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Article

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International journal of e-business research

Reference: Chadha, Priyanka/Gera, Rajat et. al. (2024). Mobile shopping apps adoption : a systematic review of theories and future research directions. In: International journal of e-business research 20 (1), S. 1 - 26.
https://www.igi-global.com/viewtitle.aspx?TitleId=349930.
doi:10.4018/IJEBR.349930.

International Journal of E-Business Research
Volume 20 • Issue 1 • January-December 2024

Mobile Shopping Apps Adoption:
A Systematic Review of Theories and Future Research Directions

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ABSTRACT

In this study, 22 research papers published on consumer behavior and electronic commerce journals were selected and reviewed based on inclusion criteria of high-quality journals; the aim of this exercise was to conduct an analysis of the state-of the-art research in theories used for studies of MSA. Through this exercise, 22 consumer-level theories were grouped into seven categories. For each theory, its definition, current application in m-shopping apps (MSA) adoption research and suggestions for future research are presented. The review indicates the lack of a universal model of consumer and the predominant effect of cognitive factors i.e., perceived ease of use and utilitarian benefits in explaining usage and adoption intentions. The effects of hedonic benefits, experiential constructs and social influence are contextual and not homogenous. Most of the studies have adopted the behavioral theories of technology adoption by extending or modifying them or as components of multi theoretic approach. A relative lack of theories from socio-psychological, relationship marketing, experiential and emotion dominant disciplines is noted. There is an over-reliance on theories related to information systems, consumer behavior, and predominance of quantitative research-based techniques. Most of the studies focus on consumers pre-adoption intentions compared to usage behavior and consumer loyalty and fail to address the challenges of consumer retention, in-app purchase and consumer loyalty. A relative lack of cross-cultural and cross-country comparative studies is noted. A summary of theories applied and proposed for this study are presented along with proposed research questions. This review provides practitioners and policy makers with a framework of antecedent factors which can be applied for effective marketing strategies according to the stage of consumer adoption of MSA. While keeping in mind specific findings related to this literature review as well as the necessity to guide research in the future that deals with mobile and technology utilization in MSA, a research agenda is introduced.

KEYWORDS

Mobile Shopping Apps, Adoption Behavior, Consumer Behavior and Continuous Usage

DOI: 10.4018/IJEBR.349930

1. INTRODUCTION

Mobile apps are being used in several domains, for instance, commerce, education, business, communication (e.g., texts), health, information (e.g., databases), social networking (e.g., Facebook), shopping, entertainment (e.g., gaming), etc. as well as on various mobile platforms, including laptops on either Android or Apple platforms, tablets, smart phones (the fastest growing), and e-readers. According to Statistic, the number of smartphone users worldwide is expected to reach up to 2.87 billion by 2020 with over 2 billion people indulging in some way of m-commerce transaction.

Mobile applications (apps) enable customers to own several aspects related to provider–customer relationships, for instance, price scanning, real purchases, and information seeking. Consumers devoted 25% of their usage time of apps to retailers' apps.

Mobile devices are utilized for making online payments for several goods and services, ordering products, searching, etc. (Hung et al., 2012), especially when moving around. Mobile devices are advantageous because of their ubiquity, mobility, flexibility, personalization, and convenience; they satisfy consumers' unmet shopping needs. *On-the-move*, a unique feature of mobile devices, entails differences regarding interaction, processing, and retail presentation modalities; these are accompanied by new functions, for instance, *context sensing, push delivery,* and *location awareness* as well as by innovative service categories, for instance, context-aware and location-based services. Hence, the expectations, desires, behaviors, and experiences of m-commerce consumers are probably different from traditional retail and e-commerce shopping channels and hence imply a different approach in marketing.

Mobile shopping apps possess the ability to enhance customers' experience of shopping (Shankar et al., 2016); they also supply reviews, product information, and location of store (Danaher et al., 2015). More than half of the visits to stores originate from tablets and smartphones. Mobile shopping is defined as: "any monetary transactions related to purchase of goods or services through internet-enabled mobile phones or over the wireless telecommunication network" (Wong et al., 2012); it is considered an advanced service allowing customers to purchase products as well as services anytime and anywhere through mobile devices (Hung et al., 2012). Mobile shopping is also considered a service that "empowers shoppers with the ability to gather information on the spot from multiple sources, check on product availability, special offers and alter their selection at any point along the path to purchase." According to Yang (2010), m-shopping enables the customers to optimize their experience of shopping in a regular and ordinary environment.

Mobile shopping is distinctive from shopping online because variations in interfaces may impact search costs and, ultimately, purchase behavior (Goh et al., 2015). While considering retail stores' apps as a brand extension of retailers, very little work has focused on apprehending the factors behind customers' satisfaction with retail store apps as well as its spillover effect, which impacts customers' repatronage relationship with retail stores. Apart from this, considering that brand extension literature and multi-channel retailing (Badrinarayanan et al., 2012) emphasized a converging experience spanning across several retail channels, accompanied by significance of this technology, points out to the requirement for in-depth research aimed at understanding customers' utilization of mobile apps.

Mobile shopping is responsible for 72% of e commerce globally in 2020 with sales revenue through cell phones of $488 billion expected by 2024 in USA. Over half of the searches related to websites dealing with shopping are from mobile phones and tablets. M-commerce industry growth rate was 17% and it has been predicted to increase by 30–35% by 2019 (Chou et al., 2016). Shopping nowadays is done with the aid of a mobile device, the aid of a wireless internet service and this is referred to as "mobile shopping" (Ko et al., 2009). At the same time, e commerce and mobile apps platforms face varied marketing challenges emanating from the adoption and usage behavior of MSA. In a study, shoppers were found to have two times more preference for mobile sites as compared to mobile apps with only 11% finding any difference. MSAs are more successful in engaging best customers and loyal customers are twice as likely to install an app. However, they are not as successful

in acquiring new shoppers as only 30% of mobile shoppers have been found to have downloaded more than 2 MSAs and 7% more than 5. Half of the MSA users who have downloaded the app stop using it as they lack the features most valued for mobile shopping such as fast and smooth checkout, ease of site navigation and frictionless adding and dropping items from a basket as mobile shoppers are mostly using the app for in store experience.

Mobile applications are used by marketers to aid in the relationships with their customers, and these include retention, acquisition, targeting, and loyalty (Pentina et al., 2016). Marketers, however, face various challenges of how to manage MSA adoption, usage, continued use (stickiness), customer retention, loyalty, positive word of mouth and value over the customer lifecycle. Some of the factors that impact the adoption, usage, and continued utilization of mobile applications need to be explored in literature related to marketing. For an average or regular mobile app, the user retention drops to 5% within three months of download (Furner et al., 2014); people who utilize m-commerce apps for the first time are wary about fraud regarding their credit card (ASSOCHAM, 2016). MSA users' express security concerns due to sharing of personal and financial information and anxiety due to its uniqueness and newness (Yang & Forney, 2013). One of the challenges is how to continuously enhance user satisfaction and usage levels, and m-commerce apps are, to a very great extent, influenced by these significant determinants (Lu et al., 2017).

