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Does current pre-experience matter? A study of customer perceived characteristics and MarTech usage behavior of mobile banking application users in Sri Lanka

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#### **ABSTRACT**

**Purpose**: The integration of Marketing Technology (MarTech) in Mobile Banking (MB) apps gains recognition in marketing automation, previous research lacks a comprehensive framework for understanding customer behavior. This study addresses this gap by proposing a new model within Financial Technology (FinTech), incorporating customer characteristics.

**Design/methodology/approach**: The Integrated MarTech Usage Behavior Model (IMTUBM) triangulates three theories to explore the MarTech landscape in a longitudinal survey of 400 MB app users in Sri Lanka, utilizing Partial Least Squares Structural Equation Modeling (PLS-SEM) with Smart-PLS software.

**Findings:** The resultant Integrated MB App Usage Behavior Model (IMBUBM) provides a foundational understanding of customer characteristics in the MarTech domain. Notably, this study conceptualizes awareness, elucidating that experiential aspects are shaped by both previous and pre-experience.

**Originality:** This study introduces the concept of current pre-experience as a moderator in the MarTech landscape within FinTech, arguing for its deeper exploration compared to previous experience.

**Implications**: These findings not only suggest avenues for future research in MarTech but also provide managerial insights, encouraging refinement of strategies based on heightened customer awareness. Additionally, the study emphasizes the importance of current pre-experience in bridging the gap between customer intention and behavior in MarTech usage.

**Keywords:** Awareness, Customer characteristics, FinTech organization, MarTech domain, MB app, Pre-experience, Sri Lanka

#### INTRODUCTION

The pervasive impact of the Covid-19 pandemic has not only reshaped the global landscape but has also significantly influenced customers' behaviors, particularly in the realm of Marketing Technology (MarTech). This shift is akin to the transformation witnessed in the banking sector with the rise of Financial Technology (FinTech), where digital application marketplaces, exemplified by Mobile Banking Applications (MB apps), have become integral to user experiences. There have been theoretical works and various models on understanding the multichannel marketing automation platforms usage behavior, even if the MarTech usage domain of those behaviors in FinTech has been narrow (Sangarathas 2023).

Moreover, the synthesis of existing literature indicates a prevalent focus on studying customers' MarTech usage behaviors through constructs like antecedent beliefs, socio-demographic features, personality traits, social and individual variables, and cultural values. However, these studies often measure only specific characteristics, neglecting the simultaneous examination of socio-cultural, personal, and psychological aspects. While prior research has initiated investigations into the influence of customer characteristics on technology adoption, it has encountered various limitations. Firstly, there's been a restricted investigation of the direct impact of customer characteristics on MarTech usage intention. Secondly, the interplay between customers' awareness, experiences and MarTech usage behavior within the realm of FinTech has been narrowly investigated (Akhtar et al. 2019; Elhajjar and Ouaida 2019; Kaushik and Rahman 2015; Koksal 2016a; Xu et al. 2016).

On the other hand, a study titled 'the effect of awareness and perceived risk on the technology acceptance model (TAM): mobile banking' suggests that awareness of the benefits and value of using mobile banking services is essential to encourage customers to adopt / use mobile banking services, especially in the early stages, and to reduce the perception of its risk (Mutahar et al. 2018). Consequently, this study contributes valuable insights to broaden the understanding of customer characteristics and their application to MarTech usage behavior, particularly in relation to customers' awareness and experiences.

Drawing from the above specifics, the working definition as the focus of this study is only on the MB apps usage (digital application marketplace) scenario (Tu 2021). This scenario considered as a type of customers' current (or new) MarTech usage behavior (or experience) (Balabanoff 2014; Muñoz-Leiva, Climent-Climent, and Liébana-Cabanillas 2017; Thusi and Maduku 2020) in mobile marketing platforms (for example, SMS, mobile web sites and apps) (Mansfield 2019; Nicoletti 2014). This is important due to the use of smart phones as the primary channel for providing FinTech based banking services and the relatively high mobile phone penetration among the backward sections of the population (Central Bank of Sri Lanka 2021). Although, the entire MarTech offerings are considered as previous (or old) MarTech usage behavior (or experience) in banks' marketing automation platforms (Adapa and Roy 2017; Jaruwachirathanakul and Fink 2005; Pikkarainen et al. 2004; Shih and

Fang 2006; Yoon and Occeña 2014). Specifically, according to Chaouali and El Hedhli (2019), few academic pieces of research consider the multi-channel perspective at once. Therefore, this study can be used to any old or new technological perspective.

A pilot study (Sangarathas, 2023) identified the research problem concerning customers' MarTech usage behavior linked with pre-experience deliveries. Researcher conducted in-depth interviews with thirty non-customers of Mobile Banking apps in licensed commercial banks in Sri Lanka (LCBs in SL), revealing a need for increased awareness campaigns and enhanced pre-experience delivery. Pilot study underscores the importance of addressing current experience deliveries in the pre-usage stage (customers' usage intention stage / before the usage stage) of MarTech to differentiate offerings and provide to diverse customer characteristics. Moving forward from that pilot study, research should focus on exploring the effects of MarTech awareness and experiences on usage behavior. However, at a standstill, to address the research gap, this study emphasizes the remaining issues; is there any distinct framework to understand the customers' characteristics concerning usage behavior in the MarTech domain? Accordingly, the potential research questions mentioned below have been developed by the researchers, which help the researchers to give clear explanation regarding the idea of the current research.

- RQ1. What are the customers' perceived characteristics that impact on MarTech usage intention of customers?
- RQ2. Does MarTech awareness moderate the relationship between customers' perceived characteristics and MarTech usage intention of customers to increase the behavioral intention?
- RQ3. Do previous experience (PEx) and current pre-experience (CPEx) in MarTech moderate the relationship between customers' perceived characteristics and MarTech usage intention of customers to increase the behavioral intention?
- RQ4. Does MarTech usage intention impact the level of actual MarTech usage behavior among customers?
- RQ5. Does current pre-experience (CPEx) in MarTech moderate the relationship between customers' MarTech usage intention and MarTech usage behavior of customers to reduce the intention-behavior gap?

To pursue these, this study starts with three theoretical (social cognitive theory (SCT), personal construct theory (PCT) and theory of planned behavior (TPB)) perspectives on MarTech usage behavior which explores customers' characteristics and usage behavior. Second, the theories' triangulation of three theories explores customers' perceived characteristics concerning usage intention in the MarTech usage domain, linking with awareness and experience aspects. Third, this study focuses on the gap between MarTech usage intention and usage behavior. Fourth, an integrated meta-

framework that is deep-rooted in a conceptual model is presented. Fifth, using two surveys of a longitudinal study, responses from MB apps customers in SL were collected, and the recent popular application of Smart-PLS software tested hypotheses. Sixth, theoretical contributions are proposed in the course of future potential studies. Finally, the practical implications of MarTech marketers are discussed in this study.

## The relevance of customers' Martech usage behavior domain and triangulation on theories

MarTech in the customer use context discussed above can be very constructive in the MarTech usage behavior domain. Various overviews in theories help researchers recognize the complicated problems and social issues and provide attention to the different aspects of data. Eventually, researchers can easily research within the framework brought from theories (Reeves et al. 2008). Usually, theories are used by researchers to know why people behave in several ways under the particular domain and how people respond whilst those domains change (Francis, O'Connor, and Curran 2012). Therefore, the domain relevance of theory is more important. Then only, the domain relevance of measurement items would be significant (Rahman and Noor 2016).

Most researchers argued that research models could not be used individually for the best prediction of human behavior (Montaño and Kasprzyk 2015). Thus, SCT has been applied in technologically-based conceptions to analyze and describe the changes in users' behavior in technology and technology adoption (Boateng et al. 2016; Ratten and Ratten 2007). While researchers have criticized all other theories and models such as; the technology acceptance model (TAM), theory of reasoned action (TRA), (Ratten and Ratten 2007) and also, there were some arguments on TPB which is limited in its predictive ability as it assumes that behavior is pre-planned and not subject to change (Mathieson 1991). In contrast to TAM, SCT acknowledges the complex nature of behavior intention, which is influenced by the reciprocal interaction between the environment in which an individual operates and his/her behavior (Bandura 1986).

Furthermore, TPB emphasizes whether a given belief is or is not affected by a particular background factor is an empirical question. Scholars have stated that the background factors that are difficult to know should be considered without a theory to guide selection in the behavioral domain of interest. However, the effects of background variables on intentions could be traced to their influence on one or more of the antecedents of intentions (attitudes, subjective norms, and perceived behavioral control) and these antecedents statistically controlled, the background factors are no longer correlated significantly with intentions (Ajzen and Fishbein 2005). Therefore, based on the antecedents of intention and background factors, a gap is still needed to identify the behavioral domain of interest. On the other hand, Ajzen and Fishbein (2000) claimed an intention-behavior gap in their TPB.

Consequently, there is a need to intensely focus on customers' personal, environmental, and behavioral factors with the intention-behavior gap. By drawing on the domain, there is no unique framework for customer usage behavior in the MarTech domain. Besides, Kelly (1955) elucidates eleven corollaries into his PCT. However, this study uses the construction corollary, experience corollary and sociality corollary to understand personal choice in 'MarTech usage'. Therefore, there is still a need to triangulate the three major popular theories with evidence from significant past literature (Denzin 2015). For several reasons, this study aimed to triangulate the 'MarTech domain' relevance of Bandura (1986)'s SCT, which appeared to be an overall framework for investigating MarTech usage behavior in a 'customer use context' with PCT and TPB.

