Drivers for Online Shopping:
An Empirical Study of Mature Indian Customers

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Thesis submitted in partial fulfillment
for the Award of Degree

Doctor of Philosophy

by

PRASHANT KUMAR RAI

RAJIV GANDHI INSTITUTE OF PETROLEUM TECHNOLOGY
Jais, India - 229304

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CERTIFICATE

It is certified that the work contained in the thesis titled "Drivers for Online Shopping: An Empirical Study of Mature Indian Customers" by Prashant Kumar Rai has been carried out under our supervision and that this work has not been submitted elsewhere for a degree.

It is further certified that the student has fulfilled all the requirements of Comprehensive, Candidacy, and SOTA/Open seminar.

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(Prof. Sanjay Kumar Kar)

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I, Prashant Kumar Rai, certify that the work embodied in this thesis is my own bona fide work and carried out by me under the supervision of Professor Sanjay Kumar Kar from July 2016 to September 2023 at the Department of Management Studies, Rajiv Gandhi Institute of Petroleum Technology, Jais (India).

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Roll No: **PM1607**

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It is certified that the above statement made by the student is correct to the best of our knowledge.

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Prof. Sanjay Kumar Kar
Supervisor

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Convenor, DPGC

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Head of Department
Department of Management Studies

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ABSTRACT

The e-commerce industry has seen phenomenal growth in the past decades. The consumption behaviour of millennials and younger consumers has been studied thoroughly in the context e-commerce. However, the digital exclusion of older consumers may lead to preference of traditional retail channel. Older consumers have better purchasing power compared to younger consumers therefore their consumption behaviour is as important as younger generation. Therefore, this study focuses on consumption behaviour of older adults and explains the online shopping behaviour in an emerging market context.

The thesis uses the technological acceptance theory, unified theory of technological acceptance, innovation resistance theory, and theory of planned behaviour. We use a quantitative research design. The first part of the study collected responses from mature customers through questionnaires. We use a non-probabilistic representative sampling technique to reach the optimal sample size. A sample of 369 was collected from Indian consumers above the age of 50 years. We used covariance-based structural equation modelling and analysed the data using Smart PLS. The conceptual model uses 16 indicators bundled into 4 groups of latent constructs namely performance expectance, effort expectancy, facilitating condition and social influence.

The results establish that facilitating conditions, effort expectancy, performance expectancy and social influence online shopping intention among older consumers of India. It has been observed that effort expectancy is the most prominent driver that affects online shopping intention among mature customers. The results suggest that mature customers perceive that online shopping is convenient for them and it provides a variety of products to choose from. Furthermore, customers perceive that the language used in online shopping websites is easy to understand and that shopping websites are user-friendly.

The findings confirm that Indian mature customers have acquainted themselves with the new technology and feel that they can use online shopping websites. One important contribution of this study is to empirically study the drivers of online shopping for mature customers. The managers should also create awareness about online shopping among female customers enabling them to use online shopping.

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(Prashant Kumar Rai)

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INTRODUCTION

1.1.   Retailing a Snapshot

Retailing is one of the essential constituents of trade practices serving people's daily needs across the globe. Over the years, the retail sector has witnessed several changes, including the emergence of new retail formats worldwide and the entry of several global players doing their business in different countries. The transformation of retailing to online retailing is a significant reform in the growth prospects of the Indian economy. The extensive digitization of businesses and use of electronic commerce   have played an instrumental role in developing online retailing. Online retail has emerged as one of the major channels in cities, and it is slowly gaining momentum in rural areas as well. Consumer expenditure has witnessed significant growth due to an increase in household income. The Indian retail market has seen substantial growth in the past several years. As per Invest India, India's Retail Market is poised to grow from $0.793 trillion in 2020 to $1.5 trillion by 2030. At a similar pace, the Indian e-commerce market is expected to reach a mark of $350 billion by 2030.

The major growth drivers for Retail in India are growing income, growth in rural consumption, and young millennial households. The retail sector has a significant contribution to India's GDP. Retail sector has emerged as significant contributor to India's GDP by contributing ~Rs. 800 billion in FY 2019-20. It is also a significant generator of employment opportunities. In 2019-20 it employed around 35 million workforces, which is expected to engage an additional 25 million people by 2030. The gross market value is expected to have a valuation of about $350 Billion by 2030. There will be rise among Indian online buyers from 150 million in 2020 to 500 million in 2030. On an average every day

about 1.2 million e-commerce transactions happen in India. Traditionally the retail industry in India was primarily dominated by brick-and-mortar store formats. In the recent years, the contribution of online retail has risen in the overall retail landscape in India. Globally due to the Covid-19 pandemic, online retail has seen significant growth. India, where urban dwellers were primarily using online retail, has seen an increase in Semi-urban and customers across all age groups.

Traditionally, customers have been using retail stores for all kinds of shopping and one of the major factors that is considered while deciding the place for purchase is convenience. Post advent of internet, there have been a gradual shift in formats of retail and customers, especially youths have started using online stores for making purchases. The shift was more prominent in developed economies due to prevalence of enablers like penetration of internet and faster adoption by consumers.

Over the years, the internet has become a major channel for purchase of goods and services. This is a wide global phenomenon that all major retailers have started their operations online. One of the major factors that are driving this phenomenon is convenience that it provides to customers. Apart from the internet being used for purchase of goods, there is a remarkable shift in the way consumers are using financial services now. Globally, Internet and mobile based services are being used by consumers even for financial transactions. The similar trend is being witnessed in India where significant proportions of consumers have started using internet as medium of shopping. In past few years India has seen a massive increase in online platforms which are in market offering online shopping services. The growth is not only limited to any specific product category. The consumers are using internet as a shopping channel across product categories including groceries. As per an estimate of India Brand equity foundation (IBEF) the online grocery market in India will have a size of US$ 18.2 billion by 2024. This is approximately 57% CAGR over a market

size of US $1.9 billion in 2019. A similar trend has been seen in the sale of beauty and personal care products where there was a significant increase in volume in the last quarter of 2020. This phenomenal growth has been attributed to the increase in use of smartphones across strata, increase in internet penetration and faster 4G network and rise in income. The online shopping revolution in India is mainly lead by few major online retailers like Flipkart, Amazon and Paytm.

The segment has got good support from policy makers. The government has initiated various programs over the last few years which fueled growth in this segment. Various programs like "Digital India, Make in India, Start-up India, Skill India and Innovation Fund" launched by the Government have provided the right impetus to Online Commerce in India. In addition to private players in the industry, Government devised a "GeM (Government e-Marketplace) portal "which is one of the primary sources of all kinds of procurements made by various organizations in India. Currently GeM has approximately 3.06 million registered service providers who did a business of Approximately Rs. 152,315 crore (US$ 20.40 billion) as of Nov 2021 by serving approximately 8 million orders.

The Government announced "National Retail Policy" in which 5 thrust areas have been identified i.e. ease of conducting business, rationalized process of issuing license, massive retail digitization and promotion of open network for e commerce. These initiatives will provide a robust eco system to foster the growth of the online retail industry.

Major financial organizations like UBI signed a pact with GeM to provide cashless transaction services on the GeM portal. Similarly other initiatives under umbrella of "Digital India Movement" "Umang, Start-up India Portal, Bharat Interface for Money (BHIM) etc." will provide right and transparent impetus to industry. The government recently announced enhanced the FDI limit in online retail which will increase credit

flow in this industry and subsequently will create employment opportunities. To increase the faster internet penetration Government has made significant investment for 5-G services which will eventually provide right infrastructure for Internet commerce in India.

The E-commerce industry is on a growth trajectory with adequate policy interventions by the Government. It has been observed that the consumer segment that are primarily using internet or mobile based applications as tool for shopping comprises of youths who are supposed to be more proficient in use of technology. This trend is more prevalent in emerging economies.

The demographic profile of the consumers plays an important role in shaping the marketing strategies and adoption of various channels. Many advanced countries have witnessed a significant change in the shopping channels preferred by the consumers across age groups. The advent of the internet, smart phones and mobile applications has provided consumers with opportunity to shop at any time from their phone/tablet or computer. Traditionally younger customers who were more technology adoptive have migrated to these new channels. The mature customer segments still preferred to shop using traditional brick and mortar channels.

The Covid-19 related lockdown has left consumers with online shopping as a major channel and consumers across world have used this for their shopping. It was also observed that people across age groups embraced the online shopping channel for safety reasons as well.

Over time, there is a segment with higher spending power that has slowly started adopting the technology-based shopping services. In our country this 50+ age group segment makes a significant consumer base that has started using internet as shopping channel specially during Covid-19.

This research primarily focusses on this customer segment to understand the factors which influence their online shopping intention. The thesis covers a comprehensive literature review on various studies that has been performed globally on online shopping intentions and found that there is lack of study which focuses on understanding the factors for mature consumers in an emerging economy like India. Researchers have used technology adoption framework to understand the factors.

This study is organized in 5 chapters. Chapter-1 provides a brief introduction of the study. Chapter-2 documents the literature review encompassing the various studies done in Online shopping using different technology adoption models. Chapter-3 briefly explains the Research Methodology adopted for this study. Chapter 4 provides the details of various quantitative analyses done to test the various hypothesis. Chapter 5 discusses the findings and Managerial implications of the study along with future areas of the study.

CHAPTER 2

LITERATURE REVIEW

CHAPTER 2
LITERATURE REVIEW

2.1.   A Brief Overview of Studies on Online Shopping

To better analyses the field a bibliometric analysis related to the contextual field was carried out. The bibliometric analysis was carried out on 286 documents which were generated from the keywords searched in Scopus database. The keywords were chosen such that they are relevant to the field of research and cover the holistic aspects of the subject matter under consideration. To get better data the keywords were searched within "Article title, Abstract, Keywords" in the Scopus database. The keywords were:

(TITLE-ABS-KEY ("online retail*" OR "online Shop*" OR "E retailing" OR

" E-retailing" OR "Internet buying behave*" OR "Internet shopping") AND

TITLE-ABS-KEY ("Mature customer" OR "Aged customer" OR "Adults") AND

TITLE-ABS-KEY ("Management theories" OR "Management

models" OR "Technology acceptance model (TAM)" OR "unified theory of acceptance

and use of technology (UTAUT)" OR "Theory of planned behav*

(TPB)" OR "Innovation resistance theory (IRT)"))[1]

As shown in the keywords, in the keywords the first part focused on the actions of research like e-retailing, and online shopping. The second part, which is separated by the "AND" function focuses on the subject matter under study, who are mature aged customers. While the third part focuses on management theories and models. Of the generated 286 documents, 230 were research articles, 24 were conference papers, 22 were review articles, and 10 were book chapters. For further analysis the generated documents were put into

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[1] In several keywords "*" mark has been used to generate greater number of results. For example, retail* here indicated retailing, retailer, retails. Similarly behave* here indicates behavioral, behavioral, behavior, behavior.

bibliometric analysis. The purpose was to identify prominent keywords, authors, publication sources (journals), countries and key-collaborations in this field of study.
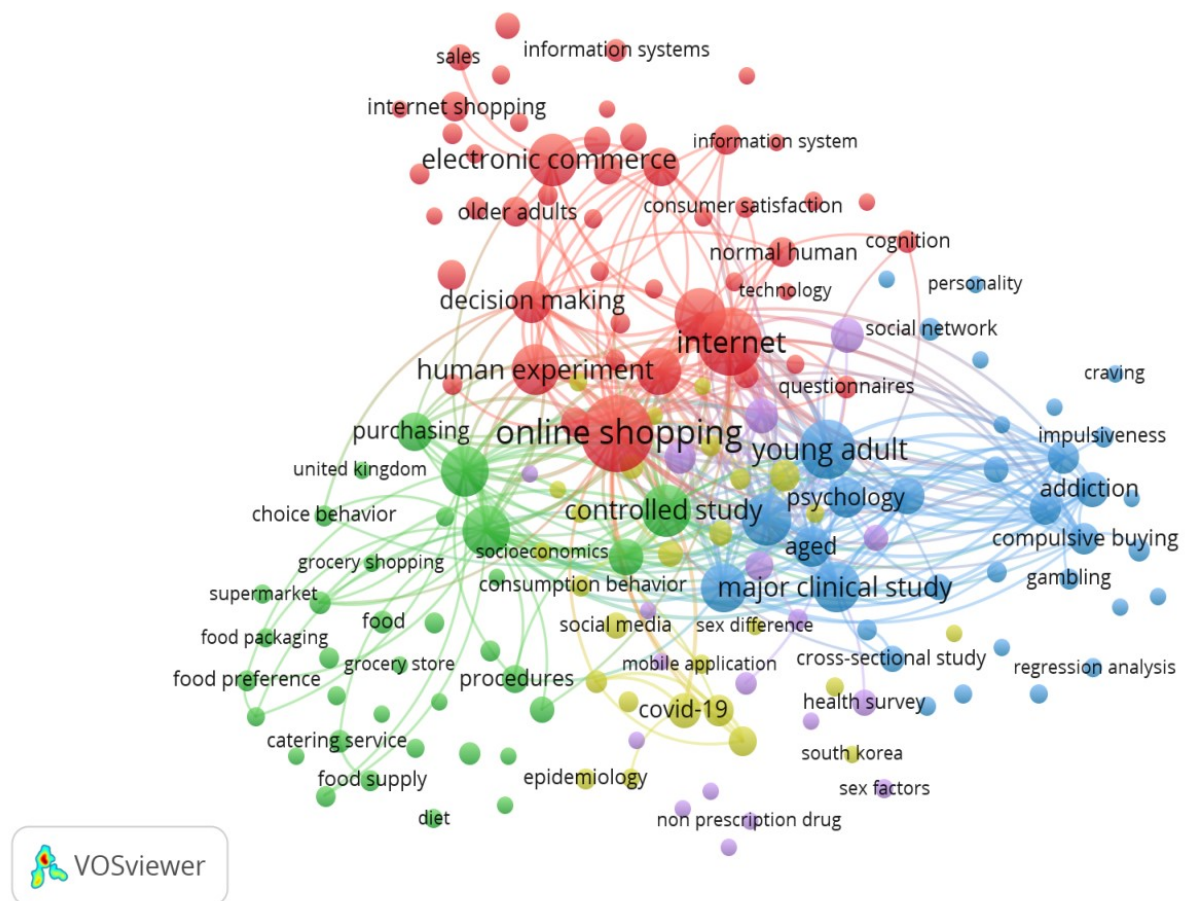
Fig.2.1: Prominent Keywords