The attributes of mobile apps create marketing challenges arising emerging from ubiquity (can be virtually used anytime, anywhere) (Okazaki and Mendez, 2013), always used (continuity) and whenever needed (immediacy). MSA marketers lack knowledge as to for example "whether and how shopping apps drive customer satisfaction with the retailer and its spillover effects on retail store repatronage intentions and behavior" (Narang and Narayan, 2018); "what motivates a user to make in store purchases." Though MSA adoption is deal prone, there is very little information on the role of shopping assisted tools, such as promocode. The barriers to adoption of mobile shopping and MSA are unknown while mobile commerce and MSA have emerged as a new channel to acquire and retain customers. MSA sellers face huge challenges of user stickiness and in-app purchase behavior, as almost 80% of app users stop using a new mobile application around 90 days after they have started utilizing it (Perro, 2018). Marketers are grappling with how to maintain consumer–brand relationships as well as how to enhance the consumer retention of various mobile apps. Consumer engagement is positively impacted by the perceived significance related to mobile social networks (Wu, 2016), consumers' experiences online (Mollen & Wilson, 2010), as well as the receptivity related to advertising (Kilger & Romer, 2007); however, which features of the apps inspire and encourage consumer–brand relationships as well as consumer involvement in digital environments seems to be unresolved. The user interface of apps is different from mobile web sites and computer websites. Aesthetics that has a visual appeal can impact users' experiences (Hou and Ho, 2013), enhance customer involvement (Kim et al., 2013), and influence the loyalty intentions as well as revisit rates of the users of certain apps (Cyr et al., 2006). Marketers still don't know "How user interface properties of for exp. device screen, and app visual design affect adoption and usage behavior "?

A review of MSA adoption research literature finds that the studies seem to be considerably fragmented and exhibit contradictory results; apart from this, little effort has been made to systematically review this research stream. The primary goals of this study are: (1) to recognize significant constructs and theories that play a vital role in MSA adoption, usage, and continued intentions; (2) to introduce a well-ordered narrative review related to the research of MSA consumer adoption; and (3) to propose future research directions based on existing and proposed theories to understand determinants and dynamics of MSA adoption.

Only retailer mobile shopping apps have been reviewed in this study while other types of MSA i.e., wallets and m-payment apps like Paytm, discount/deal giver apps like Groupon, price comparison apps like Junglee, have not been considered. Existing studies on the theories of MSA adoption can be categorized into the values-beliefs-Attitude-Intentions-Behavior-Loyalty chain. The proposed new theories from relationship marketing, psychology, mass communication, and branding and

organization behavior suggest future research directions. Research questions have been framed to address the research objectives of this study as follows:

1. What are the predominant theoretical frameworks and models that have been utilized in the existing literature on MSA adoption, and what are the key findings associated with each of these theories?
2. How can the various theories within the MSA adoption domain be integrated to provide a more comprehensive understanding of the factors influencing adoption, usage, and continued intentions?
3. What are the key factors affecting stages of MSA adoption?
4. What are the emerging theoretical perspectives and future research directions?

2. SCOPE OF LITERATURE REVIEW

This review specifically focuses on the use of mobile apps for shopping only; it only considers articles that are retail oriented and that either view m-shopping as a distribution channel that is used online for purchasing products (Hung et al., 2012) or deal with several features related to advanced technology that encourage something called "in-store product purchase behavior" (Yang, 2010). Within this context, the well-organized literature model of qualitative systematic review Palmatier et al. (2018) has been adopted for synthesis of theories. While formulating and introducing the topic, both the goals and the research questions pertaining to the review were finalized. Afterward, the techniques utilized for the assessment of published works as well as the procedures involved were developed. Significant keywords for creating search strings were recognized. The primary goal was to provide a definition of several obvious criteria that may be utilized in the review. The primary studies related to the given topic were studied and analyzed.

2.1 Contribution to Literature

This study makes a significant contribution to the literature on Mobile Sports App (MSA) adoption by addressing several critical gaps in existing research. Firstly, it systematically reviews and synthesizes the fragmented and contradictory findings within the MSA adoption literature, providing a comprehensive overview of the field. By identifying significant constructs and theories, it helps consolidate existing knowledge and lay the groundwork for a well-organized narrative review. This study not only highlights the theories and models that have been commonly used but also proposes the integration of various theories to offer a more holistic understanding of MSA adoption. This integrative approach can lead to a more comprehensive framework for examining the factors influencing different stages of adoption, usage, and continued intentions. The study acknowledges the limitation of focusing solely on retailer mobile shopping apps and suggests future research directions, including theories from relationship marketing, psychology, mass communication, and branding. It also frames research questions that guide future investigations, enriching the understanding of MSA adoption and contributing to the advancement of this field.

3. METHODOLOGY

The purpose of this paper was to categorize distinct theories at the consumer level that are adopted within the literature related to shopping apps for the application of researchers as well as practitioners. The study was based on a comprehensive review of empirical papers published in high-quality indexed journals. There are six essential steps elucidated on which rigorous and comprehensive review articles are constructed, are followed.

3.1 Formulating Research Questions and Objectives (Petticrew & Roberts, 2006; Okoli & Schabram, 2010; Jesson, Matheson, & Lacey, 2011)

The inaugural phase of research methodology finds resonance in the works of Petticrew and Roberts (2006), emphasizing the imperative nature of articulating research questions and objectives. Okoli and Schabram (2010) contribute by highlighting the necessity of defining core concepts and variables. Jesson, Matheson, and Lacey (2011) advocate for the pivotal role of well-crafted research questions, which act as guiding beacons, directing the entire research process, encompassing literature exploration, selection, and the overarching analytical framework.

1. What are the predominant theoretical frameworks and models that have been utilized in the existing literature on MSA adoption, and what are the key findings associated with each of these theories?
2. How can the various theories within the MSA adoption domain be integrated to provide a more comprehensive understanding of the factors influencing adoption, usage, and continued intentions?
3. What are the strengths and weaknesses of the different theories and models in explaining MSA adoption? Are there specific conditions or contexts where one theory is more applicable than others?
4. What are the emerging theoretical perspectives, drawn from disciplines such as relationship marketing, psychology, mass communication, branding, and organizational behavior, that have the potential to enrich our understanding of MSA adoption?

3.2 Embarking on a Quest Through the Extant Literature (Cooper, 1988):

The second phase of research methodology mirrors a scholarly expedition through the expansive terrain of existing knowledge. Cooper's seminal work in 1988 elucidates three distinct coverage strategies. The first, exhaustive coverage, demands researchers to cast a wide net, encompassing both published and unpublished materials, thus ensuring a comprehensive knowledge foundation for drawing substantive conclusions. The second, representative coverage, focuses on the curation of materials from eminent journals, reflective of the broader academic landscape. The third, pivotal coverage, narrows the focus to seminal empirical studies and influential conceptual papers that have left an indelible mark on the subject matter. The search regarding literature spanned across a great variety in terms of peer-reviewed journal articles by using the database of SCOPUS. Scopus database stands out as the preeminent choice among multidisciplinary databases due to its remarkable breadth. With more than double the number of titles and over 50% more publishers compared to any other database in its category, Scopus offers access to a staggering array of over 21,500 peer-reviewed journals. As a result, Scopus has earned its distinction as the most extensive repository of specialized scientific literature in the academic community (Elsevier. Scopus: Content.)

Initial search using the terms “Mobile Shopping applications adoption”, Mobile Shopping applications behavior”, “M-shopping apps usage,” “M-shopping apps loyalty,” “M-shopping apps continued intentions” and similar phrases resulted in over 956 published papers with over 20 theories. Snowball sampling method was adopted to enhance the coverage of research articles related to the purpose of study. . New literature search was stopped based on the law of diminishing returns: when new literature would not add to current understanding (Pawson et al., 2005). Thus, if the Innovation Diffusion Theory was applied in multiple theories, it was judged as redundant as per three independent reviewers; however, it was included if it were applied in a form that had been transformed or modified or with different outcomes. The “data” pertaining to the review of the constructs in the theories was hypothesized as being related to MSA adoption.

Articles published before 2013 were excluded from further analysis as per the research objectives of the study which resulted in 106 articles. Given the dynamic and evolving nature of MSA adoption

research, only recently published journal articles were considered. The aim of the study was to provide insights into the current state of MSA adoption and its associated theories. Including older articles might have introduced theories and practices that are no longer reflective of the present landscape of mobile shopping. Conference papers, conceptual papers, opinion-based articles, papers published in non-indexed journals were excluded which resulted in 54 articles for further scrutiny.

