theme, “BCT and new brands purchase decisions,” discusses BCT's possible role in influencing consumers towards newer brand products. Figure 4.3 presents the summary of the study findings.

It’s too hard to be an Innovator.

One of the strongest themes to emerge from the thematic analysis was “it’s too hard to be an innovator,” which can make the consumers resist the purchase of new brands sold online. Buying new products has an inherent element of risk because of the missing antecedents of online trust (Kim & Peterson, 2017; J. Silva et al., 2019). This risk gets further enhanced for products sold online as the consumer is unable to evaluate the product in person before payment. According to participants, beauty products are credence products that are difficult to assess objectively, especially in the case of new and unpopular brands. *“I think it is difficult to purchase products that are difficult to evaluate both pre and post-purchase”* (FG2F3). Rogers (2010) describes five types of adopters that react differently to the new products and innovations throughout the product life cycle. An innovator is a risk-taker who is excited to try new products, ideas, and ways. Compared to purchasing new products from established brands, purchasing products from new brands without any authenticity in the claimed results makes the prospective consumer skeptical due to the high risk involved. *“I think, in the end, the people want to avoid product failure. And if there is an added element of risk due to making an online purchase for new products from new brands, people will be more resistant to purchase”* (FG3F7). Under this theme, two sub-themes emerged - ‘I’ am not ready to be an innovator for new beauty brands’ and ‘Others make it difficult for me to buy a new beauty brand.’

I'm not ready to be an innovator for new beauty brands. The participants stated that they do not feel competent enough to make purchase decisions for new-brand beauty products. Given the lack of authentic information that can be irrefutably trusted about product ingredients, seller and manufacturer credentials, and product performance, consumers feel they are not in control of making a decision. "*I would rather spend a larger amount on something with better-known results than risking it for something I've never heard of"* (FG4F1). As a result, consumers lack the intrinsic motivation to confidently purchase and use new-brand beauty products (Deci et al., 2017; Ryan & Vansteenkiste, 2023)**.** At present, the primary source of motivation, especially behind online buying of new-brand beauty products, has been extrinsic, i.e., the deals and discounts make consumers consider a purchase. *"I occasionally do to try hugely discounted new brands that are promoted. But mostly, I have been disappointed with the performance of such products. In one instance, I even had to take medical help for the side effects"* (FG5F5).

Further, during the discussion, participants shared that there is a difference between products from new brands and new products from established brands. In line with prior studies of online trust, the consumer, in such cases, feels some degree of confidence to try new products from established brands vs. trying new products from new/unpopular brands (Y. Kim & Peterson, 2017; J. Silva et al., 2019)**.** *"I feel excited when my favorite brand comes up with some new product. The new and unpopular products are promoted as a better version of some earlier product, which makes me feel confident for the purchase"* (FG4F8). In summary, though being risk-takers, female consumers of Generation Z avoid taking excessive risks, especially for beauty products from new or unpopular brands. This generation is open to being an innovator but with limitations, especially when they are unable to evaluate an offering from a new brand.

Others make it difficult for me to be an innovator for a new beauty brand. Apart from being able to make independent decisions, as discussed previously, the participants stated in the discussion that they feel hesitant to buy new brands because 'others' do not let them. Their friends, relatives, marketers, and social influencers influence their purchase behavior to try any new brand. *"Whenever I pitch the idea to try a new brand product, my friends would back out or even scare me of unproven side-effects"* (FG1F2). Participants shared that they are usually unable to make an autonomous decision to try a beauty product of a new brand due to the thought of 'what others might say.' Many participants were of the view that brands give them social approval and, hence, more confidence. Social acceptance post-purchase also influences purchase behavior. New-brand beauty products are not able to delight the consumers as the established brands do. "*Using a brand gives us a joyous appeal; I feel more confident and satisfied with well-known brands while using a new brand might have an ordinary experience"* (FG5F1).

Participants further shared the role of influencers in communicating a product and how it is vital to winning consumers' trust. A participant shared, *"Continuous presence of a product on social media subtly pushes us to trust the brand. If I come across a new-brand product for the first time on an E-commerce site, it will be difficult to try it at once"* (FG3F6). Additionally, the company's website and where the products are sold are also indicators of the company's products**.** *"Websites that provide a great user experience increase trust for new products, while poor websites make me skeptical"* (FG2F4). In summary, the success of new brand products is influenced by multiple entities that are directly and indirectly linked with the new brand.

Online stigma

Participants shared their dissonance with new-brand products due to the risks involved with them while shopping, particularly in online settings. They shared that they prefer purchasing new brands

offline but do not feel comfortable purchasing new brands in online retail. *"Every day, there is a brand that is pushed towards me online. It requires an effort to evaluate new brand products. Offline, the number is far less, which allows me to explore new brands"* (FG2F6). Further, whenever an individual tries a new product, there's a chance that the product might not be able to satisfy the needs of the buyer in the way expected/promoted. The nature of beauty products is such that they are directly applied to the body, and their ingredients can have side effects. Product quality is the main concern for all the participants when it comes to beauty products, and the risk factor exists in trusting a new-brand product. The absence of touch-and-feel and smell elements also accompanies the risks of receiving wrong sizes or shades of products, damaged products, or counterfeited products. *"I would avoid buying a new brand skincare product online without proper knowledge of its contents and results"* (FG3F4).

Further, in an offline setup, consumers can try the samples at the display before making a purchase, which is not the case in an online setup. In an online setup, consumers need to trust whatever information is given on the source and make the purchase decision. *"Since beauty products sold online are always non-returnable, there's no option to try and buy. Sometimes, the exact product is not delivered; at times, the size of the product differs from the images shown in advertisements on e-commerce sites. Therefore, I am very skeptical while purchasing new brand beauty products online"* (FG1F6).

Consumer reviews and ratings available on e-commerce sites are the first things that some participants check before considering a purchase of any beauty product (Kim & Peterson, 2017; Silva et al., 2019). Participants were of the view that the very positive reviews and ratings for new products might be forged and created through influencer programs or barter programs, making it difficult for them to trust the reviews and purchase the products from new brands (Barbado et al.,

2019)**.** *"No negative or neutral comments make me sensitive to a new brand product. I find it difficult to believe a new beauty product worked perfectly for everyone"* (FG2F6). Finally, the pricing for new brands' products sold online moderates frequently due to discounts. It makes the consumers unable to find a relationship between price and quality. *"One day the product is at 30% discount; the next day it will be at 50% discount. Such price variations make me unsure about what should be a correct price"* (FG4F4). If a product is sold cheaply, there's a notion in consumers' minds that the quality of this product might suffer (Voros, 2019)**.**

In summary, prevalent challenges discussed by participants in buying beauty products online include the time-consuming information search process, credibility issues in reviews, non-returnability of goods, and unsuitability for the skin. Such issues create unfavorable and negative perceptions of consumers toward new-brand beauty products and affect their autonomy in making purchase decisions. It falls in line with the SDT's fundamental psychological need, autonomy.

New-brand reservations

Another major theme generated from this study is that consumers do not perceive trying a new brand as worth the effort. Participants either do not have first-hand experience in testing new brands or don't find any relevance in trying a new-brand product when they have a number of brands they can trust and have been using for a long time. They stated that they feel connected with the brands they've been using over time and can relate to those beauty brands, which is not the case with a new brand. This connection makes them more likely to choose an established beauty brand over a new brand online. This mirrors the third psychological need of SDT, i.e., relatedness. It refers to the sense of belongingness or connectivity that the consumers feel with old brands. *"I don't find a reason to switch from a branded product to a new brand when I am happy and satisfied with the results I'm getting. At least, I can trust the established brands and need not*

think twice before I order" (FG1F3). Further, to avoid unfavorable self-concepts, generation Z females tend to avoid trying new brands in order to protect their identity and self-esteem. Additionally, they are conscious of the eco-friendly, organic, cruelty-free certifications and claims. *"Beauty products are known to have animal-derived ingredients, which I do not like. I carefully read about the contents of beauty products to make sure no animal was harmed in its making and its natural"* (FG1F8).

Some participants shared their ambivalence in making purchase decisions towards brands and new brands in beauty products online. *"I can never trust the reviews blindly; there have been instances when the reviews didn't work for me. It's obvious! A product suitable for one might not work well for everyone"* (FG5F8). Many participants said they like exploring new skincare products rather than sticking to a few brands. Generation Z consumers focus on the details provided in the product descriptions as the main source of information**.** They believe correct and detailed information is very crucial to making any purchase. *"When I visit a site, first I glance at the product image and description. Once I'm convinced, then I check the reviews. Even if the reviews are not available, I can buy that product"* (FG3F7). Generation Z consumers' trust is expected to be influenced by seller/manufacturer transparency more than the information provided through product reviews. *"I would be willing to try these new-brand products at least once. When you get to know so much about a product, you wish to try it once"* (FG3F2).

BCT and new brands' purchase decisions

TBMT focuses on building relationships with consumers through unbiased information and trustworthy communication. This theory provides helping consumers make informed purchase decisions using exhaustive marketplace options and fair advice (DAVIDOVIC, 2020; Urban, 2003). Whereas, to convince consumers to purchase new brands, some companies indulge in

generating fake reviews or influencer programs that are not successful in the long-term for new brands (Racherla et al., 2012)**.**

4.3.3 Discussion

Based on the BCT videos shown to the participants, the participants shared that if information about new brands can be obtained in a reliable and independent manner, their willingness to buy new brands can possibly increase. "*Reviews are secondary if the complete information about a product is accessible to us*" (FG3F2). It can help them feel competent and autonomous in making decisions. *"Impartial and trustworthy information that is independent of any source, manufacturer, seller or agency will convince me more to buy new brands"* (FG4F6). *"If the marketers can truly not manipulate the claims about new brand product performance and its ingredients, I feel consumers will become more open to new brands"* (FG1F4). In summary, the authors believe that with the adoption of emerging technologies like BCT, sellers of new brands can find solutions that help consumers build trust in new-brand products by verifying and authenticating the origin and history of products.

The next chapter details the three quantitative studies.

CHAPTER 5: QUANTITATIVE STUDIES

Overview: After exploratory studies, this thesis studies every industry through empirical studies using surveys and experiments. This chapter details the hypothesis development, research model, methodology, data analysis, findings, and discussion of the three quantitative studies conducted for this thesis.

5.1 A Quantitative Study in Omnichannel Healthcare (Study 4)

5.1.1 Hypothesis Development

Information quality plays an important role in every organization. "*Information quality is a measure of the value which the information provides to the user of that information*" (Fadahunsi et al., 2019, p.2). With the abundance and diversity of information being created in healthcare every minute, it's crucial to ensure its quality. Prior studies show that IT development helps organizations to share information in a timely and effective manner (S. Li & Lin, 2006). This significantly influences the quality of the information received. BCT capabilities of organizations help to implement blockchain technology and utilize it efficiently to improve the performance of healthcare systems (Sangal et al., 2022a; Sharma et al., 2021). It aims to promote transparency in the healthcare ecosystem by providing detailed and authentic information to users. Therefore, to explore IQ as an outcome of BCT capability (See Figure 5.1), we hypothesize:

H1: BCT Capability (BCT) positively affects Information quality (IQ)

Blockchain is known for its trust-building mechanism that can establish swift trust among users (Meng et al., 2020). Researchers have proposed the use of BCT for storing medical information in telemedicine for higher security, traceability, and transparency, which further builds trust in healthcare stakeholders (Ahmad et al., 2021). Blockchain helps in removing barriers to data

sharing, thereby building an irrevocable public records repository. This possibly builds swift trust among the stakeholders (Dubey et al., 2020), which is essential among patients while selecting a healthcare center or a doctor for their treatment or buying medicines online. Hence, we hypothesize:

H2: BCT Capability positively affects swift trust (ST)

Relevant information helps in improving organizational performance and competitive advantage (H. L. Lee & Whang, 2000). Information quality is an important component of the success of any organization (S. Li & Lin, 2006; Miller, 2005). It includes attributes like accuracy, timeliness, suitability, and reliability of the shared Information (Forslund & Jonsson, 2007). Healthcare professionals seek clear, correct, and timely health information about patients before making a decision regarding their prescriptions, medicines, and diagnosis. Also, patients look for true information about healthcare organizations and healthcare providers before visiting them physically or interacting virtually. So, organizations need to ensure the information accessible to the consumers is authentic enough to build swift trust (Dubey et al., 2019; Sangal et al., 2022a). Hence, we hypothesize that:

H3: Information quality positively affects swift trust

Swift trust is important among healthcare organizations spread geographically as well as between the healthcare organization and patients who do not get a chance to develop an interpersonal relationship prior to interaction (Dubey et al., 2019). Building swift trust among organizations and stakeholders can significantly influence their continued intention to use technologies, which keeps them interconnected with each other for information and resource sharing. Here, continued usage

intention (CUI) refers to "*the users' intention to continue using the information system*" (Chiu et al., 2005; Cho et al., 2009, p.5). Hence, we hypothesize that:

H4: Swift Trust positively affects continued usage intention (CUI)

"*Perceived credibility is a person's perception of the truth of a piece of information*" (Eisend, 2006, p.2). It is crucial for consumers, as they are more persuaded by any information when they perceive it to be credible. Prior studies have shown its role in affecting blockchain's capabilities on willingness to use a product (Zhou, 2021). Further, the perceptions of information are known to have an influence on information quality (W. Choi & Stvilia, 2015). Functional benefits like transparency, traceability, security, anonymity, and efficiency lead to perceived credibility and are directly related to BCT adoption (Behl et al., 2023). Therefore, in the context of OHC, we expect BCT capability to have a larger effect on IQ for people with higher levels of perceived credibility in comparison to those who have lower levels of perceived credibility (Figure 5.1). We hypothesize:

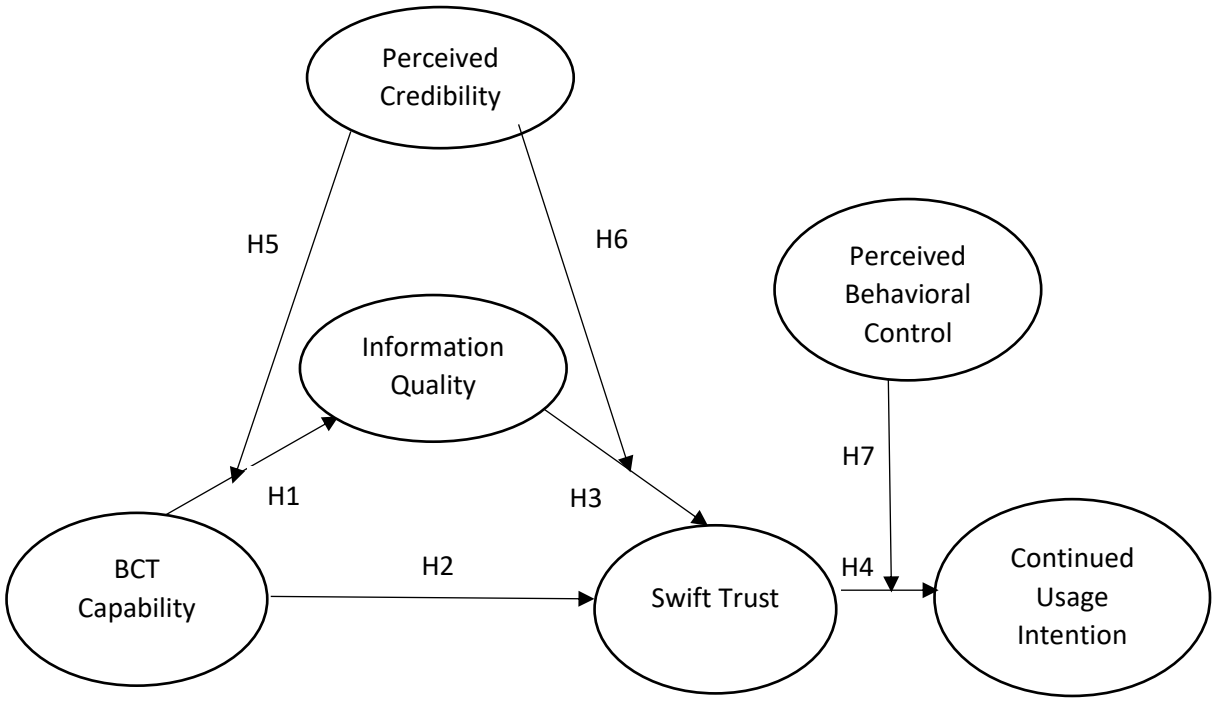
H5: Perceived Credibility (PC) positively moderates the relationship between BCT capability and Information Quality.

Further, the level of consumers' perceived credibility for the information can affect the level of their ST (Sui & Zhang, 2021). In the context of OHC, we expect IQ to have a larger effect on ST for people with higher levels of perceived credibility for the information in comparison to those who have lower levels of perceived credibility because the higher they trust IQ, the higher will be the ST for the system. Hence, we hypothesize:

H6: Perceived Credibility positively moderates the relationship between Information Quality and Swift trust.

Perceived behavioral control (PBC) refers to the perception of one's ability to perform a given behavior. Previous studies explain that perceived behavioral control influences the intention to make purchases online (Hayat et al., 2023). We propose, in the context of OHC, the moderating role of PBC for the relation between swift trust and continued usage intention. We expect swift trust to have a larger effect on CUI for people with higher levels of PBC in comparison to those who have lower levels of PBC. We expect that the people who perceive themselves as more capable of using the technology will have higher CUI.

Figure 5.1: Conceptual Model (Study 4)
Source: Author's creation



We test the moderating role of PBC on the relationship between swift trust and CUI. The higher the PBC among the stakeholders, the more it may moderate the effect of swift trust on CUI (Figure 5.1). Hence, we hypothesize:

H7: Perceived behavioral control (PBC) positively moderates the relationship between Swift trust and Continued Usage Intention.

5.1.2 Research Design

We used a quantitative approach by collecting primary data from Generation Z individuals residing in emerging economies to attain a better understanding of the views and opinions of the omnichannel healthcare stakeholders. A confirmatory analysis was performed to test our hypotheses and confirm the effect of BCT and swift trust on OHS's continued usage intention.

Survey instrument development: To test our seven hypotheses, we developed a questionnaire that included 13 questions divided into two parts, with the first part consisting of questions related to the demographic profiles of the respondents and the second part consisting of measurement items of our six constructs. We added some screening questions in the questionnaire to eliminate the unsuitable candidates from the survey, like *"Which of the following activities may you indulge in an omnichannel healthcare system for healthcare services?"* and *"Are you aware of blockchain technology?"*

The items of the construct *blockchain capability* were adapted from Shao et al., 2022; the items *for perceived credibility* were adapted from Sui & Zhang, 2021; *information quality* from Kim et al., 2008; *swift trust* from Mayer & Gavin, 2005; *perceived behavioral control* from van Dolen et al., 2007, and *continued usage intention* from Gao et al., 2015. The questionnaire items are mentioned in Appendix A. All the items were measured using a five-point Likert scale ranging

from 1 (strongly disagree) to 5 (strongly agree) or 1 (almost never) to 5 (almost always). We discussed all the constructs and their measurement items with two academic experts and an industry expert to ensure the content validity of the survey instrument (Almanasreh et al., 2019). They provided insights that helped us to evaluate the readability and clarity of the items. The wordings of a few questions were revised to make them more appropriate, and the questionnaire was then finalized.

Sampling design: The respondents were screened on the basis of their prior experience with telemedicine, online, or omnichannel healthcare services. Our target respondents were the consumers of healthcare services (or patients) who use online healthcare services/applications for one or more services like ordering medicines, booking appointments, selecting healthcare centers, consulting healthcare professionals, storing medical records, etc. Additionally, they were screened on the basis of their knowledge of BCT. We also ensured that the participants were fluent in understanding the English language. Generation Z consumers were selected due to their high propensity and comfort in adopting online applications. Generation Z consumers are those born between 1997 to 2012 (Priporas et al., 2017). They are known to be tech-savvy, health-conscious, and focused on fitness. Generation Z individuals in emerging economies like India form the largest proportion of the young population (Hameed & Mathur, 2020). A study shows how Generation Z has been proactive in adopting healthcare wearables (Nayak et al., 2021). Including other generations in this study might have made the results insignificant based on their lack of awareness and readiness for using disruptive technologies like blockchain. Therefore, we considered targeting only Generation Z consumers.

For this study, we targeted respondents who resided in emerging economies. These are the countries that are transitioning into developed economies with rapid development,

industrialization, and growth (Queiroz et al., 2021). Varied demographic characteristics were seen among our respondents in terms of gender, occupation, educational qualifications, income, etc. (Table 5.1).

Table 5.1: Demographic Profile of Respondents

Categories	Frequency	%
Age		
18-25	250	100
Gender		
Male	95	38.00
Female	143	57.20
Other	9	3.60
Prefer not to say	3	1.20
Educational Qualification		
Undergraduate	175	70.00
Post-graduate	33	13.20
Doctoral Degree	3	1.20
Other	39	15.60
Occupation		
Student	111	44.40
Working professional	95	38.00
Self-employed	12	4.80
Other	32	12.80
Annual Income		
Under 500,000 Rupees (6,250 USD)	113	45.20
500,000 to 1,000,000 Rupees (6,250 to 12,500 USD)	47	18.80
Above 1,000,000 Rupees (12,500 USD)	90	36.00
Activities in the omnichannel healthcare system		
Medical consultations with specialists	153	61.20
Buying medicines	141	56.40
Booking appointments	197	78.80
Storing medical records	113	45.20
Making payments for hospital charges	115	46.00
Searching for information about specialists	121	48.40
Others	25	10.00

Data Collection

The data collection process started on 1st October 2022 and ended on 10th November 2022. The data was obtained from Generation Z participants aged between 18 to 25 years. First, a pilot study

was conducted on 60 respondents to check the reliability of the measurement items. A reputed data collection agency was hired to help us with obtaining the desired responses. The questionnaire was sent via online mode with the help of a renowned data collection company to a total of 600 respondents, describing the purpose of the study and assuring the maintenance of confidentiality of the information they shared with us. Overall, 280 respondents filled out the survey, out of which 250 responses were found usable. The sampling frame includes patients within the age range of 18-25 (when the data was collected) who are actively using the digital, hybrid, or omnichannel modes for obtaining medical care and facilities.

5.1.3 Data Analysis

We used partial least square structured equation modeling (PLS-SEM) to validate our research framework. There has been a debate between factor-based SEM v/s composite-based SEM for its management-based applications (Kock, 2019). PLS-SEM is preferred over CB-SEM as the former has minimal model identification demands, practically no data or model parameter distribution assumptions, and virtually universal convergence to solutions (Hair et al., 2019). We have used Warp PLS 7.0, as it enables the implementation of factor-based SEM and allows non-linear analyses where We can estimate best-fit non-linear functions for every pair of structurally linked variables in path models. Also, path coefficients that account for nonlinearity can be estimated using Warp PLS 7.0 (Kock, 2019).

Measurement model- Reliability and Validity: A two-stage approach was followed to check the reliability and validity of the data. First, we checked the reliability by checking Cronbach's alpha value, which was more than 0.70 (Hair et al., 2019). Next, the values of the scale composite

reliability (SCR) and average variance extracted (AVE) for the first-order multi-item constructs were checked (Table 5.2), and all these measures were found within their respective thresholds.

Table 5.2: Convergent Validity

Items	Factor Loadings	Variance	Error	AVE	SCR
BCT 1	0.81	0.65	0.34		
BCT 2	0.80	0.64	0.36		
BCT 3	0.83	0.68	0.31	0.66	0.85
PC 1	0.73	0.53	0.46		
PC2	0.80	0.64	0.36		
PC 3	0.86	0.73	0.26	0.63	0.84
IQ 1	0.74	0.54	0.45		
IQ 2	0.83	0.68	0.31		
IQ 3	0.91	0.82	0.17		
IQ 4	0.89	0.79	0.20		
IQ 5	0.74	0.54	0.45		
IQ 6	0.75	0.56	0.43		
IQ 7	0.90	0.81	0.19	0.68	0.93
ST 1	0.70	0.49	0.51		
ST2	0.76	0.57	0.42		
ST 3	0.89	0.79	0.20		
ST 4	0.81	0.65	0.34		
ST 5	0.87	0.75	0.24		
ST 6	0.80	0.64	0.36		
ST 7	0.80	0.64	0.36		
ST 8	0.81	0.65	0.34	0.65	0.93
BC 1	0.88	0.77	0.22		
BC 2	0.84	0.70	0.29		
BC 3	0.81	0.65	0.34		
BC 4	0.72	0.51	0.48	0.66	0.88
CUI 1	0.91	0.82	0.17		
CUI 2	0.80	0.64	0.36	0.73	0.91

CUI 3	0.84	0.70	0.29		
CUI 4	0.87	0.75	0.24		

The derived values were found to be reliable and valid measures of the individual constructs. The goodness of fit measures was found to be satisfactory.

To measure the discriminant validity of the constructs, we compared the square root of the AVE of each construct with the absolute value of the correlation of that factor's measure with all measures of the other factors in the model. All these values were lying within thresholds (Table 5.3).

We determined convergent validity by calculating the factor loadings (above 0.50), composite scale reliability (above 0.70), and average variance extracted (AVE) (above 0.5) (Hair et al., 2019). The factor loading values were obtained using varimax rotation, AVE scores, and composite scale reliability to be within the threshold. Hence, we found no convergent validity issues in the analysis (Table 5.2).

Table 5.3: Divergent Validity

	BCT	ST	IQ	CUI	PC	PBC
BCT	0.68					
ST	0.15	0.61				
IQ	0.23	0.15	0.72			
CUI	0.25	0.42	0.25	0.58		
PC	0.17	0.19	0.21	0.22	0.49	
PBC	0.16	0.24	0.16	0.26	0.25	0.62

Common method bias and causality assessment: When the relationships between two or more constructs are found to be biased due to their measurement using the same method, it leads to

common method bias (CMB), which can be an issue for the studies (Jordan & Troth, 2020). To check for CMB, Harman's one-factor test was performed by loading all the measurement items of our research into an exploratory factor analysis. The maximum variance explained by a single factor was found to be 73.26% by CUI, which suggested the unlikelihood of CMB in the study. Second, a marker variable test was performed, aimed at controlling for common method variance (CMV) by adding a theoretically unrelated variable to the main constructs used in the measurement model. After performing this test, no potential effects were found that would indicate any significant amount of CMV (Hair et al., 2019). This showed that CMB was not an issue in our study.

To check for causality, assessment indices like Sympson's paradox ratio (SPR), statistical suppression ratio (SSR), and the non-linear bivariate causality direction ratio (NLBCDR) were evaluated, which were found to fall above the threshold of 0.70 (Hair et al., 2019). Also, the R^2 contribution ratio was found to fall above the threshold of 0.90 (Table 5.4).

Table 5.4: Causality Assessment Indices

Causality Assessment Indices	**Values (Threshold Values, if any)**
Sympson's Paradox Ratio (SPR)	0.73 (Acceptable if ≥ 0.70)
R^2 contribution ratio	0.92 (Acceptable if ≥ 0.90)
Statistical Suppression Ratio (SSR)	0.77 (Acceptable if ≥ 0.70)
Non-linear bivariate causality direction ratio (NLBCDR)	0.76 (Acceptable if ≥ 0.70)

***Model fit and indices*:** We tested the model fit and quality indices- Average path coefficient, Average R^2, and Average block VIF. These indices predict the relationship between latent

variables. The APC and Average R^2 values were found to be significant ($P < 0.001$), and the Average block VIF is less than the threshold value and is accepted (Hair et al., 2019) (Table 5.5).

Table 5.5: Model fit and quality indices

Model fit and quality indices	**Values (Threshold Values, if any)**
Average Path Coefficient (APC)	0.41 (p <0.001)
Average R^2	0.72 (p <0.001)
Average block VIF	3.83 (Acceptable if value ≤ 5)
Tenenhaus GoF	0.42 (Large if value ≥ 0.36)

Hypotheses testing

We checked the direct effects of the constructs (*BCT capabilities, swift trust, and information quality*) and the moderating effects of the constructs (*perceived credibility and perceived behavioral control*) using PLS-SEM, as per our hypotheses H1, H2, H3, H4, H5, H6, and H7. These hypotheses posited positive influences on the continued usage intention towards OHS. The results were found to show that the blockchain capabilities (BCT) have a positive influence on information quality (IQ) ($\beta = 0.54$, $p < 0.001$) and swift trust (ST) ($\beta = 0.36$, $p < 0.001$). Also, there was a positive association between IQ and ST ($\beta = 0.47$, $p < 0.001$), and ST positively influences continued usage intention (CUI) ($\beta = 0.42$, $p < 0.001$). Additionally, perceived Credibility (PC) positively moderates the role of BCT and IQ ($\beta = 0.52$, $p < 0.001$), but the moderating role of PC for IQ and ST was not supported ($\beta = 0.03$, $p > 0.001$). Lastly, the moderating role of perceived behavior control for ST and CUI was supported ($\beta = 0.44$, $p < 0.001$). Table 5.6 presents a summary of our hypotheses testing.