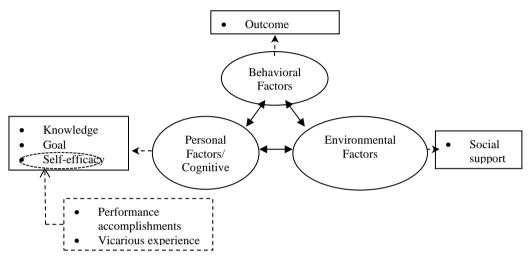
Scholars use triangulation that can involve an attempt to get closer to the truth by bringing together multiple forms of data and analysis to clarify and enrich a report on a phenomenon (Creswell 2011; Tracy 2010). There are many types and strategies of triangulation, such as data triangulation, investigator triangulation, theory triangulation and methodological triangulation. Theory triangulation is used in this study as a guideline to match with this study's theorizing process. According to Denzin (2015), theory triangulation consists of using more than one theoretical scheme to interpret a phenomenon. Further, theoretical triangulation asks the researchers to be aware of the multiple ways in which the phenomenon may be interpreted. However, it does not demand that facts be consistent with two or more theories. As per the practical limits of the survey span, some aspects of these three theories are considered, and some other aspects are not comprehensively triangulated. It is hard to imagine how a 'new' research agenda can be generated based on three widely applied theories. For that reason, several other aspects of these three theories are not considered in this study (Wolske, Stern, and Dietz 2017). Although it is limited, this study has a number of research potentials applicable to the MarTech domain.

Accordingly, Bandura (1986) in his SCT, argued that human behavior is caused by personal, environmental, and behavioral influences. These three factors of SCT have an interaction with each other for predicting an individual's action. However, predictions cannot be made the same at all times. For this reason, customers' characteristics are considered as one of the vital research lenses in this study. In particular, Kotler and Armstrong (2010) emphasized that the ultimate aim of marketing management is to find out what goes on in the customers' minds as seeing the 'black box'. Moreover, the buyers' black box model includes the buyers' characteristics. Therefore, the first step in discovering customers' behavior focuses on the customers' characteristics (Furaiji, Łatuszyńska, and Wawrzyniak 2012). Numerous researches on customer behavior identify different customer characteristics and their effects. In line with this, SCT gives an idea that customers' socio-cultural, personal and psychological characteristics interact with user behavior.

SCT is adopted as it involves an encompassing analysis of behavioral intention compared to the other cognitive learning models because SCT has been employed in

different disciplines, probably because of its adaptive nature, as it considers human behavior to be dynamic. In this study, MarTech usage behavior is caused by personal, environmental, and behavioral factors. Therefore, the aspects of customers' sociocultural (environmental factor), personal and psychological (personal factors) characteristics are taken from this SCT which address the effect of customers' characteristics on MarTech usage behavior (behavioral factor).

Figure 01: Simple schematic representations of social cognitive theory



Source: Adopted from Bandura (1986)

The PCT is the process of construing where we make sense of the world and our experiences by engaging in a process. Kelly (1955) has claimed that understanding of the personal psychology of individual task is determined by according to the fact of person's personal experience (see Figure 02). Then each person checks the accuracy of gained knowledge by performing the predefined action as they prefer. If the outcomes of the planned actions are compliance with planned, that means that they have found the well order in personal experience. If not, construct regarding the interpretation or predictions can be modified. This is how the scientific methods are used to discover or correct our constructs by all modern sciences. Finally, the truth of our universe we live is found. Hence, all of our present interpretations of the universe are subject to revision or replacement. As a result, people differ from each other in their construction of events. Therefore, customers' MarTech experiences are taken from this PCT.

Construction Theory System The Construction Corollary Hypothesis Anticipation The Fundamental Postulate Observation Experience and and Experiment **Rehavior** The Experience Corollary Construction Theory System

Figure 02: Simple schematic representations of social cognitive theory

Source: Adopted from Kelly (1955)

The TPB frames the intention which is a function of three antecedents such as; attitude, subjective norms, perceived behavioral control. This discussion implies that background factors (see Figure 03) influence intentions and behavior indirectly by their effects on beliefs and, through these beliefs, on attitudes, subjective norms, or perceptions of control (Ajzen and Fishbein 2005, 2010). Thus, MarTech usage behavior is caused by customers' individual, social and informational factors and MarTech usage intention. The TPB model also supports the assumptions that customer characteristics and MarTech usage intention are associated. Therefore, customers' usage intention-behavior gap and information factor such as MarTech awareness in the MarTech domain are taken from this TPB.

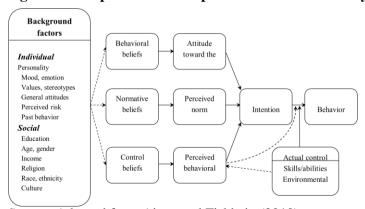


Figure 03: Simple schematic representations of the theory of planned behavior

Source: Adopted from Ajzen and Fishbein (2010)

### LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

## Addressing the Customers' perceived Characteristics Concerning MarTech Usage Intention

SCT is one of the most influential theories of human behavior (Bandura 1989), representing the triangular relationship between the three main factors of human behavior. Still, the primary argument of the SCT is that an individual's behavioral intention is a function of not only behavior but also of cognitive, personal and environmental factors. Hence, SCT theory builds upon the literature on individual and group psychological behavior. Further, TPB explains the background factors of beliefs as individual factors, social factors and information factors. Meanwhile, TPB reveals that the behavioral, normative, and control beliefs can vary as a function of a wide range of background factors which include more personal and social characteristics (Ajzen and Fishbein 2005). Thus, the TPB model also supports the assumptions that customer characteristics and MarTech usage intention are associated. Moreover, Kelly (1955) proposed in PCT that the extent one person constructs the construction processes of other people. Therefore, there is a need to focus on the personal factors of customers with social factors. According to the literature, service customers collect information from multiple environments and different types of sources. For example, customers get information from family, friends and peers to get trusted information (Boshoff 2002).

Besides, several studies have indicated that a customer's internet experience is vital in understanding a customer's perceptions, attitudes and behavior in a digital environment (Nysveen and Pedersen 2004). Some scholars also have suggested that there might be a significant impact of mobile experiences on mobile banking usage. However, they noted that the more an individual uses the mobile internet, and the more they perceive the mobile internet as compatible with his or her lifestyle, the more likely the individual is to adopt mobile banking (Chung and Kwon 2009). Besides, Liebermann and Stashevsky (2002) have done a detailed perceived risks map and suggested a model with the factors affecting the internet perceived risk elements, demographic traits and usage behavior characteristics. Hence, there is a need to focus on customer characteristics before customer experiences.

For instance, scholars have done their study concerning older consumers' usage of digital technology in digital marketing. However, they have focused only on the age and lifecycle stage through a personal characteristic of customers and revealed the challenge of "understanding the influence of ageing on effective customer experiences delivered through smartphones" (Nunan and Di Domenico 2019). Unlike most studies, in terms of customers' characteristics (compatibility with lifestyle, age and income), a study treats the actual usage behavior of mobile banking apps as an outcome variable and not the intention to use mobile banking apps (Veríssimo 2016). However, there is still an empirical gap on the part of the behavioral intention of MarTech usage of customers of FinTech organizations (e.g. banks) as it looks upon customers' characteristics as an independent variable.

Moreover, previous researchers have done their studies by using Kotler and Armstrong (2007)'s buyer's characteristics association with consumer behavior in the conceptual and empirical review (Furaiji et al. 2012) as well as in the literature review (Cheung et al. 2003). Therefore, conceivably, Kotler and Armstrong (2010) elucidate many factors influencing consumer behavior such as; culture, subculture, social class, reference groups, family, roles and status, age and lifecycle, occupation, economic situation, lifestyle, personality and self-concept, motivation, perception, learning, beliefs and attitudes. Therefore, this study is going to add customers' characteristics constructs (socio-cultural characteristics (SCC), personal characteristics (PEC) and psychological characteristics (PSC)) from (Kotler and Armstrong 2010)'s book of "principles of marketing" into the current framework.

In particular, evidence from relevant past literature, this study reflects the unique characteristics of customer usage context specific to the mobile banking app usage behavior such as socio-cultural; social influence (Sharma et al. 2017; Venkatesh, Thong, and Xu 2012), power distance, uncertainty avoidance, collectivism, long-term orientation, masculinity (Baptista and Oliveira 2015; Hofstede 2011; Yoo, Donthu, and Lenartowicz 2011), personal; age, lifecycle stage (Nunan and Di Domenico 2019), occupation, economic situation (Helsper 2010; Sathye 1999), time-oriented lifestyle, net oriented lifestyle, price-oriented lifestyle (Mohamed et al. 2014), openness (Yoon and Barker Steege 2013) and psychological; extrinsic motivation: perceived usefulness (PU) (Goh and Sun 2014), intrinsic motivation: perceived ease of use (PEOU) (Liu, Ben, and Zhang 2019), psychological risk perception (Malaquias and Hwang 2016; Yang et al. 2015), learning goal orientation (Yi and Hwang 2003), positive attitude (Chaouali and El Hedhli 2019). Thus:

Hypothesis 1: The perceived characteristics of the customers associates to MarTech usage intention.

## What Could Be Affecting the Association between Customers' Characteristics and MarTech Usage Intention

From the theories, SCT emphasizes the central role that cognition plays in encoding and performing behaviors. Thus, SCT provides a more comprehensive understanding of behavioral intention, including how individuals interact with their internal and external environment. Triadic reciprocality, efficacy, mastery learning, imitation, modeling, social persuasion and self-regulation are the concepts and theorist's understandings of SCT (Bandura 1989). This study adopts the cognitive learning models as the theoretical foundation to explain behavioral intention in the MarTech domain. These models facilitate human beings to impact the customers' behavioral intention by acknowledging that more information is involved in the learning process, and learning is always an indirect response to external factors. Further, in the TPB, there are information factors under the background factors such as knowledge, media and intervention, which are most important to customers' awareness intensity. Past scholars also commented about the volume of information received by customers under the awareness aspect (Al-Somali, Gholami, and Clegg 2009; Gerrard, Cunningham, and Devlin 2006).