3.3 Sieving for Relevance (Levy & Ellis, 2006; vom Brocke et al., 2009; Liberati et al., 2009; Shea et al., 2009)

The third phase entails a rigorous sieving process wherein the applicability of identified materials undergoes meticulous scrutiny. This step aligns with the insights of Levy and Ellis (2006) and Vom Brocke et al. (2009), who emphasize its significance. Predetermined criteria serve as the crucible, demanding researchers' diligent efforts to ensure objectivity and the mitigation of biases. In certain research paradigms, as articulated by Liberati et al. (2009), the involvement of at least two independent reviewers in the screening process is imperative, with built-in mechanisms to address disputes. The screening process by two academic experts resulted in elimination of duplicates and articles not considered directly relevant to the study resulting in 26 articles selected for further evaluation. Papers which did not address the antecedents of mobile shopping apps adoption intentions, behavior or purchase intentions and behavior were excluded from the review. The papers included for analysis had adopted empirical, quantitative, qualitative or mixed methods-based methodologies. Studies which adopted multi –theoretic frameworks in their study were also included. The purpose of the comprehensive literature search was to supply published studies that could serve as exemplars and to integrate these theories related to individual consumers into a framework of mobile shopping apps adoption.

3.4 Appraising the Scientific Quality (Petticrew & Roberts, 2006)

In parallel with the inclusion screening, researchers may deem it necessary to assess the scientific quality of selected studies. Petticrew and Roberts (2006) underscore the relevance of this formal assessment, typically conducted by at least two independent coders. Such assessment aids the research team in refining their study selection, considering the potential ramifications of varying study quality on their ultimate conclusions, and providing critical guidance for subsequent data analysis. This assessment may manifest in the form of quality scores assigned to individual studies or domain-based evaluations appraising the adequacy of specific study components. We read and reviewed these articles in terms of quality and relevance, which were determined through consensus among the authors before inclusion in our analysis which led to exclusion of 4 articles and resulting in 22 articles to be considered for further analysis.

3.5 Extracting the Insights from Data (Cooper & Hedges, 2009; Okoli & Schabram, 2010)

The fifth phase of research methodology entails the meticulous extraction of pertinent data from each primary study included in the sample. The nature of data extraction is contingent upon the initial research questions, encompassing the encapsulation of essential details about the study, its methodologies, and the qualitative or quantitative results it has yielded (Cooper & Hedges, 2009). Okoli and Schabram (2010) accentuate the significance of this step in the research process. Content analysis represents a versatile, unobtrusive, and context-sensitive research method. It employs a set of procedures for the subjective analysis of data while adhering to the principles of objectivity, systematicity, and quantification. This method primarily involves the examination of manifest content in communication or specific message characteristics (Cavanagh, S., 1997, Elo, S.; Kyngäs, H., 2007, Hsieh et al., 2005, Weber, R.P., 1985)

When employing a deductive approach in content analysis, the process commences with the utilization of an existing theory or relevant findings as a guiding framework for initial codes (Hsieh,

H.; Shannon, S.E., 2005). Categories are pre-established before the analysis, and once consensus is reached on these categories, a categorization matrix is devised to formulate the initial coding scheme (Elo, S.; Kyngäs, H., 2007; Hsieh, H.; Shannon, S.E., 2005; Stemler, S. *l.* 2001; Weber, R.P., 1985). This coding scheme serves as a translation instrument, systematically organizing the data into distinct categories that assist coders in making informed decisions during the content analysis process (Elo, S.; Kyngäs, H., 2007; Hsieh, H.; Shannon, S.E., 2005; Stemler, S. *l.* 2001; Weber, R.P., 1985). The primary objective behind creating categories is to facilitate a method of describing the phenomenon under investigation, ultimately enhancing comprehension and knowledge generation (Cavanagh, S.1997).

The grouping of theories is descriptive and not predictive. Frameworks related to decision making deal with consumers arriving at purchase decisions via pre-purchase information search, a process called "multiple steps–problem recognition" (i.e., awareness of need), purchase decision, assessment of alternatives, post-purchase evaluations, and purchase; consumers indulge in all these steps when involved in activities related to MSA. A coding scheme was devised that outlines how we will categorize and analyze the data. This scheme provided clear guidelines for classifying information based on the identified categories and themes. The theories of consumer adoption in this study were then categorized by two academic experts into the stages of consumer behavior before, during, and after adopting a new product or innovation and is known as the "Diffusion of Innovations" theory. This model was developed by Everett Rogers in 1962 and identifies five primary groups of consumers based on their readiness to embrace new ideas or products: Innovators, Early Adopters, Early Majority, Late Majority, and Laggards. These groups transition through the stages of pre-adoption, adoption, and post-adoption, with each stage characterized by distinct behaviors and attitudes. The preadoption stage is further composed of subcategories of MSA Purchase and use Intentions and MSA adoption. The post adoption stage comprises of consumer re-patronage and re-use intentions, consumer Stickiness, customer engagement and customer loyalty subcategories. (Table 3.0)

3.6. Synthesizing the Tapestry of Data (Jesson et al., 2011; Dixon-Woods et al., 2005; Thomas & Harden, 2008; Webster & Watson, 2002)

As the culminating phase, researchers are tasked with weaving together, summarizing, and meticulously organizing the trove of evidence extracted from the selected studies. The art of synthesis, as extolled by Jesson et al. (2011), Dixon-Woods et al. (2005), Thomas and Harden (2008), and Webster and Watson (2002), is not merely a cataloging exercise but a scholarly endeavor to offer a coherent perspective for the interpretation and comprehension of extant knowledge. Diverse methodologies, encompassing frequency analysis, meta-analysis, grounded theory, narrative analysis, and meta-ethnography, may be harnessed to synthesize both quantitative and qualitative evidence (Dixon-Woods et al., 2005; Thomas & Harden, 2008). A narrative synthesis approach is adopted (Popay et al. 2006) based on realist review methods (Pawson et al. 2005) to synthesize theories associated with MSA adoption. Narrative synthesis is systematic review and synthesis of findings from multiple studies by analysis of words and text to summarize and interpret findings (Popay et al. 2006). The outcome is a synthesis of current knowledge related to research questions. The categorized data was systematically read and reviewed to identify key concepts and theories related to pre-adoption, adoption, and post-adoption stages of consumer behavior and to highlight the most salient points, connections, and gaps in the existing literature.

4. DISCUSSION

The process of selection resulted in 22 papers. Most of the studies (18) are based on the empirical quantitative method of data analysis except for only three studies which have adopted the qualitative approach (e.g., by Carter et al, 2016, Cheong et al., 2019 and Parker et al., 2016). One study was a mixed methods approach (Chadha et al, 2017). Thus, inductive methods of exploring the adoption and continued usage behavior of MSA are few since the phenomenon has mostly been studied