Table 5.6: Structural estimates

Hypothesis	Effect of	Effect On	β	p-value	Results
H1	BCT	IQ	0.54	***	Supported
H2	BCT	ST	0.36	***	Supported
H3	IQ	ST	0.47	***	Supported
H4	ST	CUI	0.42	***	Supported
H5	BCT X PC	IQ	0.52	***	Supported
H6	IQ X PC	ST	0.03	-	Not Supported
H7	ST X PBC	CUI	0.44	***	Supported

Significance codes- '***' 0.001, '**' 0.01, '*' 0.05.

5.1.4 Discussion

The healthcare sector is evolving, with technological changes that can bring significant changes in omnichannel healthcare. Blockchain implementation is evolving, but it still lacks interoperability in the domain of healthcare in emerging economies (Ahmad et al., 2021). BCT, which is linked to personalized medicine, can help improve the effectiveness of patient treatment and their continued usage of the OHS. This work outlines the need for blockchain-based OHS to establish swift trust and meet information requirements among healthcare stakeholders.

The continued usage intention of OHS can be improved using BCT in two ways: by improving the patients' swift trust and by improving information quality. This study reports that BCT is positively associated with IQ (H1) and ST among consumers in their intention to use omnichannel healthcare organizations (H2). The results support previous studies in that technology can be used to create initial trust where it is important but difficult to create quickly (Asan et al., 2020; McGraw et al., 2009). The findings show a positive association between IQ and ST (H3). It falls in line with

(Dubey et al., 2019), which state that information is the enabler of swift trust. Results also reveal that ST and CUI are positively related (H4); Hooda et al., 2022 show how users' swift trust influences the usage intention towards online services. On testing the moderations, PC was found to positively moderate the relationship between BCT and IQ, extending the literature that tests the relationship between perceived credibility, BCT, and trust (Behl et al., 2023) (H5). However, some disagreements were observed in the moderating relationships of PC between IQ and ST (H6). (Miller, 2005; Sui & Zhang, 2021). For H6, we expected that PC would moderate the relationship between information quality and swift trust. Though we found swift trust formation to significantly depend on information quality (H3), the moderation role of perceived credibility was not significant (H6). We expect this result in contradiction to prior studies as swift trust differs from other forms of trust because it is formed quickly in a rapid action environment, which inhibits the stakeholders from accessing the credibility of information in a short span of time (Miller, 2005; Sui & Zhang, 2021). In situations like healthcare emergencies, the patients or other decision-makers may not have sufficient time or mental processing capabilities to assess the Credibility of the Information given to them.

Perceived behavior control (PBC) positively moderates the relationship between ST and CUI (H7). With PBC, the users feel in control of their actions; hence, the CUI is positively influenced. This falls in line with the existing literature that states that PBC influences purchase behavior (Hayat et al., 2023). Our study provides a high degree of coherence between BCT and CUI. This falls in line with the existing literature, which states consumers' purchase behaviors are positively influenced after blockchain implementation (Dubey et al., 2020; S. Li & Lin, 2006).

In general, information quality is of great importance in healthcare. Credible information brings positive emotions among healthcare stakeholders, which leads to higher swift trust. Overall, our

findings validate the notion that the BCT capabilities can possibly improve swift trust among patients and the members of OHS and lead to consumers' continued intention to use omnichannel healthcare systems. Better information quality and trust among stakeholders of OHS will positively influence the usage of OHS by all stakeholders. Blockchain can enhance communication between patients and healthcare professionals and create a trusted and tamperproof shared database to connect healthcare stakeholders.

5.2 A Quantitative Study in Online Second-hand product selling P2P platforms (Study 5)

5.2.1 Hypotheses Development

This research attempts to examine the tentative effect of blockchain technology adoption on the intention to buy SHPs on blockchain-based P2P platforms mediated via information quality and trust in the users (buyers) and moderated by the age of the vehicle. Prior studies on SHPs have identified trust as a critical factor influencing buyers' purchase behavior (Jain et al., 2022; Laurenti & Acuña, 2020).

For this study, information quality is defined as correct, useful, timely, reliable, and sufficient information available to users when they visit an online platform. It is a prerequisite for e-commerce platforms' success and influences their usage intentions (Hsieh & Tsao, 2014). Websites that provide good information quality improve the browsing and shopping experiences, leading to better purchase decisions. In line with prior studies, it is expected that with the BCT application, the information quality available on online P2P platforms for buying second-hand automobiles will increase, leading to higher purchase intentions of second-hand automobiles (Behl et al., 2023) (See Figure 5.2). We hypothesize:

H1a: The indirect effect of the application of blockchain technology on intention to buy second-hand automobiles is mediated by information quality.

Further, in the second-hand automobile market, the age of the used vehicle influences buyers' purchase decisions (Gavazza et al., 2014). Generally, buyers are more skeptical about cars older than five years old than cars less than five years old (Betts & Taran, 2006). Further, due to the information asymmetry existing in the market of SHPs, which may increase with the age of the SHP, we expect the effect of BCT adoption to be more evident in the case of older SHPs (automobiles) (Figure 5.2), we hypothesize:

H1b: The age of the vehicle moderates the indirect effect of the application of blockchain technology on the intention to buy second-hand automobiles via information quality.

Blockchain enables trust between two parties (Nigam, Sangal, et al., 2022). When the information shared on a blockchain-enabled platform is authentic, trust can be higher among the users of such platforms who intend to transact online for SHPs (Dubey et al., 2020). Prior research has shown that the data stored using BCT is secure and immutable, providing users with transparent information. It acts as a verification system, reduces uncertainties, and merges the openness of the internet with the security of cryptography to provide a faster and more secure way to transact (Shao et al., 2022). BCT also provides traceability and helps track the selling of counterfeit goods, which can promote user trust in SHP online P2P platforms. We propose that the application of BCT would result in higher trust among the users on the online P2P platform selling second-hand automobiles, leading to higher intention to buy (See Figure 5.2). We hypothesize:

H2a: The indirect effect of the application of blockchain technology on intention to buy second-hand automobiles is mediated by trust in users.

Additionally, like in H1b, we propose that the effect of the application of BCT would be higher in the case of used automobiles older than 5 years, as compared to less than 5 years older automobiles being sold on online P2P platforms. So, we also hypothesize:

H2b: The age of the vehicle moderates the indirect effect of the application of blockchain technology on the intention to buy second-hand automobiles via trust in users.

Researchers have found information quality to be an antecedent to trust in online systems (Mun et al., 2013). Trust is a crucial factor among those responsible for forming a positive attitude toward a product or service provider (Chen & Dibb, 2010; Luo et al., 2020). When online buyers browse any P2P platform, they interact with other users to buy SHPs. The quality of the information available on an online P2P platform can affect the trust of users and, hence, the buying intention of users on that platform (Laurenti & Acuña, 2020; Luo et al., 2020). Not many studies have discussed the effect of information quality on purchase intention mediated by trust. We propose that as the information quality increases due to the application of BCT, it may lead to higher trust in the users on the platforms, leading to higher intention to buy (See Figure 5.2). We hypothesize:

H3a: The indirect effect of the application of blockchain technology on intention to buy second-hand automobiles is serially mediated via information quality and trust in users.

Further, based on the discussion for H1b and H2b, it is expected that the age of the used automobiles also moderates this serial relationship (Figure 5.2). We hypothesize:

H3b: The age of the vehicle moderates the indirect effect of the application of blockchain technology on the intention to buy second-hand automobiles serially mediated via information quality and trust in users.

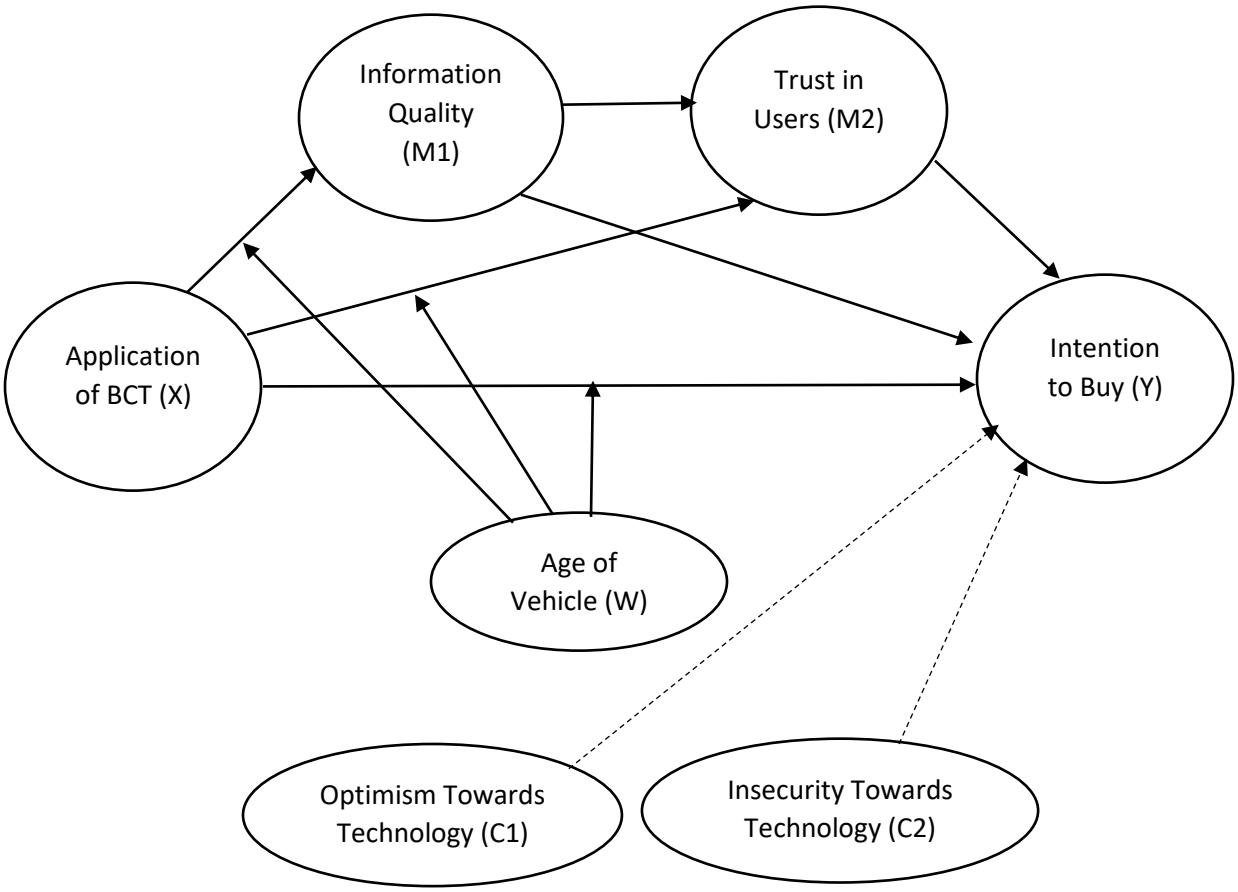
According to previous studies, BCT application is positively associated with consumers' buying intentions (Dionysis et al., 2022). BCT has been known to influence purchase and usage decisions in food, healthcare, beauty, etc. (Agbo & Mahmoud, 2020; Sangal et al., 2022b). Consumers may buy second-hand automobiles that are less than five years old when looking for better conditions and low maintenance. Also, they may want to buy older automobiles if they need short-term, occasional, or temporary. The study proposes that the effect of the application of BCT on the purchase intentions in online P2P platforms selling second-hand automobiles can differ by the age of the vehicle (See Figure 5.2). We hypothesize:

H4: The age of the vehicle moderates the direct effect of the application of blockchain technology on the intention to buy second-hand.

For this study, we control the effects of optimism toward technology (OTT) and insecurity towards technology (ITT) on the intention to buy from P2P platforms. Optimism towards technology refers to looking at technology positively and believing it will provide flexibility, control, and efficiency in different functions (Parasuraman, 2000; D.-H. Shin, 2010). It is a driver of technology readiness, which presents how a user perceives technology in general and predicts users' technology-related behavior (Parasuraman, 2000). We thus control for the effect of optimism towards BCT on the intention to transact (Figure 5.2).

Further, insecurity towards technology refers to the skepticism and distrust toward technology's ability to perform various tasks (Kumar & Mukherjee, 2013). It is an inhibitor of technology readiness and is a good construct to predict the technology-related behavior of individuals. Therefore, the effect of users' insecurity towards technology was also controlled.

Figure 5.2: Conceptual Model (CPA Model 85) (Study 5)



Source: Author's creation

5.2.2 Research design

A quantitative approach was taken to collect primary data through an online experiment. The aim was to understand the effects of BCT, information quality, and the trust in users on Generation Z's buying intentions for SHPs. A posttest-only control group design is used for this study. An experiment was considered for this study instead of quasi-experiments, as they can better identify causal relations. Randomization divides the participants into groups based on the variables' expectations in experiments, providing unbiased treatment effect results (Hayes, 2022). The study

examines the moderating roles of the age of vehicle through moderated mediation analysis via the PROCESS macro using R software (Hayes, 2022) on a sample size of 200 respondents.

Design and Sampling: An online experiment was conducted to test H1 to H4 using a questionnaire that divided our respondents into four groups of 50 respondents each [2*2 design] (See Table 5.7). Here, the application of BCT (X) and the moderator age of the vehicle (W) are dichotomous. The target population was Generation Z consumers in the age group 18-26**,** as Generation Z is considered tech natives who are more comfortable with the adoption of technology and online shopping. Also, they are more familiar with digital technology-related terminology due to their early exposure to technology. Additionally, generation Z is believed to outpace Generation Y in terms of buying power (Munsch, 2021). We avoided the mixing of respondents from different generations, as their technology readiness and acceptability differ, which could have possibly affected our results (Melović et al., 2021; Munsch, 2021). The respondents were randomly allotted to one of the four groups. For the data collection process, a reputed and reliable online research platform, Prolific, was used/hired, through which an online experiment was conducted in twenty countries listed as emerging economies as per a recent report by IMF (*Miles to Go*, 2021). Data collection was done from 5th December to 25th December 2023 until the desired data was obtained. In total, responses from 200 respondents qualified for the final analysis.

Measures: The questionnaire was divided into two parts (A and B). Part A consisted of the items assessing the three constructs, i.e., information quality, trust in users, and the intention to buy, and two control variables, i.e., optimism towards technology and insecurity towards technology. Part B collected data on the demographic details of respondents. All the items on the scale were measured on a seven-point Likert scale.

Table 5.7: Experimental design

	Age of the Vehicle	
Application of blockchain	<5 Years (0)	>5 Years (1)
Blockchain-enabled (1)	Adopted + <5 Years	Adopted + >5 Years
No Blockchain (0)	Not adopted + <5 Years	Not adopted + >5 Years

Every respondent was shown a snapshot at the beginning (see Appendix A), which represented an online platform selling second-hand automobiles. Four different snapshots were used for four distinct groups. Every snapshot had an image of the car being sold with a consistent title and description. For the treatment groups, a prototype of a blockchain-enabled platform was presented with a detailed description and a timeline of the usage, service, repairs, insurance details, and ownership history of the second-hand car listed for sale. A blockchain-verified label was also placed on the product page snapshot for treatment groups. Meanwhile, for the control groups, a snapshot of a non-blockchain-enabled platform was shown, with an image of the car being sold with a consistent title and description. Price was kept the same (controlled) for all groups to remove the price-based bias.

5.2.3 Data Analysis

Assessing reliability, validity, and common method bias

First, we conducted a pilot study on 40 respondents, with ten respondents in each of the four groups, to check the feasibility and effectiveness of the experiment. The value of Cronbach Alpha is 0.89, which is above the 0.70 threshold level, showing the high reliability of all items of the constructs. All our scales show a convergent validity as the correlation of all the items within the scales lies between the range of 0.30 to 0.70, showing a statistically significant validity. All our scales also showed discriminant validity, as the correlations with unrelated constructs were weaker

than those of related constructs. The significance levels for all the items were below the threshold of 0.05 for all items. Pearson's correlation coefficients for all items at a 95% confidence interval for 198 degrees of freedom (n-2) were greater than the critical value (0.13), making them highly significant for all items.

Confirmatory factor analysis assessed the fit between observed data and a preconceived, theoretically grounded model. The value of the Kaiser–Meyer–Olkin (KMO) test was 0.88 (above 0.70) (See Table 5.8). The significance level of Barlett's test of sphericity was under 0.05. Measures of Sampling Adequacy (MSA) (Diagonals) were greater than 0.5.

Upon conducting the factor analysis using maximum likelihood with Varimax rotation, it was found that all the items of one construct are loading on the same factor, with a distinct factor for every construct that shows convergent validity. Also, none of the items load on any other factor that states discriminant validity. The values of factor loadings for all items were more than 0.50, except for ITT1, which was eliminated from the further analysis (Table 5.9). All the values of Average Variance Extracted (AVE) and composite reliability (CR) were found to be above 0.50**.** Common method bias was tested using Harman's single-factor test.

Table 5.8: KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.8850
Bartlett's Test of Sphericity	Approx. Chi-Square	4079.3270
	df	496
	Sig.	.0000

Using principal axis factoring, the percentage of variance was found to be within the threshold of 50 percent, revealing that there was no common method bias in the data. Due to the strong associations between buying intention and the information quality and price covariates, we checked for their multicollinearity.

Table 5.9: Rotated Factor Matrix

	Factor				
	1	2	3	4	5
IQ1	.6960				
IQ2	.7910				
IQ3	.6750				
IQ4	.6960				
IQ5	.6970				
IQ6	.7750				
IQ7	.7780				
TU1					.5490
TU2					.6600
TU3					.5580
ITB1				.7880	
ITB2				.7560	
ITB3				.8190	
OTT1		.5030			
OTT2		.6480			
OTT3		.7650			
OTT4		.7610			
OTT5		.7350			
OTT6		.6760			
OTT7		.6530			
OTT8		.6050			
ITT2			.6100		
ITT3			.6030		
ITT4			.7320		
ITT5			.556		
ITT6			.5750		
ITT7			.6580		
ITT8			.6760		

Extraction Method: Maximum Likelihood.
Rotation Method: Varimax with Kaiser Normalization.
a. Rotation converged in 6 iterations.

The results showed that tolerance levels for all independent variables were greater than 0.10 thresholds, and values of Variance Inflation Factor (VIF) for all independent variables were falling within the thresholds (VIF<5) (Hayes, 2018).

Table 5.10: Demographic profiles of respondents

	Variables	Count	Percentage
Gender	Males	108	54%
	Females	89	44.5%
	Others	3	1.5%
Educational Qualification	Undergraduate	119	59.5%
	Post Graduate	63	31.5%
	Doctoral Degree	5	2.5%
	Other	13	6.5%
Occupation	Student	103	51.5%
	Working professionals	77	38.5%
	Self-employed	13	6.5%
	Other	7	3.5%
Annual Income	Under 5,00,000 Rupees (6030 USD)	116	58%
	5,00,000 to 10,00,000 Rupees (6030- 12060 USD)	59	29.5%
	Above 10,00,000 Rupees (12060 USD)	24	12%
	Prefer not to say	1	0.5%

Demographic Profiles: The experiment was based on Generation Z consumers, and all respondents were between 18 and 26 years old. 54% of respondents were males and 44.50% were females. A majority of respondents were students (51.50%), and most of the respondents were undergraduates (59.50%). The annual income of 58% of the respondents was found to be under INR 5,00,000 (USD 6030) (See Table 5.10).

Hypotheses Testing

Our hypothesis can be clubbed into mediation (H1a, H2a, and H3a) and moderated mediation analysis (H1b, H2b, and H3b). Hypothesis H4 shows moderation of the direct effect.

Our moderated hypotheses hypothesize a model where the strength of the relationship of the direct and indirect effect between the application of blockchain and the intention to buy second-hand automobiles via two mediators, Information quality and trust in users, is conditional on the value

of a moderator (viz., the age of the vehicle- less than 5 years/ more than 5 years). Mediation, moderation, and moderated mediation (Conditional process analysis) were conducted using the PROCESS macro in R software (Hayes, 2018; Hayes & Rockwood, 2020). Hypotheses 1a, 2a, and 3a were tested using CPA Model 6, and hypotheses 1b, 2b, 3b, and 4 used CPA Model 85 (Figure 5.2) of the PROCESS syntax in R (Hayes, 2018). Out of the four constructs of the model, the application of BCT is dichotomous, while others (IQ, TU, and ITB) are continuous. The control variables (OTT and ITT) are also on a continuous scale. The moderator (age of vehicle) is dichotomous.

***Indirect effects of X on Y*:** Analysis results reveal that the indirect effect of the application of blockchain technology (BCT) on intention to buy (ITB) is positively mediated by information quality (IQ), with effect=0.6645, lying between the confidence intervals of 0.4411 and 0.9101, supporting H1a. The indirect effect of BCT on ITB is also positively mediated by trust in users (TU), with effect=0.1695, lying between the confidence intervals of 0.0723 and 0.3007, supporting H2a.

Table 5.11: Indirect effect(s) of X on Y

	Effect	BootSE	BootLLCI	BootULCI
Total	1.1112	0.1004	0.9216	1.3136
Ind1	0.6645	0.1207	0.4411	0.9101
Ind2	0.1695	0.0580	0.0723	0.3007
Ind3	0.2773	0.0644	0.1601	0.4149

Indirect effect key:
Ind1 BCT → IQ → ITB
Ind2 BCT → TU → ITB
Ind3 BCT → IQ → TU → ITB

Also, the effect of BCT on ITB is positively serially mediated by IQ and TU, with effect=0.2773, lying between the confidence intervals of 0.1601 and 0.4149, and hence supporting H3a (See Table 5.11).

Index of mediated moderation and conditional indirect effects: The index of moderated mediation quantifies the rate of change of the indirect effect of the application of BCT on the intention to buy through the mediators as the moderator changes (Hayes, 2022). If significant, it signifies a difference in the indirect effect when it is analyzed at different levels (conditions) of a moderator (age of vehicle in this study).

For our first indirect effect of BCT →IQ→ITB, the index of moderated mediation based on 5000 bootstrap samples is significant with a score of 0.1138 with bootstrapped confidence interval (BootCI) of 0.0189 and 0.2456 supporting H1b (refer Table 5.12). This confirms the indirect effect of BCT→ IQ→ ITB is conditioned on age. Further examination of the conditional indirect effect gives a positive effect size of 0.4311 with BootCI of 0.2248 and 0.6570 for a new vehicle (under 5 years) condition and a positive effect size of 0.5449 with BootCI of 0.2743 and 0.8426 for an old vehicle (over 5 years) condition (refer Table 5.13). In summary, the conditional indirect effect of the application of BCT mediated via IQ is higher in older vehicle conditions than in newer vehicle conditions (0.5449>0.4311).

For our second indirect effect, BCT →TU→ITB, the index of moderated mediation based on 5000 bootstrap samples is significant with a score of 0.1126 with bootstrapped confidence interval (BootCI) of 0.0325 and 0.2211 supporting H2b (refer Table 5.12). This confirms that the indirect effect of BCT on ITB mediated by TU is conditioned on the age of the vehicle. Further examination of the PROCESS output reveals the indirect effect of BCT on ITB via TU is positive with an effect (0.1601) estimated to lie between 0.0552 and 0.2914 when the age of a vehicle is under 5 years,

while the effect (0.2726) lies between the confidence interval of 0.1020 and 0.4697 when the age of a vehicle is above 5 years (See Table 5.14). In summary, the conditional indirect effect of the application of BCT mediated via TU is higher in older vehicle conditions than in newer vehicle conditions (0.2726>0.1601).

Finally, for our third indirect effect, which is a serial mediation of the indirect effect of the application of BCT on ITB mediated via IQ and TU, the value of this index is 0.0226, with a bootstrap confidence interval from 0.0031 to 0.0548 (Table 5.12). As zero does not lie within this bootstrap confidence interval, it allows us to infer that the indirect effect between the application of BCT and ITB mediated via IQ and TU is indeed conditional on the moderator age of the vehicle, supporting hypothesis H3b. Further, as the index of moderated mediation is positive, it reveals that the conditional effect of BCT on ITB when the age of the vehicle is less than 5 years old is (0.0856, Age =0) is less than when the vehicle is more than 5 years old (0.1082, Age=1) (Table 5.15). The individual bootstrap confidence interval for age = 0 and age =1 for the indirect effect is positive and significantly different from zero, allowing us to infer that BCT has a positive indirect effect for both cases but is higher in old vehicle age conditions.

Table 5.12: Index of moderated mediation (differences between conditional indirect effects)

Indirect Effect	Moderator	Index	BootSE	BootLLCI	BootULCI
1	Age	0.1138	0.0583	0.0189	0.2456
2	Age	0.1126	0.0481	0.0325	0.2211
3	Age	0.0226	0.0135	0.0031	0.0548

Table 5.13: Conditional indirect effect(s) of X on Y: BCT → IQ → ITB

AGE	Effect	BootSE	BootLLCI	BootULCI
0	0.4311	0.1083	0.2248	0.6570
1	0.5499	0.1424	0.2743	0.8426

Table 5.14: Conditional indirect effect(s) of X on Y: BCT → TU → ITB

AGE	Effect	BootSE	BootLLCI	BootULCI
0	0.1601	0.0603	0.0552	0.2914
1	0.2726	0.0939	0.1020	0.4697

Table 5.15: Conditional indirect effect(s) of X on Y: BCT → IQ → TU → ITB

AGE	Effect	BootSE	BootLLCI	BootULCI
0	0.0856	0.0405	0.0243	0.1844
1	0.1082	0.0496	0.0311	0.2256

Conditional Direct Effect: Our results show that the direct effect of the application of BCT on ITB is conditional on the age of the vehicle. The effect sizes for newer vehicles (1.0512) and for older vehicles (1.3945) are both significantly different from zero. Also, the effect size in the case of older vehicles (Age=1) is greater than that of newer vehicles (Age=0) (Table 5.16).

Table 5.16: Conditional direct effect(s) of X on Y:

AGE	Effect	SE	t	p	LLCI	ULCI
0	1.0512	0.1420	7.4032	0.0000	0.7711	1.3312
1	1.3945	0.1733	8.0467	0.0000	1.0527	1.7363

5.2.4 Discussion

By employing an empirical research design in the context of emerging economies, our findings advance and extend the existing literature on BCT, SHPs, and the online P2P economy. From our findings, we show that the application of BCT can play a crucial role in improving trust between

P2P platform users in the context of SHPs. Our results also show how information quality and trust in users elicited by the application of BCT on online second-hand automobile P2P platforms increase the intention to buy. The study aligns with previous works that state the associations between information quality and consumers' online buying intentions (Behl et al., 2023; Forslund & Jonsson, 2007; Hsieh & Tsao, 2014). This study echoes the previous studies that report the role of trust targets in influencing purchase behaviors (Kim et al., 2008; Luo et al., 2020; Shao et al., 2022). The results show that users of blockchain-enabled online P2P platforms will find it more convenient, easy to use, and time-saving to buy second-hand products (Garg et al., 2021).

Extant literature mentions that consumers compare the reliability of automobiles by using reference points based on the age of the vehicles (Betts & Taran, 2006). Uncertainty over the quality of cars is likely to rise with the car's age (Gavazza et al., 2014). The effect of the application of BCT would be higher in the case of used automobiles older than 5 years, compared to less than 5 years older automobiles sold on online P2P platforms. When the age of second-hand automobiles is over 5 years, the buyers may find it tough to trust the users selling very old (>5 years old) cars, thinking that the information provided may be incorrect or insufficient. Here, the application of BCT bridges this gap and provides truthful and verifiable information of the cars, stating it repairs, service and ownership details, which may develop trust among the buyers and sellers, and may possibly lead to higher purchase intentions as compared to the case of same car being sold on a platform without BCT implementation. Blockchain positively influences the trust and purchase intentions in the case of used automobiles. However, the effect of the application of BCT is higher in the case of older vehicles.

Our results showed that the indirect effect of the application of BCT on ITB mediated via IQ was moderated by the age of the vehicle. The moderator check was performed on the path between

the application of BCT and IQ, where the analysis revealed that the application of BCT positively affects the information quality, where the effect (difference between BCT being absent and BCT present, holding the age same) is higher in cases when the cars are older than 5 years, compared to vehicles with age less than 5 years. In Figure 5.3, we see a difference in the slope of the two plotted lines. With newer vehicles, the buyers of SHP will find less information to verify and make a decision compared to older vehicles. Therefore, using BCT to confirm authenticity will be more significant for older vehicles compared to relatively newer vehicles.

Similarly, the indirect effect of the application of BCT on ITB mediated via TU was moderated by the age of the vehicle. The moderator check was performed on the path between the application of BCT and TU, where the analysis revealed that the application of blockchain positively affects the trust in users, where the effect (slope of the line) is seen to be higher in cases when the cars are older than 5 years, compared to vehicles with age less than 5 years (Figure 5.4). With older vehicles, the buyers of SHP will suspect the seller more about the details shared than the newer vehicles. Therefore, the application of BCT will have a stronger effect on TU when the vehicles are in older condition.

