

An ICT-based Framework for Monitoring the Customer Shopping Behaviour in Omnichannel Retailing

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Abstract- The retail industry has seen a significant shift due to artificial intelligence (AI) and its emerging technologies in the past years. This dynamic change has transformed the overall shopping experience in addition to influencing customer behaviors. The omnichannel strategy, a retail method that encourages genuine connection and allows consumers to easily access many channels at any time and from any location, is at the vanguard of this shift. The given paper proposes an ICT-based framework that impacts the behavior of omnichannel consumers, with a specific emphasis on their adoption and plan to use latest technologies throughout the whole shopping experience. The framework expands upon the unified theory of acceptance and use of technology (UTAUT2) paradigm by adding perceived security and personal innovativeness as two more elements. A sample of 630 consumers from three districts in Punjab who have utilized channels on their most recent shopping trip was used to evaluate the model. The results highlight the critical factors that influence purchase intention in an omnichannel environment, placing performance expectation, effort expectancy, and personal innovativeness in decreasing order of importance. The examination of theoretical and managerial implications derived from the study's findings finishes the article.

Keywords- Technology acceptance, omnichannel experience, consumer behaviour, and UTAUT2

1. Introduction

Technological developments have brought about a considerable digitalization of the retail scene in recent years, bringing with it both possibilities and difficulties. Consumer behavior has been significantly impacted by the emergence of interactive media, which includes social media integration, tablets, and mobile channels.[1] Omnishoppers—people who shop across channels with ease—are becoming more common as they want for a consistent experience on many platforms. Considering omnichannel commerce to be the third wave after e-commerce and mobile commerce, this article examines how it is developing. While post-adoption attitudes are often the focus of current study, pre-adoption factors for omnishoppers are not as well understood. With an emphasis on the "information prior to purchase" and "purchase" phases, the research seeks to further theoretical knowledge of omnishoppers' acceptance and usage of technology during the early adoption of omnichannel businesses. The study, which was carried out in the fashion sector, suggests a unique model based on UTAUT2 that takes into account perceived security and personal innovativeness in an omnichannel setting.[2]

By shedding light on the factors that influence omnishopper behavior, this study advances both theory and management by empowering businesses to use successful omnichannel consumer management tactics. The literature review, theoretical model construction, description of an empirical investigation, analysis of findings, implications, and conclusions, as well as resolving research constraints with further recommendations, are the next steps in the paper's progression.[3]

2. Related Works

The given section presents a few recent studies conducted in the context of omnichannel retailing and its associated perceptions among customers.

2.1. Context of Omnichannel Retailing

It represents a major advancement over multichannel commerce. Customers may easily switch between online, mobile, and physical store channels within a single transaction process with omnichannel retailing, as opposed to multichannel retailing, which divides channels into separate ones. The word "omni" means "all" or "universal," highlighting how different channels are integrated to provide clients a comprehensive buying experience. Here, the brand itself is prioritized above specific channels, encouraging a customer-centric strategy [4]. Customer-brand interactions are given a lot of weight in this retailing phenomenon, which also integrates customer-brand-retail channel interactions and expands the range of channels. Channel borders are becoming less conventional,[5] enabling consumers to utilize channels interchangeably throughout the whole purchasing

experience. The goal of the omnichannel approach is to improve the shopping experience for customers by providing a unified and integrated service.[6]

2.2. Customer Perceptions

Consumer expectations and purchasing patterns have changed as a result of the retail industry's use of new technology. Research shows that omnichannel customers are becoming more prevalent worldwide. This new breed of consumers is defined by multi-device and multiscreen use, and they seek out omnichannel companies. These customers anticipate a unified and consistent experience from conventional retailers, internet retailers, and mobile app developers. Omnishoppers emphasize the advantages provided by each channel by using technology to easily find information, evaluate items, get advice, and consider alternatives. Their considerable use of technology gives them a feeling of control over the buying experience that often exceeds what salespeople are capable of imparting [7]. There is a need for ongoing study on omnichannel consumer behavior despite the growing emphasis on multichannel studies and information and communication technology (ICT). It is nevertheless vital to investigate how customer attitudes about technology affect the choice to buy in this new environment.[8]