Table 1. Summary of the articles selected for review

Author and Year	Method/ Test Used	Theory/ Model Used
Stephen Carter Amy Chu-May Yeo, 2016	Qualitative Approach/Malaysia/Business students/ Phenomenological approach	Theory Of Planned Behavior
Priyanka Chadha, Shirin Alavi and Vandana Ahuja, 2017	Mixed Method/India/ Focus Group/Factor Analysis	Ahuja Model 2016
Hyuk Jun Cheong and Sufyan Mohammed-Baksh, 2019	Open-ended in-depth interviews/USA/ purposive sampling and snowball sampling	Technology Acceptance Model (TAM) and Consumer Acceptance of Technology (CAT) and Theory of PAD (Pleasure, arousal, and dominance)
Prasanta Kr. Chopdar and V.J. Sivakumar, 2019	Partial Least Square Structural Equation Modeling/India/Online Shoppers	Modified UTAUT 2
Kiseol Yang and Judith C. Forney	Structural Equation Modeling/USA/Online Shoppers/Panel (Research Now)	Modified UTAUT
Lawrence Hoc Nang Fong, Long Wai. Lam and Rob Law, 2017	Partial Least Square- Structural Equation Modeling/China/Online survey service provider Sojump.com	Extended UTAUT Model
Alnawas and FaisalAburub, 2016	Quantitative/SEM/Purposive Sampling / Jordan	Uses and Gratification Theory
Chin-Lung Hsu and Judy Chuan-Chuan Lin, 2016	Structural Equation Modeling/Taiwan/ online survey of app Users Sogi.com.	Theory of Planned Behaviour and Affect–Behaviour–Cognition model
Preeti Tak, Savita & Panwar, 2017	Structural Equation Modeling/India/ Students of Management College	UTAUT 2
Jiaying Lu, Zhenxing Mao, Mengbin Wang & Liang Hu, 2015	Structural Equation Modeling/China/ field intercept survey	TAM, IDT, and SCT
Sang Chon Kim, Doyle Yoon & Eun Kyoung Han, 2014	Structural Equation Modeling/USA/ College student's smartphone users / Surveymonkey.com	Extended Technology Acceptance Model
Christopher L. Newman, Kathleen Wachter and Allyn White, 2017	Regression Analyses/ Online Survey/ retailer app users//Amazon's Mechanical Turk (mTurk).	Technology Acceptance Model
Thamaraiselvan Natarajan*, Senthil Arasu Balasubramanian, Dharun Lingam Kasilingam, 2017	Structural Equation Modeling/Indi/Digital users/e mail survey	Technology Acceptance Model and Theory of Diffusion Innovation
Christopher J. Parker Huchen Wang, 2016	Thematic Analysis/UK/University campus /	Inductive /Exploratory/ Phenomenological study
Graeme McLean, 2018	Structural Equation Modeling/apparel m-commerce applications, users for one month/Longitudinal	Technology Acceptance Model, Self Determination Theory and Task-Technology Fit Theory
Prasanta Kr. Chopdar, Nikolaos Korfiatis, V.J. Sivakumar & Miltiades D. Lytras, 2019	Partial Least Square- Structural Equation Modeling/India/MSA users/survey monkey	Extended UTAUT 2
Cristian Morosan Agnes DeFranco, 2016	Structural Equation Modelling/USA/ General Population	Personalization- Privacy Theory
Anuja Shukla and Shiv Kumar Sharma, 2018	Partial Least Square- Structural Equation Modelling/Purposive Sampling/Social Networking sites/Online Questionnaire	Technology Acceptance Model

continued on following page

Table 1. Continued

Author and Year	Method/ Test Used	Theory/ Model Used
Pramod Iyer, Arezoo Davari and Amaradri Mukherjee, 2018	Partial Least Square- Structural Equation Modelling/Millennials/ users of retail apps	Customer Value Framework
Jaehee Cho, Margaret M. Quinlan, Dongjin Park, Ghee-Young Noh, 2014	Structural Equation Modelling Convenience sample/USA/College students/users of smart health apps/Survey monkey	Technology Acceptance Model
Rakhi Thakur, 2018	Partial Least Square structural equation modelling. /India/Fashion and Lifestyle/	TAM and SCT

Table 2. Year wise publication

Year	No. Of Paper Published
2013	1 Paper
2014	2 Papers
2015	1 Paper
2016	5 Papers
2017	5 Papers
2018	6 Papers
2019	2 Papers

from theoretical background of innovation and technology adoption, consumer purchase behavior, Information technology and systems, and e-commerce and m-commerce buying behavior.

The studies are mostly concentrated in 2016, 2017 and 2018 (Table 2.0) and USA, India, China, Malaysia and Jordan, and UK. Only one study was longitudinal in design with all other studies adopting cross sectional research approach. Data in five of the qualitative studies was collected from college/University campus/ students and online survey method of data collection was used by 18 of the 19 studies using quantitative/mixed method approach. Only one study by Lu et al, (2019) used a field survey method of data collection with rural consumers in China. Most of the studies are sector specific with a focus on fashion and lifestyle. Health, apparel, Tourism, Hospitality, and users of smartphones. No study could be found on users of MSA in Tablets. The younger age group has been predominantly surveyed intentionally or due to their higher level of response or presence in the sampling frame i.e., digital users/online users/existing app users.

5. PREDOMINANT THEORETICAL FRAMEWORKS AND MODELS

Theories that impact the link between behavior and attitudes (sociological, situational, and psychological) and environmental barriers (Hines et al., 1987) were incorporated in the framework. Many of the theories were drawn from Consumer behavior, Information systems and innovation adoption literature and combined beliefs and attitudes by following the predication chain of beliefs-> attitudes- > behavior/action (e.g., Kim et al, 2016). Motivational theories, Social confirmation and Situational/Facilitator did not fit into the beliefs-attitude-intentions-behavior framework. Motivation mediates the effects of intentions on various forms of behavior. Motivational theories comprise intra- as well as inter-individual attributes and features that impact the direction and strength pertaining to intentions (Coad et al., 2009). But the impact that intentions have on motivations is probably moderated by several social characteristics, for instance, consumer culture (Strizhakova and Coulter, 2013) and assumption of roles (Han et al., 2009). Facilitators aid in ascertaining at what point motivation results

Table 3. Categorization of theories of MSA adoption as per stages of pre- adoption, adoption, and post adoption

Pre-Adoption		Adoption	Post Adoption			
MSA Purchase and use Intentions	**MSA Adoption intentions**	**MSA usage Behavior**	**MSA repatronage and reuse intentions**	**Consumer stickiness (Continued use)**	**Customer engagement**	**Customer loyalty**
Alnawas, (2016), U &G Theory	Kumar (2018) SOR Model, TAM and IS Theory, Kaplan	Chopdar and Sivakumar, (2018), UTAUT 2	Iyer, (2018), Customer Value Framework	Hsu (2016) ABC theory of adoption	McLean (2018), TAM, TFF and SDT	Kumar (2018), SOR Model, TAM and IS Theory, Kaplan
Morosan, (2016) Personalization-Privacy theory	Chopdar and Sivakumar, (2018), UTAUT 2	Tak, 2017(UTAUT2)	Fong, (2017), UTAUT modified			Sarkar, (2019), ECM, Flow, network externality
Carter (2016), TPB/Inductive	Parker (2016)-Inductive	Chopdar et al., (2019), UTAUT 2 mod	Sarkar, (2019), ECM, Flow, network externality			Thakur, (2018)-TAM and SCT
Tak, 2017 (UTAUT2)	Cheong, (2019), TAM and CAT, Qualitative	Chadha (2017) Ahuja Model				
Lu et al (2015) TAM, IDT, and SCT	Yang (2013), UTAUT					
Chopdar et al, (2019), UTAUT 2 mod						
Cho et al., 2014 (TAM)						
Kim (2014) (TAM+U&G)						
Newman, (2017)- (TAM)						
Natarajan (2017) TAM & DOI Model						

in adoption behavior. Social confirmation emphasizes a particular person's individual as well as collective identity, social behavior, and societal forces that are related to adoption behavior (Sih et al., 2009) while behavioral theories provide explanation for adoption behavior through alternative paths.

Consumer adoption and usage behavior theories in the context MSA adoption have been dominated by traditional consumer decision making frameworks and motivation theories. Consumers go through the process of multiple steps of problem recognition (need awareness), information search, evaluation of alternatives, purchase decision and post-purchase evaluation (Hinarejos et al., 2019). 15 of the 22 selected studies were on pre- adoption, four on adoption and six were on Post adoption stage with three of the studies on multiple stages i.e., by Sarkar (2018) on adoption and post adoption, Kumar (pre- adoption and post adoption) and Chopdar and Sivakumar (2018) on pre- adoption and adoption stages of consumer behavior as follows:

5.1 Pre- Adoption

Empirical research on the pre-adoption stage is abundant and focuses on two aspects that initiate the consumer decision-making process shaping consumer predispositions toward the app, driving the intention to download and/or adopt an app over other alternatives The review study shows the

predominance of technology adoption models in studies of MSA adoption, intentions, and behavior. TAM, and UTAUT2, were the most frequently employed theoretical models used by researchers along with their modifications/extensions or as components of multi theoretic approach. TAM has been mostly used as part of a multi-theoretic framework for exp., along with Consumer acceptance of Technology (CAT) (Cheong, 2019) or Social Cognitive Theory (SCT) and Innovation Diffusion Theory (IDT) (Lu et al., 2015) by researchers to incorporate emotional, social influence and product innovation concepts. UTAUT 2 theoretical model used by Tak (2017) emphasized the importance of hedonic benefits and Facilitating conditions in adoption and usage of MSA by Indian shoppers.