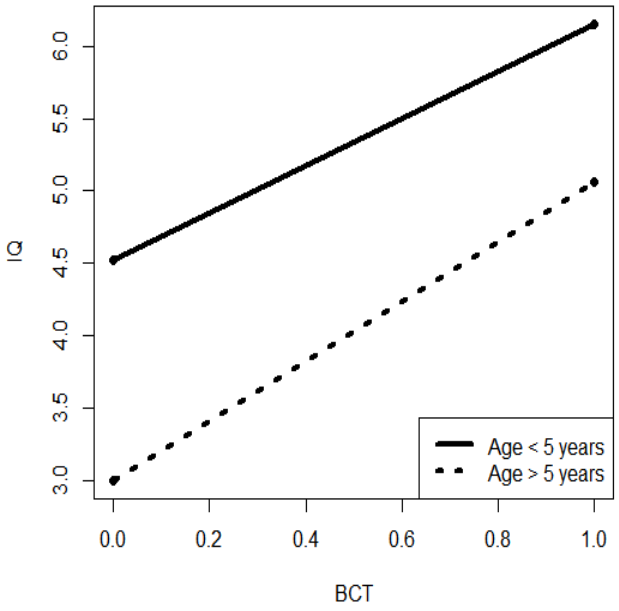


Figure 5.3: Information Quality is predicted by the application of blockchain and moderated by the age of the vehicle. Age of vehicle less than 5 years=0; Age of vehicle more than 5 years =1.

Source: Author's creation

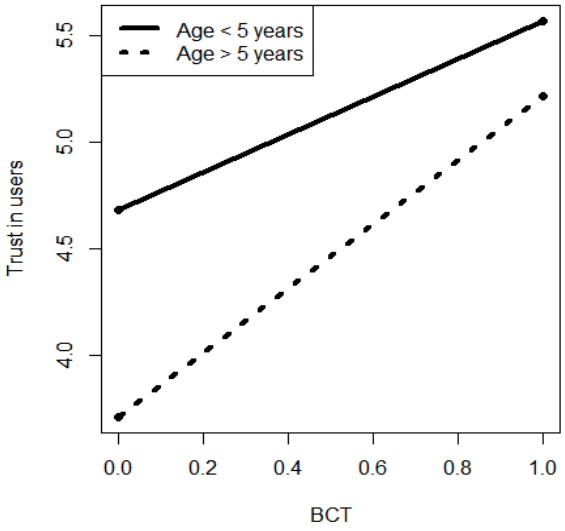


Figure 5.4: Trust in users is predicted by the application of blockchain and moderated by the age of the vehicle. Age of vehicle less than 5 years=0; Age of vehicle more than 5 years =1.

Source: Author's creation

Finally, our results show that the application of blockchain has a significant positive effect on buying intentions. Effect on ITB (effect size/change in slope) is observed to be higher with application of BCT in case of age of vehicle >5 years than with age of vehicle < 5 years (Figure 5.5).

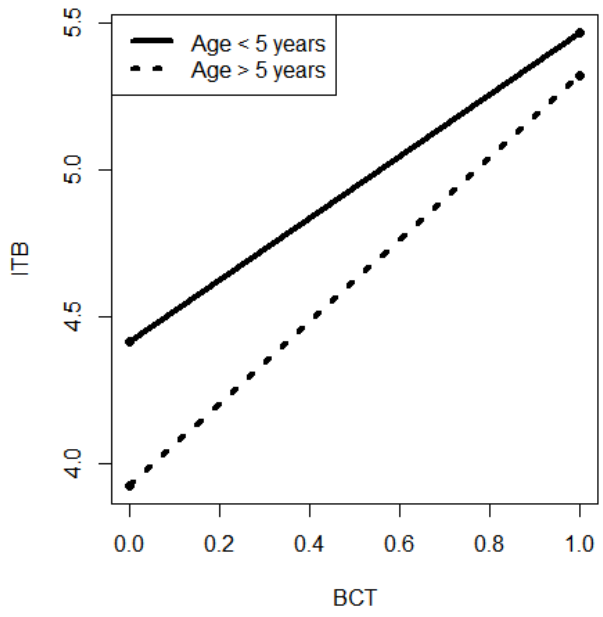


Figure 5.5: Intention to buy predicted by the application of blockchain, moderated by vehicle age. With BCT= Application of blockchain is 1, Without BCT=Application of blockchain is 0.
Source: Author's creation

This could be because when the cars turn older, they are prone to wear and tear and may need frequent repairs and servicing. Also, vehicles are depreciable assets with limited life, and older vehicles may incur higher maintenance costs if the buyers are not able to access the genuine condition of the vehicle. This weakens buyers' intention to buy the product. So, a trust-building mechanism like BCT can add more value by ensuring that the records of the vehicle's current state are complete and genuine, influencing ITB more significantly in such conditions.

In comparison, when an automobile is relatively newer (0 to 5 years), the depreciation and deterioration of its condition are comparatively lesser; hence, though BCT will have a positive influence on ITB, the magnitude will be less.

Our first control variable, optimism towards technology, did not significantly influence the intention to transact. This may be due to the fact that all respondents were from Generation Z and hence have similar levels of optimism. As this generation is also known as digital natives (Nayak et al., 2021; Priporas et al., 2017), their disposition towards technology is not abruptly high, which can possibly distort the intention to transact. Finally, the insecurity towards platforms also did not significantly influence the users' intention to transact. As the study is conducted on Generation Z, the users are not unsure about the platforms; they wouldn't hesitate to engage in buying via them.

5.3 A Quantitative Study on Online FMCG Markets (Study 6)

5.3.1 Hypothesis Development

Consumers seek guaranteed product authenticity from the brands, while supply chain stakeholders ask for responsible sourcing and higher visibility with lower disputes (Gao et al., 2022; Gilmore & Pine, 2007). Pioneering businesses have long identified the advantage of transparency. Walmart partnered with IBM to provide food traceability, transparency, and resilient supply chains through blockchain (Marr, 2018). Provenance provides chain-of-custody and certification of supply chains to businesses to improve transparency in different product categories. Another platform, OriginTrail, is used in the food industry, and it allows consumers to know the origin of their purchases and how they were produced (Marr, 2018). These real-world examples of blockchain applications suggest that the technology can positively influence the consumers' intention to buy the products.

The quality of a product can reduce uncertainty and make consumers feel cared for (Pappas, 2016). Front-of-package and overall labeling influence quality perceptions and may lead to higher purchase intentions for the product (Ikonen et al., 2020). Today's consumers read the labels thoroughly and build their perceptions accordingly. Traceability and quality of labels help reduce information asymmetry and drive quality perceptions and purchase intentions (Treiblmaier & Garaus, 2023). Perceived quality drives purchase intentions in manufacturer brands (Walsh et al., 2012). We propose that consumers perceive systems with BCT applications as leading to better product quality perceptions than systems where BCT is not implemented. Therefore, Blockchain strengthens consumers' perceived quality of products, leading to their intention to buy them (Treiblmaier & Garaus, 2023) (Figure 5.6). We hypothesize

H1: ***Perceived product quality (PPQ) mediates the relationship between the application of blockchain technology and the intention to buy.***

Lack of trust is said to be a major reason for the slow development of e-commerce (Mainardes et al., 2020). Consumers' trust in the product, as well as the channel, affects their online purchase intentions (Pappas, 2016). They may disregard an e-commerce site if they feel the website, seller, or products are unauthentic (Liao & Zeng, 2021). BCT is known for establishing trust in the users and the platforms (Bezovski, 2021; Nigam, Sangal, et al., 2022). BCT implementation increases transparency, safety, security, fair trade, and price equality (Ferreira da Silva & Moro, 2021; D. D. H. Shin, 2019; Tan & Saraniemi, 2022). Assuming the application of BCT will lead to higher purchase intentions via a higher trust (TRST) in the product (Figure 5.6), We hypothesize:

H2: ***Trust (TRST) in the product mediates the relationship between the application of blockchain technology and the intention to buy.***

When consumers perceive a product's quality to be good, it is expected to lead to higher trust in that product (Akoglu & Özbek, 2021; Rosillo-Díaz et al., 2019). Therefore, not only will these variables mediate the relationship between the application of BCT and the intention to buy independently, but also serially (Figure 5.6). We hypothesize:

H3*: Perceived product quality and trust in the product serially mediate the effect of the application of blockchain technology on the intention to buy.*

Brand popularity is the degree to which consumers recognize and trust the brands (Dabir et al., 2020; Raj, 1985). A popular brand creates trust, credibility, and social proof. Consumers often choose them as they believe them to be more reliable. Brand involvement drives purchase intentions in manufacturer brands (Walsh et al., 2012). A blockchain-verified label represents a strong cue for consumers as its qualities like traceability and transparency are known to consumers (Treiblmaier & Garaus, 2023). We propose that consumers' buying intentions would be higher due to BCT application in the case of unpopular brands than for popular brands of beauty products because of the influence of branding (Figure 5.6). We hypothesize:

H4: *Brand Popularity moderates the direct relationship between the application of blockchain technology and the intention to buy.*

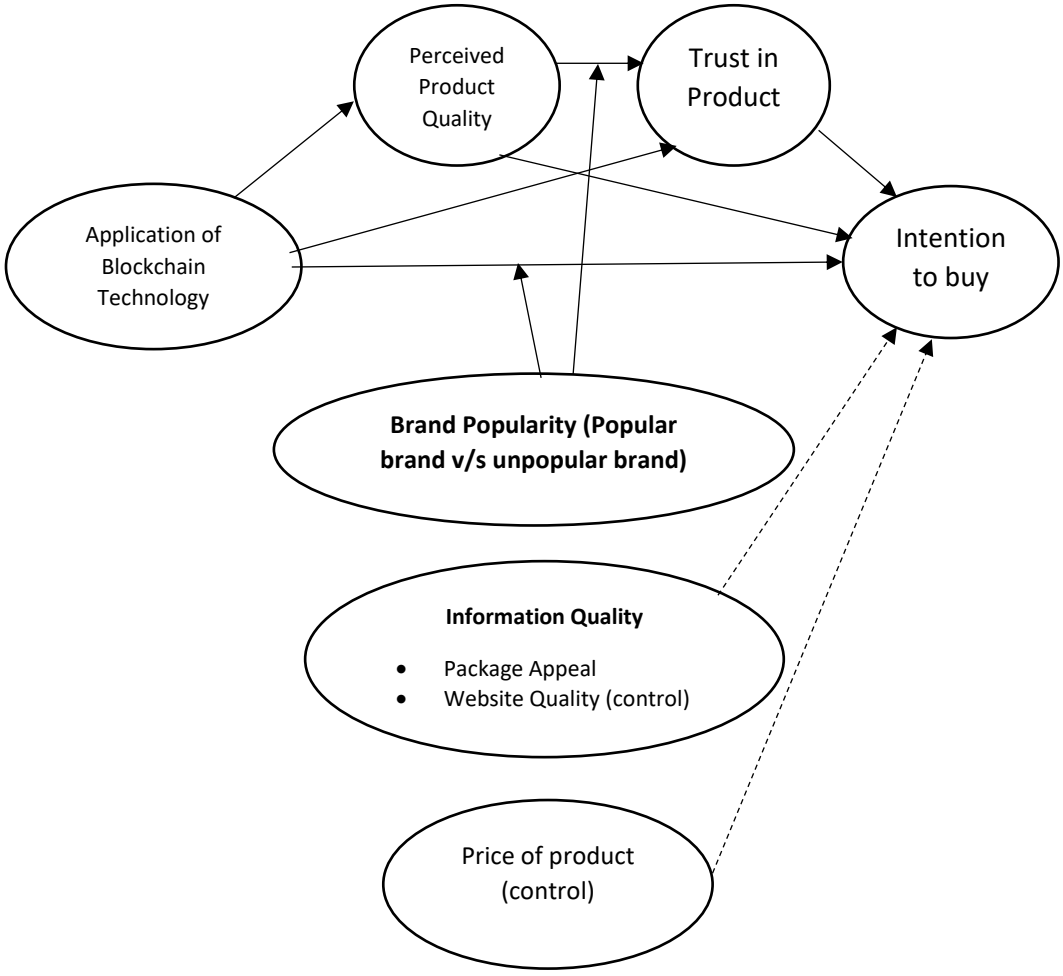
Further, this positive relation between perceived product quality and trust in the product is expected to be stronger in the case of unpopular brands with the application of BCT, as they do not have an established brand equity. Unpopular brands are lesser known to consumers, and their quality perceptions depend on different factors like the quality of information provided, i.e., website quality, product packaging, and technology adoption, among others (Rosillo-Díaz et al., 2019; Tsiotsou, 2006). Meanwhile, established brands are expected to have certain brand equity

and identity already, which makes them search for and buy more. So, we expect consumers to show a stronger effect/change in intention to buy unpopular brands with application to BCT compared to popular brands as customers hold a pre-existing trust in popular brands. Therefore, brands can moderate the serial mediation of hypothesis H3. We hypothesize:

H5: ***Brand popularity will moderate the indirect effect of the application of blockchain technology on the intention to buy serially mediated through perceived product quality and trust in the product.***

We controlled for the effect of information quality and price of the product. Information quality was measured on the basis of the package appeal and the information provided on the website snapshot (stimuli). The quality of the information provided on the site snapshot might affect their perceptions and intentions in different ways. Price was taken as the control variable for this because, though the price of products was fixed for both products the images in all four groups, the consumers may rate the products as expensive or affordable as per their varying purchasing power or budgets (Holbrook, 1992; Treiblmaier & Garaus, 2023; Wang et al., 2020).

Figure 5.6: Conceptual Model (CPA Model 91 with modifications) (Study 6)



Source: Author's creation

5.3.2 Research Design

For this study, an online survey experiment was conducted to test H1 to H5 using a questionnaire that divided our respondents into four groups [2*2 design]. The theoretical model (Figure 5.6) is tested using an online experiment with a posttest-only control group design (See Table 5.17). An experiment was considered for this study instead of quasi-experiments, as they can better identify causal relations. In experiments, randomizations allows the participants to be divided into groups based on the expectations of the variables, providing unbiased results of treatment effect (Hayes,

2013). The study tries to check the effect of the application of technology on the intention to buy beauty products. Further, it examines the mediation of variables perceived product quality and trust in products on a sample size of 200 participants. Also, the study tests the moderating role of brand popularity (popular brands v/s unpopular brands) through moderated mediation analysis via the PROCESS macro in R software.

Sampling

This study focuses on the purchase behaviors of Generation Z female consumers for beauty products sold online. The respondents were purposively screened and then randomly allotted to one of the four groups. The target population was Generation Z female consumers of the age group 18-26, as Generation Z is considered tech natives who are more comfortable with the adoption of technology and online shopping. Also, they are more familiar with digital technology-related terminology due to their early exposure to technology. Additionally, generation Z is believed to outpace Generation Y in terms of buying power (Munsch, 2021). Females were selected as target respondents for the experiment because, according to a study, females are more frequent beauty product buyers; they are more conscious about what products and ingredients they use on their skin than men of the same age group. Females have increasingly shown ecological concerns due to numerous synthetic cosmetics being sold in the market (Pudaruth et al., 2015). Moreover, a study revealed that 77% of females do not mind paying a few more bucks to get a better quality beauty product (S. Kim & Seock, 2009). Females spend more time reading product labels before buying products (Khraim, 2011). Hence, this study aims to get a deeper understanding of the buying behaviors of female consumers, specifically Generation Z.

Experimental process

The questionnaire was shared only with individuals who frequently buy beauty products from different online sites. For the data collection process, a reputed and reliable online research platform, Prolific, was used, through which our online experiment was conducted in twenty countries listed as emerging economies as per a recent report by IMF (*Miles to Go*, 2021). Data collection was done from 3rd August to 29th August 2023 until the desired data was obtained. In total, responses from 200 female respondents qualified for the final analysis. The experimental conditions are presented in Table 5.17.

Table 5.17: Experimental design

	Brand Popularity (Popular Brands v/s Unpopular Brands)	
Blockchain Technology	Popular Brands	Unpopular Brands
Adopted	Adopted + Popular Brands	Adopted + Unpopular Brands
Not adopted.	Not adopted + Popular Brands	Not adopted + Unpopular Brands

Measures

The questionnaire was divided into two parts (A and B). Part A consisted of the items assessing the three constructs, i.e., perceived product quality, trust in the product, and intention to buy, and the two control variables, i.e., information quality (package appeal and website design) and price of the product. Part B collected data on the demographic details of respondents.

Application of blockchain technology (independent variable) and Brand popularity (moderating variable), both dichotomous, were manipulated in the experimental conditions (without BCT (0) and with BCT (1), and unpopular brands (0) and popular brands (1)). The rest of the constructs were considered continuous and measured on a seven-point Likert scale.

Every questionnaire had a snapshot at the beginning, which represented an online platform selling beauty products (See Appendix A). Four different snapshots were used for each of the four groups. Every snapshot had two images of the real-world sunscreens with their title and brief description. Price was kept the same across all images to remove the price-based bias. For the first and third groups, the product images had a blockchain traceability label with "Blockchain Verified" written on them, while the second and fourth groups did not have any such labels (Treiblmaier & Garaus, 2023). The first and second groups were given images of the popular sunscreen brands Lakme and Loreal. These brands were selected on the basis of leading beauty brand lists in 2023 (*Mordor Intelligence, 2023*). Sunscreen was chosen for the experiment on the basis of another survey conducted on 100 respondents that studied the purchase behavior of Generation Z regarding beauty products. In this survey, they were asked about their most frequently bought beauty products online, along with the brands. This survey also confirmed Lakme and Loreal as the highly popular brands among Generation Z. Two different brands were chosen to ensure that popularity is at similar levels for both brands. For presenting the unpopular brands, the brand names Lakme and Loreal were replaced by an imaginary name, 'Fascia,' to keep the packaging design the same across all stimuli/images. First, a pilot study was conducted on 40 respondents, with ten respondents in each of the four groups, to check the feasibility and reliability of the experiment.

5.3.3 Data Analysis

Assessing reliability, validity, and common method bias

Confirmatory factor analysis was employed to assess the fit between observed data and a preconceived, theoretically grounded model. The value of the Kaiser–Meyer–Olkin (KMO) test was 0.9260 (above 0.7) (See Table 5.18). The significance level of Barlett's test of sphericity was

under 0.05. Upon conducting the factor analysis using principal component analysis with Varimax rotation, it was found that all the items of one construct are loading on the same factor, with a distinct factor for every construct that shows convergent validity (Table 5.19). Also, none of the items load on any other factor which states discriminant validity. The values of all factor loading were more than 0.6. All the values of Average Variance Extracted (AVE) and composite reliability (CR) are found to be above 0.5**.** Common method bias was tested using Harman's single-factor test. Using principal axis factoring, the percentage of variance was found to be within the threshold of 50 percent (44.08%), revealing that there was no common method bias in the data. Due to the strong associations between buying intention and the information quality and price covariates, we checked for their multicollinearity. The results showed that tolerance levels for all independent variables were greater than 0.1 thresholds, and values of variance inflation factor (VIF) for all independent variables fell within the thresholds (VIF<5) (Hayes, 2018; Hayes & Rockwood, 2020).

Table 5.18: KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.9260
Bartlett's Test of Sphericity	Approx. Chi-Square	2897.0160
	df	190
	Sig.	.0000

The value of Cronbach Alpha is 0.8670, which is above the 0.7 threshold level, showing the high reliability of all items of the constructs. All our scales show a convergent validity as the correlation of all the items within the scales lies between the range of 0.3 to 0.7, showing a statistically significant validity (DeVellis & Thorpe, 2021).

Table 5.19: Rotated Component Matrix

	Component				
	1	2	3	4	5
PPQ3	.7770				
PPQ2	.7740				
PPQ4	.7620				
PPQ1	.7510				
PPQ5	.6680				
IQ_Pkgdsn	.4560				
IQ_suitinfor		.8250			
IQ_Appinfo		.8170			
IQ_infoexp		.7800			
IQ_usefinfo		.7580			
IQ_Rrinfo		.7540			
ITB3			.8190		
ITB1			.8060		
ITB2			.7990		
P1				.8550	
P2				.8430	
P3				.7370	
TRST2					.8160
TRST1					.7370
TRST3					.7020

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.

All our scales also showed discriminant validity, as the correlations with unrelated constructs were weaker than those of related constructs. The significance levels for all the items are below the threshold of 0.05 for all items. Pearson's correlation coefficients for all items at a 95% confidence interval for 198 degrees of freedom (n-2) are greater than the critical value (0.138), making them highly significant for all items (DeVellis & Thorpe, 2021).

Table 5.20: Demographic profiles of respondents

	Variables	Count	Percentage
Age	18-26	200	100%
Occupation	Student	83	41.5%
	Employed part-time	27	13.5%
	Employed Full Time	81	40.5%
	Unemployed	9	4.5%
Educational Qualification	Undergraduate	140	70%
	Post Graduate	47	23.5%
	Doctoral Degree	3	1.5%
	Other	10	5%
Annual Income	Under 5,00,000 Rupees (6250 USD)	84	42%
	5,00,000 to 10,00,000 Rupees (6250- 12500 USD)	50	25%
	Above 10,00,000 Rupees (12500 USD)	19	9.5%
	Prefer not to say	48	24%
Frequency of buying beauty products online	Weekly	2	1%
	Once in 15 days	13	6.5%
	Monthly	116	58%
	Quarterly	69	34.5%

Demographic Profiles

The experiment was conducted on Generation Z female consumers, and all respondents were between the ages of 18 and 26. A majority of respondents were students (41.5%) and most of the respondents were undergraduate (70%). The annual income of 42% of the respondents was found to be under INR 5,00,000 (USD 6250). A majority of the respondents said they bought their beauty products on a monthly basis (58%) (See Table 5.20).

Hypotheses Testing

We used statistical methods of CPA using PROCESS macro in R software to test our different hypotheses. They can be explained by the following equations:

$$M_1 = i_{M_1} + a_1 X + \alpha_1 C_1 + \alpha_2 C_2 + e_{M_1}$$

$$M_2 = i_{M_2} + gX + b_1 M_1 + b_2 W + b_3 M_1 W + e_{M_2}$$

$$Y = i_Y + c'_1 X + c'_2 W + c'_3 XW + dM_2 + hM_1 + e_Y$$

Here, *X* is the independent variable, *Y* is the dependent variable, M_1 is the first mediator, M_2 is the second mediator, *W* is the moderating variable, and C_1 and C_2 are control variables. The coefficient *i* is the intercept term, *a* represents the strength of the path from *X* to M_1, b_1 represents the strength of the path from M_1 to M_2, b_2 represents the strength of moderator W between M_1 and M_2, b_3 represents the strength of the *XW* consensus to M_2, *d* represents the strength of the path from M_2 to *Y*. The coefficient g represents the strength of the path from *X* to M_2, and *h* represents the strength of the path from M_1 to *Y*. c'_1 represents the strength of the path from *X* to *Y* while controlling for M_1 and M_2, c'_2 represents the strength of the path from *W* to *Y*, c'_3 represents the strength of the *XW* consensus to *Y*, α_1 represents the strength of path from C_1 to *Y* and α_2 represents the strength of path from C_2 to *Y*. *'e'* is the regression residual (error term).

Hypotheses H1, H2, and H3 are tested using a serial mediation model, CPA Model 6, while H4 and H5 were tested using CPA Model 91 using PROCESS syntax with modifications in R software (Hayes, 2018).

***Indirect effects of X on Y*:**

The first indirect effect of the application of BCT on the intention to buy a beauty product via perceived product quality (BCT → PPQ → ITB) based on 5000 bootstrap samples was found to be significant with a score of 0.3926 with Bootstrapped Confidence Interval (BootCI) of 0.2401 and 0.5694, hence supporting H1 (See Table 5.21).

The second indirect effect of BCT → TRST → ITB based on 5000 bootstrap samples is estimated to be significant with a score of 0.2144, which lies in the range of 0.0729 and 0.3752, hence supporting H2 (See Table 5.22).

Table 5.21: Unconditional Indirect Effect - BCT → PPQ → ITB

Effect	Boot SE	BootLLCI	BootULCI
0.3926	0.0843	0.2401	0.5694

Table 5.12: Unconditional Indirect Effect - BCT → TRST → ITB

Effect	Boot SE	BootLLCI	BootULCI
0.2144	0.0775	0.0729	0.3752

Further, for the indirect effect of BCT → PPQ → TRST → ITB, the results of the analysis reveal that perceived product quality and trust in the product serially mediate the effect of the application of BCT on intention to buy with effect = 0.4156 and a Bootstrapped Confidence Interval from 0.2718 to 0.5892 (See Table 5.23), hence supporting H3**.**

Table 5.23: Indirect Effect of X on Y: BCT → PPQ → TRST → ITB

Effect	BootSE	BootLLCI	BootULCI
0.4156	0.0805	0.2718	0.5892

Index of Moderated Mediation

The index of moderated mediation quantifies the rate of change of the indirect effect of the application of BCT on the intention to buy through the mediators as the level of moderator changes (Hayes, 2018). If significant, it signifies a difference in the indirect effect when it is analyzed at different levels (conditions) of a moderator (brand popularity in this study).

For the indirect effect BCT → PPQ → TRST → ITB, the index of moderated mediation based on 5000 bootstrap samples is significant with a score of -0.1115 with a bootstrap confidence interval from -0.2228 to -0.0217 (Table 5.24). Further examination of the conditional indirect effect gives a positive effect size of 0.2204 with BootCI of 0.1264 and 0.3432 for unpopular brands condition and a significant effect size of 0.1089 with BootCI of 0.0276 and 0.2011 for popular brands condition (refer Table 5.25). The negative sign of the index of moderated mediation signifies that the indirect effect for unpopular brands (0.2204) is stronger than for popular brands (0.1089). These findings support H5 (See Table 5.25) and confirm the indirect effect of BCT→ PPQ → TRST → ITB is conditioned on brand popularity in the case of unpopular brands as well as popular brands. That is, the serial mediation of the effect of the application of BCT on the intention to buy through PPQ and trust is moderated by brand popularity.

Table 5.24: Index of moderated mediation (differences between conditional indirect effects)

	Index	BootSE	BootLLCI	BootULCI
Brand	-0.1115	0.0512	-0.2228	-0.0217

Table 5.25: Conditional Indirect Effect- BCT → PPQ → TRST → ITB

Brand	Effect	BootSE	Boot LLCI	BootULCI
0.0000	0.2204	0.0552	0.1264	0.3432
1.0000	0.1089	0.0442	0.0276	0.2011

Conditional direct effects of X on Y:

The direct effect of the application of BCT on the intention to buy a beauty product based on 5000 bootstrap samples is estimated to lie between 0.2393 and 0.8239 and was entirely above zero (β=0.5316, $p<0.05$) in the case of unpopular brands (See Table 5.26). The application of blockchain exerts a significant influence on the intention to buy a beauty product in the case of unpopular brands (brand=0). The case was also positive for popular brands (brand=1) (β=0.4200, $p>0.05$), lying between confidence intervals of 0.1483 and 0.6917, hence supporting H4.

Table 5.26: Conditional direct effect(s) of X on Y

Brand	effect	SE	t	p	LLCI	ULCI
0.0000	0.5316	0.1482	3.5873	0.0004	0.2393	0.8239
1.0000	0.4200	0.1378	3.0488	0.0026	0.1483	0.6917

5.3.4 Discussion

With the rising cases of adulteration, frauds, and counterfeits in the FMCG sector, especially in the beauty products industry, there's a need for higher transparency of information related to product manufacturing, ingredients, and other product details (Aziz et al., 2022; Bian & Haque, 2020). BCT has been established as a solution for improved transparency, immutability, and better

trust in various sectors (Alamsyah et al., 2023; Baralla et al., 2021). In this study, we investigated how BCT labels on beauty product listings online can influence the consumers' perceptions of these products' quality, trust, and hence their intention to buy.

Answering RQ1, the findings of our study confirm that the application of BCT in online beauty products selling platforms would lead to greater intention to buy. The study also confirms the indirect path, where the application of BCT leads to higher perceptions of product quality, further leading to higher trust in products, which in turn would lead to higher intention to buy, as proposed in RQ2. The results show that, as the labels that read "Blockchain Verified" are placed on product listings on the e-commerce platforms, it may create a perception of quality in the minds of consumers. Also, the assumption of the use of technology, i.e., blockchain, into the platforms would ensure the products are original and safe to use, which would build consumer trust. This relationship between the perceived quality of products and trust in products is found to be significant and positive in the case of both popular and unpopular brands but higher for unpopular brands where brand associations do not play any role. (Janiszewski & Van Osselaer, 2000). Popular brands have the support of brand equity, which makes a customer inclined to purchase a product from a known brand when other cues are absent (Akoglu & Özbek, 2021). This gives us a satisfactory explanation of why the effect of BCT application became more significant when the brands were unpopular.

The finding answers our RQ3 well. On accounting for the moderating effect of brand popularity, we find that in the case of unpopular brands, where the names of beauty brands are not so known to the consumers, blockchain application is efficient in building favorable perceptions of product quality and further build trust in the product, leading to higher buying intentions among consumers.

Visually, the moderating effect can be seen in Figures 5.7 and 5.8. In Figure 5.7, there is a difference in slope (0.5316 vs 0.4200) between the two plotted lines. For unpopular brands (solid black line, slope = 0.5316) and for popular brands (dotted black line, slope = 0.4200), the application of blockchain has a significant positive effect on purchase intentions for both popular and unpopular brands, but the effect is higher for unpopular brands.