3. Proposed ICT-based Framework in an Omnichannel Environment

In order to discover factors that influence technology acceptance and usage throughout the omnichannel shopping trip, the proposed framework expands upon the Unified Theory of Acceptance and Usage of Technology (UTAUT2) paradigm. UTAUT2 [9] offers insights into ICT acceptability and usage which combines seven constructs from theories in psychology and sociology [10]. A customer's desire to accept and utilize ICT is influenced by seven aspects in the context of omnichannel consumer behavior: price value, habit, hedonic incentives, social influence, performance expectation, effort expectancy, and enabling circumstances [11]. The research adds felt security and personal innovativeness as two more elements to improve the application of UTAUT2. Perceived security examines how secure and dependable consumers believe new technologies to be, whereas personal innovativeness investigates consumers' propensity to embrace new technology. These variables provide insight into how the different components of the model affect customers' intents to buy in an omnichannel setting [12].

Following are the constructs generated from UTAUT2 on omnichannel buying intention.

- Performance Expectancy (PE) - This is the term used to describe the advantages that customers believe they will get from using different platforms and technologies when they shop for clothing. We postulate the existence of a favourable impact on omnichannel buying intention.[13]
- Effort Expectancy (EE): This relates to the degree of perceived ease with which customers utilize various touchpoints over the course of their buying experience. Our theory proposes a favourable impact on the desire to make omnichannel purchases.
- Social Influence (SI): This gauges how much customers trust that important people—friends, family, and role models—suggest utilizing various channels according to their requirements. Positive effect on omnichannel buying intention is our premise [14].
- Habit (H): This measures how much people instinctively carry out activities as a result of learning. A favourable impact on omnichannel buying intention is our hypothesis.
- Hedonic Motivations (HM): These are motivations that center on the enjoyment or pleasure that come from utilizing technology; they are especially pertinent when discussing fashion purchasing. Our theory proposes a favourable impact on the desire to make omnichannel purchases.[15]
- Personal Innovativeness (PI): This describes how much a person likes to experiment with various items or outlets in pursuit of novel experiences that need a thorough search. Our theory proposes a favourable impact on the desire to make omnichannel purchases.
- Perceived Security (PS): This focuses on information security measures and refers to the belief that personal data may be sent securely over the internet. Positive effect on omnichannel buying intention is our premise.

These theories work together to provide the framework for examining why and how customers embrace omnichannel behavior when they shop. The concept emphasizes customers' quest of value by integrating hedonistic and utilitarian incentives [16]. The model gains new dimensions from the external variables of perceived security and personal innovativeness, which provide light on how innovation and security influence omnichannel purchasing intention [17, 18]. Figure 1 depicts the layout of ICT-based omnichannel retail framework.