In this study of customer use context, awareness is defined as the scope of knowledge and recognition that customers have over MarTech offerings by the FinTech organization (e.g. banks). Since awareness is an essential predictor of behavioral intention, banks carry out awareness programmes about their MarTech offerings (Alkhaldi 2017). Nowadays, mobile applications, which are available in the app store, is the significant component to get the information and function details of the organization (Fenu and Pau 2015; Zamfiroiu 2014). Different previous studies have revealed that lack of awareness about e-banking is a significant problem with banking customers (Nyangosi, Arora, and Singh 2009). Along the same line, most of the researchers also have indicated about low-level awareness of mobile banking (Bhatt and Bhatt 2016; Mutahar et al. 2018), awareness of security systems for desktops compared to smartphones (Sharma et al. 2017) as well as awareness of the existence of internet banking (IB) (Alalwan et al. 2018).

Especially, previous researchers have done their studies using several aspects of awareness in different fields (Mandari and Chong 2018). Generally, scholars have used the factor of technology awareness. For example, Abubakar and Ahmed (2013) analyzed the moderating effect of technology awareness on the relationship between the unified theory of acceptance and use of technology (UTAUT) constructs, and behavioral intention to use technology and Pugh (2017) studied awareness as a moderator for P2P payment adoption. Notably, previous studies of behavioral intention have introduced the construct of technology awareness in the technology context through the study of "the centrality of awareness in the formation of user behavioral intention toward preventive technologies in the context of voluntary use" (Dinev and Hu 2007). Further, Sathye (1999) studied the awareness of service and its benefits in adopting internet banking by customers and suggested that bank managers could build awareness by educating about the benefits of internet banking and security concerns. Later, Alkhaldi (2017) developed a model to determine users' awareness of mobile banking services on users' behavioral intention to use mobile banking. Meanwhile, recent researchers indicated the direct effects of awareness about internet banking on perception and use (Mutahar et al. 2018).

Awareness of e-banking has been empirically tested as a variable with significant results under the e-banking context (Nyangosi et al. 2009; Sadiq Sohail and Shanmugham 2003). Consequently, the moderating effect of MarTech awareness cannot be ignored. However, there is still an empirical gap in the component of MarTech usage behavior of customers of FinTech organizations (e.g., banks) as it looks upon customers' MarTech awareness as a distinctive variable which includes both digital application awareness and technology awareness measurements. For that reason, this study is going to add "MarTech awareness (MTA)" as a moderator between customers' characteristics and MarTech usage intention. Thus:

Hypothesis 2: The influence of the customers' perceived characteristics on MarTech usage intention is moderated by MarTech awareness.

## Need to Enclose a Glance on 'Customer Experience' Concerning Customers' Characteristics and MarTech Usage Intention

Indeed, due to the technology adaptation, the marketers face several challenges while organizing the technologies and putting the customers at the centre of the marketing experience (Gow 2015; Pfannkuch 2015). In addition, there are some marketing trends identified by Brinker (2012) from reviews, such as; the ongoing migration from traditional to digital (not just in marketing, but in business and life) and the blurring of marketing communications into customer experience delivery. Consequently, Marketers used to be in the business of communications, and now marketers are increasingly in the business of experiences (Brinker 2015). Furthermore, MarTech marketers should understand customers' construction systems with experience. Therefore, there is still a need to enclose a glance at customer experience. Alternatively, according to Bueno et al. (2019), customer experience in service is measured repeatedly by employing three terms; 'customer experience', 'service experience' and 'customer service experience'.

Indeed, SCT indicates specific significance to the role of prior/past experiences rather than through reference to a person's current/actual experiences (Compeau, Higgins, and Huff 1999). Relatively, PCT emphasized understanding what a person's construction directs them to anticipate from their world of events and how these meanings impose their behavior. PCT elucidates that a person's construction system varies as he or she successively construes the replication of events (Kelly 1955). However, scholars have described the tenet on experience corollary of PCT as:

...the external and internal events of our lives play a central role in the application, development, and modification of personal constructs within the cycle of experience whereby personal construct systems undergo a progressive evolution as people continually attempt to make sense of their world (Gucciardi, Gordon, and Dimmock 2009).

At this point, their description is well suited to this current study of the MarTech usage behavior domain.

In general, customer experience starts much after purchasing products or services (Kumar and Anjaly 2017). Customer experience is evaluated by comparing expectation and stimuli while interacting with a company during the experience dissonance process (Park, Cho, and Rao 2012). Accordingly, customer experience is initiated, whereas the interaction between a customer and product/service or a company/part of its organization is not. Afterwards, the scopes of experiences were explained by Lemon and Verhoef (2016) in their conceptual work of understanding customer experience throughout the customer journey and provided as a historical perspective. Additionally, they have addressed the three types of stages (prepurchase, purchase and post-purchase) in the customer journey under three types of experiences (previous, current and future) in their process model for the customer journey and experience.

Consistent with other studies, pre-purchase stage behavioral activities clearly show that there is a close association between the customers' pre-purchase stage and usage intention (Aubert, Trendel, and Ray 2009; Berger and Messerschmidt 2009; May So, Danny Wong, and Sculli 2005; Shim et al. 2001). In this stage, customers' behavioral activities are need recognition, consideration, search (Lemon and Verhoef 2016). For example, at some point in the search activity, customers mostly trust the information from respected personal sources rather than the other source of information. Therefore, they seek word of mouth due to consumer expertise, perceived risk and perceived acquaintances' expertise (Alba and Hutchinson 2000). Hence, the consumer decision-making process is simulated by using the multi-attribute models. These models explain that the customers use service attributes (e.g. quality, price and convenience) to evaluate and compare the alternative offerings of the firms (Lovelock and Wirtz 2010). In other words, the rational, emotional, physical and spiritual are the different levels of customer involvement at which level the customer's experience personally persuades the customer's involvement (Gentile, Spiller, and Noci 2007). Hence, doing (interaction), thinking (perceiving and evaluation) and feelings (emotions) are the main elements of experience that interact with the touchpoints of the customer experience (Rajani 2018). For example, along with the banking scenario, Jaruwachirathanakul and Fink (2005) studied internet banking adoption strategies for a developing country and found some moderating factors such as internet experience and internet banking experience. Perhaps, these types of experiences are included in the doing (interaction) elements of experience. However, this study mainly focuses on the thinking and feelings elements of experience in the pre-purchase stage of service customers.

In conclusion, many studies consider previous experience as a part of their measurement of customer experience (Sorooshian et al. 2013; Venkatesh et al. 2012). However, they fail to focus on the more profound investigation of most substantial current pre-experience items which go on with current pre-purchase/ usage stage activities (E.g., informative, normality, educational, image consistency, layout and visual, economic, reputational) of service customers of FinTech organizations (e.g., customers of banks). This study emphasizes on the definitions of the two key variables (previous experience and current pre-experience) that customer experience is a customer's journey as a multidimensional construct. The relationship between previous and current pre-experience is clearly explained by Lemon and Verhoef (2016). Consequently, previous experience comprises all aspects of the customer's interaction with the brand, category, and environment in terms of the previous usage (e.g., ATM, desktop web, mobile web and MB app experiences from the previous usage). Further, current pre-experience comprises all aspects of the customer's interaction with the brand, category, and environment before a current usage. Nevertheless, it could not include the customer's previous experience (e.g., experiences from MB app before current usage). For the reasons mentioned earlier, this study is going to add specific types of experiences such as previous experience on MarTech (PEx) (Lemon and Verhoef 2016) and current pre-experience on MarTech (CPEx) (Bueno et al. 2019). Finally, customers' characteristics on MarTech usage intention are moderated by the MarTech experience proposed in this study. Thus:

Hypothesis 3: The influence of the customers' perceived characteristics on MarTech usage intention is moderated by previous experience with MarTech

Hypothesis 4: The influence of the customers' perceived characteristics on MarTech usage intention is moderated by current pre-experience on MarTech.

## Need to Focus on the Role of MarTech Usage Intention in the Formation of MarTech Usage Behavior

Since there is a need to focus on customers' behavioral factors, which is a significant factor of SCT, thus, TPB is usually used to explain how the role of intention is in the formation of behavior which was developed by Ajzen and Fishbein (2010) in their book "predicting and changing behavior". TPB, however, emphasizes the discrepancy between intention and behavior, which is needed to be focused on this point. Notably, Sheeran (2002) questioned what psychological variables could reduce the intention-behavior gap. In this regard, the current study endeavors a step toward proposing a new moderator into the gap between MarTech usage intention and behavior. Therefore, as mentioned above, the role of the MarTech usage intention phase is again needed to be considered. In addition, developers put forward the research needed regarding the mechanism of implementation intentions toward the effectiveness of behavior. Indeed, to enhance implementation intentions before a usage (the stage between the usage intention and behavior), the organization communicates trustworthiness, simplicity and convenience, creates value and generates an excellent experience for their potential service customers.

Previous studies suggest that the customer's product or services purchase/usage decision is mainly influenced by gathering information before a usage (Tsiotsou and Wirtz 2015). In other words, the customer focuses more on information searching in the service rather than goods due to uncertainty and perceived risk with purchasing/usage decisions. Due to uncertainty and perceived risk, customers do not rely on a single source of information, and they focus on multiple sources of information. By gathering multiple information sources, customers evaluate alternative service offerings, develop performance expectations of offers, save money, and reduce risk (Konuş, Verhoef, and Neslin 2008; Murray and Schlacter 1990; Wirtz and Kimes 2007).