The theories from other disciplines used are Users and gratification theory (U&G Theory) (Alnawas, 2016) from mass communication which is based on the interaction between consumer and the media (MSA) found that utilitarian and hedonic benefits to be important predictors of MSA intentions while the personalization-privacy theory (Morosan, 2016) informational theory which explored the simultaneous and paradoxical effects of service personalization and privacy on consumer adoption intentions in hotel booking found the significant impact of personalization and privacy concerns on involvement and intentions to use apps for hotel services.

A qualitative approach by (Carter, 2016) used the consumer attitude "Theory of planned behavior (TPB)" as the framework to qualitatively explore how student's attitudes, subjective norms and perceived behavioral control influence their behavioral intentions to use MSA. They found variations in subjective norms and perceived behavioral control between undergraduate and post graduate students. Hence consumers, i.e. college students were found to be heterogeneous in the factors driving their MSA adoption intentions which may further vary across different cultures and countries, i.e. "one size does not fit all' globally.

A generalized model of adoption or behavioral intentions to use has not been developed yet by researchers. Sector specific conceptual models have been the norm as illustrated by (Morosan,2016) with hotel services by U.S. consumers and by (Lu et al., 2015) with rural tourists in China. The modified behavioral motivation theoretical models (TAM. TPB, UTAUT, UTAUT2) have been mostly used to predict behavioral intentions (BI) except for study by Chopdar and Sivakumar (2019), wherein UTAUT2 was used without modification to predict BI and usage behavior with general mobile app shoppers. The review shows the need for adoption of theories from other disciplines to develop a deeper understanding of the adoption process of MSA. Further studies on different sectors, for example in-store behavior other than e-commerce and m-commerce could contribute to the development of a universal theoretic model of adoption. Usage behavior has not been studied as extensively as intentions to use which is required as usage behavior may not necessary be related to user intentions.

5.2 Adoption

The adoption stage of the customer journey for apps and via apps covers the *continuation of the consumer decision-making process* until app adoption, including any activities that signify adoption—e.g., *behaviors resulting from using the app* such as *mobile shopping* and *in-app purchases*. The technology adoption model of UTAUT2 has been used in almost all studies barring one by (Kim, 2014) wherein TAM is the theoretic model. Habit, Impulsiveness, facilitating conditions and BI have been found to be significant predictors of MSA usage behavior in India (Chopdar and Sivakumar, 2019) while Tak (2017) in her study found deal proneness, habit, BI and facilitating conditions as major predictors of MSA in India by using UTAUT2 modified. The review shows that the factors predicting adoption are likely to be different from pre- adoption intentions with marketing, contextual and consumer behavioral factors assuming significance. Hence, behavioral theories only may not be adequate in explaining the dynamics of adoption behavior and may need to be modified or combined in a multi-theoretic approach. Adoption studies are predominantly in Indian context which could be culturally and socially biased with limited generalizability. Socio-Psychological theories of consumer choice (Veblen theory, Marshaling theory) and Institutional logic wherein institutions and consumers

play an active role in adoption and diffusion processes could provide actionable insight for practitioners, app developers, retailers, and policy makers (Branstaad, 2020)

5.3 Post Adoption

Research on continuance usage behavior and reuse intentions is still in preliminary stage. Of the five studies identified in literature, post adoption behavior has been categorized into repatronage and reuse intentions, consumer stickiness, MSA engagement and MSA loyalty (Continuance and WOM intentions). Two studies on intentions to reuse or repatronage MSA have been studied under UTAUT modified model by including perceived risk as additional construct (Fong, 2017) and within Customer value framework (Iyer,2018). Fong's (2017), study in China, found that mediating effect of perceived risk and facilitating conditions was dependent on the cognitive characteristic of "locus of control" of the consumers and effort expectancy was a significant mediator for internally controlled customers while facilitating conditions was a mediator for chance-controlled customers. The UTAUT anchors effects were thus likely to vary with the cognitive characteristics of consumers. Functional, hedonic value and brand-app congruency were found to be significant antecedents of satisfaction with the app and subsequent retailer repatronage intentions (Iyer, 2018). Thus, it's the only study which extends the app reuse intentions to retailer repatronage intentions and incorporates the impact of retailer brand image on user behavior.

Consumer stickiness study is based on the ABC model of attitudes (Hsu, 2016) while the study on customer engagement has adopted a multi-theoretic framework of Technology Acceptance Model (TAM), Self Determination Theory (SDT) and Task-Technology Fit Theory (TTFT) (Mclean, 2018). (Hsu, 2016) study examined the antecedents and consequences of app stickiness within In –app purchases context and found that for experienced user, stickiness was directly influenced by positive attitude while for potential users, satisfaction directly influences stickiness. In-app purchases are motivated by stickiness and social identification for experienced users while for potential users, only by stickiness Customer engagement is the consumer's cognitive, emotional and behavioral activity related to the brand during specific consumer-brand interactions (Hollebeek et al.,2014) and perceived usefulness, perceived ease of use, perceived behavioral control, enjoyment and convenience were found to influence customer engagement with the branded MSA (Mclean, 2018). The perceived usefulness effect on customer engagement was significant even after 12 months of usage.

Customer loyalty (m-loyalty) has been studied through multi-theoretic integrated framework of Kaplan's information processing model and Technology Acceptance Model (Kumar, 2018) along with SCT and Satisfaction (Thakur, 2018). In study by (Thakur, 2018,) trust was not found to have significant impact on m-loyalty while self-efficacy and satisfaction were influential in promoting m-loyalty (Thakur, 2018). Service experience and navigability were experiential cues of self-efficacy and satisfaction, post adoption of the MSA. Sarkar et al., (2019) employed the multi-theoretic framework of Network Externalities, Expectation Confirmation, and Flow in their study of antecedents of MSA loyalty and found that the indirect external network effect of perceived complementarity along with utility of the mobile shopping app as perceived by consumers has a strong influence on consumers' satisfaction, their long-term intention to use mobile apps, and the perceived usefulness of the apps. However, perceived usefulness was not found to predict continued intentions. Satisfaction is an important predictor of continued intention as well as intention related to positive word-of-mouth.

Customer Loyalty has been construed as continued intentions by Sarkar (2019), behavioral loyalty by Thakur et al (2018) i.e., continuing usage of services, and promoting usage with other consumers through positive word of mouth, and as usage and recommendation intentions by (Kumar,2018).

The review of studies on Mobile Shopping App (MSA) adoption, intentions, and post-adoption behavior reveals several key findings and insights. First, it is evident that technology adoption models, such as TAM and UTAUT2, are widely favored by researchers in the field. These models are often utilized with modifications or integrated into multi-theoretic frameworks, allowing for a more comprehensive understanding of the factors influencing MSA adoption. This approach has

enabled researchers to incorporate emotional, social, and innovation-related elements into their analyses. Secondly, the review highlights the heterogeneity of consumer behavior in the context of MSA adoption. The factors influencing adoption intentions can vary significantly among different consumer groups and across cultures and most studies have focused on specific sectors, such as hotel services or rural tourism, resulting in sector-specific models rather than a universal framework for MSA adoption. Thirdly, the post-adoption phase, particularly continuance behavior and loyalty (M-Loyalty), is an emerging area of study. While some research has explored factors affecting reuse intentions and repatronage, there is a notable gap in understanding actual usage behavior and its alignment with initial intentions. Additionally, the impact of trust on M-Loyalty has shown varying results, highlighting the need for further investigation into this aspect of post-adoption behavior. Hence, the review underscores the complexity of MSA adoption and post-adoption behavior, suggesting the potential for interdisciplinary theories and the importance of sector-specific models to capture the nuances of consumer behavior in this context.