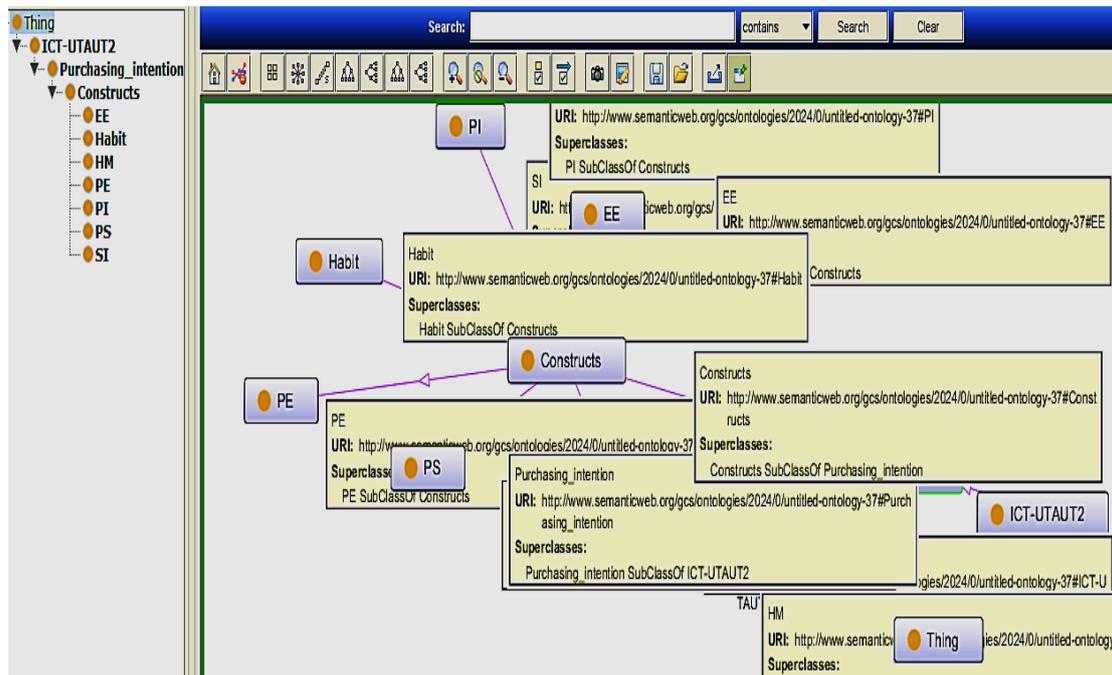


Figure1: Proposed ICT-UTAUT2 framework

3.1. Methodology

We created an online survey that is specifically intended for people living in three districts of Punjab in order to get information about their omnichannel buying habits. We focused on people who interacted with different channels during their most recent shopping trip, taking into account the most recent item they bought in the 12 months preceding the data collection in December 2023. A wide range of respondents from the chosen districts answered the survey.

- Selecting the Organization and Form of the Questionnaire

Respondents who used at least two channels from the same store during their most recent shopping trip were chosen for our research based on their omnichannel purchasing habits. 630 participants shared their behavior about their most recent purchase. There are two main sections to the survey. Statements on the reasons for shopping were included in the first section. Using a seven-point Likert scale, respondents rated how much they agreed with each statement while thinking back on their most recent shopping experience. To ensure a thorough knowledge of the sample, sociodemographic data on gender, age, job status, and education were acquired in the second section.

- Pre-testing and Translation

We painstakingly translated the measuring scales into the local language, using a back-translation technique to assure accuracy and intelligibility, taking into account the particular context of Punjab. A pre-test with twenty-five participants from the target districts confirmed that the questions were understandable in the context of the area.

- Data analysis

An exploratory factor analysis is performed on the gathered data to help identify underlying components. With the partial least squares (PLS) method, a regression analysis of latent variables was then carried out. This method enables us to test the causal model after evaluating the structural model.

- Modelling Structural Equations

We used the PLS approach for theory construction and structural model analysis in an effort to better understand technology adoption and usage in Punjab in an omnichannel scenario. In order to evaluate the validity of the scale and explore its underlying structure, confirmatory factor models were estimated. The research used a causal model and structural equations to assess the efficacy of the scale and investigate how technology adoption affects the purchase intentions of omnichannel consumers.

4. Results and Discussions

- Assessment of the Measurement Model

We carried out a factor analysis confirmatory in our study after making the required modifications. We eliminated the factor "innovativeness" from the model in order to improve convergence because of its low value and t-statistic. Standardized loadings of more than 0.8 are routinely shown for the other indicators, which shows good convergence with their assigned components.

To create the measurement model, various concept reliability metrics such as Cronbach's alpha, composite reliability (CR), convergent validity, and discriminant validity are employed. With composite reliability and Cronbach's alpha values over 0.80, strong internal consistency is guaranteed. The constructs also demonstrated proven convergent validity, as shown by an average variance explained (AVE) greater than 0.60 in every case. By contrasting the square root of AVE with inter-construct correlations, discriminant validity is shown in table 1.

Table 1: Output values of construct validity, discriminant validity, and convergent validity

	CR	α	AVE	EE	H	HM	PI	PE	PS	SI
EE	0.91	0.82	0.85	0.92						
H	0.92	0.84	0.83	0.48	0.91					
HM	0.88	0.80	0.78	0.62	0.57	0.89				
PI	0.89	0.81	0.75	0.47	0.53	0.50	0.87			
PE	0.90	0.82	0.79	0.65	0.54	0.68	0.52	0.90		
PS	0.87	0.79	0.76	0.59	0.55	0.42	0.41	0.44	0.88	
SI	0.94	0.90	0.83	0.49	0.70	0.58	0.51	0.50	0.53	0.91

- Evaluation of Structural Model

PLS-SEM bootstrapping is applied to the path coefficients of the structural model using 3000 resamples. With an R² of 55.3%, the model well describes the intention to buy in the setting of omnichannel interactions. Stone Geisser's cross-validated redundancy Q² exceeded 0 at 0.422, confirming the suggested model's ability to predict outcomes.