Similarly, before a current usage, customers are willing to make aware of products or services, search information, evaluate alternatives, and decide on product or service purchase/usage. However, organizations try to provoke customers' needs by giving the information through sources and reducing the perceived risk through the multi-attribute model and attributes (search, experience and credence) (Tsiotsou and Wirtz 2015). While customers are searching the information, they form their own needs, learn about service attributes that need to be considered and form expectations of how firms in the consideration set perform on those attributes (Tsiotsou and Wirtz 2012).

In this regard, these attributes are the main attributes that help customers decide before a current usage behavior. In detail, first, search attributes are tangible attributes (e.g. price, brand name, transaction cost) that support the better understanding and evaluation before a recent usage decision to reduce the uncertainty or risk associated with the usage decision (Paswan et al. 2004). Second, experience attributes that cannot be evaluated before usage is reliability, ease of use and consumer support. Perhaps, these attributes are necessary for a customer to evaluate the service before a purchase/usage decision. Third, evaluation of credential attributes is challenging for customers even after the purchase or usage of service due to lack of technical knowledge, reliable evaluation and long process time for evaluation (Galetzka, Verhoeven, and Pruyn 2006).

Previous scholars revealed that customer experience attributes could moderate the effect of behavioral intention on behavior(Baptista and Oliveira 2015; Venkatesh et al. 2012). Previous studies, however, were concerned only with previous experience dimensions that rely on customers' past behavior. In general, there are four different categories of touchpoints in customer experiences explained by Lemon and Verhoef (2016) in their theoretical work. Hence, researchers need to focus on the MarTech usage intention-behavior gap with customers' experience. Especially in this study, the current experience will focus on the 'pre-experience' among three phases (pre, at and post-purchase/usage) of the customer journey. In a multi-channel perspective of MarTech, as was mentioned earlier, this study reveals the moderating effect of current pre-experience attributes between usage intention and behavior. The current pre-experience attributes rely on customers' behavioral activities before a current usage. It, however, does not include customers' past usage behavior.

As a result, 'current pre-experience' (CPEx) on MarTech as a moderator between customers' MarTech usage intention and behavior has been proposed. Accordingly, summaries are presented in the pilot study (Sangarathas 2023) for measuring pre-experience on MarTech (Process of scale generation – current pre-experience). Perhaps, this type of additional variable will moderate the effect of behavioral intention on use, such that the effect will be weaker for customers with high current pre-experience. Therefore, research is needed to confirm the pre-experience dimensions (Bueno et al. 2019).

Despite that, it is challenging to confirm the current pre-experience dimensions at the focal point between customers' MarTech usage intention and MarTech usage behavior. Thus:

Hypothesis 5: The greater the level of the customers' MarTech usage intention, the greater the level of MarTech actual usage behavior

Hypothesis 6: The influence of the customers' MarTech usage intention on MarTech actual usage behavior is moderated by current pre-experience on MarTech

In addition, Figure 04 illustrates the meta-framework (Leppänen 2006; Pan and Crotts 2012) that integrates the theoretical frameworks and factors intended to guide the current behavior study. Meta-framework defines as the connections between theoretical models (social cognitive, personal construct, theory of planned behavior) and applicable questions for this study. Through this frame, researchers can develop a conceptual model of MarTech usage behavior.

How can socio-cultural, personal and psychological characteristics be linked with How can experience construct the process of one person to perform behavior? Customer How can usage characteristics How does one person link with another intention be increased by Personal Personal factors Customer construct awareness theory (PCT) MarTech Customer Theory of How can usage intention and planned usage behaviorof customers behavior (TPB) Environmental Rehavioral How can usage behaviorbe factors factors Intention behavior gap Social cognitive theory (SCT) How can the gap between usage How does cognition play a critical role in people's capability to intention and usage behavior be construct reality, self-regulate, encode information and perform

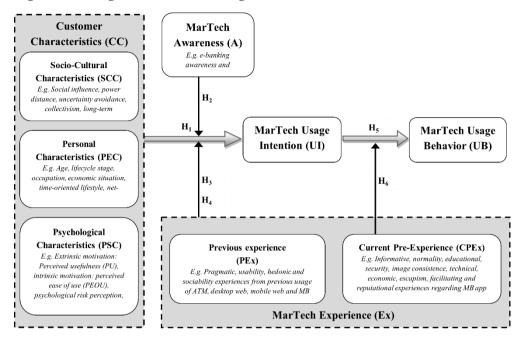
Figure 04: The connections between theoretical models and applicable questions

Source: Kelly (1955), Albert Bandura (1986) and Ajzen & Fishbein (2005, 2010)

### **Proposed Research Model**

The conceptual model presented in Figure 05 is for analyzing customers' MarTech usage behavior that integrates SCT with TPB and PCT. The model postulates that customers' perceived characteristics will impact the customers' intention and intention (UI) on MarTech usage will predict the MarTech actual usage behavior (AUB). Furthermore, the model postulates the moderating impacts of MarTech awareness in determining the impact of customers' characteristics on MarTech usage intention. Simultaneously, the model postulates the moderating impact of previous experience and current pre-experience on MarTech, which are anticipated in determining the impact of customers' characteristics on MarTech usage intention. Lastly, MarTech usage intention on MarTech actual usage behavior is moderated by current pre-experience on MarTech that the model has proposed.

Figure 05: Integrated MarTech Usage Behavior Model (IMTUBM)



Source: Adapted from (Kelly 1955), (Bandura 1986) and (Ajzen and Fishbein 2010)

#### **METHODOLOGY**

In this study, researchers tried to investigate the objective reality of customers' characteristics and MarTech usage behavior in the intention-behavior gap paradigm based on a sound conceptual framework and reliable measurements (Sekaran and Bougie 2016). Therefore, it adopted an objectivist positivist paradigm ((Saunders et al. 2019). This study was conducted in a deductive approach which is used to test hypotheses based on existing theories and studies and ensure relationships among variables. Positivists claim that survey research strategy is the most suitable data collection method for the research tradition of quantitative methodology (Bell, Bryman, and Harley 2018). Therefore, this study is based on positivism and quantitative methodology. An online survey strategy (Ilieva, Baron, and Healey 2002) was employed as an ideal research strategy.

This study is directed towards MB app usage behavior in Sri Lankans. It is not justifiable to undertake that MB Apps are to be similar and also put all into one basket of evaluation without stating the suitable assumptions. Therefore, researchers have assumed that all views such as digital banking (e.g. ComBank App), electronic banking (e.g. Sampath App), internet banking (e.g. Pan Asia Mobile Banking App), mobile banking (e.g. CargillsBank Mobile Banking App) and mobile application (e.g. BOC B App) are consider as MarTech applications in FinTech. Thus, researchers have undertaken this study by putting all 10 domestic banks' MB apps into one basket. Thus far, the unit of analysis of the current study is at the individual level

because it focuses on the level of usage experience by the customer of the MB app in SL (Sekaran and Bougie 2016). The sampling frame represents all the elements in the population from which the sample is drawn. A complete list of customer contact information cannot be obtained from banks as the Central Bank of Sri Lanka (CBSL) does not allow banks to disclose such information.

In this study, therefore, the exponential non discriminative snowball sampling method (virtual snowball sampling) (Baltar and Brunet 2012; Koksal 2016b; Yuen et al. 2010) is used as a non-probability sampling technique because the first subject is recruited and then he/she makes several recommendations. Each new recommendation provides additional data for the recommendation and so on, until the sample has a sufficient number of subjects (Yadav, Singh, and Gupta 2019). As a result, MB users in Sri Lanka were contacted by the virtual method using Facebook, Linkedin, Viber and Whatsapp. Finally, each respondent was requested to forward the questionnaire to their friends, colleagues, and relatives who were MB app users in Sri Lanka and their contacts were invited through email also. As a longitudinal study, two sets of online survey questionnaires (Google form) were issued to the same respondents two times to collect primary data in this study (Duarte and Amaro 2018).

This study aims to investigate the customers' characteristics along with MarTech usage intention and actual usage behavior gap (intention – behavior gap) in FinTech organization, SL. Therefore, two time periods (Time 1 and Time 2) of quantitative data are needed to examine and investigate causal relationships between intention and actual behavior. The abovementioned reason leads to the longitudinal survey strategy which is most appropriate for this research study (Khedmatgozar 2021). Longitudinal studies are used to identify the change or development in the subjects or sample being investigated over some time (Joe F. Hair et al. 2015; Saunders et al. 2019). Thus, the first stage of data collection (Time 1 - T1) was started in February 2023 to collect the data regarding customers' characteristics and their MB app usage intention. The second stage of the online survey (Time 2 - T2) was conducted six months later to collect their actual MB app usage behavior from the previous (same) respondents.

For the pre-testing of the survey instrument, the questionnaires were given to the twenty-eight mobile banking application (MB app) users/customers and four experts in research (University research academics with MB app usage experience) by face-to-face meetings at their working places. These were followed by item pre-testing (pilot-test) and were used to develop the final questionnaire. The completion of the survey by participants similar to the target population for the actual survey is a pilot test (Malhotra and Dash 2016). According to scale refinement and consolidation, minor revisions were made to the wording of some survey items in line with MB app customers and experts' suggestions. Hence, researchers used to develop the survey questions ranged from a review of previously used items. Therefore, no items in the survey were deleted at this stage of the pilot test.