6. INTEGRATED FRAMEWORK OF MSA ADOPTION

An integrated framework for Mobile Shopping App (MSA) adoption involves combining elements from various theories and constructs to offer a holistic understanding of the factors that influence the adoption process. An integrated framework for MSA adoption is developed from the findings of the study through process of inductive reasoning by the authors as follows:

Technology Acceptance Model (TAM): TAM serves as the foundation of the framework, focusing on perceived usefulness and perceived ease of use as key determinants of MSA adoption. These factors reflect the user's rational evaluation of the app's benefits and usability.

Unified Theory of Acceptance and Use of Technology 2 (UTAUT2): UTAUT2 components are integrated to account for social and motivational aspects of adoption:

Performance Expectancy: reflects the perceived benefits and functionality of the MSA.

Effort Expectancy: Considers the perceived ease of using the MSA.

Social Influence: Incorporates the impact of peer recommendations and social pressure on adoption.

Facilitating Conditions: Accounts for external factors that influence adoption, such as infrastructure and support.

Self-Determination Theory (SDT): SDT is incorporated to address the user's intrinsic motivations for adopting an MSA

Autonomy: Reflects the user's sense of control and choice in using the MSA.

Competence: Considers the user's belief in their ability to effectively use the app.

Relatedness: Reflects the social and emotional aspects of MSA usage, such as a sense of belonging or connection.

Task-Technology Fit Theory (TTFT): TTFT is included to assess the alignment between the MSA's features and the user's shopping tasks and needs. A good fit between the app's capabilities and the user's goals can positively influence adoption.

Perceived Risk: This factor from various models, including UTAUT2 and the Technology Adoption Model, is integrated to account for potential concerns or uncertainties users may have regarding security, privacy, and financial transactions within the MSA.

Personalization-Privacy Trade-off: Incorporates elements from personalization-privacy theory to explore how users balance the benefits of personalized experiences with concerns about privacy.

Cultural and Contextual Variables: Recognizing the influence of culture and context, this dimension considers how cultural factors and environmental contexts affect MSA adoption. It accounts for the potential variability in adoption across different regions and cultures.

Trust: Trust in the MSA, influenced by factors such as reliability, security, and credibility, plays a critical role in adoption and is integrated into the framework.

By combining these elements into an integrated framework, researchers can capture both the rational and emotional aspects of MSA adoption, encompassing individual, social, motivational, and contextual factors.

7. FACTORS AFFECTING STAGES OF MSA ADOPTION

The effects of social norms, hedonic benefits and perceived risk were found to be moderated by the cognitive styles of consumers (LOC). Trust, Social norms, perceived usefulness were not found to be influential factors in post adoption behaviour while effort and performance expectancy or utilitarian benefits were the most significant factors across the pre-adoption, adoption, and post adoption stages.

Demographics and personality characteristics were found to vary with adoption and usage intentions and behavior. Age, gender, income, culture, and personality characteristics such as personal innovativeness and Locus of control were found to influence MSA adoption and usage intentions. Psychological evaluations of Mobile and MSA interface characteristics were found to influence adoption intentions and usage behaviour. Mobile apps usefulness, perceived ease of use, effort expectancy, facilitating conditions, performance expectancy, utilitarian benefits, hedonic benefits, attitude, satisfaction, perceived behavioral control, perceived interactivity, perceived enjoyment, perceived personalization, perceived risk, perceived trust, information on mobile apps, price-value, perceived value are significant antecedents of MSA adoption; user behavioral characteristics of habit, prior experience with the app, frequency of apps buying decision, time since last visit influence post adoption behaviour ; Social influence and norms, i.e. opinions of family and friends, social norms, have an impact on consumer adoption intentions and behavior . However, the impact of constructs like social norms and opinions of others, were not consistent and insignificant in some of the studies. The effects of some of the constructs were variable across cultural contexts (Chopdar and Sivakumar, 2019) and purchase context for example in case of travel, health, sports shopping apps. Trust, social norms, and social influence were not found to be relevant for continued purchase and usage intentions. Visual aesthetics of the MSA (Kumar, 2018), privacy and security risks (Morosan, 2016) and brand app congruency (Iyer, 2016) were also found to have influence on MSA adoption.

8. EMERGING THEORETICAL PERSPECTIVES AND FUTURE RESEARCH DIRECTIONS

Emerging Theoretical perspectives and Future Research Directions are inductively derived from the following:

8.1 Augmented Reality (AR) and Virtual Reality (VR) Adoption Theories

As AR and VR technologies become more integrated into shopping apps, there's a need for theories that focus on the adoption of immersive shopping experiences. Future research can explore how factors like perceived realism, enjoyment, and immersion influence MSA adoption (S Hoffmann, 2022). Extant research contends that technological advancements such as Artificial Intelligence (AI), Augmented Reality (AR) and Virtual Reality (VR) in apps provide highly customized experiences, impacting consumer preferences and behaviors (Huang and Rust 2017; Pantano and Pizzi 2020). For example, AR-enabled apps improve consumer perceptions of utilitarian and hedonic benefits (Nikhashemi et al. 2021), encourage positive attitudes (Yaoyuneyong et al. 2016; Wedel et al. 2020), and boost purchase intentions and WOM (Yaoyuneyong et al. 2016) through enjoyment (Rauschnabel et al. 2019). Similarly, VR apps elicit positive brand affect by provoking strong sensory reactions such as perceptions of tangibility via haptic vibrations (Wedel et al. 2020). Additionally, through the use of anthropomorphic cues (i.e., human traits assigned to computers, see Nass and Moon 2000), apps enhance user interactions (Alnawas and Aburub 2016) thanks to a humanized customer experience, which influences how consumers perceive the brand attached to the app (van Esch et al. 2019; Olson

and Mourey 2019) and increases trust irrespective of privacy concerns (van Esch et al. 2019; Ha et al. 2020). Although on par with current industry trends (the global VR/AR app market is considered one of the most rapidly growing domains of software development see Unity Developed 2021), this stream of research has not exhaustively evaluated the effects of apps' technological advancements on consumer experiences. Arguably, this knowledge void is caused by dated theoretical bases such as the diffusion of innovation (Rogers 1995), the Uses and Gratification (U&G) theory (Mcguire 1974, Eighmey and McCord 1998) and the Technology Continuance Theory (TCT) (Liao, Palvia and Chen 2009). Hence, future research could embrace new theoretical angles like the physical and psychological continuity theory (Lacewing 2010), teletransportation theory (Langford and Ramachandran 2013) and service prototyping theory (Razek et al. 2018).

8.2 Neuroscientific Approaches

Incorporating neuroscientific methods such as neuroimaging and biometric measurements into research on Mobile Shopping App (MSA) adoption can provide a deeper understanding of the neural and physiological aspects of this phenomenon (Harris et al., 2018). Future studies can utilize these methods to investigate the neural correlates of decision-making during MSA adoption and explore the influence of emotional responses on the adoption process. To complement this research, theoretical approaches such as neuroeconomics, emotion regulation theories, psychophysiological arousal theory, and dual-process models can be applied to unravel the intricate interplay between cognitive and emotional processes in MSA adoption, offering valuable insights into user choices and preferences within the context of mobile shopping apps.

