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Understanding the Drivers of Passengers' Intention to Engage in Digital Multi-Sided Ridesharing Platforms: Moderating Impact of Openness to Experience and Perceived Risk

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Abstract

This study examines the effect of consumers' value and risk perceptions on non-users' willingness to use digital multisided ride-sharing applications. The determinants of perceived value and risk have been analysed as second-order constructs, constituting their first-order value and risk dimensions. Following a quantitative approach, responses were collected from 339 participants using convenience sampling method. PLS-SEM was performed and findings indicated that perceived value and risk had significant effects on non-users' willingness to avail ride-sharing services. This study also highlighted that openness to experience and perceived risk showed a significant moderating effect on the relationship between perceived value and users' willingness to adopt ride-sharing services. The findings provide robust insights for market experts, entrepreneurs, and policymakers on understanding the key drivers of non-users' adoption of ride-sharing services and how to adopt innovation to make multi-sided platforms reliable and accessible through policy reformations.

Keywords: Perceived risk, ride-sharing, perceived value, sharing economy, personality

1.0 Introduction

Ride-sharing services **(RSS)** is a well-known sustainable innovative mobility option (Mancha et al., 2021; Icasiano & Taeihagh, 2021). Ride-sharing services allow people to share a common

transport while travelling in the same route at the same time (Ashrafi et al., 2021; Icasiano & Taeihagh, 2021; Leet et al., 2021; Sun et al., 2020; Ruch et al., 2020). The idea of such sharing mode of transportation has been popularised in recent times due to the prevalence of mobile-based ride-sharing applications (Tafreshian et al., 2020). The Global Positioning System (GPS) and rapid acceptance of mobile phone technology, as well as breakthroughs in cloud computing also enhance the opportunities of ride sharing (Cai et al., 2019; Sanasi et al., 2020). Splitting regular transportation cost is one of the main financial advantages of using RSS. However, it also ensures social convenience as it allows people to overcome their social anxiety through travelling in groups (Hwang & Griffiths, 2017; Icasiano & Taeihagh, 2021). Past researchers have also acknowledged that ride-sharing has mainly focused on long-term sustainability (Yu et al., 2020; Yan et al., 2021; Soltani et al., 2021). However, multi-sided platforms such as RSS have online and offline security issues (Cheng, 2016). However, despite having various benefits, users' acceptance for adopting such contemporary mode of transportation is still low (Wang et al., 2019; Martins et al., 2021). Accidental compensation, personal safety, security, breach of confidentiality, and personal property safety are several sorts of threats observed from ride-sharing literature (Hong, 2017). Besides, the strategy of product positioning must be established consciously to shift non-users towards regular users. Liao et al. (2015) suggested that both instructions and assistance of policymakers are critical components in the transformation of non-users into users. Consequently, it is crucial to apprehend the components that influence the non-users adopt sustainable mobility options like ride-sharing. Previously, technological progress was the prime focus of this unique mobility option (Hansen et al., 2010; Agatz et al., 2012; Barglind, 2015) and scholars have paid attention to the social, financial, and ecological advantages of using such transportation mobility option (Yin et al., 2018; Wang et al., 2019; Breidbach et al., 2019; Malichová et al., 2020). However, studies that have explored the perspectives of non-users and considered different strategies for making them regular users are scant. The emerging connection between the transportation mobility option and passengers gave rise to a sociological debate which has widened due to the introduction of using new technology and services (Arcidiacono et al., 2018). There are a wide variety of components that embodies the idea of ‘sharing economy’ and they have been

continuously structuring the social connection between passengers and service providers leading to an unsolved sociological debate.

Additionally, value creation theories have been the core area of discussion in the sociological review monograph debates with the growth of sharing economy (Adkins & Lury, 2012). In the pursuit of exploring the sociological debate related to RSS, a crucial component is to acknowledge design thinking which brings novelty and acts as a precursor to value creation (Matsui et al., 2020). One of the main pillars of design thinking is human-centred design thinking approach which allows problem- solving in an effective manner. Human-centred design thinking keeps customers in the focal point of the design and development process for the purpose of portraying the needs of consumers (Dell'Era et al., 2020). Therefore, this research aims to enhance the theoretical depth by incorporating human-centred design thinking approach in analysing passengers' willingness to adopt ride-sharing services in Bangladesh. This design thinking approach's main guiding principle focuses on final consumers' willingness to accept a product or service based on their needs. (Michlewski, 2008). According to design theorists, it is vital to anticipate consumer needs and expectations surrounding the service being provided. In fact, according to Dorst (2011), problem framing is an important domain in design thinking which, however, is a continuing procedure until the issue is resolved (Boland & Collopy, 2004; Drews, 2009). Scholars also claimed that passengers could become sceptical about using RSS, as the services depend on the internet-environment where different sorts of risks are associated with using such mobile based ride-sharing applications (Chen & Dubinsky, 2003). Wang et al. (2019) argued that consumers' decision-making is affected by the perceived risk **(PR)** and perceived value **(PV)**.