#### **DATA ANALYSIS AND RESULTS**

At first, descriptive statistics and exploratory factor analysis (EFA) were conducted in SPSS software version 21. According to Esposito Vinzi et al. (2010), the simulation work in calculating the effect of the observed variables and their latent constructs on construction was drawn in Smart-PLS (Partial Least Squares) software in this study. As an emerging tool in marketing and management information systems research, PLS-SEM (PartialLeast Squares - Structural Equation Modeling) was used as a choice of statistical analysis (Hair Jr et al. 2014). Nowadays, the ease of use of Smart-PLS and comprehensive software with an intuitive graphical user interface make this method popularize (Sarstedt and Cheah 2019). In particular, PLS-SEM offers several advantages for this study such as; applicability for non-normal data (not extremely non-normal data used in this study), small sample size (ten times rule of thumb applied in this study) and the bootstrap procedure with subsample method is thought to be the answer to the problem of small sample size in SEM (Cordeiro, Macha's, and Neves 2010). In addition to the abovementioned benefits, researchers can evaluate the highly complex nature model analysis with higher levels of statistical power (Usakli and Kucukergin 2018). Thus, Smart-PLS version 3.2.9, which has the ability for over regression-based methods in assessing several latent constructs with several manifest variables, was used for analyzing the structural model in this study.

#### **Scale Generation for Constructs**

Scale generation is the first step for data preparation. It can be done through two approaches as deductive and inductive (Hinkin 1995). The deductive approach employs literature as a theoretical base for generating the constructs. On the other hand, the inductive approach employs qualitative methods for generating the constructs and items of the scale. Therefore, this study takes up deductive approach for scale generation. All other constructs' items were generated through literature. Initially, related pieces of literature were explored for the theoretical base of the items related to all constructs in this study. The literature review provided 64 items related to customer characteristics based on thirteen (13) categories. Though, a number of themes of factors related to pre-experience in MarTech landscape selected from pieces of literature review and pilot study (Sangarathas 2023).

After that, the factor item composition considered part of this study was further verified by undertaking EFA for customer perceived characteristics and current pre-experience constructs. In addition, principal component analysis-based factor extraction coupled with varimax rotation supported the factor-item composition. Finally, in line with the above facts, EFA was performed in this study frame to identify the unique factors from a more extensive set for use in subsequent Partial Least Squares (PLS) analysis as a measurement model (A confirmatory analysis) for validity and reliability of the measures and Structural Equation Model (SEM) for testing the hypothesized relationships (Sharma et al. 2021; Yong and Pearce 2013).

### **Data screening**

Initially (T1), 602 responses were received from the respondents through the Google form questionnaire-T1. While screening the data, 12 responses with repeated responses in T1 were removed from the data. After six months (T2), 432 responses were received from the respondents through the Google form questionnaire-T2. While screening the data, 32 responses with repeated responses in T2 were removed from the data. Further, 190 respondents with no second responses (T2) dropped from data analysis. Finally, the total numbers of responses for the analyses are 400. Further, there were no missing values during both (T1 and T2) data collection because the settings were made that all questions should be answered in the Google form questionnaire by each respondent.

## Results of Exploratory Factor Analysis (EFA): Customer Perceived Characteristics Construct

In the EFA of customer perceived characteristics construct, the value for the KMO matrix is 0.903, which falls into the range of being good value; so, researchers should be confident that factor analysis is appropriate for these data. For these data of the current study, Bartlett's test is highly significant (p < 0.001), and therefore factor analysis is appropriate. To sum up, all questions in the 'customer characteristics' construct correlate reasonably well, and none of the correlation coefficients is notably greater than 0.9; therefore, there is no need to consider eliminating any questions at this stage. One of the commonalities after extraction is notably less than 0.5; therefore, there is a need to consider eliminating one question (LT2: I am the kind of person who spends much time looking for another MB app) stage. After eliminating question LT2, a second-time principal component analysisbased factor extraction was performed with varimax rotation. None of the commonalities after extraction is notably less than 0.5 (2nd time); therefore, there is no need to consider eliminating any questions at this stage. As a result, all factors under the customer characteristics achieved a cumulative variance explanation of 65.90 %, much above the minimum recommended explanation based on the variablefactor ratio (Osborne, Costello, and Kellow 2011). Factor loadings are simple correlations between the variables and the factors. As a result, researchers had looked at the loadings. In this analysis, there was no loading less than 0.5 at this stage. Therefore, there was no need to consider eliminating any question at this stage.

After that, researchers looked at the content of the question that loads onto the same factor to try to identify common themes. Finally, thirteen dimensions emerged from EFA for customer perceived characteristics, such as attitude towards usability (ATU), power distance (CP), social influence (S), collectivism (CC), long-term orientation (CL), learning orientation (L), uncertainty avoidance (CU), openness (P), masculinity (CM), psychological risk perception (PPR), net oriented lifestyle (LN), time-oriented lifestyle (LT) and price-oriented lifestyle (LP).

## Results of Exploratory Factor Analysis (EFA): Current Pre-Experience Construct

In the EFA of the current pre-experience construct, the value for the KMO matrix is 0.913, which falls into the range of being superb; so, researchers should be confident that factor analysis is appropriate for these data. Furthermore, Bartlett's test is highly significant (p < 0.001), and therefore factor analysis is appropriate. For the correlation matrix, all questions in the current pre-experience construct correlate pretty well, and none of the correlation coefficients is notably greater than 0.9; therefore, there is no need to consider eliminating any questions at this stage. However, three of the commonalities after extraction are notably less than 0.5. Therefore, there is a need to consider eliminating three questions (EDUE3: The experience has made me more knowledgeable to MB app, EDUE4: I learned a lot during my very first experience by using MB app, CREE5: I believe the banking environment is safe in MB app) at this stage.

After eliminating questions EDUE3, EDUE4 and CREE5, a second-time principal component analysis-based factor extraction was performed with varimax rotation. None of the commonalities after extraction is remarkably less than 0.5 (2nd time); therefore, there is no need to consider eliminating any questions at this stage. As a result, all factors under the current pre-experience achieved a cumulative variance explanation of 70.90%, much above the minimum recommended explanation based on the variable-factor ratio (Osborne et al. 2011). After that, researchers had looked at the loadings, and there was no loading less than 0.5 at this stage. Therefore, there was no need to consider eliminating any question at this stage.

After that, researchers looked at the content of the question that loads onto the same factor to try to identify common themes. Finally, seven dimensions emerged from EFA for current pre-experience, such as visualized experience (VISE), reputational experience (REPE), normality experience (NORE), economic experience (ECOE), credibility experience (CREE), positional experience (POSE) and image consistency experience (IMAGE).

## The Prologue of the Partial Least Squares - Structural Equation Modeling (PLS-SEM)

After the EFA of customer perceived characteristics and current preexperience constructs, researchers have done PLS-SEM using hierarchical component models which represent the multidimensional constructs (Law, Wong, and Mobley 1998). Structural equation modeling (SEM) is a measurement model for the validity and reliability of measures (a confirmatory analysis) to test hypothesized relationships for use in partial least squares (PLS) analysis. The application of confirmatory analysis using PLS is now popularized as latest analysis procedure. Therefore, researchers directly evaluated the measurement model by using smart-PLS rather evaluating CFA separately (Henseler, Hubona, and Ray 2016). Recent research goes beyond the debate on the subject of CB-SEM and PLS-SEM by adopting PLS-SEM as a unique method for analyzing composite-based path models (Hair et al. 2019). As an emerging tool in marketing and management information systems research, PLS-SEM was used as a choice of statistical analysis. Therefore, this section summarizes how PLS-SEM analysis is done and reported in this study. Researchers used reflective measurement models in the first-order constructs to make a composite second-order construct. In the first instance, researchers have evaluated measured reflective constructs in the outer model. However, in this study, there are no formative measured constructs in the outer model. Subsequently, therefore, inner structural model evaluations were done.

In this study, four constructs such as customer characteristics, current pre-experience, previous experience and MarTech awareness have been considered second-order constructs. In the repeated indicator approach (Henseler and Fassott 2010), four higher-order constructs are constructed by specifying constructs that indicate all the items of the underlying lower-order constructs (Becker, Klein, and Wetzels 2012). The evaluations of all the latent variables were done simultaneously by using a repeated indicator approach rather than evaluating the higher-order and lower-order constructs separately. Additionally, mode A is more suitable since this particular assessment aims to validate the relationship between each dimension with second-order constructs rather than the regression of first-order constructs with second-order constructs (Ringle, Sarstedt, and Straub 2012).

Customer perceived characteristics as a second-order construct compose thirteen dimensions as underlying first-order constructs, each with its specific manifest variables. Furthermore, each of the customer characteristics dimensions represents a separate concept. Therefore, these dimensions are not conceptually united and do not share a common cause among themselves. Thus, customer characteristics have been considered as reflective-formative type II second-order constructs. Similarly, in this study, current pre-experience, MarTech awareness and previous experience have been taken as reflective-formative type II second-order constructs. The following section presents model evaluation results, including evaluations about the outer measurement and inner structural models

### Evaluation of measurement model (Reflective outer model)

As rules of thumb for reflective measurement models, internal consistency reliability (composite reliability (CR) > 0.70 and Cronbach's alpha value > 0.70) of most of the latent variables were acceptable, and some were close to the threshold level. However, even though indicator reliability (indicator loadings > 0.70 and Dijkstra-Henseler's rho > 0.70) and convergent validity (the average variance extracted (AVE) > 0.50) of collectivism, long term orientation, masculinity, price orientated lifestyle, hedonic experience, pragmatic experience, usability experience and normality experience constructs were unacceptable (Figure 06). Therefore, indicators with loadings of less than the rule of thumb were removed. However, few indicators with loadings below threshold value were not removed as CR and AVE of latent variables were above the threshold level (Hair Jr et al. 2014, 2017).