Table 2: Structural model's findings

R ²	Q ²	Path coeff.	t	Low CI	High CI	Explained variance%	P-values	Hypotheses
55.3%	0.422							
		PE -> PURCH_IN	0.278	5.124	0.162	0.394	18.62	0.000
		EE -> PURCH_IN	0.302	6.211	0.175	0.429	21.10	0.000
		SI -> PURCH_IN	0.018	0.321	-0.085	0.121	0.57	0.567
		H -> PURCH_IN	-0.036	0.740	-0.139	0.067	-1.45	0.347
		HM -> PURCH_IN	0.026	0.569	-0.076	0.128	1.23	0.498
		PI -> PURCH_IN	0.345	7.184	0.239	0.451	24.14	0.000
		PS -> PURCH_IN	0.015	0.265	-0.092	0.123	0.43	0.674

Table 3 displays the path coefficients' sign, magnitude, and significance. The findings validated our hypothesis by demonstrating how performance expectation, effort expectancy, and personal innovativeness affect purchase intention. The hypotheses pertaining to social influence, habit, hedonic drive, and perceived security are not shown to be relevant in their correlations. This thorough research offers insightful information about the variables impacting customers' omnichannel buying intentions in the examined situation.

5. Conclusions, Novelty and Future Scope

The phenomena of omnichannel commerce have taken center stage in the fiercely competitive retail environment of today. The implementation of this strategy approach entails the skilful management of client connections across a variety of channels, including as physical shops, social media, mobile channels, and internet platforms. Regardless of the channel that consumers choose, the main objective is to smoothly connect all touchpoints and provide them with a cohesive shopping experience. Known as the third wave of e-commerce, omnichannel retailing has drawn attention in recent research, especially when it comes to figuring out what motivates this creative retail tactic. Although omnishopper behavior has been the subject of earlier research, the current study aims to identify the factors that precede omnichannel customers' adoption and use of technology. The study integrates two new elements into its model, which is based on the expanded UTAUT2: perceived security (PS) and personal innovativeness (PI). Customers' acceptance of ICT technologies at the early stages of omnichannel store adoption is greatly influenced by these factors, which have been shown to be crucial in the adoption of new technologies. Well-predictive of omnichannel purchase intention is the model, with an R^2 of 55.3%. Several notable studies show that a consumer's willingness to make purchases from an omnichannel store is highly impacted by their level of innovation, effort expectations, and performance expectations. Larger literature disproves the common misconception that omnichannel purchase intention is highly influenced by habit, hedonic reward, social influence, and perceived security.

The strongest predictor is personal innovativeness, which suggests that people who are more likely to innovate in information and communication technology (ICT) would use a variety of channels and devices in an omnichannel setting. According to the report, omnishoppers actively search for new technologies because they want to try them out and spread the word about these advancements within their social networks. It has been shown that two important aspects influencing attitude and buying intention are effort expectation and performance expectancy. However, in contrast to the conclusions of a greater body of research, social influence, habit, hedonic reward, and perceived security had little impact on the desire to make omnichannel purchases. The research emphasizes how crucial technology innovation is to attracting and engaging omnishoppers. It also provides useful advice for managers of omnichannel retailers, highlighting the need to specify technological expenditures and promote acceptability for a whole shopping experience.

5.1. Novelty and Future scope

This study is new because it modifies the UTAUT2 model by incorporating the use of ICT to investigate technological adoption in the context of omnichannel shopping, including important variables like perceived security and individual inventiveness. In order to provide insights for ongoing innovation in the omnichannel retail environment, future research might explore individualized omnichannel customer profiles, the dynamic interaction of sociodemographic characteristics, and the growing role of technology in physical shops.

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Conflict of Interests

This study is not related with any conflicts of interest

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