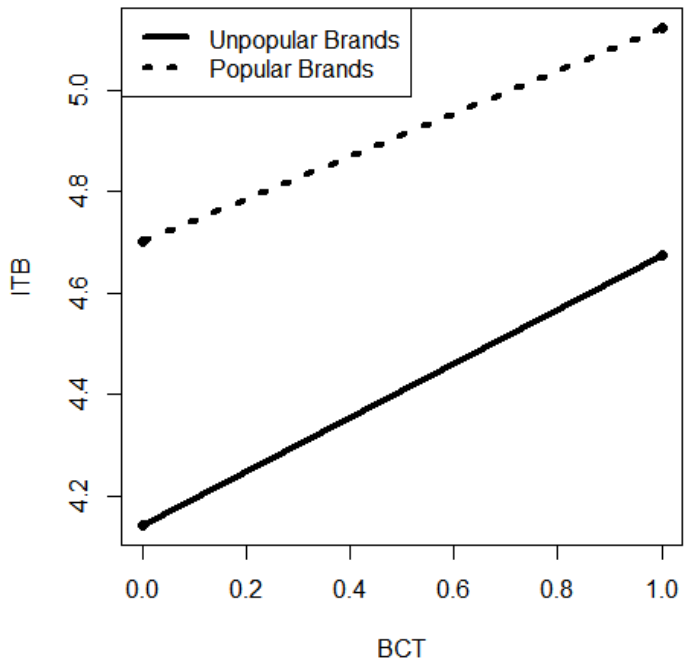


Figure 5.7: Intention to buy predicted by the application of blockchain (BCT), moderated by brand popularity. With BCT is referred to as 1; without BCT is referred to as 0.
Source: Author's creation

Similarly, as per our model, the indirect effect of the application of BCT on ITB mediated via PPQ and Trust was moderated by the brand popularity. The significance of the index of moderated mediation confirmed that there exists a difference in the application of BCT and intention to buy via serial mediation. The effect is more visible (0.2040 vs. 0.1080) in the case of unpopular brands compared to popular ones (Figure 5.8).

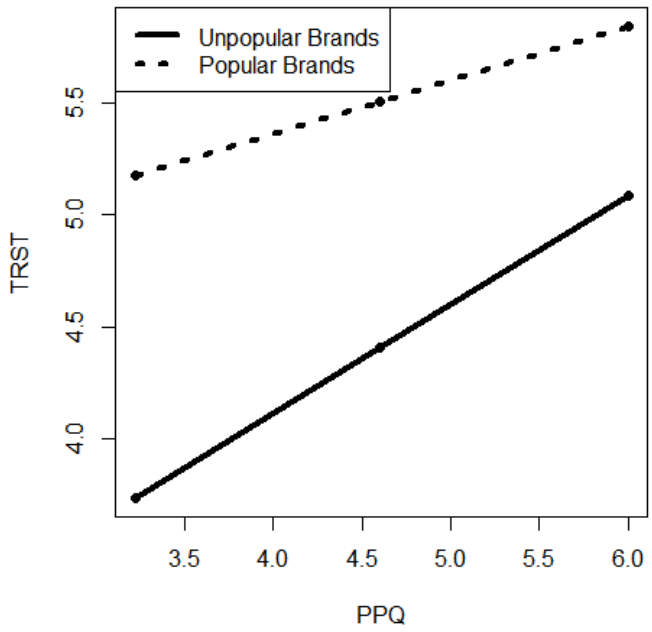


Figure 5.8: Trust in products is predicted by perceived product quality and moderated by brand popularity. Unpopular Brands refer to as Brand= 0; Popular Brands refer to as Brand =1. *Source: Author's creation*

The findings highlight the role of BCT in enhancing PPQ through information transparency and, hence, trust in beauty products extends the findings of the studies conducted in the food and beverage industry, supply chain, healthcare, etc. (Guo et al., 2022; Nguyen et al., 2022; Sangal et al., 2023). The results also extend the previous research on factors influencing the consumers' intention to buy FMCG products (Lavuri et al., 2022; Moslehpour et al., 2017; Munerah et al., 2021) with a technology implementation perspective. We show that if implemented, technology like BCT can help improve the intention to buy unpopular brands more than popular brands. This will help unpopular brands to compete against popular brands that take a huge share of the market based on their brand equity. The next chapter provides a holistic framework from the findings of the six studies conducted for this thesis.

CHAPTER 6- HOLISTIC FRAMEWORK

Chapter Overview: This chapter proposes a holistic framework from the findings of the three sectors studied in this thesis. To construct the framework, the findings from the studies conducted were analyzed, and the following steps were followed. First, we identified the points which have a general consensus within each of the three sectors. Next, we identified the commonalities and differences found in the three sectors studied. Using this method, we propose a holistic framework for our thesis.

6.1 Commonalities

6.1.1 Information asymmetry exists.

Information asymmetry occurs when one party possesses more information about a subject than the other, often leading to lack of trust among consumers (Pandey et al., 2024; Vosooghidizaji et al., 2020). Through our studies, we have identified information asymmetry as a primary cause of stagnant buying intentions and slow growth.

Omnichannel Healthcare Systems utilize various online and offline channels to facilitate interactions between patients and healthcare providers, ensuring seamless healthcare services (Azoev et al., 2019; Sangal et al., 2022a). However, when providers and patients communicate for the first time, there exists an information gap between them, particularly heightened in online interactions. In online peer-to-peer (P2P) platforms for second-hand automobiles, buyers and sellers convene to transact, browse options, or assess prices. Sellers frequently withhold accurate information, present counterfeit documents, and inflate product values (Butera et al., 2023). Similarly, sellers suspiciously view buyers with incomplete user profiles. This information

imbalance significantly hampers the growth of online second-hand product P2P platforms (Nigam, Sangal, et al., 2022). Similarly, in the beauty product market, contemporary consumers prioritize knowing the ingredients used, often inadequately disclosed by companies on e-commerce platforms. This lack of detailed product information creates an information gap between buyers and sellers, which pushes the buyers to go for popular brands than unpopular ones (Rubin & Brod, 2019). In summary, information asymmetry is a shared challenge across these industries, motivating our exploration of blockchain's role through various studies in significantly reducing this barrier of information asymmetry to smoothen business practices across different sectors.

6.1.2 Blockchain influences trust

As shown in the prior literature, blockchain technology is positioned as a trust-building mechanism (Ferreira da Silva & Moro, 2021; D. D. H. Shin, 2019). BCT has been adopted in various industries, like the supply chain, food industry, maritime, etc., to establish trust (Alamsyah et al., 2023; Pu & Lam, 2021; Queiroz et al., 2021). It is known for making the data tamperproof and immutable and providing business efficiency and competitiveness (Tan & Saraniemi, 2022). It is a technological innovation that helps remove friction between different stakeholders without changing the basic nature of business. Trust is critical in digital contexts, and our studies conceptualize and examine trust and blockchain applications (D. D. H. Shin, 2019).

In our study on the application of BCT in omnichannel healthcare (Sangal et al., 2023), we examined how different healthcare stakeholders and their functions can be integrated through BCT, which makes their engagement, exchange, and storage of information, as well as transactions, trustful and transparent.

Findings from the study of online second-hand automobile P2P platforms show how BCT can lead to improved trust and an increased number of transactions among users of P2P platforms that deal in second-hand automobiles. This could be due to the authentication and verification provided by BCT on every level of activity in the vehicle's journey, which the seller may hide and may find it difficult to present to the buyers in the absence of BCT. This could eliminate the need for a trusted third party, and the exchange between the users can take place smoothly with greater value addition for all (Jain et al., 2022; Luo et al., 2020; Nigam, Sangal, et al., 2022).

Similarly, in the online beauty products market, findings from our studies show that BCT can influence consumers' trust in an unpopular beauty product brand. The findings reveal that the role of BCT is stronger in the case of unpopular brands, where BCT has the ability to build trust among consumers by authenticating the manufacturing and supply chain details of the beauty products brands in comparison to popular brands. As consumers are more curious about detailed information about the products they use on their skin, new and unpopular brands can use BCT to build consumer trust (Sangal et al., 2022b).

In sum, in all the three sectors studied, BCT can be a significant factor affecting consumer trust.

6.1.3 Blockchain influences buying intentions.

Recent literature discusses the impact of BCT on consumers' purchasing and usage intentions within the food and beverage industry (Acciarini et al., 2023; Cao et al., 2023) (Acciarini et al., 2023; Cao et al., 2023). Our research has revealed that BCT consistently influences consumer purchasing and usage intentions positively across all three industries studied. In the rapidly growing omnichannel healthcare sector, where technologies are employed to integrate various online and offline channels, implementing BCT leads to enhanced functionality and improved

usage intentions among healthcare stakeholders such as doctors, patients, pharmacists, and management (Kaur et al., 2023; Massaro, 2021). Similarly, in peer-to-peer (P2P) platforms for second-hand automobiles, the adoption of BCT also positively affects the intention to purchase a used vehicle. Furthermore, our findings indicate that the implementation of BCT encourages consumers to consider purchasing unpopular beauty product brands (Dabir et al., 2020). Through multiple qualitative studies, surveys, and experiments, we conclude that BCT exerts a positive influence on consumers' usage and purchasing intentions (Nigam, Sangal, et al., 2022; Sangal et al., 2022b, 2023).

6.1.4 Information quality plays an important role.

In the era of big data, information plays a crucial role in predicting purchasing and usage intentions in online environments (Fadahunsi et al., 2019; Miller, 2005). The quality of information is paramount for consumers who seek assurance of safety from brands and sellers, especially in a landscape where fraud, misinformation, counterfeit goods, and obscured facts have become prevalent (Barbado et al., 2019; He et al., 2023; Mackey et al., 2020). In healthcare, where urgent medical situations can arise, transparent information is essential for all stakeholders to ensure timely and appropriate treatment. Whether it pertains to patients' medical records or healthcare professionals' credentials, users actively seek high-quality information (McGraw et al., 2009; Sui & Zhang, 2021).

Similarly, in peer-to-peer (P2P) platforms for second-hand products, both buyers and sellers should have comprehensive information about the items being transacted. It is commonly observed, particularly on platforms like OLX, that sellers often withhold significant details about their vehicles and sometimes inflate prices by altering the original information. Such practices can breed distrust among buyers.

In the online beauty products market, information quality is paramount for Generation Z consumers. Given that these products are applied to the skin, consumers demand transparency regarding ingredients, manufacturing processes, and other details. This underscores the critical role of information quality across the three sectors under examination.

6.2 Differences

6.2.1 Nature of Channels

In this thesis, the focus is on two different channels of businesses, i.e., 1) omnichannel system, in which major online and offline healthcare centers, dispensaries, and other setups are integrated together, and 2) online platforms, wherein we discuss the online second-hand automobiles market and beauty products market. Since BCT builds digital trust through its immutability, traceability, and transparency characteristics, our work provides valuable insights on varied channels.

6.2.2 Nature of Operations

The nature of operations of the three sectors is very different from that of each other. An omnichannel setup works with multiple integrated channels online and offline and connects all healthcare stakeholders, like medical professionals, patients, managers, staff storekeepers, etc. A Peer-to-peer platform for pre-owned products is a P2P arrangement where there is no third-party intervention. The risks and benefits are solely shared between the platform users (buyers and sellers). Finally, a beauty e-commerce site is a B2C business where popular and unpopular beauty brands display their products online, and consumers make a purchase. In our work, we studied the application of BCT from three perspectives on business operations.

6.2.3 Nature of products

Through the three different sectors, our work focuses on blockchain applications for three varied products. The first one is omnichannel healthcare services; since healthcare has always been a necessity for all consumers, irrespective of age or region, our study examines BCT's role in the service sector. The second product is pre-owned automobiles, which are tangible but high-priced products. Also, it is a depreciable asset, and consumers' involvement is required in making purchase decisions. The third product is a fast-moving consumer good (FMCG) that is required in households at frequent intervals. Beauty and skincare is a crucial product category catering to consumers' basic hygiene needs. Hence, through the studies, we have tried to reach both new products and used goods markets, low-price and high-price goods markets, and products as a service.

6.3 Holistic Framework

To develop this holistic framework, we have allocated all the challenges faced by stakeholders in the three sectors, which we have identified through our three qualitative studies. Next, the common themes from the stated challenges were identified. Further, we propose a suitable solution that can help in resolving the challenges (Table 6.1).

Table 6.1: Holistic Framework Overview

	Omnichannel Healthcare Systems	**Online Second-hand automobile P2P Platforms**	**Online Beauty Products Market**
Challenges Faced in the industries studied	• Poor information processing capabilities • Generation of enormous health data	• Unavailability of desired used automobiles • Over-evaluation of the price of automobiles by sellers.	• Incomplete information about products • Hidden ingredients • Lack of transparency

	• Fragmented digital data management • Lack of interoperability • Neglecting consent • Data Privacy issues	• Hidden facts and product details. • Online transaction risk with unknown parties • Data privacy for sellers	• Product safety concerns in trying unpopular brands • Counterfeit products
Common Themes	• **Information Asymmetry** • **Consumers'/Stakeholders' Lack of trust** • **Data Privacy** • **Fragmented Information**		
Proposed Solution **Key characteristics**	**Application of Blockchain Technology** Transparency, Traceability, Immutability, Authentication Decentralization, Data Security, Trust		
How can BCT help resolve these challenges?	**Omnichannel Healthcare Systems**	**Online Second-hand automobile P2P Platforms**	**Online Beauty products market**
	• BCT-based authentication can verify identity attributes without disclosing sensitive information. This helps in building stakeholder trust in OHS. • BCT's inherent privacy and security features provide data protection to healthcare stakeholders and make sharing the same information quick while also encrypting it with private keys and solving	• BCT can provide complete, true and fair information related to its previous owners, services, and repairs history. This helps in reducing information asymmetry. • BCT provides faster, more reliable verification of credentials and information. • Improving transparency among users builds trust among them. • The traceability feature of BCT can help reduce fraud and protect against liability if all	• Using BCT online platforms can provide transparent information that is authentic, builds consumers' trust, & benefits the new and unpopular brands in the market. • Product ingredients, manufacturing details, supply chain details, etc., can be traced by the buyers via BCT, which will lead to reduced information asymmetry and

	fragmented data issues. • Decentralization of data improves interoperability among healthcare organizations and combats counterfeit medicines, building patients' trust.	information/transactions are immutable. • BCT can solve the issue of fragmented data and data privacy by storing and encrypting the data in blocks.	improved brand sales.

Source: Author's creation

The next chapter discusses the implications, limitations, and future research directions for the studies conducted for this thesis.

CHAPTER 7 – IMPLICATIONS, LIMITATIONS AND FUTURE RESEARCH DIRECTIONS

Chapter Overview: This chapter discusses the theoretical and managerial implications of the research. It is worth noting that no research is devoid of its limitations. However, these limitations serve as a scope for future research studies. So, we also detail the critical limitations of our research, followed by the future research directions for future researchers.

7.1 Implications of Research Findings

We discuss various theoretical and managerial implications of our research as follows:

7.1.1 Theoretical Implications

Theoretical Implications in Healthcare: The studies provide theoretical contributions to STT and OIPT, both jointly and individually, in the domain of blockchain capabilities and healthcare. First, the studies are among the initial studies that discuss STT for omnichannel healthcare. Our study extends the STT literature by testing the role of STT in influencing consumers' continued usage intention for OHS, which other researchers have ignored (Chang et al., 2023). Second, these studies add to the existing literature on OIPT by testing the role of information exchange, processing capabilities, and information quality, which is essential in an OHS where a vast amount of information is exchanged across channels. Third, it applies OIPT and ST to explain the impact of BCT on CUI through ST and IQ in omnichannel healthcare in the context of emerging economies. The dual theoretical perspective opens new avenues for the healthcare management literature to understand the role of BCT in providing immutability across all channels since earlier, these theories have been studied individually (Behl, Gaur et al., 2022; Dubey et al., 2020). The

conceptual model establishes linkages between constructs BCT and CUI (Dionysis et al., 2022). The technical, operational, and legal challenges of omnichannel healthcare were explored using these theoretical lenses. The study extends the BCT literature by examining its role in improving consumers' continuous usage intention for OHS (Dubey et al., 2020; Yu et al., 2021).

Theoretical Implications in second-hand automobile P2P platforms*:* By applying the theoretical constructs of the RBV, STT, and TBMT, this study sheds light on developing triple theoretical perspectives of current challenges in pre-owned automobile transactions, the scope of blockchain in second-hand automobile transactions, and concerns regarding blockchain adoption in second-hand automobile transactions (Giustiziero et al., 2023; Madhani, 2010). This study enriched blockchain literature in the context of the second-hand automobile industry (Dubey et al., 2019; M. Zhang, 2006).

The quantitative study makes theoretical contributions by jointly and individually extending STT and TBMT in the domain of BCT and second-hand automobile P2P platforms. This study provides a comprehensive understanding of the role of trust among buyers and sellers in blockchain-enabled P2P platforms. Although many studies have reported BCT as a trust-building mechanism, the literature on the application of BCT on P2P platforms to build both short and long-term trust is still scant. STT has been extensively used in the literature concerning teams that must coordinate their respective activities without prior experience working together (Germain & McGuire, 2014). STT has been previously applied to the contexts of healthcare, defense, retailing, and other critical businesses in which teams are formed and need to perform at short notice (Kroeger et al., 2021; Leung et al., 2022). Online SHP trading via P2P platforms is another context in which swift trust

needs to be formed between unacquainted users who need to coordinate their actions (Dubey et al., 2020).

Further, long-term trust needs to be established between a platform and its users so that they can return to it (Baah-Peprah & Shneor, 2022; Ozbal et al., 2020). Our study extends the prior ones on TBMT by explaining the importance of establishing trust between online P2P platforms and their users for repeated SHP transactions. Our results show that trust-based marketing by using trust-building technologies is crucial in enhancing the intention to transact on online P2P platforms (Nigam, Sangal, et al., 2022). From the theoretical perspective of TBMT, in a blockchain-enabled P2P platform, information quality and trust jointly affect users' decisions. This is why we needed to examine the holistic role played by trust in buyers' behaviors.

Theoretical Implications in the Online Beauty Products Market: The studies extend SDT in exploring the online purchase behavior of Generation Z females for branded and new-brand beauty products. Extrinsic and intrinsic motivations both affect consumers' purchase decisions for beauty product brands (Behl et al., 2021; Deci et al., 2017; Ryan & Vansteenkiste, 2023). The studies show that, at present, consumers are more convinced to buy a new/unpopular brand through extrinsic factors (discounts and other promotions) than intrinsic motivations while buying a new-brand product. When individuals purchase new-brand products, there is a concern for autonomy and competence to trust these products due to the information gap between the buyers and sellers (Behl et al., 2020; DAVIDOVIC, 2020; Urban, 2003). Further, consumers do not prefer push marketing in the long term when compared to trust-based marketing. Higher trust is expected to make individuals perceive higher autonomy towards unpopular beauty brands' products and

motivate them to buy more (Baah-Peprah & Shneor, 2022). This study further extends the literature on associating technology with marketing in e-commerce.

An integration of TBMT with STT provides fresh avenues to the online beauty industry literature for developing consumer trust. We try to build trust among consumers through BCT, as it is known to provide true, fair, and unbiased information about the products. It explores the role of BCT in establishing a trust-based marketing strategy that can possibly shift consumers' mindset from extrinsic rewards while purchasing unpopular brand products to intrinsic factors (Cao et al., 2023; Deci et al., 2017; Urban, 2003; Zavolokina et al., 2020). For example, consumers can be sure of the product's raw materials sourcing, manufacturing information, and supply chain details before purchasing. This would possibly lead to higher consumer satisfaction and build trust relationships among consumers and unpopular brands (Tapscott & Euchner, 2019; Urban et al., 2009; Zavolokina et al., 2020).

Looking at the issues of unfavorable quality perceptions and lack of trust in unpopular brands of beauty products, the application of blockchain through BCT-verified labels on product listings would help in building a temporary form of swift trust among the buyers, in turn leading to higher intentions to buy the products. Swift trust has earlier been mostly discussed in the context of virtual teams, organizations, and groups formed temporarily for a purpose (Germain & McGuire, 2014; McLaren & Loosemore, 2019). However, this study sheds light on the role of swift trust for individuals in online markets. The implementation of BCT would lead to higher transparency and immutability of the information available on beauty e-commerce sites, encouraging consumers to make repeated purchases in the long run. Our conceptual model establishes linkages between the constructs leading to the application of blockchain to the intention to buy. This extends the extant

literature by highlighting the serial mediating effect of PPQ and Trust in this relationship, which has not been studied in the past.

7.1.2 Managerial Implications

Implications for healthcare managers*:* This study provides valuable managerial insights to healthcare management, marketers, and other healthcare stakeholders, especially in omnichannel healthcare setups, to invest in BCT for improved trust and service usage in the long run. Our study suggests that managers in the healthcare industry in emerging economies should consider the adoption of BCT since healthcare is moving toward an omnichannel setup where all possible channels of communication will be interlinked. The conceptual framework from our qualitative study provides healthcare managers with an overview of the five dimensions of adopting blockchain in an omnichannel healthcare setup. The propositions provided in the study can help healthcare practitioners and managers make strategic decisions on the scope of the adoption of blockchain in healthcare. The study can also help managers solve the technical, operational, and legal challenges faced in routine functioning at hospitals. Health organizations having such omnichannel systems are expected to leverage the benefits. It might be helpful for healthcare organizations who want to innovate and integrate their online and offline channels using the latest technologies to create a smooth interface for their patients. Blockchain implementation has the ability to reshape the healthcare industry. Its applications, like distributed and secured medical data and patient-centric systems, would boost the efficiency of the healthcare sector. The study helps the management restructure their OHS and enable transparency between the patients, providers, and the platforms. BCT has the potential to address crucial issues in the business, such as tracing medications through the supply chain, thereby preventing the use of counterfeit drugs

and medical devices and saving people's lives. Moreover, with the application of blockchain capabilities, managers can improve their overall performance (Dionysis et al., 2022). BCT has the potential to influence healthcare information quality and the overall continued usage intention of omnichannel healthcare. In situations like a pandemic or other unforeseen medical emergencies, swift trust becomes crucial as the urgencies are high. This study would also help healthcare managers foster trust and coordination, thereby reducing healthcare management risks and making OHS more resilient in critical situations (V. Chang et al., 2023). This research helps marketers envision the avenues of BCT implementation in the firms from customers' point of view. Management would understand how consumers react to the implementation of disruptive technologies in crucial sectors like healthcare.

Implications for managers in the online second-hand automobile market*:* Every time a new technology is adopted, the existing equilibrium will be disturbed. BCT will affect sectors where information asymmetry is greatest (Liu et al., 2021). Managers of websites such as OLX (marketplace) should welcome the adoption of blockchain by the automobile sector. If the automobile sector adopts BCT, the ads listed on such websites will have a significantly higher level of trust embedded in them. Both buyers and sellers on the platform would feel comfortable moving forward with the transaction (Tian & Hu, 2023)**.** This will further allow buyers and sellers located in geographically distant locations to transact with each other with confidence (Dubey et al., 2020). It may be possible that the buyers and sellers can complete the whole transaction digitally without meeting in person with BCT adoption. Websites, such as OLX, could use such opportunities to move to a paid (subscription) model using the network effects and huge user base they have gathered over the years. Given the inherent bidding in such trades, with transparency

and trust, the users would find it convenient to bid online. BCT would allow buyers to assess a fair value, but it will not stop them from bidding more than others (Dubey et al., 2020)

Pre-owned automobile aggregators would need to adapt to the changing technological environment (P & A, 2022). The business of automobile aggregators can go to marketplace websites such as OLX. With the increased trust, buyers and sellers would like to cut down the commission that aggregators take away due to information asymmetry. On the positive side, the aggregators can extend their business model. With BCT adoption, transactions can happen even when buyers and sellers are located in geographically separate cities. With adequate information, they may prefer to complete the transaction digitally. At this stage, the need to shift the automobile from seller to buyer, servicing the automobile as per the need of the new buyer, etc., may arise. Thus, by providing such services, automobile aggregators may expand the scope of their business as BCT gets adopted by the pre-owned automobile sector**.**

Implications for the managers and marketers in the beauty industry: This research contributes to the domain of purchase behavior towards beauty brands. It will aid startups and micro, small, and medium businesses (MSMEs) that are launching their new products on e-commerce sites to leverage new technologies and improve sales. With e-commerce being a rapidly growing sector with enormous scope in the present and future, it becomes crucial for MSME sellers to understand consumers' purchase behavior in online settings. The findings of this study provide insights to the new brand managers who try to compete with popular brands and use the online channel as their preferred distribution channel. Since the behaviors of Generation Z consumers are based on how they interpret the stimuli, it can be said that the perceptions formed by Generation Z females are influenced by the information provided by the firms. The unpopular beauty brand owners can claim higher transparency and provide true and honest information to build initial trust among the buyers

by using BCT on their online platforms. Efforts are required to make unpopular brands more trustworthy. Such brands should focus on trust-based marketing and explore BCT to build trust. Using BCT will allow the consumer to trust not only the manufacturer's communications but also communications from other sources like sellers and supply chain partners, as blockchain can be used to integrate the entire supply chain to provide details related to manufacturing, availability, and supply. Such initiatives make these unpopular brands stand out from the others and help in fostering long-term trust. Marketers can market their brands as honest and transparent brands, which is the new craze among Generation Z consumers. This research also throws light on the opportunities for the application of BCT in e-commerce as well as the offline retail sector via a traceability label and scan-and-verify system for varied product categories, which require high consumer involvement.

7.2 Limitations and Future Research Directions

Since BCT is in its early stage of deployment, very few people apart from the experts understand the role of integrating technologies like BCT into omnichannel healthcare, the second-hand goods market, and the beauty industry. We aimed to study the usage behavior of Generation Z candidates residing in emerging economies. Future research can be conducted to test the model on millennials, Generation X, and others. We also encourage researchers to conduct similar studies in developed economies to explore the scope of BCT in the three sectors. In quantitative studies, the data collected is cross-sectional. Though it is a valid method, future researchers can also conduct longitudinal studies to get a comprehensive overview of BCT implementation. Every study has been viewed from the lens of two theories; researchers can use more theories in the same context in the future. We also state the sector-specific limitations and future research directions as follows:

7.2.1 Limitations and future research directions in the omnichannel healthcare:

The qualitative study identifies the challenges in adopting blockchain in omnichannel healthcare in emerging economies, but more data is needed to ensure the propositions. The Delphi technique used in the qualitative study used the judgment of the area experts to prove the accuracy. This might be a limitation for the researchers who want to apply the proposed framework outside the healthcare domain. Another limitation of the study is that only the patients' responses were collected through the survey. Future researchers can also study the responses of other healthcare stakeholders.

7.2.2 Limitations and future research directions in the online second-hand products markets:

Digitization is being adopted rapidly, and more automobile-related documentation work is carried out online. It is possible that after a few years, the information asymmetry may be reduced even without BCT adoption. The cumulative benefit due to the adoption of BCT may be less than the cost incurred. A major limitation that we see from the application perspective of our findings in the success of BCT in pre-owned markets in emerging economies like India is due to network externalities. The pre-owned automobile industry is majorly fragmented. Unless the industry as a whole adopts BCT, the effectiveness of such a technology in enhancing trust can be limited. Not all participants in this industry may be equally enthusiastic about adopting BCT. Such an adoption may need intervention from regulatory authorities that can enforce such an adoption of technology. We have focused on second-hand automobiles. We suggest researchers examine the scope of BCT in other product categories (e.g., second-hand apparel, used electronics, etc.). It is possible that in some product categories (e.g., low-involvement products), the value addition via BCT may not be significant enough to justify its adoption. Finally, an interesting area of research is to see the

difference between consumer-to-consumer and business-to-business transactions for second-hand automobiles.

7.2.3 Limitations and future research directions in the online beauty products market:

Consumers from developed countries can behave differently towards products of unpopular beauty brands depending on their trust in manufacturers and sellers of brands that are unpopular. Researchers, managers, or practitioners from other countries shall check before generalizing these findings. Second, the studies have been conducted in an online context; researchers are encouraged to perform similar studies in an offline context. Finally, future studies can be conducted to study the effect of blockchain on purchase decisions for different product categories.

The next chapter summarizes the six multi-sectoral studies examining the impact of blockchain technology (BCT) on consumer behavior in the healthcare, automobile, and beauty sectors.

CHAPTER 8: CONCLUSION

The demand for healthcare services is unlike the demand for any other consumer products. Healthcare is essential for two reasons: longevity and quality of life. Our studies focus on the need to develop a proper omnichannel healthcare system that benefits both the healthcare institutions and the stakeholders, thereby expanding the reach of healthcare services. Through our thesis, we discussed the potential role of blockchain in omnichannel healthcare management. The study examines the role of BCT on the continued intention of stakeholders to use OHS by improving swift trust and information quality. Drawing broadly on STT and OIPT, the research focuses on building a presumptive form of trust among healthcare stakeholders and improving the information processing needs and capabilities of OHS using BCT. The findings suggest that OHS should use BCT for better coordination, security of information, and continued usage intention. Hence, this research presents a novel solution for the omnichannel healthcare industry.