After that, the second iteration of the reflective measurement model was carried out. In the second iteration, CR, Cronbach's alpha value, indicator loadings, Dijkstra-

Henseler's rho and AVE values of all latent variables were above the threshold level. For first and second iterations, results show internal consistency reliability, indicator reliability and convergent validity (CR, Cronbach's alpha value, indicator loadings, rhoA and AVE values) for the indicators of the reflective measurement outer model. Further, the Fornell-Larcker criterion and heterotrait-monotrait (HTMT) were established in this study to establish discriminant validity for the outer measurement model (Fornell and Larcker 1981; Vinzi, Trinchera, and Amato 2010). The square root of AVE for each construct should be greater than all correlations among constructs and other constructs in the model to meet the Fornell-Larcker criterion (Hair Jr et al. 2014). In addition, the HTMT ratio has a threshold value of 0.90 (Henseler, Ringle, and Sarstedt 2015). Above 0.90 shows a lack of discriminant validity. Thus, the HTMT ratio has been fulfilled for the measurement model in this study.

#### **Evaluation of structural model**

As for rules of thumb for structural models (Hair, Ringle, and Sarstedt 2011), the bootstrapping procedure with 5000 subsamples allows the significance of path coefficients to be tested. As per the bootstrapping report, the initial structural model illustrates the path coefficients between higher-order and lower-order constructs, and the critical t-value for the two-tailed test is 1.96 (significance level = 5%). At this stage, one of the lower-order constructs, for example, psychological risk perception (PPR) (Figure 07), that has a negative value of path coefficient and insignificance direct relationship with customer perceived characteristics, was dropped from the structural model. In addition to that, one of the higher-order constructs, for example, previous experience (PEx) that has insignificance direct relationship with MarTech usage intention and insignificance moderating relationship between customer characteristics and MarTech usage intention, was dropped from the structural model.

On the other hand, MarTech awareness (MTA) that has an insignificant direct relationship with MarTech usage intention was not dropped from the structural model. Since MTA has significant moderating relationships between customer characteristics and MarTech usage intention (Figure 07), furthermore, all of the direct effects with categorical variables such as age category - two, life-cycle stage category - one and three, occupation category - two and income category - two and four have insignificance relationship with MarTech usage intention were dropped from the structural model.

Further, researchers have examined the degree of multicollinearity in the constructs by calculating the variance inflation factor (VIF) value to determine redundancy (Makanyeza 2017). The result shows each construct's VIF values (VIF < 5) from the second bootstrapping procedure. All VIFs found below 5; as a result, the collinearity issue was not present between constructs.

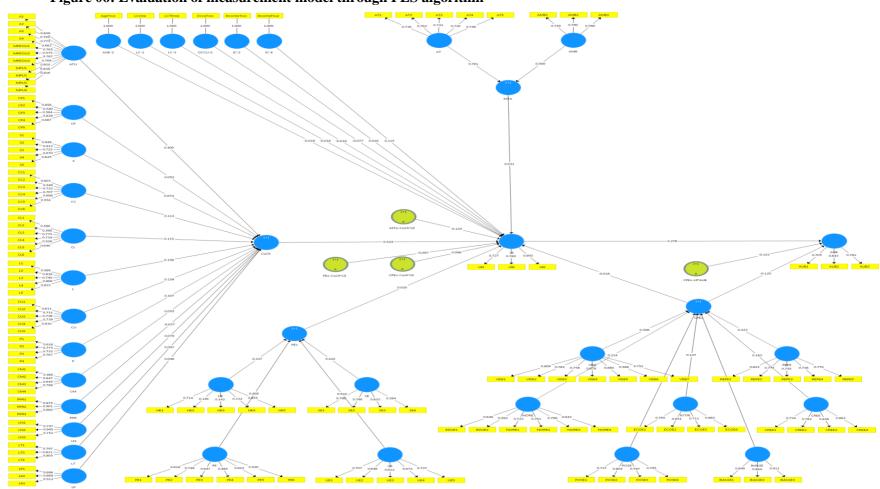
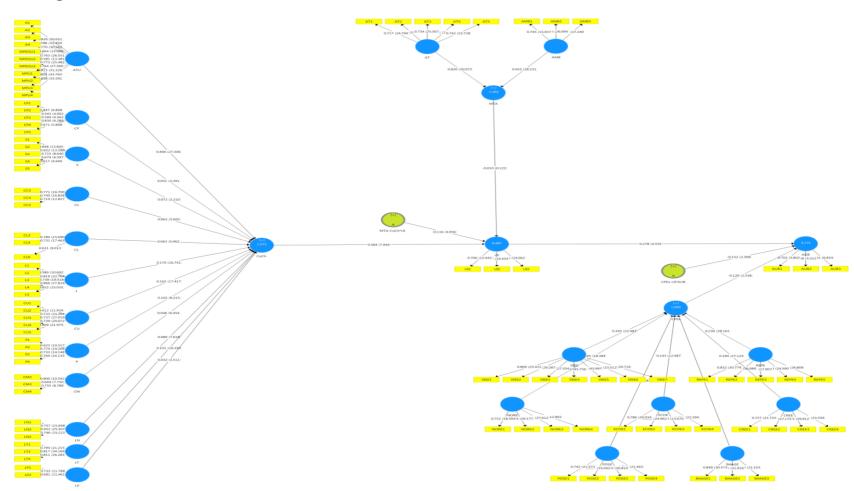


Figure 06: Evaluation of measurement model through PLS algorithm

Figure 07: Evaluation of initial structural model

Figure 08: Evaluation of final structural model



### **Testing Substantive Hypothetical Relations in Framework**

In this study, the research framework proposed a total of six hypotheses. The first and fifth hypotheses (H1 and H5) propose direct relationships. Other hypotheses (H2, H3, H4 and H6) propose moderating roles between constructs. Based on table 01, perceived customer characteristics have a positive effect on usage intention with high significance level (beta = 0.543; p = 0.000). Based on the result, H1 is supported. Meanwhile, the test result of moderation of MarTech awareness significantly contributes to a value of 0.002. Therefore, the role of MarTech awareness has negatively moderate (beta = -0.130) the relationship between customer characteristics and usage intention. Based on the result, H2 is supported. On the other hand, previous experience and current pre-experience have insignificantly moderate (beta = -0.107; p = 0.084, beta = 0.107; p = 0.171) the relationship between customer characteristics and usage intention. Therefore, H3 and H4 are not supported. Usage intention has a positive effect on actual usage behavior with high significance level (beta = 0.277; p = 0.000). Based on the result, H5 is supported. Finally, the test result of moderation of current pre-experience contributes significantly, with a value of 0.010. Therefore, the role of current pre-experience has negatively moderate (beta = -0.152) the relationship between usage intention and actual user behavior. Based on the result, H6 is supported.

Table 01: Summary of the test results of hypotheses

	Hypotheses	Original Sample (O)	T Statistics ( O/STDEV )	P Valu es	Hypotheses Decisions
H 1	Customer characteristics → Usage intention (Cuch → UI)	0.543	6.940	0.00	Supported
H 2	MarTech awareness * Customer characteristics → Usage intention (MTA * Cuch → UI)	-0.130	3.230	0.00	Supported
H 3	Previous experience * Customer characteristics → Usage intention (PEx * Cuch → UI)	-0.107	1.759	0.08 4	Not supported
H 4	Current pre-experience * Customer characteristics → Usage intention (CPEx * Cuch → UI)	0.107	1.386	0.17 1	Not supported
H 5	Usage intention → Actual usage behavior (UI → AUB)	0.277	4.308	0.00	Supported
H 6	Current pre-experience * Usage intention → Actual usage behavior (CPEx * UI → AUB)	-0.152	2.650	0.01	Supported

#### Final Structural Model and the Goodness of Fit Model

Finally, the second bootstrapping procedure with 5000 subsamples allows the significance of path coefficients to be tested. The final model was developed with those remaining higher-order constructs such as customer characteristics, MarTech awareness, current pre-experience and first-order constructs such as usage intention and actual usage behavior (Figure 08). As per table 02, customer characteristics had a significant direct effect on usage intention, MarTech awareness will negatively moderate the effect of customer characteristics on usage intention, usage intention had a significant effect on actual user behavior, and current pre-experience will negatively moderate the effect of usage intention on actual user behavior. The significant levels demonstrated in table 02 accordingly.

Table 02: Summary of final structural model

Relations	Original Sample (O)	T Statistics ( O/STDEV )	P Value s
Customer characteristics $\rightarrow$ Usage intention (Cuch $\rightarrow$ UI)	0.584	7.944	0.000
MarTech awareness * Customer characteristics → Usage intention (MTA * Cuch → UI)	-0.116	4.956	0.000
Usage intention → Actual usage behavior (UI → AUB)	0.278	4.555	0.000
Current pre-experience * Usage intention → Actual usage behavior (CPEx * UI → AUB)	-0.152	2.308	0.024

Table 03: R square (R2) value of endogenous variable

Endogenous latent variables	R square
Usage intention (UI)	0.487
Actual usage behavior (AUB)	0.131

In addition, the variance explained by the research model in terms of R2 demonstrated in table 03. As for the explanatory power of the model, this study derives the effect sizes for R2 for usage intention and actual usage behavior are 0.49 and 0.13 respectively. Moreover, the assessment of efficiency of standardized root means square residual (SRMR) refers to the root mean square discrepancy between the observed and model implied correlations (Hair Jr et al. 2017). A value of 0.08 was

found for SRMR for the final PLS-SEM model in this study. This value indicates a good fit measure where a value of zero indicates a perfect fit (Hu and Bentler 1995).

#### **DISCUSSIONS AND FINDINGS**

To investigate the research questions, researchers have developed six research objectives. Based on theories' triangulation on SCT, PCT and TPB, six constructs including four higher-order constructs were developed and built together into a conceptual model as IMTUBM. Constructs are customer perceived characteristics, usage intention, actual usage behavior, MarTech awareness, previous experience and current pre-experience. Items to measure the constructs were adopted from the previous pieces of literature. The main objective of this study was to examine identified customers' perceived characteristics impact on MarTech usage intention of customers. Besides, it has drawn attention to the gap between usage intention and actual usage behavior, Martech awareness and experience for creating sub-objectives. In this study, researchers have performed EFA and PLS-SEM to validate the scales.