As evident in fig.1 the prominent keywords were related to internet shopping, online shopping, and electronic commerce represented in the red clusters. While the blue cluster suggests that authors are mostly targeting emotion-based aspects like psychology, impulsiveness, compulsive buying, addiction, and craving. There is a fair share of research on both the key categories older adults represented in red cluster and young adults represented in blue cluster. The green cluster represents aspects like shopping preferences while the yellow cluster represents trending aspects like covid-19, social media, and mobile applications.
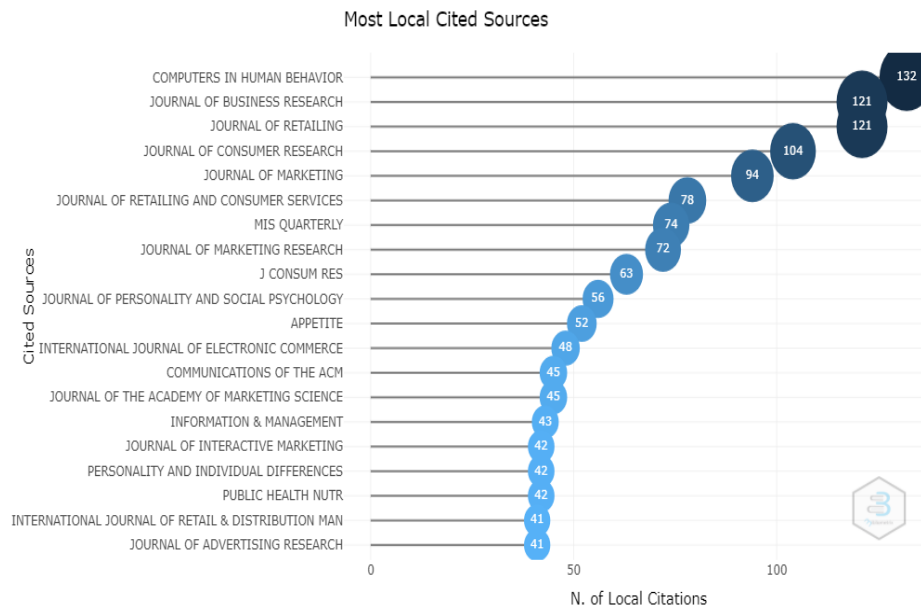
Fig.2.2: Prominent Sources of Publication (Journals)

As shown in figure 2, "COMPUTERS IN HUMAN BEHAVIOUR" is the top favored journal among researchers working in this field. Following them closely are "JOURNAL OF BUSINESS RESEARCH", "JOURNAL OF RETAILING" and "JOURNAL OF CONSUMER RESEARCH". Other favored cited sources among authors are "JOURNAL OF MARKETING", "JOURNAL OF RETAILING AND CONSUMER SERVICES" and "MIS QUARTERLY".
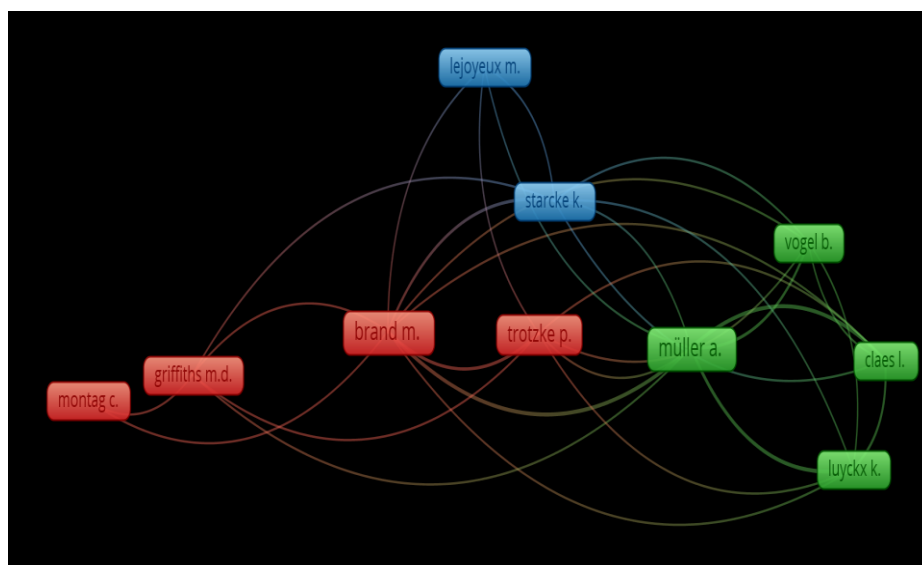
Fig.2.3: Prominent Authors Active in the Prescribed Field of Study

The bibliometric analysis suggests that there have been 916 authors who have co-authored 286 documents. Of them as represented in fig.3 are some of the prominent authors who have more than 5 publications on the prescribed subject matter. Matthias Brand, Patrick Trotzke, Mark D. Griffiths, represented in red clusters focus on aspects like digital marketing, compulsive buying behavior and their risk propensity on consumers. Astrid Muller represented in green cluster focusing on online buying-shopping behavior studies. Michel Lejoyeux, Koen Luyckx in the blue cluster focus on consumption aspects related to matured adults.

Fig.2.4: Prominent Countries Publishing Studies on Online Shopping Behaviour of Mature Adults
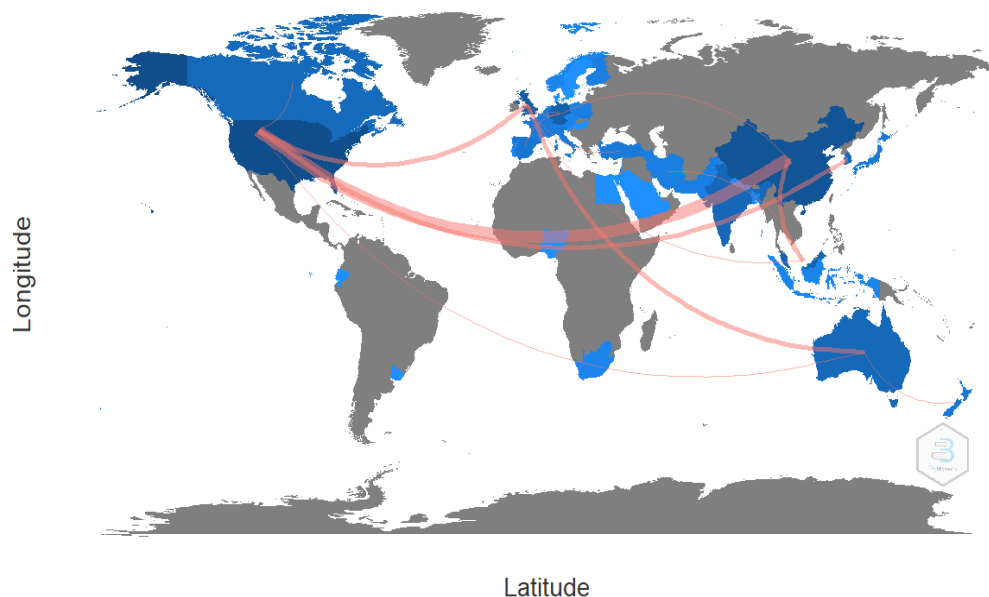
Fig.2.5: Country-wise Collaboration on Research Related to Online Shopping Behaviour of Mature Adults

In terms of countries the United States of America is the leading publisher with 81 documents. It is then followed by China and the United Kingdom by 37 and 31 documents respectively. Apart from other active countries who are carrying out major research activities on this subject matter are China, Taiwan, India, Germany, and Malaysia. To grasp a better idea among the collaboration of authors, a cross-continent collaboration analysis was carried out using bibliographic coupling analysis. It revealed that the most collaborative studies were carried out between authors from the United States and China amounting to nine such publications. The next major collaborations were between China and Malaysia, United Kingdom and Australia, United States and Korea.

Multiple researchers have examined the drivers for the online shopping intention (OSI) of consumers. Authors extensively studied the "Technology Acceptance Model (TAM), Unified Theory of Acceptance and Use of Technology (UTUAT), and Innovation Resistance theories (IRT)". Various constructs of these theories are explained in Table 2.1.

Table 2.1: Existing Theories of Technology Acceptance

Theory	Core Construct	Definition	References
Technology Acceptance Model	Perceived Usefulness	"The degree to which an individual believes that using the technology will help them to improve personal performance."	(Davis, 1989; Venkatesh, 2000)
	Perceived Ease of Use	"The degree to which a person believes that using a particular system would be free of effort."	(Davis, 1989; Venkatesh, 2000)
UTUAT	Performance Expectancy (PE)	"The degree to which an individual believes that using the technology will help them to improve personal performance."	(Davis, 1989; Moore and Benbasat, 1991; Venkatesh et al., 2003)
	Effort Expectancy (EE)	"The degree of ease associated with the use of a technology."	(Davis, 1989; Moore and Benbasat, 1991; Venkatesh et al., 2003)
	Social Influence (SI)	"The degree to which an individual believes it to be important that others feel he or she should use a particular technology."	(Ajzen, 1991; Davis, 1989; Thompson et al., 1991; Venkatesh et al., 2003)

Theory	Core Construct	Definition	References
UTUAT	Facilitating Conditions (FC)	"The degree of support available for adopting a specific technology."	(Thompson et al., 1991; Venkatesh et al., 2003)
	Perceived Ease of Use	"The degree to which a person believes that using a particular system would be free of effort."	(Davis, 1989; Venkatesh, 2000)
Innovation Resistance Theory	Usage	"Relation of Product uses with value, experience, habits, and environment."	(Ram, 1987; Ram and Sheth, 1989)
	Value	"Assessment of value difference between the new product and existing product."	(Laukkanen et al., 2007; Lian and Yen, 2013; Ram, 1987)
	Risk	"Understanding innovative technology in the new product and associated risks and uncertainties."	(Laukkanen et al., 2007; Ram, 1987)
	Image	"Unfavourable impression of the originating country, brand, industry, and side effects of innovation."	(Lian and Yen, 2014; Ram, 1987)
	Tradition	"Changes brought by innovation in user's existing culture and its conflict with innovation."	(Lian and Yen, 2013; Ram, 1987; Ram and Sheth, 1989)

"TAM (Davis, 1989; Davis et al., 1989), The Theory of Reasoned Action (TRA) (Davis et al., 1989), the Theory of Planned Behavior (TPB) (Ajzen, 1991), Innovation Diffusion Theory (Rogers, 1995)", have extensively been used by researchers in examining buyer's adoption and e-commerce usage.

2.2.   Technological Acceptance Theory

In the Taiwan context, Liu *et al.* (2018) explored the aspects that impact the use sand acceptance of mobile communication software by seniors in Taiwan. They used TAM constructs to access the association between the use of software and external variables. They found that convenience affects the perceived usefulness of mobile communications by seniors.

Natarajan *et al.* (2018) examined the age-effect of users and device type on shopping intention using mobile applications. They found significant differences for "perceived

enjoyment, usefulness, satisfaction, and intention to use". They used TAM and diffusion of innovation construct in this study.

Authors like Syed-Abdul *et al.* (2019) examined the variables that impact the acceptance of virtual reality among consumers of age group 60-90 years in Taiwan using the TAM constructs. The results indicated that "perceived usefulness, ease of use, social norms, and perceived enjoyment" positively impact intention to use Virtual reality.

McCloskey (2007) studied the participation of older adults and their attitude in e-commerce activities by modifying the TAM model. It tested the effect of "usefulness, ease of use, and trust on e-commerce usage". It found that trust and benefit directly affected usage, but surprisingly, ease of service did not contribute significantly to e-commerce participation. The deviated ease of use result was caused by frequent shoppers encountering difficulties in shopping online. The findings indicated that "perceived ease of use" directly affect "perceived usefulness". Also, users' trust in the website and website usefulness positively affects user behavior. This study indicates that the "TAM model" helps in understanding online shopping usage and behavior, but the relationship between variables is different for older adult consumers.

Ryu *et al.* (2009) studied the behavior of older adults on user-created video content services based on TAM and integrated variables. The study integrated TAM, motivation theory, innovation diffusion theory and used elderly specific constructs- perception of usefulness, prior experience, and online apprehensions. Physical and psycho-social age constructs-perceived physical condition and life course events. The study was done with adults over 50 years of age, and it indicates that "perceived benefits, enjoyment, and ease of participation" directly affect participant behavior. Older adult-specific variables which act as critical factors include life-course measures, computer anxiety, available resources, previous related experience, self-assessments, and health conditions.

Pfeil *et al.* (2009) compared the social capital of teenagers (13 to 19 years of age) with matured adults (over 60 years) on the social networking website MySpace. Web crawlers were used to collect data from MySpace users' profile pages. Content analysis was employed to find the variances in the online activities of the two groups. The study found that teenagers had more social capital with a more extensive network of friends within their age group than older adults. Also, teenagers used diverse media to share with their friends; they expressed themselves more frequently than their older counterparts.

Researchers like Ingham *et al.* (2015) developed a nomological model to study the relationship of trust, perceived risk, enjoyment, and social influence with TAM using meta-analysis. Al-Jabri and Sohail (2012) found in their research that "relative advantage, compatibility, and observability" are the factors that positively affect mobile banking adoption, whereas perceived risk has a negative association. Fedorko *et al.* (2018) analyzed the influence of various user experience aspects on e-commerce sites by developing a model, extending the TAM model using additional constructs like "Quality of Information, Modern Technology, Quality of Service, and Quality of Systems". The authors have explored the impact of technology on social media platforms in context of mobile applications, and contextual advertising. The study found that modern technology has a significant impact on users' intention to visit e-commerce websites.