With growing urbanization, disposable incomes, and a growing middle class, we see a change in consumer preferences in terms of inclination toward pre-owned automobiles. As consumers switch to P2P platforms for trading used automobiles, lack of trust becomes a common challenge. Our studies uncover the effect of blockchain in influencing users' intention to buy second-hand automobiles from online P2P platforms, mediated via information quality and trust in users, conditional to the vehicle age. Using the dual theoretical lenses of STT and TBMT, this study shows the positive effect of BCT on improving the quality of information available on online platforms, the trust among buyers and sellers (users), and the buying intentions of users towards second-hand automobiles.

In the past years, the beauty industry has seen a dominant influence from consumers. With significant purchasing power, buyers now prioritize safety and health considerations when it comes to beauty care. Our studies investigate how blockchain technology labels on beauty products' online listings can influence consumers' perceptions of these products' quality, trust, and, hence, their intention to buy. Drawing broadly on STT and TBMT, the studies state that the application of blockchain-based labels on beauty products and on e-commerce platforms leads to higher buying intentions for unpopular brands than for popular brands. Extant literature refers to blockchain as a potential technology for building trust in different areas, but no empirical study has tried to show how it can revolutionize the beauty industry, especially from the consumers' perspective. This study is empirical evidence that highlights how transparency and traceability enabled through BCT could be important indicators of consumers' perceptions and trust in a beauty product brand.

Overall, based on the findings of our six multi-sectoral studies, we conclude that the application of BCT has a significant positive effect on the buying and usage intentions of consumers for the three sectors studied. BCT would not only help build consumer trust but also help organizations and sellers improve their marketing practices and make the functioning of their processes more efficient.

REFERENCES

Abu-elezz, I., Hassan, A., Nazeemudeen, A., Househ, M., & Abd-alrazaq, A. (2020). The benefits and threats of blockchain technology in healthcare: A scoping review. *International Journal of Medical Informatics*, *142*, 104246. https://doi.org/10.1016/j.ijmedinf.2020.104246

Acciarini, C., Cappa, F., Di Costanzo, G., Prisco, M., Sardo, F., Stazzone, A., & Stoto, C. (2023). Blockchain technology to protect label information: The effects on purchase intentions in the food industry. *Computers & Industrial Engineering*, *180*, 109276. https://doi.org/10.1016/j.cie.2023.109276

Agbo, C. C., & Mahmoud, Q. H. (2020). Blockchain in Healthcare: Opportunities, Challenges, and Possible Solutions. *International Journal of Healthcare Information Systems and Informatics*, *15*(3), 82–97. https://doi.org/10.4018/IJHISI.2020070105

Ahmad, R. W., Salah, K., Jayaraman, R., Yaqoob, I., Ellahham, S., & Omar, M. (2021). The role of blockchain technology in telehealth and telemedicine. *International Journal of Medical Informatics*, *148*, 104399. https://doi.org/10.1016/j.ijmedinf.2021.104399

Ahn, J., & Kwon, J. (2022). Shopping with perceived benefits of sustainable consumption in online resale platforms. *Marketing Intelligence & Planning*, *40*(3), 408–424. https://doi.org/10.1108/MIP-06-2021-0203

AIIMS cyber attack: Delhi Police seeks information on Chinese hackers through Interpol—India Today. (2022). https://www.indiatoday.in/india/story/aiims-cyber-attack-delhi-police-seeks-information-chinese-hackers-interpol-ifso-cbi-2310502-2022-12-18

Akerlof, G. A. (1978). THE MARKET FOR "LEMONS": QUALITY UNCERTAINTY AND THE MARKET MECHANISM In *Uncertainty in Economics* (pp. 235–251). Elsevier. https://doi.org/10.1016/B978-0-12-214850-7.50022-X

Akkaoui, R. (2021). Blockchain for the Management of Internet of Things Devices in the Medical Industry. *IEEE Transactions on Engineering Management*, 1–12. https://doi.org/10.1109/TEM.2021.3097117

Akoglu, H. E., & Özbek, O. (2021). The effect of brand experiences on brand loyalty through perceived quality and brand trust: A study on sports consumers. *Asia Pacific Journal of Marketing and Logistics*, *34*(10), 2130–2148. https://doi.org/10.1108/APJML-05-2021-0333

Alamsyah, A., Widiyanesti, S., Wulansari, P., Nurhazizah, E., Dewi, A. S., Rahadian, D., Ramadhani, D. P., Hakim, M. N., & Tyasamesi, P. (2023). Blockchain traceability model in the coffee industry. *Journal of Open Innovation: Technology, Market, and Complexity*, *9*(1), 100008. https://doi.org/10.1016/j.joitmc.2023.100008

Al-Debei, M. M., Akroush, M. N., & Ashouri, M. I. (2015). Consumer attitudes towards online shopping: The effects of trust, perceived benefits, and perceived web quality. *Internet Research*, *25*(5), 707–733. https://doi.org/10.1108/IntR-05-2014-0146

Almanasreh, E., Moles, R., & Chen, T. F. (2019). Evaluation of methods used for estimating content validity. *Research in Social and Administrative Pharmacy*, *15*(2), 214–221. https://doi.org/10.1016/j.sapharm.2018.03.066

Alqaralleh, B. A. Y., Vaiyapuri, T., Parvathy, V. S., Gupta, D., Khanna, A., & Shankar, K. (2021). Blockchain-assisted secure image transmission and diagnosis model on Internet of Medical Things Environment. *Personal and Ubiquitous Computing*. https://doi.org/10.1007/s00779-021-01543-2

Arul, R., Alroobaea, R., Tariq, U., Almulihi, A. H., Alharithi, F. S., & Shoaib, U. (2021). IoT-enabled healthcare systems using blockchain-dependent adaptable services. *Personal and Ubiquitous Computing*. https://doi.org/10.1007/s00779-021-01584-7

Asan, O., Bayrak, A. E., & Choudhury, A. (2020). Artificial Intelligence and Human Trust in Healthcare: Focus on Clinicians. *Journal of Medical Internet Research*, *22*(6), e15154. https://doi.org/10.2196/15154

Attaran, M. (2020). Blockchain technology in healthcare: Challenges and opportunities. *International Journal of Healthcare Management*, 1–14. https://doi.org/10.1080/20479700.2020.1843887

Azaria, A., Ekblaw, A., Vieira, T., & Lippman, A. (2016). MedRec: Using Blockchain for Medical Data Access and Permission Management. *2016 2nd International Conference on Open and Big Data (OBD)*, 25–30. https://doi.org/10.1109/OBD.2016.11

Aziz, A. A., Nordin, F. N. M., Zakaria, Z., & Abu Bakar, N. K. (2022). A systematic literature review on the current detection tools for authentication analysis of cosmetic ingredients. *Journal of Cosmetic Dermatology*, *21*(1), 71–84. https://doi.org/10.1111/jocd.14402

Azoev, G., Sumarokova, E., & Butkovskaya, G. (2019). Marketing communications integration in healthcare industry: Digitalization and omnichannel technologies. *Proceedings of the International Scientific and Practical Conference on Digital Economy (ISCDE 2019)*. Proceedings of the International Scientific and Practical Conference on Digital Economy (ISCDE 2019), Chelyabinsk, Russia. https://doi.org/10.2991/iscde-19.2019.182

Baah-Peprah, P., & Shneor, R. (2022). A trust-based crowdfunding campaign marketing framework: Theoretical underpinnings and big-data analytics practice. *International Journal of Big Data Management*, *2*, 1. https://doi.org/10.1504/IJBDM.2022.119453

Babin, B. J., Feng, C., & Borges, A. (2021). As the wheel turns toward the future of retailing. *Journal of Marketing Theory and Practice*, *29*(1), Article 1. https://doi.org/10.1080/10696679.2020.1860688

Bai, C. A., Sarkis, J., & Xue, W. (2024). Improving operational efficiency and effectiveness through blockchain technology. *Production Planning & Control*, *0*(0), 1–9. https://doi.org/10.1080/09537287.2024.2329182

Balasubramanian, S., Shukla, V., Sethi, J. S., Islam, N., & Saloum, R. (2021). A readiness assessment framework for Blockchain adoption: A healthcare case study. *Technological Forecasting and Social Change*, *165*, 120536. https://doi.org/10.1016/j.techfore.2020.120536

Baltimore, D., Charo, R. A., Kevles, D. J., & Benjamin, R. (2016). *Summit on Human Gene Editing*. 10.

Baralla, G., Pinna, A., Tonelli, R., Marchesi, M., & Ibba, S. (2021). Ensuring transparency and traceability of food local products: A blockchain application to a Smart Tourism Region. *Concurrency and Computation: Practice and Experience*, *33*(1). https://doi.org/10.1002/cpe.5857

Barbado, R., Araque, O., & Iglesias, C. A. (2019). A framework for fake review detection in online consumer electronics retailers. *Information Processing & Management*, *56*(4), 1234–1244. https://doi.org/10.1016/j.ipm.2019.03.002

Barnes, S. J. (2020). Information management research and practice in the post-COVID-19 world. *International Journal of Information Management*, *55*, 102175. https://doi.org/10.1016/j.ijinfomgt.2020.102175

Barney, J. (1991). Firm Resources and Sustained Competitive Advantage. *Journal of Management*, *17*(1), 99–120. https://doi.org/10.1177/014920639101700108

Barney, J. B. (2021). The Emergence of Resource-Based Theory: A Personal Journey. *Journal of Management*, *47*(7), 1663–1676. https://doi.org/10.1177/01492063211015272

Bauman, A., & Bachmann, R. (2017). Online Consumer Trust: Trends in Research. *Journal of Technology Management & Innovation*, *12*(2), 68–79. https://doi.org/10.4067/S0718-27242017000200008

Baxter, W., & Childs, P. (2017). Designing circular possessions. In *Routledge Handbook of Sustainable Product Design*. Routledge.

Bayram, M., Springer, S., Garvey, C. K., & Özdemir, V. (2020). COVID-19 Digital Health Innovation Policy: A Portal to Alternative Futures in the Making. *OMICS: A Journal of Integrative Biology*. https://doi.org/10.1089/omi.2020.0089

Beauty and Personal Care Products Market Report, 2030. (2023, January 1). https://www.grandviewresearch.com/industry-analysis/beauty-personal-care-products-market

Becerra, E. P., & Korgaonkar, P. K. (2011). Effects of trust beliefs on consumers' online intentions. *European Journal of Marketing*, *45*(6), 936–962. https://doi.org/10.1108/03090561111119921

Beh, L.-S., Ghobadian, A., He, Q., Gallear, D., & O'Regan, N. (2016). Second-life retailing: A reverse supply chain perspective. *Supply Chain Management: An International Journal*, *21*(2), 259–272. https://doi.org/10.1108/SCM-07-2015-0296

Behl, A., Dutta, P., Luo, Z., & Sheorey, P. (2021). Enabling artificial intelligence on a donation-based crowdfunding platform: A theoretical approach. *Annals of Operations Research*. https://doi.org/10.1007/s10479-020-03906-z

Behl, A., Dutta, P., Sheorey, P., & Singh, R. K. (2020). Examining the role of dialogic communication and trust in donation-based crowdfunding tasks using information quality perspective. *The TQM Journal*, *ahead-of-print*(ahead-of-print). https://doi.org/10.1108/TQM-06-2020-0139

Behl, A., Gaur, J., Pereira, V., Yadav, R., & Laker, B. (2022). Role of big data analytics capabilities to improve sustainable competitive advantage of MSME service firms during COVID-19 – A multi-theoretical approach. *Journal of Business Research*, *148*, 378–389. https://doi.org/10.1016/j.jbusres.2022.05.009

Behl, A., Jayawardena, N. S., Pereira, V., & Sampat, B. (2022). Assessing retailer readiness to use blockchain technology to improve supply chain performance. *Journal of Enterprise Information Management*, *ahead-of-print*(ahead-of-print). https://doi.org/10.1108/JEIM-07-2022-0242

Behl, A., Sampat, B., Pereira, V., Jayawardena, N. S., & Laker, B. (2023). Investigating the role of data-driven innovation and information quality on the adoption of blockchain technology on crowdfunding platforms. *Annals of Operations Research*. https://doi.org/10.1007/s10479-023-05290-w

Ben Amor, N., & Ben Yahia, I. (2022). Investigating Blockchain Technology Effects on Online Platforms Transactions: Do Risk Aversion and Technophilia Matter? *Journal of Internet Commerce*, *21*(3), 271–296. https://doi.org/10.1080/15332861.2021.1961188

Betts, S. C., & Taran, Z. (2006). A test of prospect theory in the used car market: The non-linear effects of age and reliability on price. *Academy of Marketing Studies Journal*, *10*(2), 57.

Bezovski, Z. (2021). The Impact and the Potential Disruption of the Blockchain Technology on Marketing. *Journal of Economics*, *6*(1), 13–22. https://doi.org/10.46763/JOE216.10013b

Bian, X., & Haque, S. (2020). Counterfeit versus original patronage: Do emotional brand attachment, brand involvement, and past experience matter? *Journal of Brand Management*, *27*(4), 438–451. https://doi.org/10.1057/s41262-020-00189-4

Biswas, A., & Blair, E. A. (1991). Contextual Effects of Reference Prices in Retail Advertisements. *Journal of Marketing*, *55*(3), 1–12. https://doi.org/10.1177/002224299105500301

Borusiak, B., Szymkowiak, A., Horska, E., Raszka, N., & Żelichowska, E. (2020). Towards Building Sustainable Consumption: A Study of Second-Hand Buying Intentions. *Sustainability*, *12*(3), 875. https://doi.org/10.3390/su12030875

Braun, V., & Clarke, V. (2012). Thematic analysis. In *Research designs: Quantitative, qualitative, neuropsychological, and biological* (Vol. 2, pp. 57–71). American Psychological Association. https://doi.org/10.1037/13620-004

Braun, V., & Clarke, V. (2019). Reflecting on reflexive thematic analysis. *Qualitative Research in Sport, Exercise and Health*, *11*(4), 589–597.

BROWN, H. G., POOLE, M. S., & RODGERS, T. L. (2004). Interpersonal Traits, Complementarity, and Trust in Virtual Collaboration. *Journal of Management Information Systems*, *20*(4), 115–138. https://doi.org/10.1080/07421222.2004.11045785

Buhalis, D., Leung, D., & Lin, M. (2023). Metaverse as a disruptive technology revolutionising tourism management and marketing. *Tourism Management*, *97*, 104724. https://doi.org/10.1016/j.tourman.2023.104724

Butera, A., Gatteschi, V., Pratticò, F. G., Novaro, D., & Vianello, D. (2023). Blockchain and NFTs-Based Trades of Second-Hand Vehicles. *IEEE Access*, *11*, 57598–57615. https://doi.org/10.1109/ACCESS.2023.3284676

Calvo-Porral, C., Orosa-González, J., & Viejo-Fernández, N. (2023). Barriers to online second-hand purchase behavior. *Marketing Intelligence & Planning*, *42*(2), 213–233. https://doi.org/10.1108/MIP-03-2023-0093

Calvo-Porral, C., Orosa-González, J., & Viejo-Fernández, N. (2024). Second-hand online stores: An examination of consumers' purchase behaviour. *The International Review of Retail, Distribution and Consumer Research*, *0*(0), 1–24. https://doi.org/10.1080/09593969.2023.2301582

Cao, S., Johnson, H., & Tulloch, A. (2023). Exploring blockchain-based Traceability for Food Supply Chain Sustainability: Towards a Better Way of Sustainability Communication with Consumers. *Procedia Computer Science*, *217*, 1437–1445. https://doi.org/10.1016/j.procs.2022.12.342

Casalin, F., & Dia, E. (2019). Information and reputation mechanisms in auctions of remanufactured goods. *International Journal of Industrial Organization*, *63*, 185–212. https://doi.org/10.1016/j.ijindorg.2018.11.001

Casino, F., Dasaklis, T. K., & Patsakis, C. (2019). A systematic literature review of blockchain-based applications: Current status, classification and open issues. *Telematics and Informatics*, *36*, 55–81. https://doi.org/10.1016/j.tele.2018.11.006

Chand Bhatt, P., Kumar, V., Lu, T.-C., & Daim, T. (2021). Technology convergence assessment: Case of blockchain within the IR 4.0 platform. *Technology in Society*, *67*, 101709. https://doi.org/10.1016/j.techsoc.2021.101709

Chang, K.-F., Shih, H.-C., Yu, Z., Pi, S., & Yang, H. (2019). A study on perceptual depreciation and product rarity for online exchange willingness of second-hand goods. *Journal of Cleaner Production*, *241*, 118315. https://doi.org/10.1016/j.jclepro.2019.118315

Chang, V., Doan, L. M. T., Ariel Xu, Q., Hall, K., Anna Wang, Y., & Mustafa Kamal, M. (2023). Digitalization in omnichannel healthcare supply chain businesses: The role of smart wearable devices. *Journal of Business Research*, *156*, 113369. https://doi.org/10.1016/j.jbusres.2022.113369

Chantelat, P., & Vignal, B. (2005). ‘Intermediation’ in used goods markets: Transactions, confidence, and social interaction. *Sociologie Du Travail*, *47*, e71–e88. https://doi.org/10.1016/j.soctra.2005.09.001

Char, D. S., Abràmoff, M. D., & Feudtner, C. (2020). Identifying Ethical Considerations for Machine Learning Healthcare Applications. *The American Journal of Bioethics*, *20*(11), 7–17. https://doi.org/10.1080/15265161.2020.1819469

Chelladurai, Mrs. U., Pandian, Dr. S., & Ramasamy, Dr. K. (2021). A blockchain based patient centric electronic health record storage and integrity management for e-Health systems. *Health Policy and Technology*, *10*(4), 100513. https://doi.org/10.1016/j.hlpt.2021.100513

Chen, C.-L., Chiang, M.-L., Deng, Y.-Y., Weng, W., Wang, K., & Liu, C.-C. (2021). A Traceable Firearm Management System Based on Blockchain and IoT Technology. *Symmetry*, *13*(3), Article 3. https://doi.org/10.3390/sym13030439

Chen, J., & Dibb, S. (2010). Consumer trust in the online retail context: Exploring the antecedents and consequences. *Psychology & Marketing*, *27*(4), 323–346. https://doi.org/10.1002/mar.20334

Chen, S. C., & Dhillon, G. S. (2003). *Interpreting Dimensions of Consumer Trust in E-Commerce*. 16.

Chimhundu, R., McNeill, L. S., & Hamlin, R. P. (2015). Manufacturer and Retailer Brands: Is Strategic Coexistence the Norm? *Australasian Marketing Journal*, *23*(1), 49–60. https://doi.org/10.1016/j.ausmj.2014.11.004

Chiu, C.-M., Hsu, M.-H., Sun, S.-Y., Lin, T.-C., & Sun, P.-C. (2005). Usability, quality, value and e-learning continuance decisions. *Computers & Education*, *45*(4), 399–416. https://doi.org/10.1016/j.compedu.2004.06.001

Cho, V., Cheng, T. C. E., & Lai, W. M. J. (2009). The role of perceived user-interface design in continued usage intention of self-paced e-learning tools. *Computers & Education*, *53*(2), 216–227. https://doi.org/10.1016/j.compedu.2009.01.014

Choi, T., Kumar, S., Yue, X., & Chan, H. (2022). Disruptive Technologies and Operations Management in the Industry 4.0 Era and Beyond. *Production and Operations Management*, *31*(1), 9–31. https://doi.org/10.1111/poms.13622

Choi, W., & Stvilia, B. (2015). Web credibility assessment: Conceptualization, operationalization, variability, and models. *Journal of the Association for Information Science and Technology*, *66*(12), 2399–2414. https://doi.org/10.1002/asi.23543

Christidis, K., Sikeridis, D., Wang, Y., & Devetsikiotis, M. (2021). A framework for designing and evaluating realistic blockchain-based local energy markets. *Applied Energy*, *281*, 115963. https://doi.org/10.1016/j.apenergy.2020.115963

Chung, K., & Jung, H. (2019). Knowledge-based block chain networks for health log data management mobile service. *Personal and Ubiquitous Computing*. https://doi.org/10.1007/s00779-019-01326-w

Clarke, V., & Braun, V. (2018). Using thematic analysis in counselling and psychotherapy research: A critical reflection. *Counselling and Psychotherapy Research, 18*(2), 107–110. https://doi.org/10.1002/capr.12165

Corbin, J., & Strauss, A. (2014). *Basics of qualitative research: Techniques and procedures for developing grounded theory*. Sage publications.

Cosmetic Industry in India—Market Analysis, Size, Share. (2023, January 2). https://www.mordorintelligence.com/industry-reports/india-cosmetics-products-market-industry

Creswell, J. W., & Poth, C. N. (2016). *Qualitative inquiry and research design: Choosing among five approaches*. Sage publications.

Critchlow, N., Newberry Le Vay, J., MacKintosh, A. M., Hooper, L., Thomas, C., & Vohra, J. (2020). Adolescents' Reactions to Adverts for Fast-Food and Confectionery Brands That are High in Fat, Salt, and/or Sugar (HFSS), and Possible Implications for Future Research and Regulation: Findings from a Cross-Sectional Survey of 11–19 Year Olds in the United Kingdom. *International Journal of Environmental Research and Public Health*, *17*(5), Article 5. https://doi.org/10.3390/ijerph17051689

Cubbon, L., Darga, K., Wisnesky, U. D., Dennett, L., & Guptill, C. (2021). Depression among entrepreneurs: A scoping review. *Small Business Economics*, *57*(2), 781–805. https://doi.org/10.1007/s11187-020-00382-4

Dabir, A., Nazari, S., Rasouli, M., & Ghorbani, M. (2020). Developing a Relationship Model between the Attitude to Buying Counterfeit Products and Brand Popularity in Sport Products Customers. *Sport Management Journal*, *12*(3), 871–889. https://doi.org/10.22059/jsm.2020.294344.2375

Dadkhah, M., Rahimnia, F., & Filimonau, V. (2022). Evaluating the opportunities, challenges and risks of applying the blockchain technology in tourism: A Delphi study approach. *Journal of Hospitality and Tourism Technology*, *13*(5), 922–954. https://doi.org/10.1108/JHTT-04-2021-0115

Dai, A., Wei, G., Wang, D., He, Z., & He, S. (2021). The opportunity study of PM strategy for second-hand products sold with a two-dimensional warranty. *Reliability Engineering & System Safety*, *214*, 107699. https://doi.org/10.1016/j.ress.2021.107699

DAVIDOVIC, D. (2020). Trust-based marketing leadership: What senior leaders should be focusing on during brand plan reviews. *Journal of Brand Strategy*, *9*(1), 38–43.

De Aguiar, E. J., Faiçal, B. S., Krishnamachari, B., & Ueyama, J. (2020). A Survey of Blockchain-Based Strategies for Healthcare. *ACM Computing Surveys*, *53*(2), 27:1-27:27. https://doi.org/10.1145/3376915

Deci, E. L., Olafsen, A. H., & Ryan, R. M. (2017). Self-Determination Theory in Work Organizations: The State of a Science. *Annual Review of Organizational Psychology and*

Organizational Behavior, *4*(Volume 4, 2017), 19–43. https://doi.org/10.1146/annurev-orgpsych-032516-113108

DeVellis, R. F., & Thorpe, C. T. (2021). *Scale Development: Theory and Applications*. SAGE Publications.

Dhar, R., & Wertenbroch, K. (2000). Consumer choice between hedonic and utilitarian goods. *Journal of Marketing Research*, *37*(1), 60–71.

Ding, Q., Gao, S., Zhu, J., & Yuan, C. (2020). Permissioned Blockchain-Based Double-Layer Framework for Product Traceability System. *IEEE Access*, *8*, 6209–6225. https://doi.org/10.1109/ACCESS.2019.2962274

Dionysis, S., Chesney, T., & McAuley, D. (2022). Examining the influential factors of consumer purchase intentions for blockchain traceable coffee using the theory of planned behaviour. *British Food Journal*, *124*(12), 4304–4322. https://doi.org/10.1108/BFJ-05-2021-0541

Dubey, R., Altay, N., & Blome, C. (2019). Swift trust and commitment: The missing links for humanitarian supply chain coordination? *Annals of Operations Research*, *283*(1–2), 159–177. https://doi.org/10.1007/s10479-017-2676-z

Dubey, R., Gunasekaran, A., Bryde, D. J., Dwivedi, Y. K., & Papadopoulos, T. (2020). Blockchain technology for enhancing swift-trust, collaboration and resilience within a humanitarian supply chain setting. *International Journal of Production Research*, *58*(11), 3381–3398. https://doi.org/10.1080/00207543.2020.1722860

Einav, L., Farronato, C., & Levin, J. (2016). Peer-to-Peer Markets. *Annual Review of Economics*, *8*(1), 615–635. https://doi.org/10.1146/annurev-economics-080315-015334

Eisend, M. (2006). Two-sided advertising: A meta-analysis. *International Journal of Research in Marketing*, *23*(2), 187–198. https://doi.org/10.1016/j.ijresmar.2005.11.001

Engelhardt, M. (2017). Hitching Healthcare to the Chain: An Introduction to Blockchain Technology in the Healthcare Sector. *Technology Innovation Management Review*, *7*(10), 22–34. https://doi.org/10.22215/timreview/1111

Fadahunsi, K. P., Akinlua, J. T., O'Connor, S., Wark, P. A., Gallagher, J., Carroll, C., Majeed, A., & O'Donoghue, J. (2019). Protocol for a systematic review and qualitative synthesis of information quality frameworks in eHealth. *BMJ Open*, *9*(3), e024722. https://doi.org/10.1136/bmjopen-2018-024722

Fernando, A. G., Sivakumaran, B., & Suganthi, L. (2018). Comparison of perceived acquisition value sought by online second-hand and new goods shoppers. *European Journal of Marketing*, *52*(7/8), 1412–1438. https://doi.org/10.1108/EJM-01-2017-0048

Ferreira da Silva, C., & Moro, S. (2021). Blockchain technology as an enabler of consumer trust: A text mining literature analysis. *Telematics and Informatics*, *60*, 101593. https://doi.org/10.1016/j.tele.2021.101593

Firdaus, A., Razak, M. F. A., Feizollah, A., Hashem, I. A. T., Hazim, M., & Anuar, N. B. (2019). The rise of "blockchain": Bibliometric analysis of blockchain study. *Scientometrics*, *120*(3), 1289–1331. https://doi.org/10.1007/s11192-019-03170-4

Fjeldstad, V. (2017). *Scaffolding second-hand fashion consumption among adolescent girls—Cool and sustainable app design for better user experience of redistribution of clothing*. https://www.duo.uio.no/handle/10852/59215

Forslund, H., & Jonsson, P. (2007). The impact of forecast information quality on supply chain performance. *International Journal of Operations & Production Management*, *27*(1), 90–107. https://doi.org/10.1108/01443570710714556

Francisco, K., & Swanson, D. (2018). The Supply Chain Has No Clothes: Technology Adoption of Blockchain for Supply Chain Transparency. *Logistics*, *2*(1), Article 1. https://doi.org/10.3390/logistics2010002

Frizzo-Barker, J., Chow-White, P. A., Adams, P. R., Mentanko, J., Ha, D., & Green, S. (2020). Blockchain as a disruptive technology for business: A systematic review. *International Journal of Information Management*, *51*, 102029. https://doi.org/10.1016/j.ijinfomgt.2019.10.014

Frota Neto, J. Q., Bloemhof, J., & Corbett, C. (2016). Market prices of remanufactured, used and new items: Evidence from eBay. *International Journal of Production Economics*, *171*, 371–380. https://doi.org/10.1016/j.ijpe.2015.02.006

Galbraith, J. R. (1974). Organization Design: An Information Processing View. *Interfaces*. https://doi.org/10.1287/inte.4.3.28

Gao, L., Waechter, K. A., & Bai, X. (2015). Understanding consumers' continuance intention towards mobile purchase: A theoretical framework and empirical study – A case of China. *Computers in Human Behavior*, *53*, 249–262. https://doi.org/10.1016/j.chb.2015.07.014

Gao, X., Zhang, W., Zhao, B., Zhang, J., Wang, J., & Gao, Y. (2022). Product Authentication Technology Integrating Blockchain and Traceability Structure. *Electronics*, *11*(20), 3314. https://doi.org/10.3390/electronics11203314

Garg, P., Gupta, B., Chauhan, A. K., Sivarajah, U., Gupta, S., & Modgil, S. (2021). Measuring the perceived benefits of implementing blockchain technology in the banking sector. *Technological Forecasting and Social Change*, *163*, 120407. https://doi.org/10.1016/j.techfore.2020.120407

Gattiker, T. F., & Goodhue, D. L. (2004). Understanding the local-level costs and benefits of ERP through organizational information processing theory. *Information & Management*, *41*(4), 431–443. https://doi.org/10.1016/S0378-7206(03)00082-X

Gavazza, A., Lizzeri, A., & Roketskiy, N. (2014). A Quantitative Analysis of the Used-Car Market. *American Economic Review*, *104*(11), 3668–3700. https://doi.org/10.1257/aer.104.11.3668

Germain, M.-L., & McGuire, D. (2014). The Role of Swift Trust in Virtual Teams and Implications for Human Resource Development. *Advances in Developing Human Resources*, *16*(3), 356–370. https://doi.org/10.1177/1523422314532097

Gilmore, J. H., & Pine, B. J. (2007). *Authenticity: What Consumers Really Want*. Harvard Business Press.