Afterwards, the reflective measurement model analysis was carried out, and eight items were removed from customer characteristics. Finally, analysis of the structural model was carried out, and the first-order construct of psychological risk perception (PPR) that has a negative value of path coefficient and insignificance direct relationship with a second-order construct of customer characteristics was dropped. Moreover, all of the direct effects of categorical variables (age, lifecycle stage, occupation and economic situation) with an insignificant relationship with MarTech usage intention were dropped from the structural model.

Researchers have generated the first objective as "to examine whether identified customers' perceived characteristics impact MarTech usage intention of customers of LCBs in SL". For this objective, each item under customer characteristics was performed EFA, and an item was removed. After EFA, the remaining items emerged as thirteen dimensions under customer characteristics. Additionally, respondents were asked to answer for personal characteristics in terms of categories. As a result of descriptive statistics, it reveals that most of the MB app customers were young, half of the MB app customers were in earlier single life-cycle stage, the majority of the MB app customers were occupied as salaried employees, and accountable customers were with monthly household income between 25,000 LKR to 50,000, and some other MB app customers were with monthly household income above 75,000LKR. On the other hand, all of the direct effects of age, lifecycle stage, occupation and economic situation do not impact MarTech usage intention of customers of LCBs in SL. These findings are similar with previous studies. For example, Koksal (2016) has revealed that the younger individuals are more willing to accept and use mobile banking, consumers earning above \$3,000 are most likely to adopt mobile banking services and no association was found between other sociodemographic characteristics such as gender and age.

According to the first hypothesis, customer perceived characteristics including attitude towards usability, power distance, social influence, collectivism, long-term orientation, learning orientation, uncertainty avoidance, openness, masculinity, net oriented lifestyle, time-oriented lifestyle and price-oriented lifestyle impact MerTech usage intention of customers of LCBs in SL. It revealed that socio-cultural, personal and psychological characteristics impact MerTech usage intention of customers of LCBs in SL. The findings agree with the results of Akhtar et al. (2019) and Xu et al. (2016). They concluded that perceived usefulness, social influence and ease of use were found to be significant predictors of individuals' intentions to adopt m-banking in Pakistan and understanding the impact of personality traits on mobile app adoption is important. In this sense, different study (e.g.; Akhtar et al. (2019) rejected social influence impact MarTech usage intention, for example, from that authors' point of view individual goal-oriented individuals may not be influenced by other people's pressures or opinions in making decisions.

Researchers have generated a second objective as "to find out the moderating effect of MarTech awareness on the relationship between customers' perceived characteristics and MarTech usage intention of customers of LCBs in SL". For this objective, researchers did not execute EFA for MarTech awareness in this study because researchers have used an already developed and validated set of observed variables to measure the first-order latent variables of MarTech awareness construct such as technology awareness and digital application awareness. Therefore, in a straight line, reflective measurement models were analyzed, and no item was removed from the MarTech awareness construct. As a final point, an analysis of the structural model was carried to test the hypotheses. According to the second hypothesis, MarTech awareness negatively moderates customer characteristics and usage intention with a high significance level. It revealed that customer characteristics on usage intention would decline with increasing MarTech awareness. Earlier, Kaushik and Rahman (2015) suggested that effective communication strategies should be developed to increase customer awareness of the availability of Self-Service Technologies. In a different way, Elhajjar and Ouaida (2019) concluded that whereas awareness does not show significant impact on adoption and banks should focus more on customer awareness about mobile banking service.

Researchers have generated third and fourth objectives as "to provide the tools to measure the current pre-experience (CPEx) in MarTech usage domain" and "to find out the moderating effect of previous experience (PEx) and current pre-experience (CPEx) in MarTech on the relationship between customers' perceived characteristics and MarTech usage intention of customers of LCBs in SL". Therefore, researchers have executed factor analysis procedures for current pre-experiences constructed for these two objectives. Specifically, for the third objective, each item under current pre-experiences was performed EFA, and three items were removed. After EFA, the remaining items emerged as seven dimensions under current pre-experiences. Subsequently, the reflective measurement model was analyzed, and two items were removed from the current pre-experiences construct. Many studies have been conducted to reveal the moderating relationship of customers experience between

customers' characteristics and MarTech usage intention (Owusu Kwateng, Osei Atiemo, and Appiah 2018). In Sri Lanka, only a few studies have investigated these links with MB app usage. Accordingly, a deeper investigation of customers' current pre-experience specific to MB applications remains limited. In this study, researchers have confirmed a set of observed variables to measure the first-order latent variables of current pre-experiences construct: visualized experience, reputational experience, normality experience, economical experience, credibility experience, positional experience, and image consistency experience.

For the fourth objective, analysis of measurement and structural model were carried out via PLS-SEM. Researchers did not execute EFA for previous experiences in this study because researchers have used an already developed and validated set of observed variables to measure the first-order latent variables of previous experience construct such as pragmatic experience, usability experience, hedonic experience and sociability experience. Directly, therefore, analysis of the reflective measurement model was carried out, and six items were removed from previous experiences. According to the third and fourth hypotheses, previous experience and current pre-experience have insignificantly moderated the relationship between customer characteristics and usage intention. Pursued, it revealed that customer characteristics on usage intention would not be affected by increasing or decreasing previous experience and current pre-experience.

Researchers have generated fifth and sixth objectives "to examine whether MarTech usage intention impact on actual usage behavior of customers of LCBs in SL" and "to find out the moderating effect of current pre-experience (CPEx) in MarTech on the relationship between customers' MarTech usage intention and MarTech usage behavior of customers of LCBs in SL". For the fifth objective, analysis of reflective measurement models was carried out, and no item was removed from usage intention and actual behavior constructs. As a final point, an analysis of the structural model was carried to test the hypothesis. According to the fifth hypothesis, this study discovered that usage intention positively affects actual usage behavior with a high significance level. From the past studies, there was some evidence to support this result (Alalwan et al. 2018; Farah, Hasni, and Abbas 2018).

Researchers have used newly generated and validated sets of observed variables to measure the seven first-order latent variables of the current pre-experiences construct for the sixth objective. Thus, an analysis of the structural measurement model was carried out to test the hypothesis. According to the sixth hypothesis, current pre-experience has a negative moderating effect between usage intention and actual usage behavior with a high significance level. From the past studies, there was evidence to support this result (Venkatesh et al. 2012). Besides, the greater the level of customers' MarTech usage intention, the greater the level of actual usage behavior, study revealed that the effect of usage intention on actual usage behavior would decline with increasing current pre-experience. Therefore, the effect of behavioral intention on use will be more substantial for customers with less pre-experience. On the other

hand, Owusu Kwateng, Osei Atiemo and Appiah (2018) found that the more experience leads to greater familiarity with the technology and better knowledge structures that facilitate user learning and thus reduce user dependence on external support.

In conclusion, this study concludes that the signifying role of MarTech awareness as a moderator between customer perceived characteristics and MarTech usage intention and current pre-experience as a moderator between MarTech usage intention and actual usage behavior.

#### IMPLICATIONS FOR THEORY AND PRACTICE

### **Theoretical Implications**

The significant theoretical contribution is triangulating three theories for the customer use context. At the same time, the current study explored in the MarTech domain, which is a unique knowledge addition to theoretical heights in future. In terms of statistical methods, PLS-SEM was employed and in terms of the time horizon of the study, the longitudinal study method was employed for this study. Accordingly, the put-forwarded causal relationships in this study could be confirmed rather than inferred (Lin 2011). This study bridges the gaps in the current literature on PLS-SEM, longitudinal research design and measuring the customers' actual usage behavior in marketing research. Especially, this study evidently confirmed the discrepancy between usage intention and actual usage behavior through longitudinal data examination. Moreover, this research takes into consideration the multi-channel perspective at once. For example, this study contributes to knowledge in different ways of mobile banking usage, such as internet banking which is web-based technology and apps, which are a customer based downloaded applications (Nicoletti 2014).

While previously explaining certain aspects of the technologically-based field using SCT, SCT has not been practiced explicitly in the MarTech usage domain. The theory's weaknesses lack attention regarding the domain-specific customer characteristics and determinant aspects that link personal and environmental factors with behavioral factors. To benefit from this, the IMTUBM model, developed from this study, could be better fitted than previous models and possibly be applied to any marketing technology context globally. Consequently, this study adopted some new concepts in SCT settings as a basis for future research in the MarTech discipline on customer usage behavior. Despite personal, environmental and behavioral factors in SCT, this study added concepts from triangulation with PCT and TPB; Customers' perceived characteristics (personal and environmental factors), MarTech usage intention (behavioral factor), MarTech awareness (environmental factor), MarTech experience (personal factor).

Remarkably, this study may serve as an elementary source for designing customer characteristic-centric MarTech services, which include identified thirteen dimensions

of customer characteristics through this study such as socio-cultural (social influence, power distance, uncertainty avoidance, collectivism, long-term orientation, masculinity), personal (time-oriented lifestyle, net oriented lifestyle, price-oriented lifestyle, openness) and psychological (attitude towards usability, psychological risk perception, learning orientation) (see Figure 09). As a result, this study advances the unique theoretical knowledge about the research direction of designing customercentric FinTech services (Breidbach, Keating, and Lim 2019). Further, (Davis 1986) stated that perceived usefulness and perceived ease of use are the cognitive response variables and attitudes toward using affective response variables in the new end-user information system context. On the other hand, this study revealed that attitude towards usability is a dimension of customer characteristics in the MarTech usage behavior domain. Thus, it also gives new theoretical insights into the MarTech domain theories.