8.3 Sustainable and Green Consumption Shopping

To advance theories on green consumption and sustainable shopping via Mobile Shopping Apps (MSAs) among eco-conscious consumers, research can investigate how factors like eco-labels, carbon footprint transparency, and ethical sourcing influence MSA adoption (Wang et al., 2021). Theoretical approaches such as the Theory of Planned Behavior (TPB) can help elucidate how eco-conscious consumers' attitudes, subjective norms, and perceived behavioral control shape their intentions to adopt MSAs for sustainable shopping. Additionally, Norm Activation Theory can explore the influence of moral norms and personal values on MSA adoption, while Technology Acceptance Model (TAM) extensions can assess perceived utility and ease of use of MSAs with sustainability features. Combining these approaches offers a holistic understanding of the cognitive, normative, and ethical factors underpinning green consumption within the context of MSAs, contributing valuable insights for promoting sustainable shopping behaviors among eco-conscious consumers.

8.4 Experience-Based Adoption Models

The experiential dimension of Mobile Shopping Apps (MSAs), encompassing elements like gamification, social shopping, and interactive features, warrants in-depth exploration through experience-based adoption models. Future studies should delve into how user experiences and emotional engagement shape MSA adoption and foster loyalty. Mobile channels have become integral to consumers' daily lives, influencing their overall experience through various tools, shopping apps, location-based services, and mobile wallets (Shukla and Nigam, 2018). Research by Tseng and Lee (2018) emphasizes the enhancement of loyalty towards branded apps, achieved through both affective paths, emphasizing benefits like functionality, experience, symbolism, and monetary gains, and utilitarian paths, focusing on system and information quality. Additionally, Rezaei and Valaei (2017) establish a positive correlation between experiential values, including service excellence, customer return on investment, aesthetics, and playfulness, and user satisfaction. Emotional responses to mobile technologies, as noted by McRae et al. (2013), often lead to impulsive actions. Furthermore, entertaining apps, as demonstrated by van Noort and van Reijmersdal (2019), heighten affective brand responses, potentially transforming consumers into brand advocates (Arya et al., 2019). Apps

can forge emotional connections between consumers and brands based on self-congruence, self-app connection, and personalized consumption experiences, subsequently leading to brand attachment, brand identification, brand affect, brand love, and brand warmth (Iyer et al., 2018; Kim and Baek, 2018; Yang, 2016; Newman et al., 2018; Peng et al., 2014; Sarkar et al., 2018; Baena, 2016; Fang, 2019). This groundwork paves the way for investigations into cognitive and affective brand responses stemming from different app types, offering insights into their impact on app performance. Such studies, instrumental in shaping effective consumer interactions with apps, align with the imperative of devising strategies for market survival and gaining competitive advantages. Emerging areas of research pertaining to brand and partner-owned, consumer-owned, and social "always on" points of interaction hold substantial promise in comprehending how to orchestrate positive and interactive customer journeys via apps, with theoretical frameworks like Innovation Diffusion Theory (Rogers, 1995), personality traits theory (McCrae, Costa, 1987; John and Srivastava, 1999), and value network theory (Peppard and Rylander, 2006) signifying critical avenues for future inquiry.

8.5 Digital Ecosystems and Platforms

In the evolving landscape of digital ecosystems and platforms, theoretical frameworks for understanding Mobile Shopping App (MSA) adoption should encompass the dynamics of integration with other apps and services, considering the persuasive potential of vividness, novelty, and multi-platforming opportunities (Ahmed, Beard, and Yoon, 2016). This entails investigating the impact of peer-to-peer interactions within ecosystems, drawing from social contagion and network effects theories (Iyengar, Van den Bulte, Valente, 2011; Katona, Zubcsek, Sarvary, 2011). Additionally, research can explore MSAs' roles as catalysts of online communities and their synergy with other facets of digital marketing, addressing industry demands for clarity (Grewal, Hulland, Kopalle, Karahanna, 2020). Further studies can scrutinize the interplay of marketing mix elements within MSAs and their contribution to ecosystem dynamics, offering a holistic perspective on MSA adoption within the broader digital landscape.

8.6 Cross-Cultural Adoption Behaviors

As e-commerce and Mobile Shopping Apps (MSAs) continue to globalize, it becomes imperative to consider theories that account for cross-cultural variations in adoption behavior. Previous research has highlighted the influence of national (Taras et al., 2011; Taras et al., 2012) and organizational cultures (Lim et al., 2010; Schiller and Cui, 2010) on the effectiveness and efficiency of information and communication technology (ICT) deployment and use. Moreover, cultural differences have been recognized as significant determinants of technology acceptance in general (Harris et al., 2005). Future studies should delve into how cultural values, norms, and perceptions impact the adoption of MSAs across diverse regions, assessing potential disparities in app uptake and popularity. This research avenue is vital for understanding cultural variations throughout the entire customer journey, including investigating how standard cultural differences tied to fundamental demographic factors such as age and gender (McCrae, 2002) influence each stage of the app customer journey. Additionally, it is essential to explore the impact of country-level cultural orientations, aligning with Hofstede's cultural dimensions throughout the app customer journey, as these cultural traits profoundly influence individual responses and behaviours in various contexts. Future research endeavours can also investigate the implications of individual-level distinctions associated with specific personality traits that characterize cultures across the complete app customer journey, as personality traits have multifaceted psychological implications, encompassing cognitive styles (Oyserman, Coon, and Kemmelmeier, 2002) and cognitive processes (Nisbett, Peng, Choi, and Norenzayan, 2001). Cultural dimensions theories like Hofstede's Cultural Dimensions Theory can provide a framework for understanding how cultural values influence MSA adoption behavior across different regions. Social Identity Theory can help explore how group norms and perceptions affect the acceptance of technology within various cultural contexts. Cross-Cultural

Consumer Behavior models can be applied to examine the impact of culture on consumer behavior and technology adoption within the MSA context.

8.7 Post-Adoption Behavior and Sustainability

Theories can delve into post-adoption behaviors beyond loyalty, such as sustainability practices, recycling, and responsible consumption through MSAs. Research can investigate how MSAs can be leveraged to promote sustainable shopping practices. To comprehensively investigate and promote sustainable post-adoption behaviors such as responsible consumption and recycling through Mobile Shopping Apps (MSAs), researchers can draw upon a range of theoretical approaches. These include the Theory of Planned Behavior and Social Cognitive Theory to understand how users' attitudes, social influences, and perceived control impact eco-conscious practices within MSAs. The Technology Acceptance Model can evaluate the role of perceived utility and ease of use of sustainable shopping features, while Innovation Diffusion Theory can help analyze the spread of sustainable practices within the app community. Self-Determination Theory underscores the importance of intrinsic motivation and autonomy in promoting sustainable behaviors, and behavioral economics principles guide the design of eco-friendly features. Additionally, insights from environmental psychology, privacy calculus theory, and ethical considerations can inform strategies to encourage responsible and sustainable consumption while respecting users' privacy concerns within MSAs.

8.8 Hyper-Contextualized Consumer Insights

The ubiquity of mobile technologies provides a unique opportunity to gain hyper-contextualized consumer insights, encompassing factors like location, timing, search behavior, and social context when using mobile devices (Tong et al., 2020). Apps, due to their inherent features, facilitate the collection and utilization of such insights, as demonstrated in studies showing the synergy between apps and customer relationship management (CRM) (Wang et al., 2016c; Lee, 2018a; Newman et al., 2018). These insights have the potential to enhance digital customer orientation, but future research should investigate their strategic significance compared to other digital sources like web analytics and social media analytics. Additionally, the implications of information sharing and real-time insights for app personalization warrant exploration. While apps can offer tailored content to strengthen consumer relationships and improve experiences (Kang and Namkung, 2019), a critical trade-off between personalization and privacy loss needs further examination, building on existing frameworks (Tan and Chou, 2008; Wang and Li, 2012; Watson et al., 2013; Li, 2018). Theoretical approaches like privacy calculus theory and customer relationship management theory could be valuable in addressing these research directions.