Vahdat *et al.* (2020) explored the factors that impact purchase intention of a customer on mobile apps using "TAM". The study investigated the factors like "social influence and peer influence" and found that perception of usefulness inversely impacts the attitude towards use of internet apps. However, "perceived ease of use, social and peer influence, and intention to purchase" exhibited significant effects on the mood to use mobile applications. Ha *et al.* (2019) examined the effect of the factors on Vietnamese users'

internet-based shopping intention using the constructs from the TAM and TPB. The study found that "perceived usefulness, ease of use, attitude, and subjective norm" positively impacted OSI, whereas the risk-perceptions inversely impacted OSI. Al-Gasawneh *et al.* (2020) explored the controlling role of social media on internet-based shopping intention of Jordanian customers using the TAM and TPB. Findings suggested that social media positively affects OSI. The results indicated that social media factors like "adopting intimacy, decreasing the perceived risk, and increasing trust" could motivate online shopping among customers.

Rao *et al.* (2020) explored the factors impacting the behavioral intention for Ecommerce in the fashion retail industry using the TRA and its extensions of TAM and TPB. The results indicated that "age and university education of the consumer moderate the relationship between the study constructs, whereas gender, income level, and work location did not moderate". Conviction and perceived utility of e-commerce apps act as sequential intermediaries between "perceived ease of use, subjective norms, and behavioral intention to use".

Rao *et al.* (2020) noted that internet sales have increased in recent years, resulting in increased competitiveness in the internet-based retailing business. Social interaction on retail websites may be critical in improving consumer impressions, attitudes, and replies. The objective of this study is to present a unified conceptual model based on the TAM to explain how the experienced context of internet retail shop website interaction impacts customer responses to online merchants. Using experimental studies, this study examines the impact of website engagement on online customers' impressions of e - commerce channels (semi-online field experiments). A two-way between-subjects experiment was done with 295 participants from a large Australian institution. The findings indicated that website interaction improves customers' impressions of the utility and convenience with

which retail websites may be used. The perceived usefulness (PU) of a website increases the likelihood of making a purchase, and this effect is reduced by user participation in online buying. Interestingly, the ad hoc test findings reveal that involvement in internet-based shopping has a substantial impact on the PU buy intent link at a high degree of website interaction. These findings add to the body of knowledge about internet commerce and customer behavior in an online environment.

Akram *et al.* (2021) highlighted that increased order volume, supply chain interruptions, shifting consumer behavior, and shop closures, among other effects of the pandemic outbreak, will surely influence internet shopping. The coronavirus had a profound effect on digitization, consumer experience, and overall well-being in online shopping. Since the pandemic began, internet purchases and the number of online buyers utilizing wireless information gadgets have exploded. Authors conducted an exploratory study to determine the influence of COVID-19 and internet commerce on customer satisfaction. The study investigated the association between technological advancement and the impact of the COVID-19 outbreak on customer behavior using survey results and TAM. The findings indicate that internet retailing appears to have been the preferred method of purchasing and transaction among millennial throughout the global pandemic period, as older generations embraced smartphone use for purchasing and transactions at a slower rate. Additionally, merchants face enormous hurdles because of millennial' aspirations.

The finding supports four TAM-based theories. Therefore, it demonstrates that the "ease of use, trust, mobility, and customer engagement" all have an effect on the consumer's behavioral intention to utilize e-commerce. That utility and customization have little effect on behavioral choice.

Researchers (Zaharia and Würfel, 2020) devised a theory to describe why customers are willing to use smart speakers for online buying (voice-commerce). The model is based on the "Unified Theory of Acceptance and Use of Technology 2 (UTAUT 2)", with the construct of "perceived risk" included. A structural equation model was used to investigate the suggested relationships. The most influential elements affecting German online buyers' desire to utilize smart speakers at numerous stages of the shopper experience was determined to be hedonistic motivation and operational expectation.

Likewise, usage intention was influenced indirectly by perceived effort anticipation. Risk perception has a detrimental influence on user intention. Previous knowledge with and perceptions of the value of smart speakers have a smaller effect on whether to use smart technology in voice communication. In a recent study authors, Wu and Song (2021) examined older persons' intentions to continue buying online, based on these two features of this population ("reported lack of shopping mobility and perceived social isolation"), utilizing TAM and TPB. Structural Equation Modeling was used to analyze a sample of 366 persons born in or before 1965 in the United States. Perceived lack of shopping mobility was favorably associated with perceived utility of online shopping, which in turn was positively associated with attitudes and intentions to continue buying online. Subjective norms were positively connected with felt social isolation, but adversely associated with perceived behavioral control. While perceived behavioral control was favorably associated with intentions to continue purchasing online, subjective criteria were not. The study's findings will aid e-retailers in determining the elements that influence older individuals' views, attitudes, and intentions to continue purchasing online.

In a recent paper authors (Erdogmus et al., 2021) examined influential role of luxury values of Gen Y buyers' acquisition of online luxurious shopping technology. The results of the

research based on 509 Gen Y affluent Trukese shoppers indicate that generally recognized 'functional, hedonic, and social values'—along with product offerings plays a substantial role in Gen Y consumers' adoption of digital luxury technologies adoption. Price awareness, a critical consumer value associated with internet marketing, is not a necessary precondition for technology acceptance. Additionally, the study's findings confirm that perceived ease of use has no direct effect on consumer's attitude toward online luxury shopping. Thus, authors contribute to the expansion of the technological acceptance model for online luxury purchase. The underlying theoretical and practical ramifications of the discoveries are addressed and debated.

In another recent work John and Dani (2021), authors used the TAM to evaluate the elements that impact individuals' decisions to use internet purchases in the UAE and attempted to determine the effect of conventional shopping on e-commerce adoption. The authors discovered that internet buying is still very uncommon in the UAE, with locals preferring to purchase at malls. Authors (Chung et al., 2021) examined the factors impacting online food shopping in Korea and Vietnam; they used Technology acceptance framework and Trust factor to investigate the determinants. The authors found that nationality has moderating effect. Authors also found that trust on websites is the significant across countries which impact intention to online shopping of food. Authors (Liu et al., 2021) examined the factors impacting the use of smart phone applications among aged customers. Authors studied the factors impacting smart phone application usage among 55+ age customers using the extended TAM framework. The study found that anxiety, facilitating conditions, social influence, and self-efficacy are significant factors impacting the smart phone application acceptance among elderly population. Additionally, authors found that social influence is important factor impacting the intention to use smart phone applications by aged population.

Researchers like (Thamutharam et al., 2021) examined the factors that impact the usability of several mobile applications among senior citizens of 65+ age group of Malaysia. The study found that acceptance of mobile applications among elderly population of Malaysia can be enhanced by including user-friendly usability features.

Authors (Al Amin et al., 2021) examined the factors that impact the acceptance and intention to use mobile grocery shopping applications (MGSAs) during COVID-19. The authors found uses the TAM and "theory of planned behavior "framework and studied the factors like influence of "social distancing, fear of COVID-19, subjective norms, shopping attitudes, ease of use", usefulness on behavioral intention to use MGSAs. The study revealed that shopping attitudes were predicted by subjective norms, ease of use, and usefulness. Behavioral intentions are significantly impacted by subjective norms, attitudes, ease of use, usefulness, fear of COVID-19, and social distancing. Several authors have studied the acceptance of mobile shopping. Authors like (Hanif et al., 2022) in a recent study investigated the factors that impact the positive or negative intentions towards mobile shopping by young customers in a developing economy like Pakistan. The authors used the SEM model to validate the constructs like structural assurance, perceived risk, trust, and other attributes from UTUAT model. The results revealed that structural assurance, perceived risk, trust have significant impact on intention to use mobile shopping. They also found the structural assurance and prior shopping experience moderates the relation between perceived risk, trust, and intention to shop using mobiles. Authors found that differences exist among different genders for perceived risk, trust structural assurance and social influence.

Covid 19 presented opportunities to engage in online shopping across globe. Various researchers studied the adoption of e-commerce during covid -19 periods. Authors (Raza

and Khan, 2022) investigated customers intention towards adoption of e-commerce in an emerging market like Pakistan. They examined the moderating role of Corona related fear on intention to use e-commerce.

The authors found that factors like "perceived usefulness, perceived ease of use, subjective norms, and perceived lack of alternatives" have a significant positive impact on intention to adopt e-commerce. The results demonstrated that "Perceived risk, perceived behavioral control and attitude" are not significant in determining the intention. Additionally, moderating analysis results depict that corona fear moderates the associations between perceived risk, perceived usefulness, subjective norms, and attitude. However, no moderating effect is found in perceived ease of use and perceived behavioral control.

Authors (Warganegara and Babolian Hendijani, 2022) investigated the factors impacting the online shopping of grocery in an emerging economy like Indonesia. They used the TAM framework and additional factors like price, health risk and reference group to examine their impact on intention to purchase groceries online. The results revealed that factors like "ease of use, usefulness, attitude, and reference" are significant in determine the intention to purchase groceries online whereas health risk and price were insignificant in determining the intention to purchase groceries online.

In a recent study authors (Youn et al., 2022) examined the impact of psychological distress factors on consumer's attitude towards online shopping in a Covid-19 context. Authors used the constructs from TAM and Protection motivation theory for this study. The results of the study indicated that TAM constructs positively influence the attitude to purchase online and help them to decrease the risk associated with COVID-19. The result also revealed that factors like utility and enjoyment which describe the experience, severity, self and response efficacy which describes the protection has a significant positive impact on

attitude. The results also revealed that factor "feeling disconnected" has a moderating effect on the relationship of constructs with attitude of consumers towards online shopping.

2.3.   Unified Theory of Technological Acceptances

Lian and Yen (2014a) carried out a study to determine the factors that influence elder consumers' inclination to purchase online. They created a model by fusing the Unified Notion of UTAUT and the theory of innovation resistance. By contrasting younger and older consumers the results indicate that performance expectations and social influence are key variables moving older persons into internet buying, just as they are for younger adults. The significant impediments include differences in value, risk, and tradition between older and younger generations. There are no gender disparities in older individuals' perceptions of drivers and obstacles.

Chang et.al (2016) tried to demonstrate how website PE, EE, and innovation dissemination affect online purchase intention, they evaluated variables such as website usability lifespans, FC, and knowledge transfer by using UTAUT. They explored the effect of mediators such as acquaintance and perception of riskiness on online purchase intention. The results of the SEM analysis indicate that "performance expectancy and effort expectancy have a positive effect on internet commonality and virtual social inclusion, facilitating conditions has an optimistic effect on product commonality, and perception has a significant impact on purchase intention". Along with the impacts revealed by the regression results, website, and product familiarity both act as mediators. Finally, this study recommended that practitioners provide a comprehensive congregation for users to share relevant data; additionally, they should include data on product testing on the website to help consumers and create convenience in terms of navigation; thereby boosting their purchase intention.

In a fairly recent study Tandon (2021), the author extended the UTAUT-2 model by investigating other variables of online purchasing such as "social media, reverse logistics, and pay-on-delivery (POD) form of payment". The author examined the effect of these variables on customer satisfaction by surveying 424 internet consumers in North Indian states using standardized survey. The study discovered that all new constructs, such as "social media, reverse logistics, and point-of-sale payment had a significant beneficial effect on customer satisfaction, but that enabling circumstances, hedonic motivation, and habit had no significant effect".

In an interesting work Yang (2010) used the UTAUT paradigm, for examining influencing factors on consumers' mobile buying intentions. The study discovered that factors such as utilitarian and hedonic performance expectations, social pressure, and enabling environments all play considerable roles in determining the desire to shop via internet. Behavioural intention is a substantial component influencing the hedonic and utilitarian performance expectations of online purchase services. Additionally, the study discovered that customers place a high premium on the hedonic or enjoyment part of mobile purchasing services when utilising them.

In a study authors tried to investigate the characteristics that impact the buying behaviour of adopters of internet shopping channels, employed the knowledge system model and the UTAUT model. The study discovered that many factors like "perceived usefulness, enjoyment, product risk, and Internet usage at home and at work "affect the purchasing power of early and late users of internet media (Liu and Forsythe, 2011),.

Several authors used the TAM and UTAUT to study the "expected effort (Effort Expectancy, EE), social influence (social influence, SI), and involvement (involvement)

variables" to determine whether the variables had significant implications for feminine consumer's OSI and behaviour (Ho and Tuan, 2012).

Researchers examined the mediating effect of technological anxiety on factors affecting the implementation of mobile as a channel for commerce using a modified UTAUT model (Yang and Forney, 2013). In the updated UTAUT model, enabling factors were explored as an originator of utilitarian and hedonic performance expectations in influencing e-shopping uptake. The findings indicate that enabling conditions have a greater influence on consumers' utilitarian and hedonic performance expectations when they have minimal technological ease than when they have a high technological ease. The improved UTAUT model produces illuminating findings and establishes a comprehensive framework for forecasting rising mobile commerce usage.

In another context other authors used the UTAUT model in conjunction with additional consumer-related variables to analyse the factors that affect non-users of mobile payments' intentions to embrace Remote Mobile Payments (RMP) in the United Kingdom (Slade et al., 2015). The findings reveal that performance expectations, social influence, innovativeness, and perceived risk all had a substantial impact on non-users' intentions to adopt RMP; effort expectations had no effect on the decision to use RMP.

It is to be noted that a few researchers examined the factors affecting online purchasing intention using the UTAUT model (Musleh et al., 2015). The data reveal that performance expectations, effort expectations, and social influence all positively affect online purchasing. The enabling circumstance, on the other hand, had minimal influence on internet purchasing intention. Additionally, the findings reveal that an individual's attitude about online shopping is essential in determining whether to make an online purchase.