Giri, G., & Manohar, H. L. (2021). Factors influencing the acceptance of private and public blockchain-based collaboration among supply chain practitioners: A parallel mediation model. *Supply Chain Management: An International Journal*, *28*(1), 1–24. https://doi.org/10.1108/SCM-02-2021-0057

Giustiziero, G., Kretschmer, T., Somaya, D., & Wu, B. (2023). Hyperspecialization and hyperscaling: A resource-based theory of the digital firm. *Strategic Management Journal*, *44*(6), 1391–1424. https://doi.org/10.1002/smj.3365

Gligor, D. M., Pillai, K. G., & Golgeci, I. (2021). Theorizing the dark side of business-to-business relationships in the era of AI, big data, and blockchain. *Journal of Business Research*, *133*, 79–88. https://doi.org/10.1016/j.jbusres.2021.04.043

Glikson, E., & Woolley, A. W. (2020). Human Trust in Artificial Intelligence: Review of Empirical Research. *Academy of Management Annals*, *14*(2), 627–660. https://doi.org/10.5465/annals.2018.0057

Global retail e-commerce sales 2026. (2024, February 6). Statista. https://www.statista.com/statistics/379046/worldwide-retail-e-commerce-sales/

Gopalakrishnan, S., & Matthews, D. (2018). Collaborative consumption: A business model analysis of second-hand fashion. *Journal of Fashion Marketing and Management: An International Journal*, *22*(3), 354–368. https://doi.org/10.1108/JFMM-05-2017-0049

Gopichandran, V. (2013). *Trust in healthcare: An evolving concept.* https://imsear.searo.who.int/jspui/handle/123456789/153605

Gunnsteinsson, S. (2020). Experimental identification of asymmetric information: Evidence on crop insurance in the Philippines. *Journal of Development Economics*, *144*, 102414. https://doi.org/10.1016/j.jdeveco.2019.102414

Guo, J., Hao, H., Wang, M., & Liu, Z. (2022). An empirical study on consumers' willingness to buy agricultural products online and its influencing factors. *Journal of Cleaner Production*, *336*, 130403. https://doi.org/10.1016/j.jclepro.2022.130403

Hair, J. F., Risher, J. J., Sarstedt, M., & Ringle, C. M. (2019). When to use and how to report the results of PLS-SEM. *European Business Review*, *31*(1), 2–24. https://doi.org/10.1108/EBR-11-2018-0203

Haleem, A., Javaid, M., Singh, R. P., Suman, R., & Rab, S. (2021). Blockchain technology applications in healthcare: An overview. *International Journal of Intelligent Networks*, *2*, 130–139. https://doi.org/10.1016/j.ijin.2021.09.005

Halliday, M., Mill, D., Johnson, J., & Lee, K. (2021). Let's talk virtual! Online focus group facilitation for the modern researcher. *Research in Social and Administrative Pharmacy*, *17*(12), 2145–2150. https://doi.org/10.1016/j.sapharm.2021.02.003

Hameed, S., & Mathur, M. (2020). Generation Z in India: Digital Natives and Makers of Change. In E. Gentina & E. Parry (Eds.), *The New Generation Z in Asia: Dynamics, Differences, Digitalisation* (pp. 89–104). Emerald Publishing Limited. https://doi.org/10.1108/978-1-80043-220-820201010

Hansen, S., & Baroody, A. J. (2020). Electronic Health Records and the Logics of Care: Complementarity and Conflict in the U.S. Healthcare System. *Information Systems Research*, *31*(1), 57–75. https://doi.org/10.1287/isre.2019.0875

Hartman, J. (2004). Using focus groups to conduct business communication research. *The Journal of Business Communication (1973)*, *41*(4), 402–410.

Harvey, C. R., Moorman, C., & Toledo, M. (2018). *How Blockchain Can Help Marketers Build Better Relationships with Their Customers*.

Hasselgren, A., Kralevska, K., Gligoroski, D., Pedersen, S. A., & Faxvaag, A. (2020). Blockchain in healthcare and health sciences—A scoping review. *International Journal of Medical Informatics*, *134*, 104040. https://doi.org/10.1016/j.ijmedinf.2019.104040

Hawlitschek, F., Notheisen, B., & Teubner, T. (2018). The limits of trust-free systems: A literature review on blockchain technology and trust in the sharing economy. *Electronic Commerce Research and Applications*, *29*, 50–63. https://doi.org/10.1016/j.elerap.2018.03.005

Hayat, N., Zainol, N. R., Abir, T., Al Mamun, A., Salameh, A. A., & Mahshar, M. (2023). Online Insurance Purchase Intention and Behaviour among Chinese Working Adults. In B. Alareeni & A. Hamdan (Eds.), *Impact of Artificial Intelligence, and the Fourth Industrial Revolution on Business Success* (pp. 341–362). Springer International Publishing. https://doi.org/10.1007/978-3-031-08093-7_23

Hayes, A. F. (2013). Mediation, moderation, and conditional process analysis. *Introduction to Mediation, Moderation, and Conditional Process Analysis: A Regression-Based Approach*, *1*, 20.

Hayes, A. F. (2018). Partial, conditional, and moderated moderated mediation: Quantification, inference, and interpretation. *Communication Monographs*, *85*(1), 4–40. https://doi.org/10.1080/03637751.2017.1352100

Hayes, A. F., & Rockwood, N. J. (2020). Conditional Process Analysis: Concepts, Computation, and Advances in the Modeling of the Contingencies of Mechanisms. *American Behavioral Scientist*, *64*(1), 19–54. https://doi.org/10.1177/0002764219859633

He, C., Tan, C., Ip, W. H., & Wu, C. H. (2023). Combating counterfeits with the Blockchain-technology-supported platform under government enforcement. *Transportation Research Part E: Logistics and Transportation Review*, *175*, 103155. https://doi.org/10.1016/j.tre.2023.103155

Higuchi, Y., Fuwa, N., Kajisa, K., Sato, T., & Sawada, Y. (2019). Disaster Aid Targeting and Self-Reporting Bias: Natural Experimental Evidence from the Philippines. *Sustainability*, *11*(3), 771.

Holbrook, M. B. (1992). Product quality, attributes, and brand name as determinants of price: The case of consumer electronics. *Marketing Letters*, *3*(1), 71–83. https://doi.org/10.1007/BF00994082

Hooda, A., Gupta, P., Jeyaraj, A., Giannakis, M., & Dwivedi, Y. K. (2022). The effects of trust on behavioral intention and use behavior within e-government contexts. *International Journal of Information Management*, *67*, 102553. https://doi.org/10.1016/j.ijinfomgt.2022.102553

Hossain, S. A. (2017). Blockchain computing: Prospects and challenges for digital transformation. *2017 6th International Conference on Reliability, Infocom Technologies and Optimization (Trends and Future Directions) (ICRITO)*, 61–65. https://doi.org/10.1109/ICRITO.2017.8342399

Hsieh, M.-T., & Tsao, W.-C. (2014). Reducing perceived online shopping risk to enhance loyalty: A website quality perspective. *Journal of Risk Research*, *17*(2), 241–261. https://doi.org/10.1080/13669877.2013.794152

Hu, S., Huang, S., & Qin, X. (2022). Exploring blockchain-supported authentication based on online and offline business in organic agricultural supply chain. *Computers & Industrial Engineering*, *173*, 108738. https://doi.org/10.1016/j.cie.2022.108738

Humayun, M., Jhanjhi, N., Hamid, B., & Ahmed, G. (2020). Emerging Smart Logistics and Transportation Using IoT and Blockchain. *IEEE Internet of Things Magazine*, *3*(2), 58–62. https://doi.org/10.1109/IOTM.0001.1900097

Hussein, M., Pavlova, M., Ghalwash, M., & Groot, W. (2021). The impact of hospital accreditation on the quality of healthcare: A systematic literature review. *BMC Health Services Research*, *21*(1), 1057. https://doi.org/10.1186/s12913-021-07097-6

Iazzi, A., & Santovito, S. (2016). Branded Versus Non-Branded: Differences in Consumer Preferences. *International Journal of Marketing Studies*, *8*(1), 57. https://doi.org/10.5539/ijms.v8n1p57

Ikonen, I., Sotgiu, F., Aydinli, A., & Verlegh, P. W. J. (2020). Consumer effects of front-of-package nutrition labeling: An interdisciplinary meta-analysis. *Journal of the Academy of Marketing Science*, *48*(3), 360–383. https://doi.org/10.1007/s11747-019-00663-9

Indian Retailer. (2024, January 1). https://www.indianretailer.com/about-us

Iyanna, S., Kaur, P., Ractham, P., Talwar, S., & Najmul Islam, A. K. M. (2022). Digital transformation of healthcare sector. What is impeding adoption and continued usage of technology-driven innovations by end-users? *Journal of Business Research*, *153*, 150–161. https://doi.org/10.1016/j.jbusres.2022.08.007

Jain, G., Kamble, S. S., Ndubisi, N. O., Shrivastava, A., Belhadi, A., & Venkatesh, M. (2022). Antecedents of Blockchain-Enabled E-commerce Platforms (BEEP) adoption by customers – A

study of second-hand small and medium apparel retailers. *Journal of Business Research*, *149*, 576–588. https://doi.org/10.1016/j.jbusres.2022.05.041

Janiszewski, C., & Van Osselaer, S. M. J. (2000). A Connectionist Model of Brand–Quality Associations. *Journal of Marketing Research*, *37*(3), 331–350. https://doi.org/10.1509/jmkr.37.3.331.18780

Javaid, M., Haleem, A., Vaishya, R., Bahl, S., Suman, R., & Vaish, A. (2020). Industry 4.0 technologies and their applications in fighting COVID-19 pandemic. *Diabetes & Metabolic Syndrome: Clinical Research & Reviews*, *14*(4), 419–422. https://doi.org/10.1016/j.dsx.2020.04.032

Jayaraman, R., Salah, K., & King, N. (2019). Improving Opportunities in Healthcare Supply Chain Processes via the Internet of Things and Blockchain Technology. *International Journal of Healthcare Information Systems and Informatics*.

Jiang, J., & Chen, J. (2021). Framework of Blockchain-Supported E-Commerce Platform for Small and Medium Enterprises. *Sustainability*, *13*(15), 8158. https://doi.org/10.3390/su13158158

Jordan, P. J., & Troth, A. C. (2020). Common method bias in applied settings: The dilemma of researching in organizations. *Australian Journal of Management*, *45*(1), 3–14. https://doi.org/10.1177/0312896219871976

Jung, H. H., & Pfister, F. M. J. (2020). Blockchain-enabled Clinical Study Consent Management. *Technology Innovation Management Review*, *10*(2), 14–24. https://doi.org/10.22215/timreview/1325

Jungblut, M., & Johnen, M. (2022). When Brands (Don't) Take My Stance: The Ambiguous Effectiveness of Political Brand Communication. *Communication Research*, *49*(8), 1092–1117. https://doi.org/10.1177/00936502211001622

Kalbouneh, N. Y., Bataineh, K. A., Al-Hamad, A. A.-S. A., Dwakat, M. K. A., Abualoush, S., Almasarweh, M. S., & Al-Smadi, R. W. (2023). The effects of the blockchain technology and big data analytics on supply chain performance: The mediating effect supply chain risk management. *Uncertain Supply Chain Management*, *11*(3), 903–914. https://doi.org/10.5267/j.uscm.2023.5.008

Kamble, S. S., Gunasekaran, A., Goswami, M., & Manda, J. (2019). A systematic perspective on the applications of big data analytics in healthcare management. *International Journal of Healthcare Management*, *12*(3), 226–240. https://doi.org/10.1080/20479700.2018.1531606

Karamchandani, A., Srivastava, S. K., & Srivastava, R. K. (2020). Perception-based model for analyzing the impact of enterprise blockchain adoption on SCM in the Indian service industry. *International Journal of Information Management*, *52*, 102019. https://doi.org/10.1016/j.ijinfomgt.2019.10.004

Kaur, H., Jameel, R., Alam, M. A., Alankar, B., & Chang, V. (2023). Securing and managing healthcare data generated by intelligent blockchain systems on cloud networks through DNA

cryptography. *Journal of Enterprise Information Management*, *36*(4), 861–878. https://doi.org/10.1108/JEIM-02-2021-0084

Khraim, H. S. (2011). The influence of brand loyalty on cosmetics buying behavior of UAE female consumers. *International Journal of Marketing Studies*, *3*(2), 123.

Kim, D. J., Ferrin, D. L., & Rao, H. R. (2008). A trust-based consumer decision-making model in electronic commerce: The role of trust, perceived risk, and their antecedents. *Decision Support Systems*, *44*(2), 544–564. https://doi.org/10.1016/j.dss.2007.07.001

Kim, J., & Swaminathan, S. (2021). Time to say goodbye: The impact of anthropomorphism on selling prices of used products. *Journal of Business Research*, *126*, 78–87. https://doi.org/10.1016/j.jbusres.2020.12.046

Kim, N. (Lauren), Woo, H., & Ramkumar, B. (2021). The role of product history in consumer response to online second-hand clothing retail service based on circular fashion. *Journal of Retailing and Consumer Services*, *60*, 102457. https://doi.org/10.1016/j.jretconser.2021.102457

Kim, S., & Seock, Y.-K. (2009). Impacts of health and environmental consciousness on young female consumers' attitude towards and purchase of natural beauty products. *International Journal of Consumer Studies*, *33*(6), 627–638. https://doi.org/10.1111/j.1470-6431.2009.00817.x

Kim, Y., & Peterson, R. A. (2017). A Meta-analysis of Online Trust Relationships in E-commerce. *Journal of Interactive Marketing*, *38*(1), 44–54. https://doi.org/10.1016/j.intmar.2017.01.001

Kivetz, R., & Zheng, Y. (2017). The effects of promotions on hedonic versus utilitarian purchases. *Journal of Consumer Psychology*, *27*(1), 59–68. https://doi.org/10.1016/j.jcps.2016.05.005

Kock, N. (2019). Factor-Based Structural Equation Modeling with Warppls. *Australasian Marketing Journal*, *27*(1), 57–63. https://doi.org/10.1016/j.ausmj.2019.02.002

Kogan, K. (2011). Second-Hand Markets and Intrasupply Chain Competition. *Journal of Retailing*, *87*(4), 489–501. https://doi.org/10.1016/j.jretai.2011.10.001

Kouhizadeh, M., Saberi, S., & Sarkis, J. (2021). Blockchain technology and the sustainable supply chain: Theoretically exploring adoption barriers. *International Journal of Production Economics*, *231*, 107831. https://doi.org/10.1016/j.ijpe.2020.107831

Kroeger, F., Racko, G., & Burchell, B. (2021). How to create trust quickly: A comparative empirical investigation of the bases of swift trust. *Cambridge Journal of Economics*, *45*(1), 129–150. https://doi.org/10.1093/cje/beaa041

Kucherov, D., & Zhiltsova, E. (2021). Social Media in Employer Branding in FMCG in Russia: Millennials' Perspective. *Journal of East-West Business*, *27*(2), 160–183. https://doi.org/10.1080/10669868.2020.1862383

Kumar, A., & Mukherjee, A. (2013). Shop while you talk: Determinants of Purchase Intentions through a mobile device. *International Journal of Mobile Marketing*, *8*, 23–37.

Kuo, T.-T., Bath, T., Ma, S., Pattengale, N., Yang, M., Cao, Y., Hudson, C. M., Kim, J., Post, K., Xiong, L., & Ohno-Machado, L. (2021). Benchmarking blockchain-based gene-drug interaction data sharing methods: A case study from the iDASH 2019 secure genome analysis competition blockchain track. *International Journal of Medical Informatics*, *154*, 104559. https://doi.org/10.1016/j.ijmedinf.2021.104559

Kuo, T.-T., Gabriel, R. A., Cidambi, K. R., & Ohno-Machado, L. (2020). EXpectation Propagation LOgistic REgRession on permissioned blockCHAIN (ExplorerChain): Decentralized online healthcare/genomics predictive model learning. *Journal of the American Medical Informatics Association*, *27*(5), 747–756. https://doi.org/10.1093/jamia/ocaa023

Kuo, T.-T., Zavaleta Rojas, H., & Ohno-Machado, L. (2019). Comparison of blockchain platforms: A systematic review and healthcare examples. *Journal of the American Medical Informatics Association*, *26*(5), 462–478. https://doi.org/10.1093/jamia/ocy185

Kyrarini, M., Lygerakis, F., Rajavenkatanarayanan, A., Sevastopoulos, C., Nambiappan, H. R., Chaitanya, K. K., Babu, A. R., Mathew, J., & Makedon, F. (2021). A Survey of Robots in Healthcare. *Technologies*, *9*(1), Article 1. https://doi.org/10.3390/technologies9010008

Lankton, N., McKnight, D., & Tripp, J. (2015). Technology, Humanness, and Trust: Rethinking Trust in Technology. *Journal of the Association for Information Systems*, *16*(10). https://doi.org/10.17705/1jais.00411

Laurenti, R., & Acuña, F. M. B. (2020). Exploring antecedents of behavioural intention and preferences in online peer-to-peer resource sharing: A Swedish university setting. *Sustainable Production and Consumption*, *21*, 47–56. https://doi.org/10.1016/j.spc.2019.10.002

Lavuri, R., Chiappetta Jabbour, C. J., Grebinevych, O., & Roubaud, D. (2022). Green factors stimulating the purchase intention of innovative luxury organic beauty products: Implications for sustainable development. *Journal of Environmental Management*, *301*, 113899. https://doi.org/10.1016/j.jenvman.2021.113899

Lee, H. L., & Whang, S. (2000). Information sharing in a supply chain. *International Journal of Manufacturing Technology and Management*, *1*(1), 79–93. https://doi.org/10.1504/IJMTM.2000.001329

Lee, J. Y. (2019). A decentralized token economy: How blockchain and cryptocurrency can revolutionize business. *Business Horizons*, *62*(6), 773–784. https://doi.org/10.1016/j.bushor.2019.08.003

Leung, W. K. S., Chang, M. K., Cheung, M. L., & Shi, S. (2022). Swift trust development and prosocial behavior in time banking: A trust transfer and social support theory perspective. *Computers in Human Behavior*, *129*, 107137. https://doi.org/10.1016/j.chb.2021.107137

Li, G., Fan, Z.-P., & Wu, X.-Y. (2021). The Choice Strategy of Authentication Technology for Luxury E-Commerce Platforms in the Blockchain Era. *IEEE Transactions on Engineering Management*, 1–14. https://doi.org/10.1109/TEM.2021.3076606

Li, S., & Lin, B. (2006). Accessing information sharing and information quality in supply chain management. *Decision Support Systems*, *42*(3), 1641–1656. https://doi.org/10.1016/j.dss.2006.02.011

Liang, T.-P., Kohli, R., Huang, H.-C., & Li, Z.-L. (2021). What Drives the Adoption of the Blockchain Technology? A Fit-Viability Perspective. *Journal of Management Information Systems*, *38*(2), 314–337. https://doi.org/10.1080/07421222.2021.1912915

Liao, Q., & Zeng, L. (2021). An Empirical Study on Factors Influencing Consumers Purchase Intention on Cross-border E-commerce Websites-A Trusted Intermediary Model. *Proceedings of the 2021 1st International Conference on Control and Intelligent Robotics*, 600–606. https://doi.org/10.1145/3473714.3473819

Liu, L., Zhang, J. Z., He, W., & Li, W. (2021). Mitigating information asymmetry in inventory pledge financing through the Internet of things and blockchain. *Journal of Enterprise Information Management*, *34*(5), 1429–1451. https://doi.org/10.1108/JEIM-12-2020-0510

Liu, Y., Fang, W., Feng, T., & Xi, M. (2024). Blockchain technology adoption and supply chain resilience: Exploring the role of transformational supply chain leadership. *Supply Chain Management: An International Journal*, *29*(2), 371–387. https://doi.org/10.1108/SCM-08-2023-0390

Low, G. S., & Lamb, C. W. (2000). The measurement and dimensionality of brand associations. *Journal of Product & Brand Management*, *9*(6), 350–370. https://doi.org/10.1108/10610420010356966

Lu, W., Jiang, Y., Chen, Z., & Ji, X. (2022). Blockchain adoption in a supply chain system to combat counterfeiting. *Computers & Industrial Engineering*, *171*, 108408. https://doi.org/10.1016/j.cie.2022.108408

Lu, Z., & Shang, J. (2019). Warranty mechanism for pre-owned tech products: Collaboration between E-tailers and online warranty provider. *International Journal of Production Economics*, *211*, 119–131. https://doi.org/10.1016/j.ijpe.2019.01.028

Luo, N., Wang, Y., Zhang, M., Niu, T., & Tu, J. (2020). Integrating community and e-commerce to build a trusted online second-hand platform: Based on the perspective of social capital. *Technological Forecasting and Social Change*, *153*, 119913. https://doi.org/10.1016/j.techfore.2020.119913

Mackey, T. K., Miyachi, K., Fung, D., Qian, S., & Short, J. (2020). Combating Health Care Fraud and Abuse: Conceptualization and Prototyping Study of a Blockchain Antifraud Framework. *Journal of Medical Internet Research*, *22*(9), e18623. https://doi.org/10.2196/18623

Mackey, T. K., & Nayyar, G. (2017). A review of existing and emerging digital technologies to combat the global trade in fake medicines. *Expert Opinion on Drug Safety*, *16*(5), 587–602. https://doi.org/10.1080/14740338.2017.1313227

Madhani, P. M. (2010). *Resource Based View (RBV) of Competitive Advantage: An Overview* (SSRN Scholarly Paper 1578704). https://papers.ssrn.com/abstract=1578704

Mahanty, S., Boons, F., Handl, J., & Batista-Navarro, R. (2021). An investigation of academic perspectives on the 'circular economy' using text mining and a Delphi study. *Journal of Cleaner Production*, *319*, 128574. https://doi.org/10.1016/j.jclepro.2021.128574

Mainardes, E. W., Souza, I. M. de, & Correia, R. D. (2020). Antecedents and consequents of consumers not adopting e-commerce. *Journal of Retailing and Consumer Services*, *55*, 102138. https://doi.org/10.1016/j.jretconser.2020.102138

Maji, S., & Bandyopadhyay, G. (2018). The effect of risk perception on pre-owned car purchase decision: A logistic regression approach. *Journal of Management (JOM)*, *5*(4). https://www.academia.edu/download/57384012/JOM_05_04_032.pdf

Malhotra, A., O'Neill, H., & Stowell, P. (2022). Thinking strategically about blockchain adoption and risk mitigation. *Business Horizons*, *65*(2), 159–171. https://doi.org/10.1016/j.bushor.2021.02.033

Margheri, A., Masi, M., Miladi, A., Sassone, V., & Rosenzweig, J. (2020). Decentralised provenance for healthcare data. *International Journal of Medical Informatics*, *141*, 104197. https://doi.org/10.1016/j.ijmedinf.2020.104197

Marr, B. (2018). *30+ Real Examples Of Blockchain Technology In Practice*. Forbes. https://www.forbes.com/sites/bernardmarr/2018/05/14/30-real-examples-of-blockchain-technology-in-practice/

Massaro, M. (2021). Digital transformation in the healthcare sector through blockchain technology. Insights from academic research and business developments. *Technovation*, 102386. https://doi.org/10.1016/j.technovation.2021.102386

Mayer, R. C., Davis, J. H., & Schoorman, F. D. (1995). An Integrative Model Of Organizational Trust. *Academy of Management Review*, *20*(3), 709–734. https://doi.org/10.5465/amr.1995.9508080335

Mayer, R. C., & Gavin, M. B. (2005). Trust in Management and Performance: Who Minds the Shop While the Employees Watch the Boss? *Academy of Management Journal*, *48*(5), 874–888. https://doi.org/10.5465/amj.2005.18803928

McGraw, D., Dempsey, J. X., Harris, L., & Goldman, J. (2009). Privacy As An Enabler, Not An Impediment: Building Trust Into Health Information Exchange. *Health Affairs*, *28*(2), 416–427. https://doi.org/10.1377/hlthaff.28.2.416

McLaren, M., & Loosemore, M. (2019). Swift trust formation in multi-national disaster project management teams. *International Journal of Project Management*, *37*(8), 979–988. https://doi.org/10.1016/j.ijproman.2019.09.003

Melović, B., Šehović, D., Karadžić, V., Dabić, M., & Ćirović, D. (2021). Determinants of Millennials' behavior in online shopping – Implications on consumers' satisfaction and e-business development. *Technology in Society*, *65*, 101561. https://doi.org/10.1016/j.techsoc.2021.101561

Meng, W., Li, W., & Zhu, L. (2020). Enhancing Medical Smartphone Networks via Blockchain-Based Trust Management Against Insider Attacks. *IEEE Transactions on Engineering Management*, *67*(4), 1377–1386. https://doi.org/10.1109/TEM.2019.2921736

Meyerson, D., Weick, K. E., & Kramer, R. M. (1996). Trust in Organizations: Frontiers of Theory and Research. In *Trust in Organizations: Frontiers of Theory and Research* (pp. 166–195). SAGE Publications, Inc. https://doi.org/10.4135/9781452243610

Mhango, M. W., & Niehm, L. S. (2005). The second-hand clothing distribution channel: Opportunities for retail entrepreneurs in Malawi. *Journal of Fashion Marketing and Management: An International Journal*, *9*(3), 342–356. https://doi.org/10.1108/13612020510610462

Miles to Go: The Future of Emerging Markets – IMF F&D. (2021). https://www.imf.org/external/pubs/ft/fandd/2021/06/the-future-of-emerging-markets-duttagupta-and-pazarbasioglu.htm

Miller, H. (2005). Information quality and market share in electronic commerce. *Journal of Services Marketing*, *19*(2), 93–102. https://doi.org/10.1108/08876040510591402

Moher, D. (2009). Preferred Reporting Items for Systematic Reviews and Meta-Analyses: The PRISMA Statement. *Annals of Internal Medicine*, *151*(4), 264. https://doi.org/10.7326/0003-4819-151-4-200908180-00135

Moorman, C., Zaltman, G., & Deshpande, R. (1992). Relationships between Providers and Users of Market Research: The Dynamics of Trust within and between Organizations. *Journal of Marketing Research*, *29*(3), 314–328. https://doi.org/10.1177/002224379202900303

Moriuchi, E., & Takahashi, I. (2022). The role of perceived value, trust and engagement in the C2C online secondary marketplace. *Journal of Business Research*, *148*, 76–88. https://doi.org/10.1016/j.jbusres.2022.04.029

Morrow, M. J., & Zarrebini, M. (2019). Blockchain and the Tokenization of the Individual: Societal Implications. *Future Internet*, *11*(10), Article 10. https://doi.org/10.3390/fi11100220

Morse, J. M. (1997). *Completing a Qualitative Project*. SAGE.