Moreover, prior studies have explored that not only risk perception influences customers' behavioural intentions, but also moderates the relationship between consumption willingness and perceived value (Chauhan et al., 2019; Ha, 2020; Ho et al., 2020; Susanto et al., 2020). Hence, it is pivotal to understand the relationship between consumers' value and their behavioural intention to use mobile application-based ride-sharing services with varying risk levels. Nonetheless, it is yet unknown and unclear what motivates non-passengers to adopt the ride-sharing services and what causes them to reject this sustainable mode of transportation. Moreover, understanding the factors that influence non-passengers' decision to

adopt ride-sharing is essential for acquiring and enhancing our knowledge about the underlying decision-making process of non-passengers. Nevertheless, in the current literature on ride-sharing, it is still ambiguous how an individual's personality trait affects their motivation and behavioural intention to use ride-sharing services. Thus, there are gaps in the existing literature that need to be addressed and validated. Hence, this research effort is meant fill the gap by responding to two critical and essential research questions:

RQ1: How do people's perceptions of risk and value affect their behavioural intention in availing ride-sharing services?

RQ2: Is there any relationship between individuals' willingness to use ride-sharing and their perceived value, which is moderated by perceived risk and personality trait: openness to experience (OE)?

It is critical to answer these research questions to maintain the profitability and growth of ride-sharing (Muzellec et al., 2015) as multi-sided platforms such as RSS bridge two inter-dependent and distinct consumer groups. In addition to that, it may help in providing marketers with valuable and useful information that will enable them in understanding consumer behaviour in the context of ride-sharing. This study contributes to the ongoing debate by bringing a non-user's perception to the light and improving current knowledge in many different ways. Firstly, there is a rising dispute regarding individuals' perceptions of value and risk, which acts as predictors of non-passengers' intention to use mobile-based ride-sharing applications.

This study examined whether there is any influence of non-passengers' perceived value and perceived risk on their behavioural intent to avail ride-sharing services. Secondly, this study intended to make a theoretical contribution by adopting a human-centred design thinking approach with the objective of studying the value and risk perceptions of non-consumers in order to better understand their acceptance and adoption behaviour in the ride-sharing context. Thirdly, majority of studies (Liu et al., 2015) have considered perceived risk and perceived value as one-dimensional constructs. Moreover, this research demonstrated how perceived value and risk as multidimensional constructs affected non-users' willingness in adopting ride-sharing services. Nevertheless, there is an ongoing argument about what sorts of value and risk dimensions influence ride-sharing

acceptance. Thus, this study contributes to the contemporary literature by focusing on symbolic, hedonic, and economic values along with other risk components, such as performance, security, privacy, and time.

Furthermore, due to limited number of studies examining the moderating effect of an individual's personality traits on the relationship between their value perception and behavioural intention, this study attempts to deepen the theoretical foundation by concentrating on 'openness to experience' as a moderating variable. Hence, this study had directed a well-constructed relationship amongst the variables: openness to experience, perceived risk, perceived value, and consumer willingness to use RSS. Finally, the empirical findings of this study contribute by demonstrating how the insights may assist new market entrants and policymakers in designing relevant regulations.

This article analyses relevant literature first, using a defined framework. In the next part of the study, a theoretical outline is proposed followed by the hypothesis derived from the existing literature. The third section of the study presents the research design followed by the data analysis and findings. Finally, the article ends with an academic narration and conclusion derived from the literature review and findings. In the last part of the study, limitations and future directions for research are highlighted.