Authors like Hassan *et al.* (2015) attempted to evaluate the elements that influence the impact of UTAUT on the online purchasing behaviour of polytechnic students. Additionally, it examines the effect of "self-efficacy and anxiety on students' behavioural intention to use an e-commerce website". It conducts an experiential examination of distinct types of self-efficacy and worry in relation to the behavioural choice to purchase online. Expectations about performance, effort, social influence, and self-efficacy, were found to have a substantial and stable association with behavioural intention. While the enabling condition has a significant association with user acceptability, internet and ease of online shopping have a marginally significant relationship with behavioural intention.

In a study, author evaluated the function of anxiety using UTAUT. The study examined the effect of stress on customer uptake of online purchasing (Celik, 2016). The findings reveal that anxiety has a detrimental effect on the PE, EE, and BI components concurrently. While age, gender, and experience all had substantial moderating effects on the anxiety-intention relationship, there was no indication that they moderated the anxiety-PE and anxiety-EE associations.

Authors like Chang *et al.* (2016) employed UTAUT and innovation diffusion to examine the "effect of online buying intention on virtual community development, website PE, EE, trialability, and two mediators (familiarity and perceived risk)". The findings indicate that PE and EE have a positive effect on website familiarity; virtual community development and trialability have a good effect on brand commonality; and risk perception has a negative impact on consumer buying behaviour. Along with the impacts revealed by the regression analysis, website and students should be familiar both act as mediators.

Some authors used the UTUAT model to explore the effect of the pleasure component on social commerce adoption (Momani et al., 2018). The study model is being built to validate

the effect of pleasure and other factors on Jordanian consumers' behavioural intentions to embrace and use social commerce. The findings indicate that enjoyment is a critical aspect in determining whether or not to adopt social commerce. The study model is practical and has a high degree of predictive value for explaining variation in behavioural intentions to embrace and use social commerce.

In another context, some researchers used the UTUAT model to study the factors influencing repurchase intention in the setting of online purchasing (Kusuma et al., 2021). Self-efficacy and trust were combined with two UTAUT variables, PE, and EE, to assess online purchasing intentions. The hypothesis was that contentment and internet-based consumer purchase intention are influenced by performance, effort, self-efficacy, and trust. Satisfaction was postulated as a mediating between hypothesised determinants and re - purchase intention.

In different context, some researchers investigated technology acceptance, particularly internet banking adoption, among Pakistani consumers by employing UTAUT and electronic service quality, which account for variations in user's intent towards factors associated with internet banking (Rahi et al., 2019). The findings show that the integrated UTAUT model had a substantial effect on user intention to utilise online banking. Furthermore, PE and EE were found to be significant mediator variables between website design, customer service, and the customer's decision to use online banking.

In Lebanon, a few researchers investigated the elements that may promote or impede the adoption of internet shopping (Tarhini et al., 2019). A conceptual framework for integrating the UTAUT2 with the DeLone-McLean model of IS success been suggested. "PE, Product guarantee, service quality, pricing value, trust, and information quality" were discovered to be important determinants of customers' behavioural intention (BI) to embrace online

purchasing. The link between EE, social influence, and hedonic motivation, on the other hand, was inconsequential.

In a piece of work, some authors like Amjad-ur-Rehman *et al.* (2019) investigated the "impact of online shopping on customer buying intention, with the intervening function of online shopping drivers and the moderating role of offline brand trust". The findings indicated that the quality of online purchasing services improves OSI. Online shopping drivers, on the other hand, moderated the influence of online service quality on online buying intention (the major contributions of the current study in the literature of OSI. Furthermore, the findings did not support the function of offline brand trust in regulating the link between online shopping drivers and online purchasing intention. To explain the links between the components, the authors employed a unified theory of acceptance and use of technology.

It is found that some researchers like Yan and Liu (2019) investigated characteristics that increase customers' propensity to utilise group-buying mobile applications offered by group-buying firms. The findings indicate that, among six criteria investigated, "consumer perceived reputation, social effect, individual innovation, performance expectation, and effort expectation have a substantial impact on customers' propensity to utilise group-buying mobile applications". Consumer perceived risk, on the other hand, has no effect on customers' inclination to utilise group-buying mobile applications.

Authors (Mensah and Mwakapesa, 2022) examined the factors that impact the adoption of mobile governance services using the UTUAT framework. They found that context awareness was not significant for performance and intention to use mobile governance services, but it was found to be significant factor for establishing the effort expectancy. Mobile factor ubiquity was a significant predictor which has a positive relationship with

effort expectancy and intention to use. The results depicted that mobile factor ubiquity does not impact the performance expectancy related to mobile government services.

Recently researchers (Migliore et al., 2022) examined the factors affecting the adoption of mobile payment capabilities in Italy and China by integrating UTUAT2 with Innovation resistance theory. They found that tradition is the only significant barrier which affects the adoption of mobile payments.

Authors (Khan et al., 2022) examined the factors impacting the acceptance of online banking in Pakistan and Turkey using the UTUAT2 model by integrating it with perceived credibility to predict customers' behavioral intentions (BI) and their usage of online banking. They also examine the moderation effect of the cultural factors on the usage. The results revealed that performance expectancy (PE), hedonic motivation, habit (HT), and perceived credibility (PC) are significant determinates of usage of online banking in Pakistan while PE, social influence, price value, HT, and PC are the significant predictors of intention to using online banking by Turkish customers.

Zhou M., Huang J et al. (2021) examined the factors impacting e-commerce in China using the UTUAT2 framework. They found that performance expectancy, effort expectancy, facilitating conditions, hedonic motivation, habit, and trust are significant in determine the behavioral intentions to use online shopping. They also found that price value and social influence does not impact the intention to use e-commerce in China. Authors also studied the moderating effect of variables like age, gender, education, and income and found that they have significant moderating effects. Researchers like (Mensah et al., 2021) examined the factors impacting the adoption of electronic payment systems (EPS) among college students in China. Authors used the UTUAT framework for the study. The study found that that "performance expectancy, effort expectancy, and perceived security" are significant

predictors of intention to use electronic payment systems. The study found that perceived trust is not significant in predicting the intention to use EPS. The individual user's experience has been significant predictor of performance expectancy, effort expectancy, perceived security, and perceived trust of EPS. Researchers like (Sabbir et al., 2021) examined the factors that determine the adoption of e-pharmacy among young consumers in Bangladesh. Authors used extended unified theory of acceptance and use of technology (UTAUT) model. The researchers found UTAUT factors are significant predictors of adoption of online pharmacy among young customers in Bangladesh. The study also found that perceived trust and health literacy are significant predictors of online pharmacy adoption while, perceived risk and personal innovativeness are insignificant predictors of consumers' intention to adopt e- pharmacy.

2.4. Innovation Resistance Theory (IRT)

Innovation resistance is defined as "the behavior toward the adoption and usage of any innovation that results in maintaining the status quo and resisting any deviances from the current beliefs" (Kaur et al., 2021; Ma and Lee, 2018; Seth et al., 2020). Various scholars have determined that the resistance of customer is a vital variable towards success and failure of innovative products and services (Borraz-Mora et al., 2017; Ma and Lee, 2019; Seth et al., 2020). According to the IRT literature, the customer resistance is either passive or active, the active innovation resistance may be defined as "negative attitude towards a new product after its evaluation", and passive innovation resistance (PIR) may be described as the "predisposition of consumers to resist innovation even before evaluating it" (Talke and Heidenreich, 2014; Yu and Chantatub, 2016). Active resistance comes from direct connection with the features of innovation whereas the existing negative beliefs of users about the innovation dominate the decisions (Kaur et al., 2021; Yu and Chantatub, 2016). The variables such as usage, value and risk barriers under the umbrella of functional

barriers are used to study active resistance whereas psychological barriers (image and tradition barriers) are used to study passive resistance (Yu and Chantatub, 2016).

Authors like Laukkanen (2007) investigated the innovation resistance among mature clients in Finland to online banking uptake. They defined mature clients as those aged 55 and up. As per the findings "the value barrier is the most important obstacle to mobile banking adoption among younger and older clients in Finland". (Laukkanen & Kiviniemi, 2010) investigated the "influence of bank information on adoption barriers to mobile banking in Finland". They discovered that the bank's information had an opposite relation between consumption, risks, and valuation barriers. IRT is used as a tool to understand customers resistance towards various service and products; this theoretical framework helps in recognizing the resistance-oriented practices and habits of consumers (Ram and Sheth, 1989). The human tendency to resist change can be attributed as a starting point of this behavior. The innovation resistance is a result of rational thinking and decision making with respect to the usage as well as the adoption of innovation due to the viable changes resulting from changes to the prevalent status quo and deviation from prevalent belief (Hew et al., 2019). Success or failure of innovations may be determined by the consumers resistance or acceptance of an innovation and therefore it plays a prominent role (Ram and Sheth, 1989). The stage of individual's life and changes happening with it may induce resistance towards innovation and lead to rejection of or non-adoption of such products and services (Ram and Sheth, 1989).

Authors like Hernández et al. (2011) investigated the socioeconomic characteristics that impact buying behavior of frequent online shoppers. The authors discovered that socioeconomic characteristics had little influence on the purchasing habits of seasoned internet customers.

Researchers such as Kaur *et al.* (2020) using constructs from IRT, evaluated the various consumer obstacles to the intentions to use and suggest Mobile Payment Solutions (MPSs). They created a research model based on the innovation resistance theory (IRT) and put it to the test with 1256 MPS consumers. The authors discovered that use, risk, and value obstacles all had a negative impact on intentions to use MPSs. Consumption and value barriers have a negative association with users' desire to refer to MPSs. The study discovered that traditional and visual barriers had little effect on user intentions.

In another study Lian (2015) used the frameworks of IRT to investigate the perceived hurdles to online buying. The participants in the research were people over the age of 50. According to the survey, the most important hurdles to internet buying for older persons were danger, traditions, appearance, application, and affordability.

The IRT has been applied in different contexts as well as geographies, sometimes complementing other relevant theories and many times exclusively. Several researchers like as Joachim *et al.* (2017) used concept of active innovation resistance to study the customer resistance towards mobile services using SEM, it used a sample of 153 German respondents to study about adoption intention of consumers using value, usage and image. In one study, authors used behavior resistance theory to examine the consumer resistance towards mobile banking services in India (Gupta and Arora, 2017). TAM and IRT was used by Tan, (2017) in Malaysia using 200 respondents in the age group of 18 to 45 years employing CFA (confirmatory factor analysis) and MRA (multiple regression analysis). Few studies used only IRT to determine resistance by consumers such as a study by Borraz-Mora *et al.* (2017) on e-banking consumers of Spain using PLS-SEM to measure non adoption intention. A study by Laukkanen, (2016) on m-banking was measured using IRT employing CFA on 1736 respondents of Finland in the age group of 18 to 55 years for measuring adoption

intention. Authors like Jansukpum and Kettem, (2015) measured consumer resistance in the context of e-tourism using SEM-PLS by employing IRT in Thailand.

Authors such as Soh *et al.* (2020) investigated the internet buying habits of Malaysian seniors. The authors employed the UTUAT and IRT to uncover the elements that influence older individuals' online buying intentions.

Researchers like Lissitsa and Kol (2021) used a sample of 14-72-year-old respondents to investigate the characteristics that influence mobile buying intention across generations. The authors developed the theatrical model using the Generational Cohort Theory, the Big Five Personality Model, and the Resistance to Innovation Theory. According to the study, there is a favorable relationship between baby boomers and Generation X's openness to experience and m-shopping intention. Furthermore, personality factors were more powerful in predicting m-commerce intent in these groups than in newer generations. Extraversion was shown to be positively connected to m-shopping sense among Generation Y. A negative link between agreeableness and m-shopping intention was discovered among Generation Z. Authors (Chen et al., 2022) explored the factors that affect the usage of mobile ticketing application using the innovation resistance theory. They found that factors like tradition barriers, risk barriers, and usage barriers negatively affect the intention to use mobile ticketing applications. The traditional barrier was found to be the significant and most important barrier which affected the mobile ticketing adoption. Recently researchers (Kaur et al., 2021) examined the factors impacting the resistance for application for food delivery using the framework of innovation resistance theory. The authors found that tradition barriers are negatively related with intention to use food delivery applications while poor customer service is negatively related with word of mouth. The WOM was found to have a positive relationship with use the application. It was also found that image barrier i.e.,

unfavorable customer experience and "value barrier" i.e., poor quality positively related with WOM. Researchers (Talwar et al., 2021) examined the factors impacting the mobile payments using Innovation resistance theory framework under context of Covid-19. The authors found that the usage barrier is the most significant barrier for intentions to use mobile payments. The study also revealed that image barriers are significant predictors for intentions to postpone the m-payments. Authors like (Kaur et al., 2020) examined the factors impacting the adoption and usage of Mobile payment solutions (MPSs). The authors used innovation resistance theory framework to examine the barriers for the intentions to use and recommend MPSs. The study found that "usage, risk, and value barriers" has significant negative impact on intentions to use MPSs. The study revealed that usage and value barriers negatively impact the users' intention to recommend MPSs. It was also found that in comparison, the tradition and image barriers are not significant factors for user intentions to use MPS.

Authors (Leong et al., 2020) examined the resistance towards mobile wallets innovation adoption using the "Innovation Resistance Theory "The authors integrated the IRT framework with socio-demographics and perceived novelty factors. The study found that education, income, usage barrier, risk barrier, value barrier, tradition barrier, and perceived novelty are significant factors for resistance towards m-wallet innovation.