Moslehpour, M., Wong, W.-K., Pham, K. V., & Aulia, C. K. (2017). Repurchase intention of Korean beauty products among Taiwanese consumers. *Asia Pacific Journal of Marketing and Logistics*, *29*(3), 569–588. https://doi.org/10.1108/APJML-06-2016-0106

Mukherjee, S., Datta, B., & Paul, J. (2020). The phenomenon of purchasing second-hand products by the BOP consumers. *Journal of Retailing and Consumer Services*, *57*, 102189. https://doi.org/10.1016/j.jretconser.2020.102189

Munerah, S., Koay, K. Y., & Thambiah, S. (2021). Factors influencing non-green consumers' purchase intention: A partial least squares structural equation modelling (PLS-SEM) approach. *Journal of Cleaner Production*, *280*, 124192. https://doi.org/10.1016/j.jclepro.2020.124192

Munsch, A. (2021). Millennial and generation Z digital marketing communication and advertising effectiveness: A qualitative exploration. *Journal of Global Scholars of Marketing Science*, *31*(1), 10–29. https://doi.org/10.1080/21639159.2020.1808812

Myers, E. (2020). Asymmetric information in residential rental markets: Implications for the energy efficiency gap. *Journal of Public Economics*, *190*, 104251. https://doi.org/10.1016/j.jpubeco.2020.104251

Nayak, B., Bhattacharyya, S. S., Kumar, S., & Jumnani, R. K. (2021). Exploring the factors influencing adoption of health-care wearables among generation Z consumers in India. *Journal of Information, Communication and Ethics in Society*, *20*(1), 150–174. https://doi.org/10.1108/JICES-07-2021-0072

Ng, J. Y. Y., Ntoumanis, N., Thøgersen-Ntoumani, C., Deci, E. L., Ryan, R. M., Duda, J. L., & Williams, G. C. (2012). Self-Determination Theory Applied to Health Contexts: A Meta-Analysis. *Perspectives on Psychological Science*, *7*(4), 325–340. https://doi.org/10.1177/1745691612447309

Nguyen, T. H. N., Yeh, Q., & Huang, C. (2022). Understanding consumer' switching intention toward traceable agricultural products: Push-pull-mooring perspective. *International Journal of Consumer Studies*, *46*(3), 870–888. https://doi.org/10.1111/ijcs.12733

Nigam, A., Behl, A., Pereira, V., & Sangal, S. (2022). Impulse purchases during emergency situations: Exploring permission marketing and the role of blockchain. *Industrial Management & Data Systems*, *ahead-of-print*(ahead-of-print). https://doi.org/10.1108/IMDS-12-2021-0799

Nigam, A., Sangal, S., Behl, A., Jayawardena, N., Shankar, A., Pereira, V., Temouri, Y., & Zhang, J. (2022). Blockchain as a resource for building trust in pre-owned goods' marketing: A case of automobile industry in an emerging economy. *Journal of Strategic Marketing*, 1–19. https://doi.org/10.1080/0965254X.2022.2088604

Niros, M. I., Niros, A., Pollalis, Y., & Ding, Q. S. (2022). Effective marketing strategies for global FMCG brands during COVID-19 pandemic crisis. *International Marketing Review*, *40*(5), 1012–1034. https://doi.org/10.1108/IMR-11-2021-0327

Ozbal, O., Duman, T., & Topaloglu, O. (2020). A trust-based peer-to-peer digital brand equity (P2P-DBE) model. *Journal of Marketing Theory and Practice*, *28*(4), 497–520. https://doi.org/10.1080/10696679.2020.1794901

P, S. A., & A, S. B. M. (2022). The way OLX transformed pre-owned automobile market; an empirical analysis on users' experience. *Journal of Management and Science*, *12*(2), Article 2. https://doi.org/10.26524/jms.12.22

Padmavathy, C., Swapana, M., & Paul, J. (2019). Online second-hand shopping motivation – Conceptualization, scale development, and validation. *Journal of Retailing and Consumer Services*, *51*, 19–32. https://doi.org/10.1016/j.jretconser.2019.05.014

Pan, C. (2020). Competition between branded and nonbranded firms and its impact on welfare. *Southern Economic Journal*, *87*(2), 647–665. https://doi.org/10.1002/soej.12456

Pandey, S., Mittal, S., & Chawla, D. (2024). Tackling consumer information asymmetry and perceived uncertainty for luxury re-commerce through seller signals. *Journal of Retailing and Consumer Services*, *79*, 103736. https://doi.org/10.1016/j.jretconser.2024.103736

Pappas, N. (2016). Marketing strategies, perceived risks, and consumer trust in online buying behaviour. *Journal of Retailing and Consumer Services*, *29*, 92–103. https://doi.org/10.1016/j.jretconser.2015.11.007

Parasuraman, A. (2000). Technology Readiness Index (Tri): A Multiple-Item Scale to Measure Readiness to Embrace New Technologies. *Journal of Service Research*, *2*(4), 307–320. https://doi.org/10.1177/109467050024001

Parguel, B., Lunardo, R., & Benoit-Moreau, F. (2017). Sustainability of the sharing economy in question: When second-hand peer-to-peer platforms stimulate indulgent consumption. *Technological Forecasting and Social Change*, *125*, 48–57. https://doi.org/10.1016/j.techfore.2017.03.029

Park, M., Jung, K. M., & Park, D. H. (2020). Warranty cost analysis for second-hand products under a two-stage repair-or-full refund policy. *Reliability Engineering & System Safety*, *193*, 106596. https://doi.org/10.1016/j.ress.2019.106596

Park, M., Jung, K. M., & Park, D. H. (2021). Optimal maintenance and warranty strategy for second-hand product with periodic preventive maintenance action. *Journal of the Korean Statistical Society*, *50*(3), 773–794. https://doi.org/10.1007/s42952-021-00127-3

Patel, V. (2019). A framework for secure and decentralized sharing of medical imaging data via blockchain consensus. *Health Informatics Journal*, *25*(4), 1398–1411. https://doi.org/10.1177/1460458218769699

Pravin, S., & Sudhir, A. (2018). Integration of 3D printing with dosage forms: A new perspective for modern healthcare. *Biomedicine & Pharmacotherapy*, *107*, 146–154. https://doi.org/10.1016/j.biopha.2018.07.167

Priporas, C.-V., Stylos, N., & Fotiadis, A. K. (2017). Generation Z consumers' expectations of interactions in smart retailing: A future agenda. *Computers in Human Behavior*, *77*, 374–381. https://doi.org/10.1016/j.chb.2017.01.058

Prokofieva, M., & Miah, S. J. (2019). Blockchain in healthcare. *Australasian Journal of Information Systems*, *23*. https://doi.org/10.3127/ajis.v23i0.2203

Pu, S., & Lam, J. S. L. (2021). Blockchain adoptions in the maritime industry: A conceptual framework. *Maritime Policy & Management*, *48*(6), 777–794. https://doi.org/10.1080/03088839.2020.1825855

Pudaruth, S., Juwaheer, T. D., & Seewoo, Y. D. (2015). Gender-based differences in understanding the purchasing patterns of eco-friendly cosmetics and beauty care products in Mauritius: A study of female customers. *Social Responsibility Journal*, *11*(1), 179–198. https://doi.org/10.1108/SRJ-04-2013-0049

Quan, W., Moon, H., Kim, S. (Sam), & Han, H. (2023). Mobile, traditional, and cryptocurrency payments influence consumer trust, attitude, and destination choice: Chinese versus Koreans. *International Journal of Hospitality Management*, *108*, 103363. https://doi.org/10.1016/j.ijhm.2022.103363

Queiroz, M. M., Fosso Wamba, S., De Bourmont, M., & Telles, R. (2021). Blockchain adoption in operations and supply chain management: Empirical evidence from an emerging economy. *International Journal of Production Research*, *59*(20), 6087–6103. https://doi.org/10.1080/00207543.2020.1803511

Racherla, P., Mandviwalla, M., & Connolly, D. J. (2012). Factors affecting consumers' trust in online product reviews. *Journal of Consumer Behaviour*, *11*(2), 94–104. https://doi.org/10.1002/cb.385

Raj, S. P. (1985). Striking a Balance between Brand "Popularity" and Brand Loyalty. *Journal of Marketing*, *49*(1), 53–59. https://doi.org/10.1177/002224298504900105

Ramsey, E., Ibbotson, P., & McCole, P. (2006). Application of projective techniques in an e-business research context: A response to 'Projective techniques in market research-valueless subjectivity or insightful reality?' *International Journal of Market Research*, *48*(5), 551–573.

Rapezzi, M., Pizzi, G., & Marzocchi, G. L. (2024). What you see is what you get: The impact of blockchain technology transparency on consumers. *Marketing Letters*. https://doi.org/10.1007/s11002-024-09723-9

Roman-Belmonte, J. M., De la Corte-Rodriguez, H., & Rodriguez-Merchan, E. C. (2018). How blockchain technology can change medicine. *Postgraduate Medicine*, *130*(4), 420–427. https://doi.org/10.1080/00325481.2018.1472996

Rosillo-Díaz, E., Blanco-Encomienda, F. J., & Crespo-Almendros, E. (2019). A cross-cultural analysis of perceived product quality, perceived risk and purchase intention in e-commerce platforms. *Journal of Enterprise Information Management*, *33*(1), 139–160. https://doi.org/10.1108/JEIM-06-2019-0150

Ross, G. R., Bolton, L. E., & Meloy, M. G. (2023). Disorder in secondhand retail spaces: The countervailing forces of hidden treasure and risk. *Journal of Retailing*, *99*(1), 136–148. https://doi.org/10.1016/j.jretai.2022.12.002

Round, G., & Roper, S. (2015). Untangling the brand name from the branded entity: The conceptualisation and value of the established brand name. *European Journal of Marketing*, *49*(11/12), 1941–1960. https://doi.org/10.1108/EJM-09-2014-0541

Rubin, C. B., & Brod, B. (2019). Natural Does Not Mean Safe—The Dirt on Clean Beauty Products. *JAMA Dermatology*, *155*(12), 1344–1345. https://doi.org/10.1001/jamadermatol.2019.2724

Ryan, R. M., & Vansteenkiste, M. (2023). Self-determination theory: Metatheory, methods, and meaning. In *The Oxford handbook of self-determination theory* (pp. 3–30). Oxford University Press. http://hdl.handle.net/1854/LU-01HRCMM640511RK99H40PKVEPN

Sabou, S., Avram-Pop, B., & Zima, L. A. (2017). The Impact of the Problems Faced by Online Customers on Ecommerce. *Studia Universitatis Babes-Bolyai Oeconomica*, *62*(2), 77–88. https://doi.org/10.1515/subboec-2017-0010

Sadeghi, M., & Mahmoudi, A. (2024). Synergy between blockchain technology and internet of medical things in healthcare: A way to sustainable society. *Information Sciences*, *660*, 120049. https://doi.org/10.1016/j.ins.2023.120049

Salamandic, E., Alijosiene, S., & Gudonaviciene, R. (2015). Comparing the Price Sensitivity Measurement Effectiveness for New vs. Established brands. *Trends Economics and Management*, *9*(22), Article 22.

Samad, T. A., Sharma, R., Ganguly, K. K., Wamba, S. F., & Jain, G. (2023). Enablers to the adoption of blockchain technology in logistics supply chains: evidence from an emerging economy. Annals of Operations Research, 327(1), 251-291.

Sane-Zerang, E., Razmi, J., & Taleizadeh, A. A. (2020). Coordination in a closed-loop supply chain under asymmetric and symmetric information with sales effort-dependent demand. *Journal of Business Economics*, *90*(2), 303–334. https://doi.org/10.1007/s11573-019-00955-0

Sangal, S., Nigam, A., & Bhutani, C. (2022a). Conceptualizing the role of blockchain in omnichannel healthcare: A Delphi study. *Aslib Journal of Information Management*, *ahead-of-print*(ahead-of-print). https://doi.org/10.1108/AJIM-08-2021-0230

Sangal, S., Nigam, A., & Bhutani, C. (2022b). Purchase Behavior of Generation Z for New-Brand Beauty Products: Exploring the Role of Blockchain. *Journal of Electronic Commerce in Organizations (JECO)*, *20*(2), 1–21. https://doi.org/10.4018/JECO.300304

Sangal, S., Nigam, A., & Sharma, S. (2023). Integrating blockchain capabilities in an omnichannel healthcare system: A dual theoretical perspective. *Journal of Consumer Behaviour*, *23*(2). https://doi.org/10.1002/cb.2213

Santos, A. C. de J., & Cavalcante, C. A. V. (2022). A study on the economic and environmental viability of second-hand items in maintenance policies. *Reliability Engineering & System Safety*, *217*, 108133. https://doi.org/10.1016/j.ress.2021.108133

Sarkar, S., Chauhan, S., & Khare, A. (2020). A meta-analysis of antecedents and consequences of trust in mobile commerce. *International Journal of Information Management*, *50*, 286–301. https://doi.org/10.1016/j.ijinfomgt.2019.08.008

Schadenberg, D., & Folmer, E. (2022). Getting the story right: How second-hand stores use storytelling to gain legitimacy with multiple audiences. *Social Enterprise Journal*, *18*(3), 503–518. https://doi.org/10.1108/SEJ-06-2021-0050

Schlecht, L., Schneider, S., & Buchwald, A. (2020). *Creating value through blockchain technology: A Delphi study*. https://repository.vlerick.com/handle/20.500.12127/6489

Scott, A., & Balthrop, A. T. (2020). The consequences of self-reporting biases: Evidence from the crash preventability program. *Journal of Operations Management*.

Shao, Z., Zhang, L., Brown, S. A., & Zhao, T. (2022). Understanding users' trust transfer mechanism in a blockchain-enabled platform: A mixed methods study. *Decision Support Systems*, *155*, 113716. https://doi.org/10.1016/j.dss.2021.113716

Sharma, L., Olson, J., Guha, A., & McDougal, L. (2021). How blockchain will transform the healthcare ecosystem. *Business Horizons*, *64*(5), 673–682. https://doi.org/10.1016/j.bushor.2021.02.019

Shayganmehr, M., Gupta, S., Laguir, I., Stekelorum, R., & Kumar, A. (2021). Assessing the role of industry 4.0 for enhancing swift trust and coordination in humanitarian supply chain. *Annals of Operations Research*. https://doi.org/10.1007/s10479-021-04430-4

Shen, B., Xu, X., & Yuan, Q. (2020). Selling secondhand products through an online platform with blockchain. *Transportation Research Part E: Logistics and Transportation Review*, *142*, 102066. https://doi.org/10.1016/j.tre.2020.102066

Shi, S., He, D., Li, L., Kumar, N., Khan, M. K., & Choo, K.-K. R. (2020). Applications of blockchain in ensuring the security and privacy of electronic health record systems: A survey. *Computers & Security*, *97*, 101966. https://doi.org/10.1016/j.cose.2020.101966

Shin, D. D. H. (2019). Blockchain: The emerging technology of digital trust. *Telematics and Informatics*, *45*, 101278. https://doi.org/10.1016/j.tele.2019.101278

Shin, D.-H. (2010). The effects of trust, security and privacy in social networking: A security-based approach to understand the pattern of adoption. *Interacting with Computers*, *22*(5), 428–438. https://doi.org/10.1016/j.intcom.2010.05.001

Shinde, R., Patil, S., Kotecha, K., Potdar, V., Selvachandran, G., & Abraham, A. (2024). Securing AI-based healthcare systems using blockchain technology: A state-of-the-art systematic literature review and future research directions. Transactions on Emerging Telecommunications Technologies, 35(1), e4884.

Sihvonen, J., & Turunen, L. L. M. (2016). As good as new – valuing fashion brands in the online second-hand markets. *Journal of Product & Brand Management*, *25*(3), 285–295. https://doi.org/10.1108/JPBM-06-2015-0894

Silva, J., Pinho, J. C., Soares, A., & Sá, E. (2019). Antecedents of online purchase intention and behaviour: Uncovering unobserved heterogeneity. *Journal of Business Economics and Management, 20*(1), Article 1. https://doi.org/10.3846/jbem.2019.7060

Silva, S. C., Duarte, P., Sandes, F. S., & Almeida, C. A. (2022). The hunt for treasures, bargains and individuality in pre-loved luxury. *International Journal of Retail & Distribution Management*. https://doi.org/10.1108/IJRDM-10-2021-0466

Silva, S. C., Santos, A., Duarte, P., & Vlačić, B. (2021). The role of social embarrassment, sustainability, familiarity and perception of hygiene in second-hand clothing purchase experience. *International Journal of Retail & Distribution Management, 49*(6), 717–734. https://doi.org/10.1108/IJRDM-09-2020-0356

Singh, S., Nicely, A., Day, J., & Cai, L. A. (2022). Marketing messages for post-pandemic destination recovery- A Delphi study. *Journal of Destination Marketing & Management, 23*, 100676. https://doi.org/10.1016/j.jdmm.2021.100676

Srinivasan, R., & Swink, M. (2018). An Investigation of Visibility and Flexibility as Complements to Supply Chain Analytics: An Organizational Information Processing Theory Perspective. *Production and Operations Management, 27*(10), 1849–1867. https://doi.org/10.1111/poms.12746

Stafford, T. F., & Treiblmaier, H. (2020). Characteristics of a Blockchain Ecosystem for Secure and Sharable Electronic Medical Records. *IEEE Transactions on Engineering Management*, *67*(4), 1340–1362. https://doi.org/10.1109/TEM.2020.2973095

Stewart, D. W., Shamdasani, P. N., & Rook, D. W. (2007). Conducting the focus group. *Focus Groups: Theory and Practice*, 87–121.

Stockdale, R., & Standing, C. (2006). An interpretive approach to evaluating information systems: A content, context, process framework. *European Journal of Operational Research*, *173*(3), 1090–1102. https://doi.org/10.1016/j.ejor.2005.07.006

Struijk, M., Angelopoulos, S., Ou, C. X. J., & Davison, R. M. (2023). Navigating digital transformation through an information quality strategy: Evidence from a military organisation. *Information Systems Journal*, *33*(4), 912–952. https://doi.org/10.1111/isj.12430

Subramanian, G., & Thampy, A. S. (2021). Implementation of Hybrid Blockchain in a Pre-Owned Electric Vehicle Supply Chain. *IEEE Access*, *9*, 82435–82454. https://doi.org/10.1109/ACCESS.2021.3084942

Sui, Y., & Zhang, B. (2021). Determinants of the Perceived Credibility of Rebuttals Concerning Health Misinformation. *International Journal of Environmental Research and Public Health*, *18*(3), Article 3. https://doi.org/10.3390/ijerph18031345

Sultan, A. (2010). A model of the used car market with lemons and leasing. *Applied Economics, 42*(28), 3619–3627. https://doi.org/10.1080/00036840802314556

Suresh Kumar, K., Nassa, V. K., Uike, D., Kalra, A., Sahu, A. K., Athavale, V. A., & Saravanan, V. (2022). A Comparative Analysis of Blockchain in Enhancing the Drug Traceability in Edible Foods Using Multiple Regression Analysis. *Journal of Food Quality*, *2022*, 1–6. https://doi.org/10.1155/2022/1689913

Tan, T. M., & Saraniemi, S. (2022). Trust in blockchain-enabled exchanges: Future directions in blockchain marketing. *Journal of the Academy of Marketing Science*. https://doi.org/10.1007/s11747-022-00889-0

Tan, T. M., & Saraniemi, S. (2023). Trust in blockchain-enabled exchanges: Future directions in blockchain marketing. *Journal of the Academy of Marketing Science*, *51*(4), 914–939. https://doi.org/10.1007/s11747-022-00889-0

Tapscott, D., & Euchner, J. (2019). Blockchain and the Internet of Value. *Research-Technology Management*, *62*(1), 12–19. https://doi.org/10.1080/08956308.2019.1541711

Tharatipyakul, A., Pongnumkul, S., Riansumrit, N., Kingchan, S., & Pongnumkul, S. (2022). Blockchain-Based Traceability System From the Users' Perspective: A Case Study of Thai Coffee Supply Chain. *IEEE Access*, *10*, 98783–98802. https://doi.org/10.1109/ACCESS.2022.3206860

The beauty market in 2023: A special State of Fashion report | McKinsey. (2023, July 6). https://www.mckinsey.com/industries/retail/our-insights/the-beauty-market-in-2023-a-special-state-of-fashion-report

Tian, L., & Hu, B. (2023). The impacts of blockchain adoption on pricing and efforts decisions in online game supply chains with information asymmetry. *International Journal of Production Economics*, *266*, 109030. https://doi.org/10.1016/j.ijpe.2023.109030

Tiberius, V., Gojowy, R., & Dabić, M. (2022). Forecasting the future of robo advisory: A three-stage Delphi study on economic, technological, and societal implications. *Technological Forecasting and Social Change*, *182*, 121824. https://doi.org/10.1016/j.techfore.2022.121824

Torkzadeh, G., & Dhillon, G. (2002). Measuring Factors that Influence the Success of Internet Commerce. *Information Systems Research*, *13*(2), 187–204. https://doi.org/10.1287/isre.13.2.187.87

Treiblmaier, H., & Garaus, M. (2023). Using blockchain to signal quality in the food supply chain: The impact on consumer purchase intentions and the moderating effect of brand familiarity. *International Journal of Information Management*, *68*, 102514. https://doi.org/10.1016/j.ijinfomgt.2022.102514

Tsiotsou, R. (2006). The role of perceived product quality and overall satisfaction on purchase intentions. *International Journal of Consumer Studies*, *30*(2), 207–217. https://doi.org/10.1111/j.1470-6431.2005.00477.x

Turunen, L. L. M., & Pöyry, E. (2019). Shopping with the resale value in mind: A study on second-hand luxury consumers. *International Journal of Consumer Studies*, *43*(6), 549–556. https://doi.org/10.1111/ijcs.12539

Ubilava, D., Foster, K. A., Lusk, J. L., & Nilsson, T. (2011). Differences in consumer preferences when facing branded versus non-branded choices. *Journal of Consumer Behaviour*, *10*(2), 61–70. https://doi.org/10.1002/cb.349

Uddin, M., Salah, K., Jayaraman, R., Pesic, S., & Ellahham, S. (2021). Blockchain for drug traceability: Architectures and open challenges. *Health Informatics Journal*, 15.

Urban, G. L. (2003). The Trust Imperative. *SSRN Electronic Journal*. https://doi.org/10.2139/ssrn.400421

Urban, G. L., Amyx, C., & Lorenzon, A. (2009). Online trust: State of the art, new frontiers, and research potential. *Journal of Interactive Marketing*, *23*(2), 179–190.

Urban, G. L., Sultan, F., & Qualls, W. J. (1998). *Trust based marketing on the internet*.

Used Car Market in India—Industry Size, Share & Companies. (2024, February 2). https://www.mordorintelligence.com/industry-reports/india-used-car-market

Used Car Market Size, Share, Growth & Trends Report, 2030. (2022, March 3). https://www.grandviewresearch.com/industry-analysis/used-car-market

van Dolen, W. M., Dabholkar, P. A., & de Ruyter, K. (2007). Satisfaction with Online Commercial Group Chat: The Influence of Perceived Technology Attributes, Chat Group Characteristics, and Advisor Communication Style. *Journal of Retailing*, *83*(3), 339–358. https://doi.org/10.1016/j.jretai.2007.03.004

Voros, J. (2019). An analysis of the dynamic price-quality relationship. *European Journal of Operational Research*, *277*(3), 1037–1045. https://doi.org/10.1016/j.ejor.2019.03.032

Vosooghidizaji, M., Taghipour, A., & Canel-Depitre, B. (2020). Supply chain coordination under information asymmetry: A review. *International Journal of Production Research*, *58*(6), 1805–1834. https://doi.org/10.1080/00207543.2019.1685702

Walia, S. B., Kumar, H., & Negi, N. (2019). Consumers' attitude and purchase intention towards "green" products: A study of selected FMCGs. *International Journal of Green Economics*, *13*(3–4), 202–217. https://doi.org/10.1504/IJGE.2019.104507

Walsh, G., Shiu, E., & Hassan, L. M. (2012). Investigating the drivers of consumer intention to buy manufacturer brands. *Journal of Product & Brand Management*, *21*(5), 328–340. https://doi.org/10.1108/10610421211253623

Wang, J., Pham, T. L., & Dang, V. T. (2020). Environmental Consciousness and Organic Food Purchase Intention: A Moderated Mediation Model of Perceived Food Quality and Price Sensitivity. *International Journal of Environmental Research and Public Health*, *17*(3), Article 3. https://doi.org/10.3390/ijerph17030850

Wilts, H., Fecke, M., & Zeher, C. (2021). Economics of Waste Prevention: Second-Hand Products in Germany. *Economies*, *9*(2), 74. https://doi.org/10.3390/economies9020074

Wong, C. W. Y., Lirn, T.-C., Yang, C.-C., & Shang, K.-C. (2020). Supply chain and external conditions under which supply chain resilience pays: An organizational information processing theorization. *International Journal of Production Economics*, *226*, 107610. https://doi.org/10.1016/j.ijpe.2019.107610

Xue, Y., Caliskan-Demirag, O., Chen, Y. (Frank), & Yu, Y. (2018). Supporting customers to sell used goods: Profitability and environmental implications. *International Journal of Production Economics*, *206*, 220–232. https://doi.org/10.1016/j.ijpe.2018.10.005

Yaqoob, I., Salah, K., Jayaraman, R., & Al-Hammadi, Y. (2022). Blockchain for healthcare data management: Opportunities, challenges, and future recommendations. *Neural Computing and Applications*, *34*(14), 11475–11490. https://doi.org/10.1007/s00521-020-05519-w

Yrjölä, M., Hokkanen, H., & Saarijärvi, H. (2021). A typology of second-hand business models. *Journal of Marketing Management*, *37*(7–8), 761–791. https://doi.org/10.1080/0267257X.2021.1880465

Yu, W., Zhao, G., Liu, Q., & Song, Y. (2021). Role of big data analytics capability in developing integrated hospital supply chains and operational flexibility: An organizational information processing theory perspective. *Technological Forecasting and Social Change*, *163*, 120417. https://doi.org/10.1016/j.techfore.2020.120417

Zaabar, B., Cheikhrouhou, O., Jamil, F., Ammi, M., & Abid, M. (2021). HealthBlock: A secure blockchain-based healthcare data management system. *Computer Networks*, *200*, 108500. https://doi.org/10.1016/j.comnet.2021.108500

Zamani, E., He, Y., & Phillips, M. (2020). On the Security Risks of the Blockchain. *Journal of Computer Information Systems*, *60*(6), 495–506. https://doi.org/10.1080/08874417.2018.1538709

Zavolokina, L., Miscione, G., & Schwabe, G. (2020). Buyers of 'lemons': How can a blockchain platform address buyers' needs in the market for 'lemons'? *Electronic Markets*, *30*(2), 227–239. https://doi.org/10.1007/s12525-019-00380-9

Zhang, M. (2006). *An example of trust-based marketing and customer advocacy in e-commerce* [PhD Thesis]. Massachusetts Institute of Technology.

Zhang, Z., Wang, Y., & Liu, C. (2023). Multihoming effect on the two-sided platform of second-hand cars. *Computers & Industrial Engineering*, *179*, 109160. https://doi.org/10.1016/j.cie.2023.109160

Zhao, S., You, Z., & Zhu, Q. (2022). Effects of asymmetric cost information on collection outsourcing of used products for remanufacturing. *Transportation Research Part E: Logistics and Transportation Review*, *162*, 102729. https://doi.org/10.1016/j.tre.2022.102729

Zheng, Z., Xie, S., Dai, H.-N., Chen, X., & Wang, H. (2018). Blockchain challenges and opportunities: A survey. *International Journal of Web and Grid Services*, *14*(4), 352–375. https://doi.org/10.1504/IJWGS.2018.095647

Zhou, Y. (2021). Understanding Users' Reaction to Blockchain Technology on the Online Fundraising Platform: —Evidence from Scenario Simulation Experiments. *2021 International Conference on Computer Information Science and Artificial Intelligence (CISAI)*, 301–305. https://doi.org/10.1109/CISAI54367.2021.00064

APPENDICES

APPENDIX A

A1.1 FGD Moderator Guide (Buyer/Seller of pre-owned automobiles)- Study 2

Dear participants, thank you for your consent to participate in this study. As communicated earlier, we will discuss your purchase/selling experience for pre-owned automobiles. We will focus on your experiences on digital channels, but we also welcome you to share your experiences with traditional offline channels. We will cover both direct customer-to-customer and customer-to-intermediary transactions (clarify what we mean by customer-to-customer and customer-to-business/intermediary channel).

Please ask if there is any confusion.

Can we video-record the discussion before we start? We promise to use the data collected only for academic purposes, and your confidentiality will be maintained at all times (make sure the recording is on after taking consent and before the discussion starts)

1. Let us start with a brief round of introduction. I would request all the participants to introduce themselves and also tell what vehicle they [have sold/purchased in the past] [are looking to purchase/sell currently] (A brief general introduction)

Thanks for that introduction. Let us now discuss the reason for selling/purchasing your pre-owned vehicle.

2. How did you plan to buy/sell a pre-owned vehicle? (Look for specific details (examples) during the discussion. What were/are the different sale/purchase channels considered? Which channel was selected and why? Etc.)
3. For those who chose to sell/purchase directly (customer to customer), how was your experience? (Ask to elaborate with examples).

a) Did you face any challenges? (Ask to elaborate with examples).
b) How would you think your experience could have been better? (Ask to elaborate with examples).
c) Do you think going the other way (sell/purchase via an intermediary) would have been more satisfying?

4. For those who chose to sell/purchase indirectly (via intermediaries/pre-owned vehicle dealers), how was your experience? (Ask to elaborate with examples).
    a) Did you face any challenges? (Ask to elaborate with examples).
    b) How would you think your experience could have been better? (Ask to elaborate with examples).
    c) Do you think going the other way (sell/purchase directly) would have been more satisfying? (Ask to elaborate with examples)
5. Those who sold C2C and B2C, do you think going the other way would have been more satisfying?
6. Based on the channel you selected (digital/offline channel), how satisfied were you post your transactions? (Ask to elaborate with examples).
    a) How would you think your experience could have been better? (Ask to elaborate with examples)
    b) Do you think taking the other channel would have been a better choice? (Ask to elaborate with examples)

Summarize the complete discussion to this point and ask if anyone has anything to add.

7. Now, we will discuss the role of a new technology – Blockchain. Has anyone in this group heard of Blockchain before? (Ask to elaborate with examples). For the benefit of all the

participants, let us watch some brief non-technical YouTube videos on this technology before moving ahead. (Once the participants have watched the videos, have a small discussion on Blockchain. Ensure that all the participants have a basic understanding of Blockchain).

a) Do you think that if the automobile industry adopts blockchain technology (BCT), your decision-making will be influenced? (Ask to elaborate with examples)
b) How would you feel dealing at the customer-to-customer level if the automobile industry adopts BCT? (Ask to elaborate with examples)
c) How would you feel about taking the digital route for transacting pre-owned vehicles if the automobile industry adopts BCT? (Ask to elaborate with examples)
d) How would you feel dealing at the intermediary (business) to customer level if the automobile industry adopts BCT? (Ask to elaborate with examples)

Summarize the discussion on BCT and ask if anyone has anything to add. Thank the participants for their time and provide them with information about the lucky draw.