2.0 Literature Review on Digital Multi-Sided Platforms

With the internet and the advancement of information technology, multi-sided platforms have grown in popularity. Two-sided platforms bring together two separate yet interconnected consumer groups, and by linking these groups, they add value as intermediaries (Osterwalder et al., 2010). In management and information technology-related research, the multi-sided platform has been extensively highlighted. However, it has been recently treated with the logic of the business model (Täuscher & Laudien, 2018). Scholars frequently use the terms such as marketplaces (Täuscher & Laudien, 2018), platform-based markets (Zhu & Iansiti, 2012), multi-sided markets (Rysman, 2009), and platform ecosystems (Scholten & Scholten, 2012) interchangeably with one another. This business model has gained considerable attention because of the ground-breaking achievements of digital services like Airbnb and Uber (Coyle, 2017).

On the other hand, multi-sided platforms have been around for an extended period. For instance, conventional shopping malls bring

together consumers and vendors by offering facilities and services (Frishammar et al., 2018). Mobile, internet, and digital technologies, on the contrary, have accelerated the widespread adoption of digital multi-sided platforms (de Oliveira & Cortimiglia, 2017). They enhance match-making mechanisms, the scope of connecting platform sides, and ensure more effective transaction management, as well as trust (Evans & Schmalensee, 2016). In addition, combining the platform model with internet technology enhances the simplicity of use and perceived usefulness, resulting in better protection and transparency, including higher satisfaction amongst the users. (Kim, 2018).

2.1 Perceived Value (PV)

Value generation is considered the most critical element of a transaction as per customers' points of view (Patterson & Spreng, 1997). On the contrary, Hsiao et al. (2016) suggested that establishing and realising the perceived value usually gets higher priority for gaining a competitive advantage in marketing. Research on consumer behaviour has revealed that a consumer's perceived value is essential when making purchase decisions (Jin et al., 2015). Consumers' perceived value is known as the variance among the highest price a person is willing to spend and the price they actually pay for that service or product (Bishop, 1984). Zeithaml (1988) referred to perceived value as the individual's valuation of the gap between what they spend and what they get. A few scholars referred to perceived value as a social psychology aspect (Sheth et al., 1991), which can influence the degree of acquiring a service or product to improve a person's social status (Sweeney & Soutar, 2001). Zeithaml's (1998) explanation has been primarily recognised as the foundation for understanding perceived value to many researchers who explored individual's value perception (Wong, 2014). Consequently, this research analysed perceived value as an individual's evaluation on using ride-sharing through a cost-benefit analysis innovative transportation mode. Passengers calculate the trade-off between the value and risk associated with ride-sharing before using the service (Ashrafi et al., 2021).

Several studies have explored various areas such as tourism, hospitality, e-commerce, mobile-technology, and restaurants (Chiu et al., 2014; Teng & Wu 2019); where individuals' value perception has noteworthy effect on their purchasing behaviour (Park et al., 2016; Hong, et al., 2017; Hsiao, 2020). Consumers' who possess higher perceived value usually purchase more products. According to Zhang

et al. (2018), "innovation technology diffusion" is the most crucial factor in the framework of perceived value. Zhang et al.'s (2018) findings also helped many other studies in highlighting consumers' value proposition framework in the context of sharing economy and enabled researchers to analyse the link among individuals' repurchasing intentions and perceived value. The youth have a greater acceptance rate for the sharing economy and they engage in collaborative consumption if they feel perceived value is associated with the consumption (Hwang & Griffiths, 2017). Furthermore, the Value-Based Adoption (VAM) framework explains the critical role of consumers' perceived value (Zhu et al., 2017) in increasing motivation and willingness to adopt the innovative and sustainable transportation mode called ride-sharing (Wang et al., 2019).

Therefore, referring to the preceding literature, the influence of consumers' value perception to accept the innovative transportation mode, commonly identified as "ride-sharing", can be hypothesised as follows:

H1: Consumers' PV positively influences their willingness to adopt RSS

2.2 Conceptualisation of PV

In consumer behaviour research, the value perception of an individual is a critical concept for determining an individual's purchase intention (Wang et al., 2019). Previous studies have looked at the elements that influence perceived value and how they affect customers' decisions to accept a product or service. Scholars argued that consumers' value-based perception is a one-dimensional construct (Wang et al., 2019; Liu et al., 2015). In contrast, a few scholars referred to this value perception as a multidimensional construct (Lin et al., 2005) which makes it more complex for consumers. Lin et al. (2005) introduced a model that emphasised on value perception's complexity and constructed a hierarchical second-order model. Wang et al. (2019) conceptualised the elements of perceived value as a second-order construct constituted by it first-order perceived value dimensions, whereby a formative conceptualisation has been regarded preferable to a reflective one. Luo et al. (2010) explained that any modification in one dimension of a paradigm does not influence the other dimensions of the same construct. Therefore, researchers hold the view that multidimensional approach may be developed when the features are

intrinsically different and non-substitutable (Carlson et al., 2015; Wang et al., 2019). Hence, hedonic, symbolic, and economic values are presented as the first-order value components for structuring a formative hierarchical second-order construct. Although two of the most common elements of perceived value are categorised as economic and hedonic values (Wang et al., 2019; Ofori et al., 2021), scholars have highlighted on symbolic value as well (Roy et al., 2018).