Researchers like (Srivastava and Singh, 2020) examined the factors affecting consumer's resistance towards mobile payment services using integration of innovation resistance theory (IRT) with innovation diffusion theory (IDT) and perceived value theory. The study reveals that perceived value has a significant influence in transforming the consumer's approach of resistance to intention to use. The study also established the important contribution of innovation diffusion factors like "media usage, subjective norms, and word-

of-mouth" in decreasing resistance towards consumer's intention to use mobile payment services. Authors (Soh et al., 2020) used UTUAT and IRT framework to examine the factors impacting the perception, acceptance and willingness of older adults in Malaysia towards online shopping. The authors found that PE, Social Influence and Facilitating conditions are significant predictors of the perceptions, acceptance, and willingness of older adults in Malaysia towards online shopping while effort expectation was found to be insignificant. The study also found that usage barrier, value barrier, risk barrier and tradition barriers are significant barriers for the perceptions, acceptance and willingness of older adults in Malaysia towards online shopping whereas image barrier was found to be insignificant.

2.5.   Theory of Planned Behavior

Researchers investigated the factors that impact customers' online behavior (Song and Zahedi, 2005). The authors employed the "TPB and concepts from social psychology, consumer behavior, and management to categorize Web-design aspects in building the theoretical model (dubbed the belief reinforcement model, or BRM)". They identified the most important components of online shopper's behavior. Web consumers' perceptions, which favorably affect attitudinal constructs, result in changes in purchase intentions. BRM and its findings provided an early guide for a thorough approach to creating websites for e-business and assessing their efficacy prior to detailed deployment. Authors investigated the behavioral reasoning theory in order to explain technological adoption (Claudy et al., 2015). They discovered that cost and performance risks are the most significant barriers to adoption. Authors like Hasbullah *et al.*, (2016) investigated the "impact of attitude, subjective norm, and website usability on Malaysian youth's intention to purchase online". They discovered that internet marketing is the most important factor affecting Malaysian teens' online buying intentions. Authors like (Kao and André L'Huillier, 2022) has studied the intention for mobile commerce under Covid-19 context. Researchers studied the factors

like how embracement of social distancing norms is impacting the adoption of mobile commerce. Authors used the Theory of Planned Behavior (TPB) framework to study the moderating effect of social distance norms on adoption of Mobile commerce. Authors presented a SEM model and found that embracement of social distancing norms are an important factor affecting mobile commerce. Online grocery has been studied by authors like (Kim, 2021). The author used the framework from gratification theory and theory of planned behavior to understand the factors retitled to motivations and behavior. Researchers examined the factors like "utilitarian motives, hedonic motives, experiential motives, attitudes, subjective norms, perceived behavioral control, purchase intention, and purchase behavior" among consumers using mobile applications for grocery purchases in South Korea. The study found that factors like "utilitarian motives" have a significant impact on attitudes. Attitudes and subjective norms impacted the intention for using applications which affected the purchase behavior. Authors also found that that there is significant difference in factors like utilitarian motives, hedonic motives, and attitudes between user and non-users and users had high prevalence of these factors as compared to non-users.

Authors (Verma et al., 2021) examined the factors that influence the mobile commerce among generation Z in India using the framework from "theory of planned behavior (TPB)". Authors used "modified TPB model "by validating it using data collected from 245 students. The study found TPB constructs have positive impact on intention to use m-commerce among generation z consumers. Results also revealed the significant difference in the degree of factors like attitude and subjective norm across male and female subgroups. They found that attitude is lesser in degrees among males as compared to females whereas subjective norm has higher prevalence in male as compared to females.

Other researchers like (Troise et al., 2020) studied the TPB and TAM in context of food delivery applications. They used the framework based on the above theories to examine the factors that influence the intention to use food supply applications. They further extended examined the contextual factors related to Covid-19 like food choices, convenience, trust, and the effect of the perceived risks in Italy. The results show that TAM and TPB are significant in explaining the intention to use online food delivery applications. The findings suggested that the buyer behavior was strongly influenced by subjective norms. Authors (Prodanova et al., 2021) extensively studied technology readiness of travelers on factors derived from TPB online travel users in Spain. The study found that consumers having proficiency related to technology are inclined to be convinced by other's opinion and they perceive more control and are likely to have more intention to shop through mobile phone for travel. Results also revealed that readiness for technology does not significantly influence the attitude on mobile phone apps.

Authors like (Raman, 2020) studied the factors that influence the attitude of female customers to shop online. They used the TPB framework to examine the factors by augmenting it with other important constructs like trust, convenience and customer service. The results depicted that customer service is important factor that affect the attitude of female consumers to buy online while perceived behavioral control is the most important factors that impacts the willingness of female customers to buy online.

Authors (Piroth et al., 2020) investigated the relationship between personality traits and attitude towards online grocery shopping by using the theory of planned behavior. The results revealed that factors related to personality traits do not impact the attitude toward OGS, but subjective norm had significant impact on attitude. Authors found that both

subjective norm and attitude were strong predictors of shopping intention for groceries online.

Authors (Kureshi and Thomas, 2019) examined the beliefs of local grocery retailers on online shopping of grocery products . They used the framework of TPB to examine the factors like outcome, normative and control beliefs carried by the local shoppers selling grocery products about online grocery retailing. They investigated the attributes that impact the intention of local shoppers towards e-retailing of grocery products. The study found that factor outcome beliefs categorized across "business expansion; gaining visibility and reputation; customer expectations; inventory management; and margins, costs and technical issues". A study revealed that customers would influence the intention for purchasing grocery online. It was also believed that collaboration with online grocery retailers would lead to a reduction in their businesses.

Researchers like (Glavee-Geo et al., 2017) investigated the factors influencing the intention towards online banking services in a developing economy like Pakistan. They empirically validate the factors from TAM and TPB using the data collected from a survey across Pakistan. Authors also examined the differences among genders in adoption of mobile banking services. The results revealed that perceived behavioral control (PBC) and attitudes (ATT) has a significant positive effect on intention to adopt mobile banking in Pakistan.

Researchers (Kumar and Shenbagaraman, 2017) have examined the various attributes that impact the adoption of mobile banking in Chennai city of India. The study is specific to an emerging market. They used the constructs from TAM, innovation diffusion theory, TPB and Extended Technology Acceptance Model for the study. The researchers found that attributes like "perceived ease of use, perceived usefulness, and relative advantage, quality

of system, personal innovativeness, and self-efficiency" are significantly related to mobile banking adoption by consumers in Chennai. Authors like (Khasawneh and Irshaidat, 2017) examined the attitude towards mobile banking using the framework of decomposed of theory of planned behavior (DTPB), Authors empirically tested the constructs using data collected through a convenience sampling method. The results revealed that factors like relative advantage and compatibility significantly impact the consumer's attitude towards the use of mobile banking. They also found that complexity does not play any role in determining the attitude. On the other hand, social influences significantly determine the Subjective norms whereas attitude and perceived behavioral control are important in explaining the behavioral intention. Several authors explored the factors impacting the online purchase of tourism products by using the constructs from TPB. Authors like (Sahli and Legohérel, 2016) developed a T-WAM model i.e., tourism web acceptance model in order to explain the shopping of tourism products online. The researchers used the data collected from survey conducted among Tunisian consumers. The results revealed that T-WAM model is better in explaining the intention to purchase tourism products online as compared to models based on theories like TAM, TPB, decomposed TPB and flow theory. Other researchers like (Amaro and Duarte, 2015) examined constructs based on integration of Theory of Reasoned Action, the Theory of Planned Behavior, the Technology Acceptance Model and Innovation Diffusions Theory in context to intention of purchasing tourism products online. The authors found from empirical results based on a large sample of 1732 customers that factors like attitude, compatibility and perceived risk significantly determine the intention to purchase tourism products online.

Ha *et al.* (2021) in their research focused on online buying intentions using various technology acceptance theories such as the TAM, IRT and TPB. Nonetheless, empirical research on the motivations and impediments to internet shopping in developing economies

such as India for a mature client demographic are lacking. The current study looks at the elements that influence the online purchase intentions of clients aged 50 and over. The idea of using 50+ as the subject of study comes from the segmentation done by Silvers, (1997) using the life events that happened in an individual's life.

Author	Paper	Journal	Findings
(Punj, 2011)	"Effect of Consumer Beliefs on Online Purchase Behavior: The Influence of Demographic Characteristics and Consumption Values"	Journal of Interactive Marketing	"The author studied the effect of beliefs on online purchase behavior is moderated by demographic characteristics such as income, education, and generational age, and by consumption values such as the inclination to consider many alternatives before making a choice, the enjoyment of shopping, and the tendency to research products before making a purchase."
(Garbarino and Strahilevitz, 2004).	"Gender differences in the perceived risk of buying online and the effects of receiving a site recommendation"	Journal of Business Research,	"These results suggest that online marketers may want to work on reducing perceptions of risk when targeting female consumers, even if those females are experienced Internet users."
(Lian and Yen, 2014)	"Online shopping drivers and barriers for older adults: Age and gender differences. Computers in Human Behavior"	Computers in Human Behavior	"By comparing younger consumers with their older counterparts, in terms of gender the findings indicate that the major factors driving older adults toward online shopping are performance expectation and social influence which is the same with younger. The major barriers include value, risk, and tradition which are different from younger. The older adults show no gender differences regarding the drivers and barriers."

CHAPTER 3

RESEARCH METHODOLOGY

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RESEARCH METHODOLOGY

For the study, suitable research methods were adopted to study the effect of drivers and barriers over OSI for an older aged group of people defined categorically in the questionnaire. This Chapter will discuss the methodology used to conduct the research study, including the construction of the model, questionnaire design, data collection, and statistical techniques used to estimate the proposed model. This Chapter also discusses testing the proposed hypotheses through quantitative methods.

The objective was to establish drivers for online shopping among mature customers. Based on the review, a theoretical model was proposed to study these drivers in the previous chapter.

3.1.   Research Design

This research attempts to dive deep into the phenomena being studied and answer the questions concerning the study. Hadid (2020) describes it as "the path through which researchers formulate their problem and objective and present the results from the data obtained during the study period".

A comprehensive research design was used to explore the drivers of online shopping for a mature customer. The aim was to design an appropriate framework for this study. This study used a quantitative research design. The first part of the study collected responses from matured customers through a sequence of well-formulated questionnaires.

This study essentially uses a descriptive research design to comprehend drivers and barriers of internet-based shopping in India for mature customers. The research design empowers the investigator to accumulate data from respondents on the drivers of online shopping. The

responses helped the researcher decide how this affects the OSI of a mature customer in India.

A research design is a thorough plan that is used to lead a research project toward its goals. It is the detailed study plan in an organized manner linking minor to significant facts to explore novel findings. The technique involves structured analysis and preconceived notions and ideas for executing a research project. A research design may further be explained as the following:

- ✓ It is an outline that specifies the sources and types of information relevant to the research problem.
- ✓ It is a plan that specifies what methodology will be used for the congregation and analyzing the data.

Research designs can be clustered into four kinds: (a) Exploratory, (b) Descriptive, (c) Causal, (d) Empirical. Exploratory research focuses on unearthing philosophies and is generally based on secondary data. It is a preliminary investigation, which does not have a rigid design. The researcher adopting this method may have to modify or deviate from his initial observation and turn out to the new set of ideas and associations among the various constructs and variables.

Descriptive research contains reviews and analytical investigations of different classes. The significant persistence of descriptive analysis is exhuming the facts and describing them in the context of the study without distorting the facts. In social science research, descriptive research is more of an exploratory type. Practical descriptive analysis is marked by a clear statement of the problem definition. In a descriptive study, Ex post facto evidence formulates the hypothesis in correlation with the study's objectivity. The primary distinctive of this method is that the researcher has no control over the variables. This is the most

popular type of research and also suitable for social science research. The analysis methods utilized in the descriptive analysis are methods of all kinds, including comparative and correlation techniques. In contrast to exploratory studies, these are well structured.

The goal of causal research is to establish a link between two or more variables to better understand their relationship. The research design for the study should include the techniques appropriate for conducting the proposed research. It is necessary to follow a proper research design to ensure that the results are valid and reliable.

"Empirical research includes direct or indirect observations or experiences. The data are collected normally to solve a particular research question. This data-based research comes up with conclusions capable of being verified by statistical analysis. To be empirically tested, the research question needs to be transformed into a theoretical model, consisting of theoretical constructs, casual relationships, and measures". A review of the literature results in the construction of a theoretical model that serves as the foundation for data collection and analysis. This thesis is ex post facto research in this respect, because hypotheses are formed throughout the literature review. A hypothesis is a predicted link between variables that is based on the causal relationships in the theoretical model and is testable empirically.

Action research has been used in this thesis as the research idea in practice is evaluated using statistical tests. The type of research design employed in the study is survey mode. The purpose is to take opinions or characteristics that exist at a given time. Hence the time frame is current, and the nature of the data is cross-sectional. The researcher has no control of the variables. Hence the study is ex post facto as the hypotheses are constructed post review of related literature. A well-designed cross-sectional study can provide good evidence for the presence or absence of a relationship. "In practice, no research method is entirely qualitative or quantitative".

"Triangulation is the term used to describe the combination of qualitative and quantitative methods". A research method becomes successful when an appropriate research method is selected, and if one can combine different methods judiciously, the research result will become more effective. "Mixing qualitative and quantitative research methods is called triangulation of method".

3.2. Study objectives

The study primarily focuses on examining the factor that influence online shopping intention of mature customers. The study has a specific purpose to test the hypotheses based on UTUAT model about the significance of various constructs that influence the online shopping intention of mature customers.

3.3. Data Collection

Data collection is an essential process in the research. Proper primary and secondary data collection are prerequisites of good research. Data collection should be commensurate with the research problem and hypothesis so that the research objective is assessed and ascertained along with hypothesis testing. Data collection is a very cumbersome exercise as it requires lots of time to get proper responses so that outliers are minimized as far as possible. The primary data was collected through a non-disguised structured questionnaire from aged consumers having or not having experience of online shopping for different categories of products by focusing on constructs of drivers.