Above all, the meta-framework (Figure 04: The connections between theoretical models and relevant questions) discussed theories' triangulation and framework in this study with the questions that explain the MarTech domain. Thus, this study provides some new knowledge regarding emerging structures in the MarTech discipline. Past studies, however, had already foreshadowed the understanding of customers' awareness and experience. Therefore, this current study brings them together and indicates how they structure the MarTech usage behavior domain at once.

In terms of theoretical contribution, this study conceptually illustrates that the MarTech experience can be viewed as two concepts, such as previous experience and current pre-experience. Thus, this is the first study that has tested a distinction between 'previous' and 'pre' experience phenomena. Further, this study contributes to the MarTech discipline by suggesting a new concept called 'current pre-experience' to moderate the intention-behavior gap for two periods in the MarTech usage domain. In addition, new scales for current pre-experience on MB app usage confirmed in this study provide new measures that can help future researchers advance their knowledge gap.

Concretely, this study reveals that psychological risk perception (PPR) of using MB apps has a negative value of path coefficient and insignificant direct relationship with customer characteristics. This result supported the existing literature on psychological risk perception and MarTech usage in FinTech (Alalwan et al. 2018; Laforet and Li 2005; Veríssimo 2016). On the contrary, in this current pandemic scenario, customers realized that the psychological risk perception of using hand in cash transactions as cash could spread the coronavirus, and it could prompt more usage of the MB apps. Simultaneously, in the COVID-19 context, studies revealed that the customers have been experiencing psychological consternation (Wu et al. 2020) and using social distancing mechanisms as mobile-based banking transactions (Sreelakshmi and Prathap 2020).

In summary, the discussion part also reveals significant gap filling of current scenario of MarTech usage behavior in COVID-19 pandemic (for example, on the rising role of MarTech awareness as a moderator in between customer characteristics and usage intention; current pre-experience as a moderator in between usage intention and actual usage behavior). Notably, this study discloses that unique technology and digital application awareness can lead to greater awareness with the MarTech and better knowledge transformation to MB app usage intention, consequently reducing customers' dependence on customers' characteristics. Further, current pre-experience encompasses aspects of the environment before a current usage (for example, experiences from MB app before current usage) but, it could not include the customer's previous experience. Thus, this study discloses that greater current pre-experiences can lead to the more significant actual usage of MarTech in FinTech organizations, consequently reducing customers' dependence on MB app usage intention.

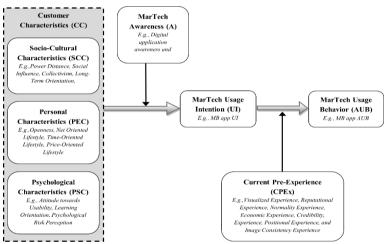


Figure 09: Integrated MB app Usage Behavior Model (IMBUBM)

Source: Authors constructed through this study

As a concluding standpoint of theoretical implications, the conceptual framework is shown in Figure 05: IMTUBM was developed with the integration of interpretive structural modeling by quoting three theories' triangulation to elaborate deeply about the usage behavior approach of SCT on the MarTech domain in FinTech organization. According to (Kelly 1955)'s construction corollary, in this study, the personal construct is the process of construing where customers make sense of the experiences by the intention of MB app usage. Therefore, the usage intention and actual usage behavior gap in TPB could be filled in 'pre-experience' in the current scenario of the COVID-19 pandemic by engaging in MB app usage behavior. Moreover, the below illustrated (see Figure 09) integrated MB app usage behavior model (IMBUBM) (Authors constructed through this study) helps MarTech, FinTech services, customer behavioral, digital application marketplace and electronic commerce scholars or researchers to provide a clear description of the theme of MB

app (digital application) usage behavior. In particular, this generated new model as reflected above from this study (IMBUBM) provides a well-supported substantiation for theories such as SCT, PCT and TPB.

### Implications for MarTech Marketers

This conceptual work put forward a new conceptual model and empirically tested it. In the logic of practical scenarios, it gives practical implications to the MarTech marketers and MarTech designers in FinTech organizations as well. First, this new integrated MarTech usage behavior model (IMTUBM) postulates that the customers' perceived characteristics in a straight line persuade customers' usage intention, which will lead to user behavior in the MarTech domain. As implications, MarTech marketers should be more concerned about customers' characteristics (socio-cultural, personal and psychological), which directly influence customers' MarTech usage intention. Furthermore, more customer characteristics centric approaches will be helpful to boost the usage intention of MarTech, for example; by including social and cultural aspects into the web/app page, increasing positive perception on MarTech to the people in higher position in the society, improving the instructions for using the MB app, charging reasonable charges according to customers' economic situation or cost-effective process deliveries, launching personal finance budget and save system in the MB app to track spending and manage customers' money, advancing customers' internet related skills via instructions and staff's guidance, elucidating the time saving benefits as regards MB app usage by bank staff, clarifying the differences between traditional bank marketing and MerTech to customers and increasing customers' learning orientation as regards MarTech advancements and digital application marketplace through digital channels (Gandolfo 2020).

Second, empirical research has tested the moderating effects of MarTech awareness, previous experience on MarTech and current pre-experience on MarTech. The proposed integrated MarTech usage behavior model (IMTUBM) gives some interesting ideas for MarTech marketers. As an example of an idea based on MarTech awareness, when the customers do not alert about MarTech advancements, that leads to affect usage intention, for example; lack of awareness of service and its benefits. Thus, MarTech marketers should enhance the customers' characteristics, possibly through awareness programs on the subject of MarTech, for example; by conducting customer educational programs, displaying on-screen demonstrations at branches and using the mass media to proliferate customer awareness.

Then, it gives the idea based on previous experience as customers have some past experiences regarding MarTech usage (e.g., ATM, CDM, internet banking, mobile banking and mobile apps usage). Thus, MarTech marketers should measure/evaluate such past experiences of their customers periodically to accelerate customers' experience level gradually. In the case of current pre-experience, when the customers' usage behavior differs from their usage intention, MarTech marketers must put more

effort to offer superior current pre-experience on MarTech to their customers, For example; by increasing the organization's reputation, visualizing something similar to social media timeline, improving navigation facilities in digital applications, offering alternative, competitive and comparable services (Chahal and Dutta 2015), personal assistance in the course of facilitating support chats with customers and credibility experience via electronic word of mouth (eWOM).

At the same time, when the customers do not have an implementation intention, likewise for non-customers who do not intend for MarTech usage, MarTech marketers have to deliver current pre-experience on MarTech in the course of their value offerings. For example; by increasing attractiveness into app home page with understandable and legible icons, customer-friendly sign in (Alavi and Ahuja 2016), offering understandable and needed MB app's information on banks' web page (Malaquias and Hwang 2018), taking into account customers' service considerations such as security, convenience and cost benefits and supporting or encouraging positive word of mouth. In addition, application developers should be requested to consider the access to security testing (Chanajitt, Viriyasitavat, and Choo 2018) and privacy concerns (Harborth and Pape 2021) before releasing the apps by the MarTech marketers. Thus, MarTech marketers' efforts on putting forward the customers current pre-experience on MarTech will reduce the intention-behavior gap of their customers.

This study helps MarTech marketers understand the customers' characteristics under MB apps usage behavior. For instance, all of sudden, psychological risk perception of MB app usage is converted as psychological risk perception of hand in cash usage in COVID-19 context. Hence, MarTech marketers in FinTech organizations have to think twice about innovative marketing strategies, policies and mechanisms regarding MarTech awareness campaigns and pre-experiences in the current scenario rather than over watchfulness of customers' characteristics eventually.

All in all, MarTech marketers should advance their MB app service system/tool by concerning the customers' pre-experience expectancies such as visualized experience, reputational experience, normality experience, economical experience, credibility experience, positional experience and image consistency experience. Ultimately, the purpose of the mechanisms of the pre-experience deliveries in the current scenario is to increase the customers' co-creating values with the FinTech organizations. In the end, therefore, MarTech marketers can achieve customers' co-creating value by the mechanisms of current pre-experience deliveries.

## CONCLUSION, LIMITATIONS AND FURTHER RESEARCH DIRECTION

In the end, therefore, a significant limitation shared by many consumer usage behaviour studies is that it can only measure usage intention and not actual behaviour given the nature of mobile banking services yet to be offered in the country and future studies should examine the causality between usage intention and actual usage

behaviour. This is another literature gap for this current study. Also, research on using constructs based on customer perceived characteristics linked with experience and awareness aspects to explore users' actual usage behaviour of a MarTech in FinTech perspective is lacking in the current literature. To fill above mention gaps, the study on customer characteristics in mobile banking application (MB app) usage behaviour with moderating effects of awareness and experience in Sri Lanka – MarTech Vs FinTech is carried out.

As theoretically and empirically based approaches, the current study has some limitations. This study considers only one type of FinTech organization (e.g., banks). There are several offerings such as ATM, CDM, internet banking (desktop web) and mobile banking (mobile web) that may persuade MarTech usage behavior in banks. Notably, this study considers only digital application marketplace (mobile banking apps) usage behavior in the current MarTech usage behavior domain as advancement in MarTech (Thakur 2019). Commonly, the developed concept models need to be empirically verified to confirm the suitability of different scenarios. Indeed, these theoretical ideas have potential applications in many other FinTech organizations and other MarTech services in the future. Thus, there is a scope for future researchers to carry out further research for the empirical testing to improve understanding of customers' MarTech usage behavior domain. Especially under the COVID-19 context, future research can build on this current study by testing IMTUBM and IMBUBM models in different organizations and different countries.

To conclude, this current study confines a specific construct during the COVID-19 outbreak. As a matter, it gives new initiative regarding current experience, especially pre-experience before the actual usage of MarTech. Thus, IMTUBM and IMBUBM models in this study signify an opportunity to do further research in future.

#### **CONFLICT OF INTEREST**

The authors declared no conflict of interest.

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