8.9 Segmentation Approaches

Exploring the segmentation of app users represents a valuable research direction. Previous studies have identified distinct segments of app users based on factors like app usage types (Doub et al., 2018; Alavi and Ahuja, 2016) or psychographics (Kim and Lee, 2018). However, further investigations into behavioral segmentation, distinguishing users by usage occasions and frequency, and intent-based segmentation, which categorizes consumers based on their position within the customer journey, hold promise. Integrating theoretical approaches like behavioral segmentation, intent-based segmentation, UX theory, information processing theories, psychological theories, social identity theory, and cognitive load theory into the segmentation of app users in the context of green consumer behavior offers a holistic perspective. This comprehensive understanding allows for the development of tailored app experiences that align with users' behaviors, motivations, preferences, and cognitive capabilities, ultimately fostering more effective and impactful sustainability initiatives within the digital realm.

Note: * Theories which are not from reviewed papers and have been proposed are italicized.

9. CONCLUSIONS

The results thus show a narrow breadth of theories used for study of MSA consumer behavior of adoption, usage, and post adoption with over reliance on technology adoption theories of TAM, UTAUT and UTAUT2 and consumer behavior theories of TPB in pre- adoption and adoption stages. Multi-theoretic approaches have been more common in studies of post adoption consumer outcomes with three of the studies adopting TAM as a base along with other theories of Expectation-Confirmation, Flow theory, Network externality, TFF, SDT, and SCT. The theoretical approach indicate a dominant logic of extending the theoretical approach from e-commerce and m-commerce to MSA adoption behavior by modifying or /extending the model to include hedonic, experiential, social and marketing /contextual concepts to enhance the explanatory power of the model possibly driven by the convenience in selecting the factors and theoretical justification for the study This has narrowed the conceptual understanding of MSA adoption behavior and the exclusion of the relationship paradigm, experiential and emotion dominated approaches and theoretic frameworks of personality, social behavior theories (social loafing, social capital, social identity, social power, and interpersonal attraction) and mass communication (Uses and Gratification theory). The Institutional perspective wherein consumers are co-creators of value and actors other than value chain members influence the consumer adoption of innovations (brand mediation theory, Social legitimization, dramaturgy/ theatrical perspective) may provide further insight into the process of mobile shopping apps adoption.

The methodological approaches adopted for the study are limited by the research design, data collection (online survey) and data analytic (Structural equation modeling), and sampling methods (non-probability methods). The number of studies undertaken are very few and concentrated geographically (India, USA, China, UK, Malaysia, Jordan), by the demographics of consumer groups studied (college students/younger age groups/e commerce or m commerce users) and by the display used (smartphones).

The factors influencing Mobile Sports App (MSA) adoption and usage are multifaceted and context dependent. The cognitive and attitudinal factors are context independent while the experiential, hedonic and social influence factors effects are contextual and vary depending on the socio-cultural context, buying and usage situation and user profile. While some factors like utilitarian benefits, ease of use, and cognitive styles consistently impact adoption across pre-adoption, adoption, and post-adoption stages, other factors such as trust, social norms, and hedonic benefits may vary in their significance. Demographics and personality traits, including age, gender, income, and locus of control, also play a role in adoption intentions. Additionally, interface characteristics, perceived value, and social influence affect adoption decisions. However, the impact of certain factors like social norms can be inconsistent, influenced by cultural and purchase context variations. Visual aesthetics, privacy concerns, and brand congruency also influence MSA adoption.

10. MANAGERIAL IMPLICATIONS

The review of research on Mobile Shopping App (MSA) adoption, intentions, and post-adoption behavior provides several significant managerial implications for businesses and app developers:

- Heterogeneity in Consumer Behavior: Managers should acknowledge the diversity of consumer behavior in the MSA context. Factors influencing adoption and usage intentions can vary significantly among different consumer groups, cultures, and sectors. Therefore, segmentation and targeting strategies should be tailored to specific consumer profiles.
- Leverage Technology Adoption Models: Technology adoption models like TAM and UTAUT2 have proven to be valuable frameworks for understanding MSA adoption. Businesses can leverage these models and their modifications to identify key drivers of adoption intentions and behaviors.

- Consider Multi-Theoretic Approaches: Multi-theoretic approaches, which integrate multiple theories, provide a more comprehensive understanding of MSA adoption. These approaches allow for the incorporation of emotional, social, and innovation-related factors into the analysis. Managers should consider adopting such holistic approaches in their strategic planning.
- Post-Adoption Behavior: While many studies have examined adoption intentions, post-adoption behavior, such as continuance usage and loyalty (M-Loyalty), requires more attention. Managers should prioritize customer satisfaction and engagement strategies to encourage continued app usage.
- Trust and Privacy Concerns: Trust and privacy issues have been identified as influential factors in MSA adoption. App developers and businesses should prioritize building trust with users by implementing robust security measures and transparent data handling practices. Communicating these efforts to users can help alleviate privacy concerns.
- Customize Marketing and User Experience: Recognizing the influence of personalization, perceived value, and interface characteristics on adoption intentions, managers can focus on tailoring marketing messages and user experiences to individual preferences. Providing personalized recommendations, convenience, and enjoyable interfaces can enhance the app's appeal.
- Positive Word-of-Mouth: Satisfied users play a crucial role in promoting app adoption and loyalty through positive word-of-mouth. Encouraging satisfied customers to share their experiences can be a powerful marketing tool. Businesses can also reward loyal users for referrals and engagement.
- Sector-Specific Dynamics: Given the prevalence of sector-specific models in MSA adoption research, businesses operating in different sectors (e.g., retail, travel, health) should stay informed about the dynamics specific to their industry. Understanding the unique factors influencing adoption can help in crafting sector-specific strategies.
- Adapt to Changing Consumer Behavior: Consumer behavior in the mobile app landscape is continually evolving. Businesses should remain flexible and adapt to changing consumer preferences and technological advancements. Staying attuned to emerging trends and consumer needs can provide a competitive edge.

CONFLICTS OF INTEREST

We wish to confirm that there are no known conflicts of interest associated with this publication and there has been no significant financial support for this work that could have influenced its outcome.

GENERIC FUNDING STATEMENT

No funding was received for this work.

PROCESS DATES

Received: February 3, 2020, Revision: March 12, 2024, Accepted: June 16, 2024

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Dr. Priyanka Chadha boasts an illustrious career spanning over four years in academia, marked by remarkable achievements and a diverse skill set. Currently positioned as an esteemed Assistant Professor at Amity Business School, Amity University, Noida, she stands as a beacon of knowledge and expertise in her field. A dedicated researcher and prolific writer, Dr. Chadha has garnered substantial recognition for her contributions to academia. Her impressive portfolio includes numerous publications in esteemed International and National Journals. Notably, her insightful perspectives have earned her a well-deserved place on the Editorial Board of several prestigious International Journals, where she actively shapes the scholarly discourse. Dr. Chadha's expertise encompasses several key areas, including sales, digital marketing, and business analytics. Her mastery in these domains is evident through her extensive track record. She possesses a deep understanding of sales strategies, digital marketing techniques, and the intricate world of business analytics. Her adeptness in devising and executing promotional campaigns, as well as engaging audiences through digital media platforms, underscores her innovative approach to modern marketing challenges. Her journey has been enriched by her tenure at Manav Rachna University, Faridabad, where she honed her skills and left a lasting impact. Notably, her academic prowess has earned her accolades on the global stage. She was honored as the best author at the GLOCER Conference hosted by the University of Florida in 2021, a testament to her exceptional writing and thought leadership. In addition, her remarkable paper presentation and submission at the International Conference on Sustainability & Digitalization (ICSD), organized by Jamia University in 2022, earned her the distinction of the best paper award. Dr. Chadha's strengths extend beyond her academic achievements. She excels in teaching, delivering complex concepts with clarity and enthusiasm. Her prowess in research is complemented by her administrative acumen, making her a well-rounded academic professional.

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Overset: 135 words
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