Data was collected through a questionnaire-based survey. Since the survey is an essential method for data collection, it enables the researcher to collect data that can be used for meaningful quantitative analysis to establish the relationships between various study attributes. A comprehensive data collection survey was conducted using a convenient sampling technique in National Capital Region, Varanasi, Mumbai, and Lucknow between

October 2020- Jan 2021. Respondents were explained with the purpose of the study, and their responses were collected.

3.4. Population:

The target group of this study was the mature customer segment in India.

In a study (Sidhu, 1985), author mentioned that "by population, we mean the aggregate or totality of objects or individuals regarding which inferences are made in a sampling study. A population is any group of individuals with one or more characteristics in common that are of interest to the researcher".

The researchers want to arrive at results and draw conclusions that are true for the persons of the population in general. Although the researcher can measure all the persons to whom the decision is to be applied. The researcher must use such a technique to obtaining adequate and reliable population estimation. This is dependable on the degree to which it truly represents the people. The mature customers for this study have been defined using the age cut-off of 50. Anyone aged more than 49 years has been described as a mature customer for this study.

3.5. Sample

The success of any research work mainly depends on correctly identifying the sample to be collected for the study, before data collection from a given population, sample design, sampling techniques, sample area, and sample size.

A non-probability representative sampling technique is adopted to have an optimum sample size in this research work. Having a minimal sample size will not serve the purpose and objectives of the research work. It will be uneconomical and a waste of valuable resources if the sample size is too large. In this study, a rough estimate through the Raosoft software sample size calculator has been used; however exact sample size was calculated through

the Cochran formula as explained below. The rough estimate of sample size came out to be 288 considering the demography of the Indian population. Primary Data collected were through survey mode. Responses have been collected through one-to-one telephonic conversation and, impersonally, through a self-report way of emailing the questionnaire.

Given the time and economic constrains of conducting the study based on complete enumeration of 50 plus aged population, the study was conducted using a representative sample. Post literature review, a set of questionnaires in Google form was designed for ease and convenience of both the respondents and the researcher. A Likert Scale was adopted with an intensity of five-point scale under Ranking Method (Strongly disagreed = Rank 1, strongly agreed = Rank 5) to measure the intensity of the answers of different parameters. There were 59 questions based on the Likert scale (Interval Scale) and seven questions for obtaining the demographic profile (Nominal Scale) of the sample collected. The scale helped determine the higher weightage in each parameter. The results were finally tabulated and interpreted according to the study's findings as discussed in Data Analysis and Statistical Inference Chapter.

3.6.   Sample Size:

The optimum sample size was estimated using the Cochran formula (Cochran, 1977). The test for estimating the population size is as follows:

$$n_0 = \frac{Z^2 pq}{e^2}$$

Suppose eq. (1) and is given as (1) where "n = sample size, Z = statistic for a level of confidence, P = expected prevalence or proportion (in the proportion of one; if 17%, P = 0.25), and e = precision (in the proportion of one; if 5%, e = 0.05). Z statistic (Z): for the level of confidence of 95%, which is conventional, the Z value is 1.96". The expected

sample number was 288 at the marginal error of 5 % for a 95% confidence interval. To have sufficient data for model estimation researcher collected data on 369 respondents.

3.7.   Data Analysis:

Once data was collected, a comprehensive quantitative analysis consisting of descriptive research and estimation of structural equation model was done using Smart PLS3. According to (Hulland, 1999) "it is not mandatory to find all those fit indices in a report". A subset or sample of fit indices from significant categories has been reported in this study to assess the degree of overall fitness of the measurement model.

The chi-square ($\chi2$) test presents a "statistical test of the null hypothesis that the model fits the data and a $\chi2$ value divided by the degree of freedom (df) < 5 is deemed appropriate, and this measurement technique is considered as the first fit statistics" (Cochran, 1977).

The descriptive analysis consists of profiling of respondents across various demographic attributes. Covariance-based structural equation modeling (CB-SEM) was the de facto standard approach for studying complicated interactions between observable and latent variables. "Indeed, until roughly 2010, considerably more studies in social science journals were published using CB-SEM than partial least squares structural equation modeling (PLS-SEM). In recent years, the number of publications published with PLS-SEM has grown dramatically in comparison to CB-SEM" (Hair Jr et al., 2017). PLS-SEM is now widely applied in many social science disciplines, including "organizational management" (Sosik et al., 2009), "international management" (Richter et al., 2020), "human resource management" (Ringle et al., 2005), "management information systems" (Ringle et al., 2012), "operations management" (Peng and Lai, 2012), "marketing management" (Hair et al., 2012), "management accounting" (Nitzl, 2016), "strategic management" (Hair et al., 2012), "hospitality management" (M. S. Ali et al., 2018) and "supply chain management"

(Kaufmann and Gaeckler, 2015). Several textbooks (e.g., (Garson, 2016; Ramayah et al., 2016)), edited volumes (e.g., (F. Ali et al., 2018; Avkiran et al., 2018)), and special issues of scholarly journals (e.g., (Rasoolimanesh and Ali, 2018; Shiau et al., 2019)) illustrate PLS-SEM or propose methodological extensions.

"The PLS-SEM method is very appealing to many researchers. It enables them to estimate complex models with many constructs, indicator variables, and structural paths without imposing distributional assumptions on the data" (Hair et al., 2012). Majorly "PLS-SEM is a causal-predictive approach to SEM that emphasizes prediction in estimating statistical models, whose structures are designed to provide causal explanations" (Sarstedt et al., 2017; Wold, 1982). The procedure thus permeates the noticeable contrast between explanation as typically highlighted in academic explorations and projections, which is the base for fostering managerial implications (Hair et al., 2019).

In addition, user-friendly software packages are available that generally require little technical knowledge about the method, such as "PLS-Graph" (Chin et al., 2003) and "SmartPLS" (Ringle et al., 2015; Ringle, 2005). While more complex packages for statistical computing software environments, such as R, can also execute PLS-SEM (Monecke and Leisch, 2012). Researcher like Richter *et al.* (2016); Rigdon (2016); Sarstedt *et al.* (2017) have presented more thorough reasons on when to use and not to use PLS-SEM.

3.8. Questionnaire Design:

The study was conducted by collecting primary data. A comprehensive questionnaire was designed using the items from previous studies to assemble the preliminary data. The research questionnaire consists of 23 questions where responses on items were recorded on a scale of 1-5. The details of the items are provided in Table-1-

3.9. Reliability Testing:

Authors (Kimberlin and Winterstein, 2008) have postulated that an instrument must be reliable before it can be considered valid, but reliability need not depend on validity. Validity is usually described as how thoroughly a tool measures what it is supposed to. The metrics utilized were validated in past studies and adapted for this purpose. Due to the fact that the tests were utilized in a distinct context and demographic, the scale items used to undertake the reliability test varied. Cronbach's alpha, on the other hand, was calculated for the various questionnaires to determine the measurement's validity, since it reflects the uniformity of responses to all elements in the assessment. For products with high-reliability metrics, Cronbach's alpha was close to one.

CHAPTER 4
ANALYSIS

4.1. Introduction

The chapter discusses the relationship of four latent variables i.e., "performance expectancy, effort expectancy, Social Influence and facilitating condition" with OSI of mature customers. The responses were taken in Likert five-point scale under Ranking Method, (Strongly disagreed = Rank 1, strongly agreed = Rank 5) from mature customers for this study demarcated using the age cut-off of 50. Anyone whose age is more than 49 years was considered as mature customer. The questionnaire was prepared in line with the theoretical concepts and popular studies across the globe related to OSI with gender, income, education, and many other parameters identified with the help of exhaustive literature survey as mentioned in chapter 2. In addition, the citations of case studies of select countries were also considered. There was a total of 16 questions based on Likert scale (Ordinal Scale) and 7 questions related to respondents' demographic characteristics were used in the questionnaire. The scale helped in finding out the higher weightage in each construct observed by different variables as mentioned above. The results were finally tabulated and interpreted according to the findings of the study as discussed in the data analysis chapter.

4.2. Theoretical model

To study the impact of various factors on OSI, a conceptual model is developed. The model describes the relationship of latent variables with the corresponding observed indicators. In the current study, the conceptual model uses 13 observed indicators bundled into 4 groups of latent constructs namely "performance expectancy, effort expectancy, facilitating condition, and social influence". The theoretical model depicting relationship between latent constructs and independent observed indicators are shown in Figure 4.1 where Latent

Variables are shown as oval shaped and independent indicators are depicted using rectangular shapes. The Structural equation models have two major components i.e., (1) measurement model or construct which describes association of observed indicators with corresponding latent variables, and (2) structural model which explains the association between various Latent Variables. The interpretations of various observed variables are presented in Table 4.1 and path diagrams for each latent constructs are described in Figure 4.1.
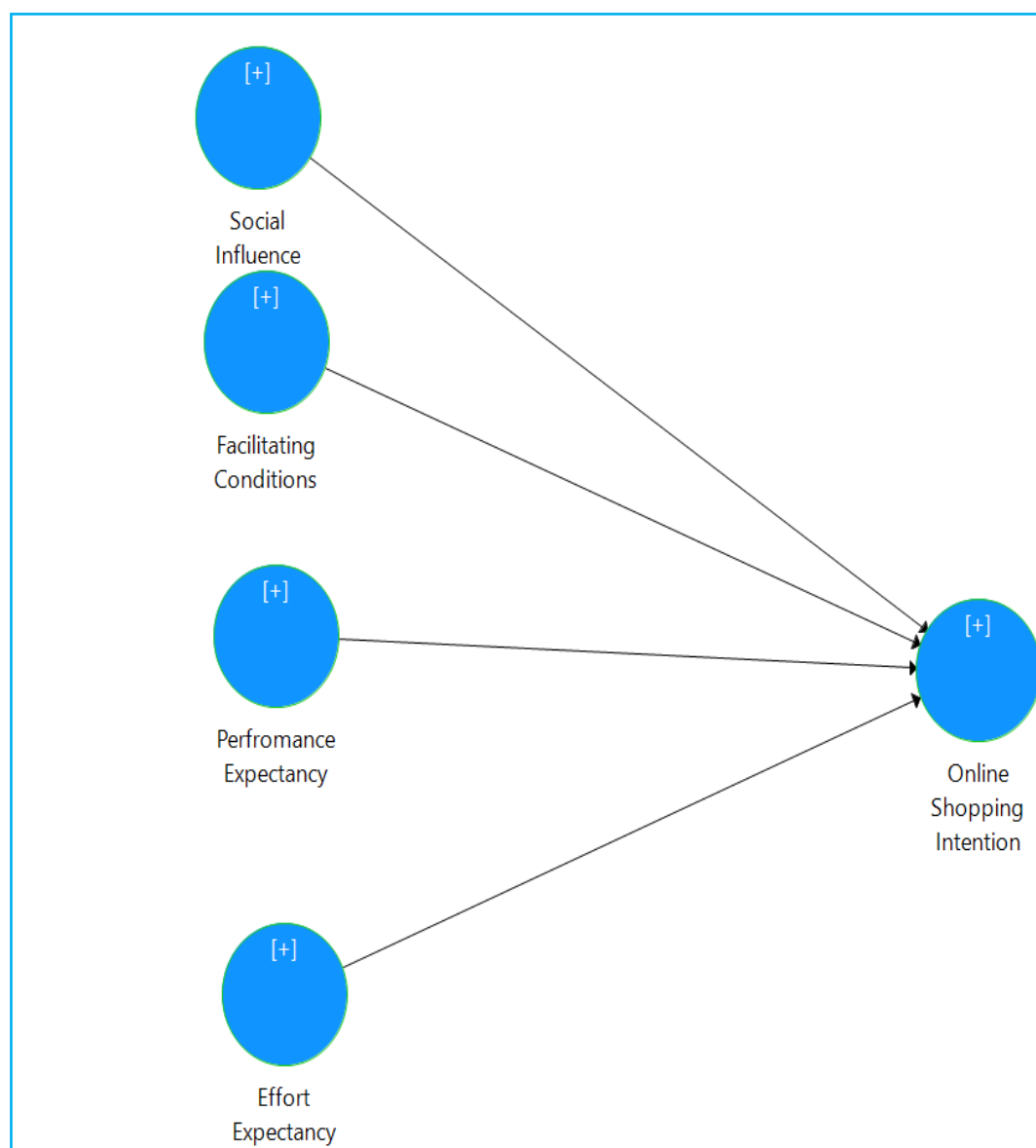

Figure 4.1: Conceptual Path Model

Table 4.1: Details of Manifest Variables

Manifest Variables	Description
PE1	"I feel Online shopping is convenient for me"
PE2	"I feel On-Line Shopping provides variety of product availability"
PE3	"I feel On-Line shopping helps to shop more quickly"
EE1	"I feel that Online shopping websites are easy to use"
EE2	"The Language used by online retailers are easy to understand"
EE3	"It is easy to learn online shopping"
EE4	"I feel Technology involved in online shopping is easy to use"
FC1	"I have skill and knowledge for online shopping"
FC2	"Online shopping is similar to other online services that I use"
FC3	"I have necessary infrastructure to shop online"
SI1	"A person who is very important to me think that I should shop-online"
SI2	"Many of My friends shop online"
SI3	"My friends think that I should shop online"

4.3. Data Collection and Sampling

A questionnaire was designed for primary data collection purposes. Aged customers of age 49 years and above were determined ideal as subject group of the research. A total of 380 survey forms were

distributed using a convenient sampling technique in National Capital Region, Varanasi, Mumbai, and Lucknow, between October 2021- Jan 2022. 369 completed responses received. The analysis is based on 369 complete responses which are adequate based on Hair et al. calculation (Hair et al., 2011). "The success of any research work is mainly depending on proper identification of the sample to be collected for the study". Sample design, sampling techniques, area of sample, and sample size is decided before data collection from given population.