A1.2 Questions for PI – Managers operating in pre-owned automobiles as respondents (Study 2)

Dear participants, thank you for your consent to participate in this study. As communicated earlier, we will discuss how technological advancements have made and can make your business process of transacting pre-owned automobiles easier/difficult. We will focus on your experiences on digital/omnichannel, but we also welcome you to share your experiences with traditional offline channels.

Please ask if there is any confusion. Can we video-record the interview before we start? We promise to use the data collected only for academic purposes, and your confidentiality will be maintained at all times (make sure the recording is on after taking consent and the interview starts)

1. Let us start with a brief round of introduction. Please introduce yourself along your line of business. (Ask for details, like how long she has been in the industry, what firms she has worked for, and at what levels, etc.)
2. Please can you elaborate more on your business format? How do you deal with pre-owned vehicles?
    a) Ask for details about how the vehicles are transferred from the current owner to the new owner.
    b) Ask the manager to elaborate on the complete cycle a pre-owned vehicle owner goes through when she plans to sell the vehicle to the manager firm.
    c) Ask for details regarding how the managers' firm evaluates the pre-owned vehicle's condition.
    d) Ask the manager to elaborate on the complete cycle a pre-owned vehicle buyer goes through when she plans to sell the vehicle to the manager firm.
3. What challenges do the buyers of pre-owned vehicles face while doing business with you? (Ask to elaborate with examples).
4. What challenges do the sellers of pre-owned vehicles face while doing business with you? (Ask to elaborate with examples).
5. What challenges do you face while dealing with buyers and sellers of pre-owned vehicles? (Ask to elaborate with examples).

6. Can you please share your views on the current state of digital transformations undertaken by your firm? Industry overall? (Ask to elaborate with examples).
7. What kind of other digital transformations the pre-owned automobile industry can take to provide better businesses to its customers? (Ask to elaborate with examples).
8. Finally, I would specifically like to discuss the role of blockchain technology (BCT) in the automobile sector and, specifically, pre-owned automobiles. (Repeat the video exercise as in FGDs if necessary)
    a) What are some of the benefits of adopting the BCT automobile sector? (Ask to elaborate with examples).
    b) What are some of the benefits of adopting the BCT pre-owned automobile sector? (Ask to elaborate with examples).
    c) What challenges do you think your firm would face if the automobile industry adopts BCT? (Ask to elaborate with examples).
    d) How can pre-owned automobile firms adapt to changes brought about if the automobile industry adopts BCT? (Ask to elaborate with examples).

Summarize the interview and ask for any additional insights the manager would like to share.

Thank the respondent for his/her time and provide information about the lucky draw.

A2. Partial set (semi-structured) of questions for FGDs (Study 3)

Dear participants, thank you for agreeing to participate in this research. In this FGD, we would like you to discuss your online purchasing habits for beauty products. We would like to understand your purchase intention among branded, me too, and genuine non-branded beauty products from e-commerce sites. Here, beauty products refer to all the skin care, hair care, makeup, luxury beauty, and personal care products that you buy in your everyday life.

Please let us know if there is any confusion. May we begin?

1. Let us start by introducing ourselves. (An introduction round between participants)

2. Thank you for your introduction. Now, shall we discuss your online purchases in general? Do you indulge in online shopping? We would like to know about your e-commerce shopping habits.

   a. What is your approximate order frequency on a monthly basis?
   b. Which product categories do you buy online?
   c. Which sites do you mostly prefer for online shopping?
   d. Do you visit other sites that are not well known?

3. Which sites do you mostly prefer for beauty products? Can you name some beauty products that you buy online more often?

4. What are some factors that you look for in that product to decide on your purchase of any beauty product, say an eyeliner? (For example, the price/quantity/packaging/brand, etc.)

5. Have you ever tried/bought a non-branded product online? (Explain to them what non-branded product means: Any product made by a not well-known company, it can be a start-up or local manufacturer.) Discuss with reasons.

6. Can you explain with an example the process of your information search before buying any beauty product, say a sunscreen?

7. What are some of the challenges you face when purchasing beauty products online? Do you face any challenges while deciding to buy a non-branded product?

8. What do you look for before buying a non-branded product from a leading e-commerce site?

9. Suppose you want to buy a beauty product (Makeup/cosmetics) from any e-commerce site, and you come across two makeup products, one of which is from a leading brand, MAC, while the other is from a new company that you've not heard of. But there is a huge price difference, say the branded one costs Rs. 1200 while the other one costs just Rs. 400. Which one would you buy? Give reasons for your answer.

10. Now, what if a company X product comes with access to a source that provides true and authentic details about the product: e.g., its manufacturing details including location, the source and complete information about the raw materials used in the products, its supply chain details, its efficacy data, etc. This information cannot be amended by marketers or any other agent once verified and stored. It is a public property accessible to all. Can your decision to buy the product possibly change? Give Reasons.

11. Now, suppose in another case, you want to buy a beauty product (Makeup/cosmetics) from any e-commerce site, and you come across two similar (mee too, same price, same claimed ingredients and effectiveness, no reviews available) newly launched makeup products from new or non-branded sellers. Out of these, one is having information authenticated, as mentioned in the previous question, while the other doesn't. Who do you consider buying anyone? Give reasons for your answer.

a. Suppose the first product has authenticated information (no reviews yet), but the second product has some 5-star rated reviews; what would your decision be?

12. Would such information help you transact with other non-well-known brand sites?

Thank you for your active participation.

A3. Questionnaire for Healthcare Stakeholders' Survey (Study 4)

Dear Respondent,

I am conducting a primary survey to understand blockchain technology's role in building trust and efficiency among the members/patients and healthcare partners in an omnichannel healthcare system.

For this study, we assume an omnichannel healthcare platform to be a hybrid patient care model that allows patients and healthcare providers to communicate using all possible physical and virtual channels, like phone, email, video calling, in-person, through mobile applications, or chat. I invite you to participate in my research by filling out this questionnaire. The information you provide will be solely used for academic purposes. Thank you in advance for your valuable contribution and time.

For any queries, kindly reach out to Shreya Sangal (p20200039@pilani.bits-pilani.ac.in)

PART I

1. **Blockchain Capability**
   - The blockchain makes me feel safe in joining the omnichannel healthcare platforms.
   - The blockchain makes me feel comfortable with using omnichannel healthcare platforms.
   - The blockchain provides signals regarding the credibility of the platform
2. **Perceived Credibility**
   - I think the source of medical information available on online healthcare systems is reliable.
   - I think the source of medical information available on online healthcare systems is dependable.
   - I think the source of medical information available on online healthcare systems is trustworthy.
3. **Information Quality**
   - Omnichannel healthcare platforms provide correct information about the items I want to purchase.
   - Overall, I think omnichannel healthcare platforms provide useful information.
   - The omnichannel healthcare platforms provide timely information on the item.
   - The omnichannel healthcare platforms provide reliable information.

- The omnichannel healthcare platforms provide sufficient information when I try to make a transaction.
- I am satisfied with the information that omnichannel healthcare platforms provide.
- Overall, the information omnichannel healthcare platforms provide is of high quality.

4. Swift trust

- I can count on other members of the healthcare system to help me if I have health-related issues.
- I felt the members of the healthcare system were committed to serving the patients.
- The members of the healthcare system had a lot of knowledge about the kind of treatment that needed to be done.
- The members of the healthcare system were successful in the treatment they tried to accomplish.
- The members of the healthcare system exhibited competence in their jobs.
- The members of the healthcare system were open and upfront with me during the interaction.
- The members of the healthcare system kept the promises they made before treatment.
- The members of the healthcare system took actions that were consistent with their words.

5. Behavioral Control

- I feel much control over the service process when using omnichannel healthcare platforms.
- Through omnichannel healthcare platforms, I have a direct influence on getting the information I need.
- Omnichannel healthcare platforms enable me to get a grip on the necessary information.
- Omnichannel healthcare platforms will give me more control over the service process.

6. **Continued usage intention**

- Given a chance, I intend to use omnichannel healthcare platforms.
- I expect my omnichannel healthcare platform usage to continue in the future.
- In the future, I intend to use omnichannel healthcare platforms more than I do today.
- I will recommend omnichannel healthcare platforms to others.

Part II: Demographics

1. Age

- Under 18
- 18 to 25 years
- 25 years and above

2. Gender

- Male
- Female
- Other
- Prefer not to say

3. Educational Qualification

- Undergraduate
- Postgraduate
- Doctoral Degree
- Other

4. Occupation

- Student
- Working professional
- Self-employed
- Other

5. Annual Income

- Under 5,00,000 Rupees (6250 USD)
- 5,00,000 to 10,00,000 Rupees (6250- 12500 USD)
- Above 10,00,000 Rupees (12500 USD)

6. Which of the following activities may you indulge in an omnichannel healthcare system for healthcare services (Select all that apply)

- Medical consultations with specialists
- Buying medicines
- Booking appointments

- Storing medical records
- Making payments for hospital charges
- Searching for information about specialists

7. Are you aware of blockchain technology?

- I don't know what blockchain technology is
- I have moderate knowledge of blockchain technology
- I am well versed in concepts of blockchain technology

A4. Questionnaire for Users of P2P Platforms selling second-hand automobiles (Study 5):

Group 1 (BCT + Age of car <5 years):

Assume you want to buy a car for your daily traveling needs. Given your budget considerations, you decided to go for a second-hand car, which can provide a good value. You are looking for a decent second-hand car under INR 10,00,000 (12000 USD approx) that meets all your requirements. You have previously explored the offline options available in your vicinity, but you were not satisfied. So, you decide to look for a used car on an online P2P platform selling second-hand products.

A peer-to-peer (P2P) platform (app/website) is an online platform where users (buyers and sellers) interact directly without any intermediation of the platform. The platform does not bear any liability for the information given by its users. The users interact and transact completely at their own risk. Such platforms can be built within social media, such as Facebook (meta), which has pages where ads for products/services can be posted to buy and sell. Alternatively, there are dedicated websites like OLX that perform the same role where the users can transact. These P2P platforms are different from online aggregator platforms, where the platform management is actively involved in varying degrees in the transaction process by providing a range of services to the users.

Further, some businesses have integrated 'blockchain technology' as part of their business processes. This technology ensures that the information provided is accurate, confidential, untampered, and verifiable.

You come across a blockchain-enabled P2P platform selling second-hand automobiles. While browsing, you see a suitable advertisement for a car on that P2P platform. The car is claimed to have previously been owned by only one owner. Also, the car is less than five years old (see snapshot below). Here, you are provided with a detailed history of the automobiles, with the number of previous owners, their names and locations, buying dates, insurance details, vehicle age, distance covered by the vehicle, repairs, service history, etc. All these details are verified and obtained via blockchain technology-enabled sources.

On the basis of the information and snapshot shown above, please respond to the survey:

PART A

(Answer the following on a 7-point scale, where 1 – Strongly disagree 2 – Disagree 3 – Somewhat disagree 4 – Neither agree nor disagree 5 – Somewhat agree 6 – Agree 7 – Strongly agree)

1. **Information Quality**
   - P2P platforms provide correct information about the car that I want to purchase.
   - Overall, P2P platforms provide useful information.
   - P2P platforms provide timely information on the cars.
   - P2P platforms provide reliable information.
   - P2P platforms provide sufficient information when I try to make a transaction.
   - I am satisfied with the information that P2P platforms provide.

- The information P2P platforms provide is of high quality.

2. Trust in platform

- P2P platforms are trustworthy
- P2P platforms can be trusted to protect my/the users' privacy.
- P2P platforms can be relied on to keep their promises

3. Trust in Users

- Members on P2P platforms provide reliable information.
- Members on P2P platforms will keep promises and commitments.
- Members on P2P platforms will be trustworthy.

4. Intention to buy

- I intend to use P2P platforms to buy second-hand cars.
- I intend to visit P2P platforms to buy second-hand cars as much as possible.
- I intend to continue using P2P platforms to buy second-hand cars in the future.

5. Optimism towards technology

- Technology gives people more control over their daily lives.
- Products and services that use the newest technologies are much more convenient to use.
- I prefer to use the most advanced technology available.
- I like technologies that allow me to tailor things to fit my own needs.
- Technology makes me more efficient in my occupation.
- I find new technologies to be mentally stimulating.
- Technology gives me more freedom of mobility.
- Learning about technology can be as rewarding as the technology itself.

6. Insecurity towards technology

- I do not consider it safe to give out payment information online**.**
- I do not consider it safe to do any financial transaction online.

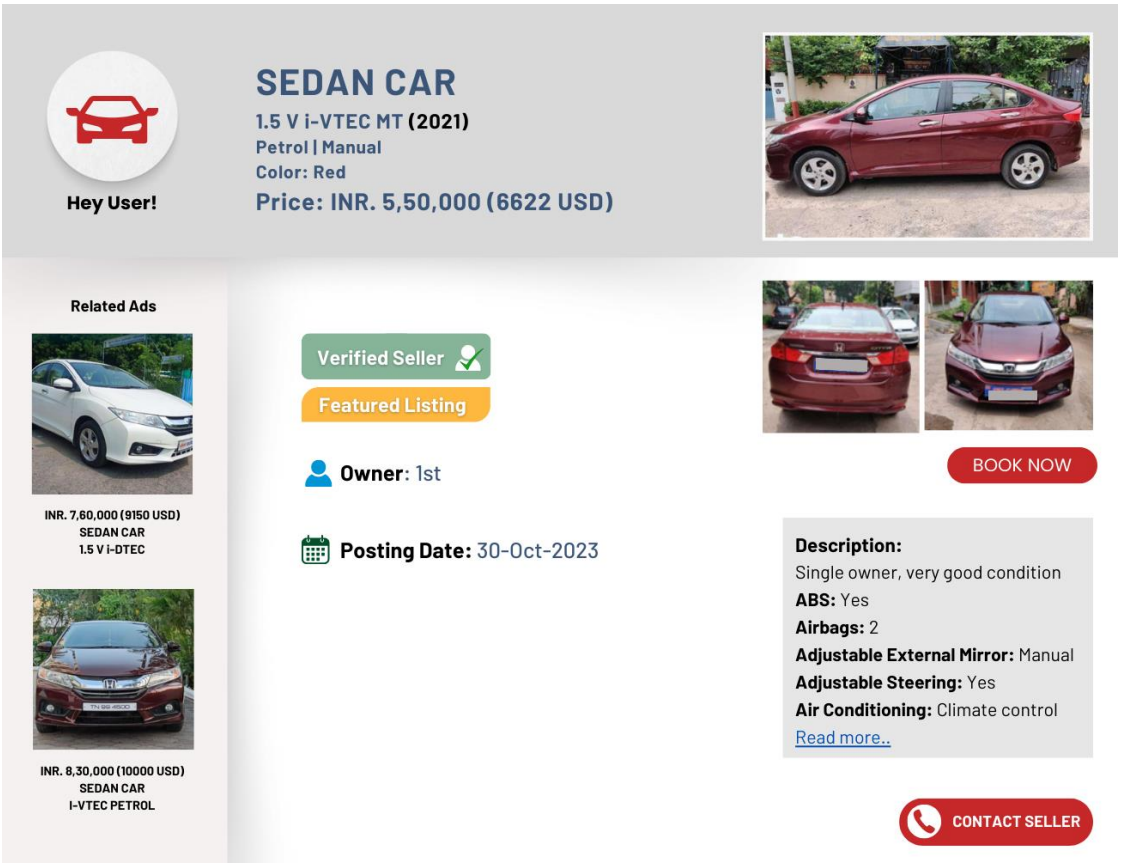
- I worry that other people can see the information I share online.
- I do not feel confident in buying at a place that can only be reached online.
- Any business transaction you do electronically should be acknowledged.
- I need to check carefully to ensure that the platform does not make mistakes whenever something gets automated.
- The human touch is essential when I transact with someone or a business**.**
- I can never be sure it really gets to the right place for the information provided over the Internet.

PART B-DEMOGRAPHICS

1. **Gender**
    - Male
    - Female
    - Other
    - Prefer not to say
2. **Educational Qualification**
    - Undergraduate
    - Postgraduate
    - Doctoral Degree
    - Other
3. **Occupation**
    - Student
    - Working professional
    - Self-employed
    - Other
4. **Annual Income**
    - Under 5 Lakh Rupees (6250 USD)
    - 5 to 10 Lakh Rupees (6250- 12500 USD)
    - Above 10 Lakh Rupees (12500 USD)

Note: The above-mentioned questionnaire and snapshot were modified for four groups, as explained in Chapter 5. The items of the questionnaire remained the same for all four groups. The snapshot for Group 2 is mentioned below for reference.

GROUP 2 (NO BCT- Age of car <5 Years)



A5. Questionnaire for Beauty Product Consumers (Study 6):

Group I- (Blockchain + Brand Popularity)

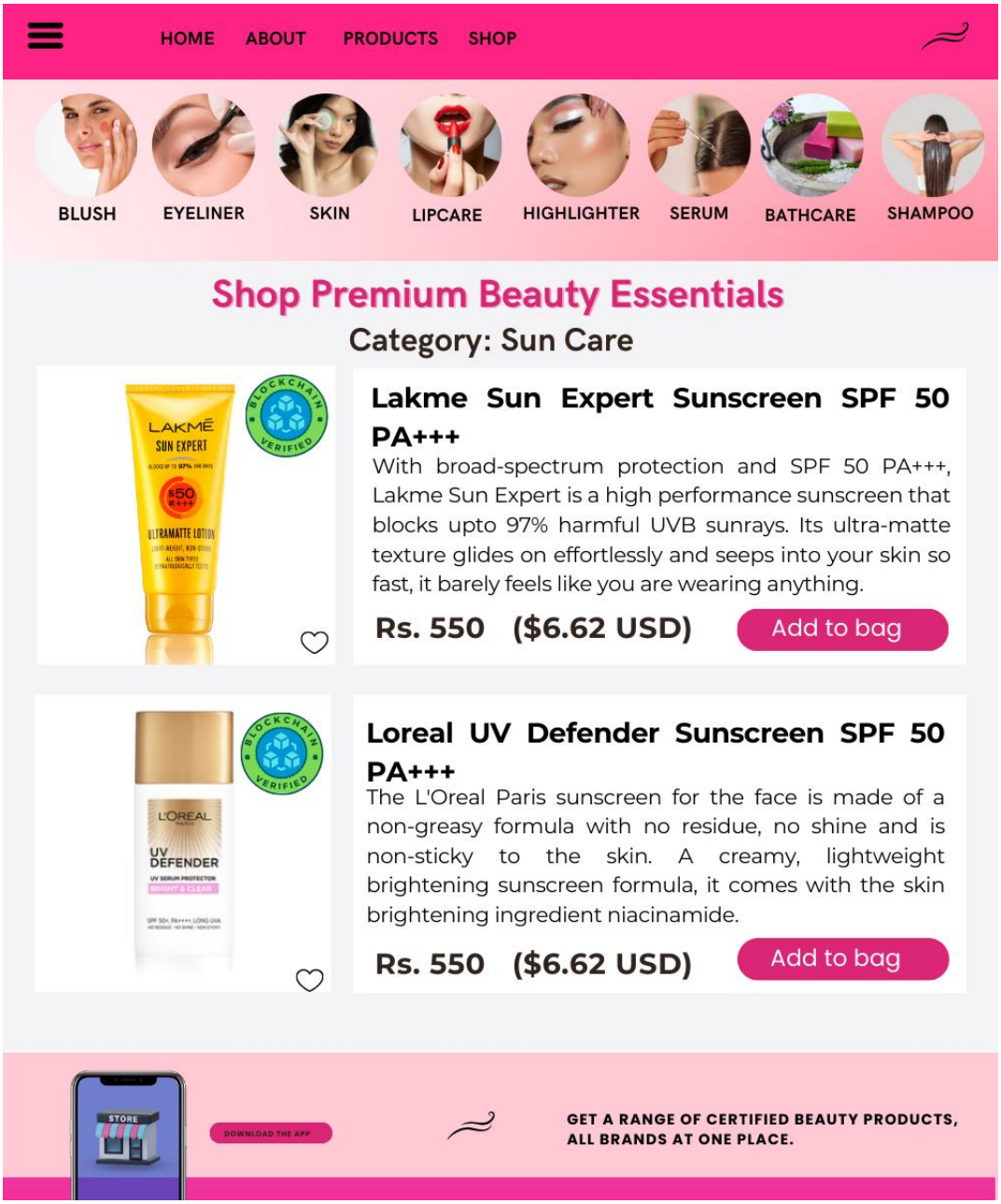
Dear Participant,

I invite you to participate in my research. The information you provide will be solely used for academic purposes. Thank you in advance for your valuable contribution and time. For any queries, kindly reach out to Shreya Sangal (p20200039@pilani.bits-pilani.ac.in)

PART A

Assume *your sunscreen was running short, and you decided to buy it online. You logged into your preferred e-commerce website for beauty products. As a part of providing the best services to the customers, they have integrated blockchain technology. The products sold through this website will now have a blockchain-certified mark for all the products (as seen in the product image). With this technology, you will be able to obtain all the authentic details of the product, like true ingredients and their sourcing details, certifications, manufacturing details, and supply chain details. Due to this technology, the details can be verified by anyone but cannot be tampered with by anyone. Further, this technology will help you to know the website details, such as when the page was last updated, when new products were listed, etc.*

To buy sunscreen, you did the initial search, and the website suggested very popular brands, which made you interested. You landed on the following landing page (See snapshot below).



Based on this information, please answer the following questions on a scale of 1-7:

- The package design of this product is appealing. (Very unappealing- Very appealing)
- Please rate the relevance of the information you were shown when you saw the landing page.
- Please rate the appropriateness of the information you were shown when you saw the landing page
- Please rate the extent to which the information met your expectations.

- How suitable was the information you received when you saw the landing page?
- Please rate the usefulness of the information you received.
- The overall prices of products on the landing page are most likely *very low / very high.*
- Relative to other e-commerce stores, the prices of products on the landing page are most likely to be *lower than average / higher than average.*
- Your general expectation about the overall price level of products listed on this landing page is *very low / very high.*

1. ***Based on the information and snapshot provided, how would you perceive and rate the quality of the product on a scale of 1-7 (very low – very high)***

- This product is likely to be reliable.
- This product appears to be of quality.
- This product appears to be durable.
- This product appears to be dependable.
- I view the product's brand name positively.

2. ***Based on the snapshot shown above, please answer the following questions on trust in the product on a scale of 1-7 (very low – very high):***

- How much can you count on beauty products sold on this website?
- How much do you trust beauty products sold on this website?
- How dependable are beauty products sold on this website?

3. ***Based on the information and snapshot provided, how likely are you to buy the product on a scale of 7 (very low- very high):***

- Assuming I have access to the site, I intend to make a purchase.
- If I have access to the site, I intend to invest my time and effort in learning the ordering process.
- I intend to make a purchase after searching product information on this site.

Part B- Demographics

1. **Qualification**
    - Undergraduate
    - Post Graduate
    - Doctoral Degree
    - Other
2. **Employment**
    - Employed full time
    - Employed part-time
    - Unemployed
    - Student
    - Prefer not to say
3. **Annual Income**
    - Under 5,00,000 Rupees (6250 USD)
    - 5,00,000 to 10,00,000 Rupees (6250- 12500 USD)
    - Above 10,00,000 Rupees (12500 USD)

4. **How frequently do you buy beauty products from online sites in a month?**
    - Weekly
    - Once in 15 days
    - Monthly
    - Quarterly

Note: The above-mentioned questionnaire's priming and the snapshot were modified for four groups, as explained in Study 6. The items of the questionnaire remained the same for all four groups.

LIST OF PUBLICATIONS

PUBLICATIONS (THESIS)

Sangal, S., Nigam, A., & Sharma, S. (2024). Integrating blockchain capabilities in an omnichannel healthcare system: A dual theoretical perspective. *Journal of Consumer Behaviour*, *23*(2), 440-452 **(ABDC-A).**

Sangal, S., Nigam, A., & Bhutani, C. (2022). Purchase Behavior of Generation Z for New-Brand Beauty Products: Exploring the Role of Blockchain. *Journal of Electronic Commerce in Organizations (JECO)*, *20*(2), 1-21 **(ABDC-B).**

Nigam, A., **Sangal, S.,** Behl, A., Jayawardena, N., Shankar, A., Pereira, V., ... & Zhang, J. (2022). Blockchain as a resource for building trust in pre-owned goods' marketing: a case of automobile industry in an emerging economy. *Journal of Strategic Marketing*, 1-19. **(ABDC-A).**

Sangal, S., Nigam, A., & Bhutani, C. (2022). Conceptualizing the role of blockchain in omnichannel healthcare: A Delphi study. *Aslib Journal of Information Management*, *74*(5), 782-800. **(ABDC-B).**

OTHER PUBLICATIONS

Sangal, S., Duggal, G., & Nigam, A. (2024). Blockchain's double-edged sword: thematic review of illegal activities using blockchain. *Journal of Information, Communication and Ethics in Society*. **(ABDC-B).**

Nigam, A., Behl, A., Pereira, V., & **Sangal, S.** (2023). Impulse purchases during emergency situations: exploring permission marketing and the role of blockchain. *Industrial Management & Data Systems*, *123*(1), 155-187. **(ABDC-A).**

PAPERS COMMUNICATED

Sangal, S., Nigam, A., & Sharma, S. Role of Blockchain in second-hand automobiles (P2P) market: A moderated mediation analysis. Under review with *Journal of Business Research* (ABDC-A)

Sangal, S., Nigam, A., & Sharma, S. Role of Blockchain in shaping online beauty products market: A moderated mediation analysis. Under review with *Journal of Consumer Marketing* (ABDC-A)

CONFERENCES- PAPER PRESENTATIONS

Sangal, S., Nigam, A. Blockchain for second-hand products. *Conference on Excellence in Research and Education* (*CERE-2023), Indian Institute of Management Indore.*

Sangal, S., Nigam, A. Exploring the Role of Blockchain in Purchase of Non-branded Beauty Products Online. *8th International Communication Management Conference (ICMC) 2022*.

Sangal, S., Nigam, A. Conceptualizing the Role of Blockchain in Omnichannel Healthcare. *Management Doctoral Colloquium (Shodh Samagam) of Indian Institute of Management, Visakhapatnam 2022.*

Nigam, A., **Sangal, S.** From Shoppers to Subscribers: A Qualitative Study on E-commerce Subscription-based Pricing. *INDAM conference 2024 at GIM, Goa.*

BIOGRAPHY OF THE DOCTORAL STUDENT

Shreya Sangal is a doctoral student at the Department of Management, Birla Institute of Technology & Science (BITS) Pilani. She has completed her MBA in Marketing & Business Analytics and has worked as a project manager at a sustainability-based startup. She has published in reputed journals like *the Journal of Consumer Behavior, Journal of Strategic Marketing, Industrial Management & Data Systems, Aslib Journal of Information Management, Journal of Information, Communication and Ethics in Society,* and *Journal of Electronic Commerce in Organizations* along with paper presentations at several reputed international conferences. Her areas of interest include marketing, consumer trust, blockchain technology, and e-commerce.

BIOGRAPHY OF THE SUPERVISOR

Prof. Achint Nigam holds a Ph.D. in marketing from the Indian Institute of Management, Lucknow. He teaches courses in the domain of marketing and business analytics. He teaches Marketing Analytics, Data Visualization (Power Query-›Pivot-›BI or Tableau), Advanced Spreadsheet Analytics, and Introductory Econometric courses. He has taught consumer behavior, digital marketing, and marketing research. Prof. Nigam's areas of research interest are Metaverse, business (marketing) applications of Big Data, Blockchain, and artificial Intelligence Gamification, Sports Marketing, Digital Marketing, Pricing, and Promotions. He has published in various reputed journals, like the Journal of Business Research, Journal of Strategic Marketing, and Industrial Management & Data Systems, among others. At BITS, he looks after departmental academic and webinar activities. Before joining BITS Pilani in January 2020, he worked with I.C.F.A.I. Business School, Hyderabad.

BIOGRAPHY OF THE CO-SUPERVISOR

Prof. Sangeeta Sharma is a professor at the Department of Humanities and Social Sciences, Birla Institute of Technology and Science, Pilani. She was the Faculty-in-Charge of the Publication and Media Relations Unit, Coordinator for the UGC Centre for Women's Studies, and the Group Leader of the department.

She did her Ph.D. on 'The use of English in Advertising: A study in Lexical and Syntactical Patterns' from BITS, Pilani, in 1996. Apart from Advertising, her areas of interest include Technical Communication, Creative Thinking, and Linguistics. At BITS, she has handled various responsibilities like nucleus member of the Distance Learning Programme Division, Academic and Counseling Board member, Doctoral Advisory Committee member, Senate member, coordinating faculty for Intensive Teaching Workshops, member of the Library committee, etc., and was warden for Malviya girls hostel for four years. She has guided a good number of first-degree thesis students and around a hundred study-oriented project students. She has guided four PhD students, and three are currently pursuing their PhD.

She was the Coordinator of the Center for Women Studies (CWS), which had a diverse range of activities to help women benefit from technology. She is a licensed trainer for the Springboard Development Program (U.K.), which is an internationally recognized women's development program. She is currently Professor-in-charge for FitBits (Running Club), Marudhara (Regional Association), and Toastmaster BITS Chapter.