In this research work, non-probability representative sampling technique is adopted to have an optimum sample size. If sample size is kept very small, it may not serve the purpose and objectives of the research work. It will be uneconomical and a wastage of useful resources if sample size is too large. In this study a rough estimate through Raosoft software sample size calculator has been used. However exact sample size was calculated through Cochran formula as described in Chapter-3. The rough estimate of sample size came out to be 288 considering the demography of the Indian population. Primary Data collected were through survey mode. Responses have been collected through online and interview methods.

Sample is an adequate representative segment of the population selected for study. By studying the various attributes of the sample, one can infer the population characteristics from which sample is chosen. Samples are scientifically selected using different sampling techniques, so that results based on samples can be used for larger population. Given the time and economic constraints of conducting the study based on complete enumeration of 50 and above s aged population, the study was therefore conducted using a representative sample. The demographic profiles of respondents are depicted in charts below.

As depicted in the *Figure 4.1*, majority of the respondents are male. The educational profiles of respondents are shown in *Figure 4.2*. 73%of respondents have obtained at least a graduation degree (*Figure 4.3*). 45% of respondents are in the age group 50-55 years (*Figure 4.4*).
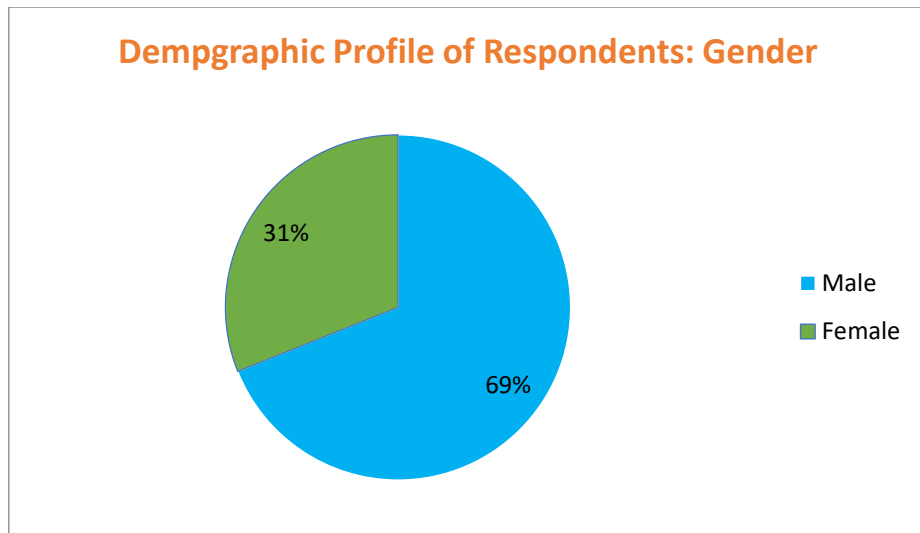
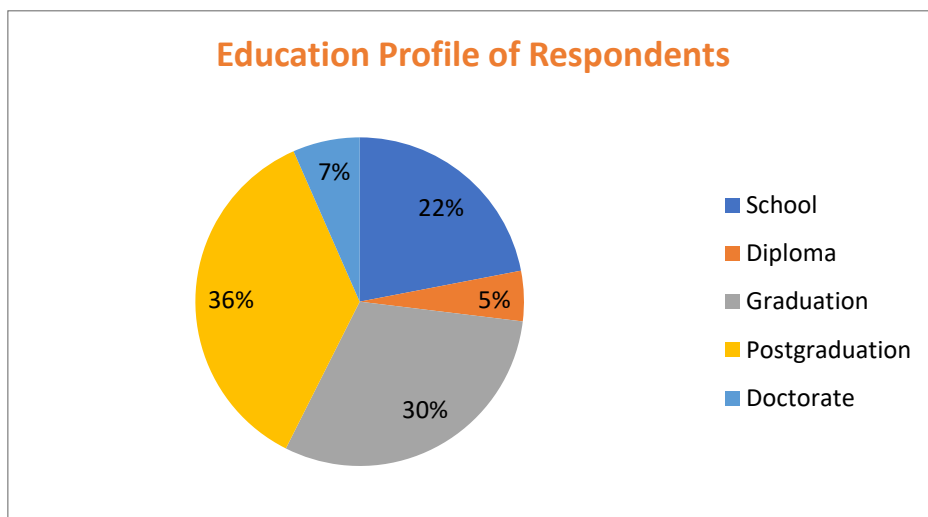**Figure 4.2:** Demographic Profile of Respondents: Gender

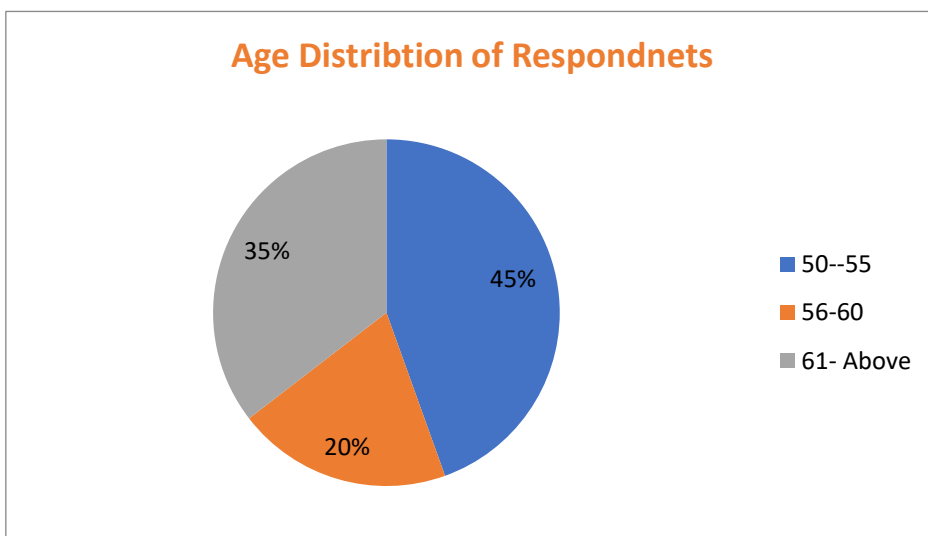
Figure 4.3: Educational Profile of Respondents

Figure 4.4: Age Profile of Respondents

4.4. PLS-SEM Analysis

The model was evaluated using a SmartPLS software (Ringle et al., 2005). The estimation of the model was done using PLS technique which primarily involves calculation and assessment of various parameters i.e., factor loadings, reliability, and validity tests. The estimation process involves a "two-step procedure" as recommended by Henseler *et al.* (2009). This entails estimation of the parameters of PLS model separately by first calculating the parameters of the measurement model and then subsequently estimating the "path coefficients" of the structural equation model (Vinzi et al., 2010). At the end, validation of model is done using power analysis test.

4.5. Measurement Model

The consistency and validity of observed indicators are established to access the measurement model. The stability and validity of the constructs are done using tests like convergent validity test and discriminant validity test. Consistency easements are done through reliability tests for individual observed variables and Latent constructs. While validity of the variables is tested based on. The convergent and discriminant validity (Hair et al., 2012) tests are done to examine the validity of variables. The individual indicator's reliability explains the variance of individual indicator relative to latent construct by calculating standardized outer loadings of the indicator variables (Götz et al., 2010). The indicator variables having outer loading values 0.7 or more are considered highly satisfactory (Henseler et al., 2009), (Götz et al., 2010). The loading value of 0.5 is considered as acceptable, whereas the indicator variables with loading value of less than 0.5 should be dropped (Chin, 1998). Authors (Hulland, 1999) postulated that loading value of that 0.4 can also be considered whereas Henseler *et al.* (2009) recommended that observed variable having loading values between 0.4 and 0.7 should be examined before removing from the construct. It has been recommended to discard the variables if their

removal increases the composite reliability of construct, otherwise they should be kept in the model. The study uses the cut-off value of 0.5 for outer loading. The iterative procedure was used for removal of the indicator variables based on the recommendations of Henseler *et al.* (2009). The other important parameter for assessment of consistency is construct reliability. The Cronbach's alpha test is done to evaluate the construct reliability.

Cronbach's alpha and composite reliability test explains the extent to which observed variables represent an individual latent construct. Composite reliability is a more suitable measure of consistency in comparison to Cronbach Alpha. The composite reliability uses the standardized loadings of the observed variables (Fornell and Larcker, 1981). Nonetheless, there is no difference in the explanation of composite reliability score and Cronbach's Alpha. Fink and Litwin (1995) recommended that Cronbach alpha score should be higher than 0.7. Authors (Hair et al., 2011) suggested that a cut-off 0.7 is optimum for composite reliability of a construct. The measurement model's estimation also involves evaluation of convergent and discriminant validity of the constructs to ensure that no two constructs are related. The Convergent validity of the construct is tested using "Average Variance Extracted (AVE)", (Fornell and Larcker, 1981). The amount of variance captured by latent variable from its relative observed variables because of measurement errors is determined by AVE. Barclay *et al.* (1995) and Hair *et al.* (2011) mentioned that Latent variable should capture at least 50% of the variance from the observed variables. Thus, AVE value of the latent construct should be at least 0.5. The relevancy of observed variables with respect to the assigned latent variables is evaluated using Discriminant validity test. The test confirms if the cross-loading value in assigned LV is higher than that in any other constructs (Chin, 1998). Using the above criteria, measurement model is examined by iterative processes to eliminate the relatively weak observed variables from the model. The iterative procedure resulted in discarding a few observed variables whose factor loadings

were lower than 0.6. Table 4.2 Outer Loadings & Table 4.3 Outer Weights summarizes the first and final iterations.
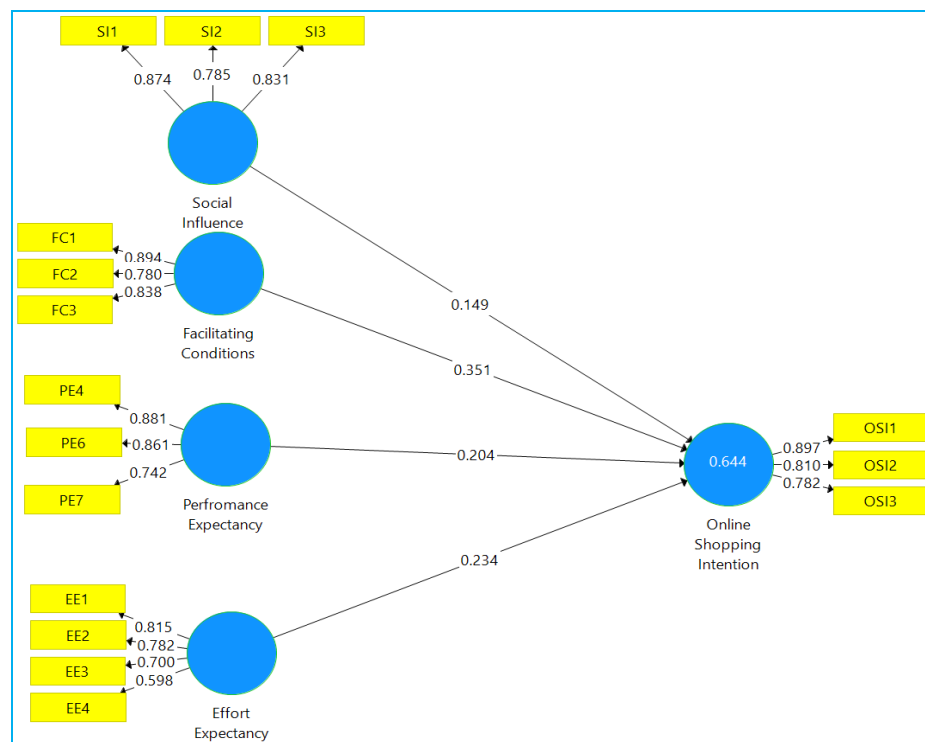
Figure 4.5: Measurement Model Path Model Output

Table 4.2: Outer Loadings of Manifest Variables

	Effort Expectancy	Facilitating Conditions	Online Shopping Intention	Performance Expectancy	Social Influence
EE1	0.815				
EE2	0.782				
EE3	0.700				
EE4	0.598				
FC1		0.894			
FC2		0.780			
FC3		0.838			
OSI1			0.897		
OSI2			0.810		
OSI3			0.782		
PE4				0.881	
PE6				0.861	
PE7				0.742	
SI1					0.874
SI2					0.785
SI3					0.831

Table 4.3: Outer Weight of Manifest Variables

	Effort Expectancy	Facilitating Conditions	Online Shopping Intention	Performance Expectancy	Social Influence
EE1	0.42				
EE2	0.39				
EE3	0.251				
EE4	0.296				
FC1		0.446			
FC2		0.364			
FC3		0.379			
OSI1			0.425		
OSI2			0.434		
OSI3			0.342		
PE4				0.433	
PE6				0.395	
PE7				0.375	
SI1					0.445
SI2					0.398
SI3					0.36

Table 4.4: Result of Measurement Model Evaluation

Constructs	Cronbach's Alpha	rho_A	Composite Reliability	Average Variance Extracted (AVE)
Effort Expectancy	0.706	0.731	0.817	0.531
Facilitating Conditions	0.788	0.801	0.876	0.703
Online Shopping Intention	0.775	0.786	0.87	0.691
Performance Expectancy	0.771	0.779	0.869	0.689
Social Influence	0.775	0.783	0.87	0.69

Subsequently, discriminant validity of final model is examined using the "cross-loading" values obtained from the final iteration as shown in Table 4.5. As depicted in Table 4.5, the Cross loading values of all the observed variables were found to have higher values on their assigned latent construct vis- a vis other latent constructs used in the model. The

above results establish the discriminant validity of model as observed variables in each construct represent the assigned latent variable.

Table 4.5: Results of Cross Loadings

Instruments/ Construct	Effort Expectancy	Facilitating Conditions	Online Shopping Intention	Performance Expectancy	Social Influence
EE1	0.815	0.478	0.59	0.519	0.529
EE2	0.782	0.478	0.548	0.477	0.622
EE3	0.7	0.262	0.353	0.379	0.383
EE4	0.598	0.501	0.417	0.414	0.404
FC1	0.537	0.894	0.676	0.539	0.615
FC2	0.494	0.78	0.553	0.385	0.689
FC3	0.48	0.838	0.575	0.562	0.508
OSI1	0.58	0.66	0.897	0.52	0.596
OSI2	0.64	0.608	0.81	0.594	0.609
OSI3	0.436	0.513	0.782	0.488	0.478
PE4	0.564	0.534	0.577	0.881	0.518
PE6	0.537	0.446	0.527	0.861	0.474
PE7	0.442	0.495	0.5	0.742	0.478
SI1	0.552	0.727	0.624	0.556	0.874
SI2	0.627	0.475	0.558	0.543	0.785
SI3	0.514	0.57	0.504	0.356	0.831

As depicted from Table 4.6 discriminant validity of the model is established by Fornell-Larcker criteria which say that "square root of AVE should be greater than correlation value with other constructs".

Table 4.6: Fornell-Larcker Criterion of Discriminant Validity

Constructs	Effort Expectancy	Facilitating Conditions	Online Shopping Intention	Performance Expectancy	Social Influence
Effort Expectancy	0.73				
Facilitating Conditions	0.60	0.84			
Online Shopping Intention	0.67	0.72	0.83		
Performance Expectancy	0.62	0.59	0.65	0.83	
Social Influence	0.68	0.72	0.68	0.59	0.83

4.6.   Evaluation of Composite Model

The composite model   is accessed by examining the model based on criteria of multicollinearity, outer weights, loadings, and their significances (Benitez et al., 2018), (Cenfetelli and Bassellier, 2009). The composite models are primarily estimated using Mode B (regression weights) in PLS, therefore, it is necessary to test the collinearity among indicators. The presence of multicollinearity among variables may lead to wrong signs and the estimates may be statistically insignificant. The multicollinearity among indicators is tested by variance inflation factor (VIF). Value of VIF greater than 5 indicates the issue of multicollinearity among variables (Faul et al., 2009). It has also been argued by various researchers that multicollinearity may still exist even if VIF values are below 5. Some researchers recommend that test of multicollinearity is not necessary if weights are estimated by Mode A. The Mode A calculates equal scaled covariance, and therefore, ignores multicollinearity (Henseler et al., 2009). The weights and composite loadings measures the relative contribution of an observed variable to latent construct , and correlation between the indicator and the corresponding variable respectively; whereas factor loading depicts the absolute contribution of an indicator to its assigned construct (Cenfetelli and Bassellier, 2009). It is also imperative that weights of indicators should be statistically significant as they depict the relative importance of each indicator in the latent construct. It is also important to examine the composite loading estimates of those indicator weights which are not statistically significant so that indicators having non-significant weight and loadings can be dropped. It has also been recommended to consider the content validity while dropping any indicator which is non-significant as eliminating the variable may change the meaning of the emergent variable. The variables which has non-significant weights and loadings can be kept in the construct so that to ascertain content validity of the construct is established (Hair et al. 2017). It is observed that the issue of multicollinearity is not present in the model as evident from the Table 4.7. The VIF values for

the observed indicators of the models are between 1.00 to 2.20, which is below the thresh-hold value of 5 indicating that the absence of multicollinearity among variables. It has been observed that weights and factor loadings are statistically significant at 5% level of significance and have correct signs. The model has all required properties; hence the researchers proceed to evaluate the structural model.

Table 4.7: Collinearity Statistics VIF

Variables	EE1	EE2	EE3	EE4	FC1	FC2	FC3	OSI1	OSI2	OSI3	PE4	PE6	PE7	SI1	SI2	SI3
VIF	1.6	1.5	1.4	1.2	2.0	1.5	1.8	2.2	1.5	1.7	2.1	2.0	1.3	1.9	1.4	1.8

4.7.   Assessment of Structural Equation Model

Structural equation model examines that relationship among exogenous and endogenous latent variables by evaluating coefficient of determination i.e., R^2 value and β value, that is, "path coefficients "of the model (Chin, 1998). R^2 is the measure that depicts the   amount of variance explained in endogenous latent variables (Akter et al., 2011) while β values describes the strength of the association of variables to endogenous latent variables. "According to Cohen et al. (Cohen et al., 2003) for a good model, the value of R^2 of endogenous latent variable should be more than 0.26". Since R^2 value for the estimated model is 0.64 which is significantly higher than the recommended value, the estimated model is robust in explaining the variance of OSI among mature customers inhibiting four latent constructs. Further, β estimates of various paths are compared to examine the path coefficients of latent constructs of the model. The predictor latent variable with highest β estimate depicts strongest effect on the dependent (endogenous) latent variable (Aibinu and Al-Lawati, 2010). β estimates should also be evaluated for its statistical significance using t- test. The researcher further accessed the statistical significance of path coefficient by performing nonparametric bootstrapping technique (Chin, 1998), (Efron, n.d.). As depicted in Table 4.9 the t-values computed using Bootstrapping technique using prespecified number of samples. "Hair et al. (Hair et al., 2011)

recommended that acceptable t-values for a two-tailed test are 1.65 (significance level = 10 percent), 1.96 (significance level = 5 percent), and 2.58 (significance level = 1 percent)". The study uses 2000 bootstrap samples to calculate t-values as presented in Table 4.9. It is evident from the results that the "path coefficients" of the model are statistically significant as corresponding t-values are more than the cut-off value of "1.96" at 5 percent level of significance. The results show that all the paths in the model describe stronger association with OSI of mature customers.

Table 4.8: β Values of the Model

Latent Variables	Beta Values
Facilitating Conditions	0.351
Effort Expectancy	0.234
Performance Expectancy	0.204
Social Influence	0.149

The Regression equation thus formed in the concept

$$Y = a + b_1 X_1 + b_2 X_2 + \ldots + b_k X_k + e$$

Online shopping Intention = 0.351FC +0.234EE + 0204PE + 0.149SI

Table 4.9: Path Coefficient with t-value of the Structural Model

Variables	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	P Values
Facilitating Conditions -> Online Shopping Intention	0.351	0.349	0.053	6.669	0.000
Effort Expectancy -> Online Shopping Intention	0.234	0.235	0.052	4.692	0.000
Performance Expectancy -> Online Shopping Intention	0.204	0.202	0.05	4.034	0.000
Social Influence -> Online Shopping Intention	0.149	0.153	0.067	2.236	0.025

The Null hypotheses created were: -

H_01: Performance expectations do not have significant association with online shopping intention for mature customers.

H_02: Effort expectancy expectations do not have significant association with online shopping intention for mature customers.

H_03: Facilitating conditions do not have significant association with online shopping intention for mature customers.

H_04: Self-satisfaction does not have significant association with driver of online shopping for mature customers.

The structural model indicates that all null hypotheses got rejected being the P-Value being <0

which means that there is a significant association of PE, EE, FC, SI, and enjoyment with OSI.

4.8. Model Validation

It is imperative to access the fit of the computed model. We used the bootstrap samples -based test of overall model fit. Also, to ascertain that the estimated model depicts the proposed theory SRMR statistics this is measure of approximate fit. "Analysis in confirmatory research without assessing the overall model would be incomplete as this means ignoring empirical evidence for and also against the proposed model and the postulated theory" (Hayduk, 2014). The researcher should assess the model fit to wipe out the possibility of not including any significant effect in the model. The SRMR ("standardized root mean square residual") value for the model is 0.089 as depicted in Table 4.10 is less than 0.10 suggesting a good overall fit for the model. "While the model fit suggests that there is a possibility that the world functions according to the specified model, the model can still be mis-specified in the sense of over-parameterization, i.e., the model contains superfluous zero-paths (Vinzi et al., 2010)." The above-mentioned test of comprehensive model fit i.e. tests based on bootstrap sample and SRMR do not wipe out the paths which are not necessary in the model, hence that do not provide guarantee of parsimonious model. It is imperative to assess all path coefficients and their significance even though one has conducted confirmatory or explanatory research.

Table 4.10: Model Fit Summary Statistics

	Saturated Model	Estimated Model
SRMR	0.089	0.089

4.9. Findings

Table 4.11: Summary of Hypothesis Testing Results

Hypothesis	Relationship	Beta	Mean (M)	Standard deviation	T Statistics	P-Values	Decision
H1	Effort Expectancy -> Online Shopping Intention	0.351	0.235	0.05	4.692	0.000	Supported
H2	Facilitating Conditions -> Online Shopping Intention	0.234	0.352	0.053	6.669	0.000	Supported
H3	Performance Expectancy -> Online Shopping Intention	0.204	0.204	0.05	4.064	0.000	Supported
H4	Social Influence -> Online Shopping Intention	0.149	0.15	0.067	2.221	0.025	Supported

It has been observed that effort expectancy is the most prominent driver that affects the online shopping intention among mature customers. The results suggest that mature customers perceive that online shopping is convenient for them and it provides a variety of products to choose from. Furthermore, customers perceive that language used in online shopping websites is easy to understand and shopping websites are user friendly. The customers feel that their friends also shop online, and they should also shop online. Respondents are of the view that they have skill and knowledge to use online shopping websites.

The performance expectancy and effort expectancy emerged as significant drivers of online shopping. These results are consistent with the findings of Lian and Yen (Lian and Yen,

2014) signifying that Performance Expectancy and Effort Expectancy are major drivers of online shopping for older adults in Taiwan.

The results also suggest that facilitating conditions to shop online is also an important driving factor for mature customers. This suggests that mature customers have got themselves acquainted with the new technology and infrastructure like internet, smart phones and skills required to operate these devices is not a challenge for them.

The findings confirms that Indian mature customers have got acquainted themselves with the new technology and feels that they can use online shopping websites. This may be also because of the challenges posed by COVID-19 where online channel was one of the prominent modes of shopping during COVID lockdown and because of safety concerns.

The measurement model and Structural equation model estimates were significant as fit estimates were as per the acceptable threshold values as indicated in table 4.11. The results indicated that performance expectancy, effort expectancy, facilitating conditions, and social influence is the major factors that drive the online shopping intention among mature customers.

In conclusion, the results suggest that online retailers should enhance the user experience as mature customers have required skills and knowledge to use this channel. Technology is not a challenge for them.   It has also been found that social influence is also a major driver for online shopping among mature customers. The customers feel that they should not be a left-out lot among their peers or their social network. Retailers can use this element as part of their marketing advertisement campaigns to drive customers to online shopping.

CHAPTER 5

DISCUSSION AND CONCLUSION

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This chapter is concerned with further discussion and significance of the results. The theoretic model examines the drivers of online shopping for mature customers. Despite extensive study in the construct of online shopping drivers, an aggregate model in the context of Indian and emerging nations where the drivers have been researched for adult customers is absent. Current study fills this gap by empirically investigating the "drivers of online shopping and their relationship with online shopping usage". The study examined main drivers of online shopping for mature customers. The drivers found from the present study are performance expectancy, effort expectancy, social influence, and facilitating conditions. The research model explored various factors based on the premises of UTUAT model propagated by Venkatesh and Davis (2000). The study was based on the primary data collected from respondents having age more than 49 years using the structured questionnaire. The data was collected on the factors that influence the online shopping intention of mature customers. The study found that mature customers perceive that online shopping is convenient for them and it provides a variety of products to choose from. The customer perceives that language used in online shopping websites is easy to understand and shopping websites are user friendly. The customers opined that their friends also shop online, and they should also shop online. The customers are of the view that they have skill and knowledge to use online shopping websites.

In recent years the retail industry across globe has shifted towards online retail across all segments i.e., B2C, B2B. Due to advent of Internet and increased penetration of smart phones, the phenomena have emerged significantly in India as well. The global COVID-19 pandemic has worked as a catalyst to fuel the growth of online retail when traditional stores were closed due to lockdown and customers moved to online channel due to safety

concerns. Because of these developments it was imperative to study the factors influencing online shopping intention among mature customers. As discussed in Chapter-4, the measurement model and Structural equation model estimates were significant as fit estimates were as per the acceptable threshold values.

5.1.   Contribution and Managerial Implications

Study has important implications for academicians as well as practitioners. The study was carried out to understand the drivers of online shopping and their relationship with behavioral usage for mature customers in developing economy. The study established the major drivers which influence the online shopping intention among mature customers. The findings of the study can be extended to other developing economies to assess the factor leading to online shopping by mature customers. One important contribution of this study is to empirically study the drivers of online shopping for mature customers. The findings of this study have practical implications for industry as well. A significant customer base comprises customers of age fifty and more in India. The understanding of the factors affecting online shopping for this customer base would help managers to amplify the features like convenience, price and helps to create campaigns to influence the behaviors driving the online usage for these mature customers. The managers should also create awareness about the online shopping among female customers enabling them to use the online shopping.

5.2.   Limitations and Future Research

The study has few limitations. The findings of the research are primarily limited to the quantum of data and information found in the literature survey and data collected through survey. Another limitation is the survey sampling used in collection of data as the data collected could not be benchmarked. Another limitation was that the outcomes of the study,

while important, may not be generalized as the data collected from this study was for a statistically designed sample which was representative of selected respondents. In addition, majority of the findings of this research is consistent with findings in the literature, which suggests that results can be generalized to some extent. The use of the Likert is also a limitation as respondents may or may not provide correct response with respect to their perception, beliefs, attitudes, and behaviors. Thus, the information provided by respondents may be accurate only subject to the fact that respondent answers the research question with honesty.

The study was conducted in major cities of India hence scope of generalization of findings are limited. The findings can be validated in other developing economies for mature customers. Finally, due to logistical constraints the, the study examined only the drivers of online shopping by mature customers. Future research may investigate the barriers of online shopping as well and consider a larger sample size. Future studies may also consider the moderating effect of income and gender on online shopping intention of mature customers.

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