Furthermore, symbolic value has emerged as a crucial aspect of the value perception of an individual, allowing researchers to understand its impact on the users' psychological decision-making process (Roy et al., 2018; Creusen & Schoormans, 2005). Other elements of perceived value, like epistemic, economic, communal, and social advantages, have also been studied and found to have an influence on customers' degree of engagement and play an essential part in motivating an individual to buy and use any products or services (Kim et al., 2015; Yang & Xia, 2021). However, Stollery and June (2017) classified perceived value as economic value, social connection, novelty, and hedonic value, and all four values are based on collaborative consumption. On the other hand, Hwang and Griffiths (2017) classified a person's value perception through utilitarian, symbolic, and hedonic values. The aim of this research was to explore consumers' acceptance of ride-sharing as a mobility alternative and a shared transportation innovation. Therefore, three components of consumers' value perception were investigated in this study: hedonic (HDCVLU), symbolic (SMBVLU), and economic value (ECNVLU). These three components are foundational elements and, subsequently, are sufficient for a comprehensive assessment of a person's value perception concerning the advanced and sustainable transportation option: ride-sharing. The preceding arguments of ride-sharing refer to three perceived value dimensions.

2.2.1 Symbolic Value

Using a product or service raises an individual's self-concept, and it is known as a symbolic value (Sweeney & Soutar, 2001). Blamey and Braithwaite (1997) argued that symbolic value corresponds to an individual's social beliefs regarding social behaviour. According to Roy et al. (2018), an individual ties and assigns psychological meanings to products. By participating in multi-sided platforms like ride-sharing provide individuals a feeling that they are gaining prestige or position in society, which may serve as a precursor to the development of

having symbolic values. Earlier studies conducted by Roy et al. (2018), and Creusen and Schoormans (2005) showed that symbolic values impact passengers' interest to avail ride-sharing services. Thus, based on the context as mentioned above, we hypothesise the following:

H2a: SMBVLU positively influences consumers' PV.

2.2.2 Economic Value

Economic cost is one of the most crucial elements that an individual considers while participating in multi-sided platforms like ride-sharing (Böckmann, 2013). According to previous studies, one shared moving vehicle removes 9 to 13 vehicles from the road (Martin et al., 2010). Zhang et al. (2019) argued that users perceive the economic value as the most significant benefit of using mobile-based ride-sharing applications. Specifically, when using cars as a shared vehicle, it gets cheaper for users to travel to their desired destination and provides the participants with dual economic benefits (Fleury et al., 2017). A study led by Duman and Mattila (2005) in the tourism industry showed that economic cost is an essential element for considering consumers' value-based perception. Additionally, Turel et al. (2010) showed that economic value positively influences perceived value. Hence, on the ride-sharing context, the subsequent hypothesis is postulated:

H2b: ECNVLU has a positive influence on consumers' PV

2.2.3 Hedonic Value

Peoples' judgment, evaluation, and appraisal of emotional, as well as experiential aspects such as pleasure or amusement, are called hedonic value (Maehle et al., 2015; Ho et al., 2020). Individuals' buying decisions are influenced by the emotional elements they derive from acquiring some products or services (Babin et al., 1994). As a result, people's emotional state when utilising ride-sharing services is considered a vital element of their ride-sharing experience. Furthermore, in consumer behaviour research, hedonic value is a critical constituent of customers' value perception (Ashrafi et al., 2021). According to Kim et al. (2013), an essential element that motivates passengers to participate in ride-sharing is pleasure motivation—allowing passengers and drivers to share information, resulting in enhanced trust. Consequently, these encounters might promote

productive social communication (Wang et al., 2019). Moreover, in discussing consumers' value perception, hedonic value is considered an essential component due to its inherent emotional meaning (Zhu et al., 2017). Adopting ride-sharing services is related to hedonic value, as it has a significant influence on passengers' mind-set (Voss et al., 2003; Wang et al., 2019). Referring to evidences from the prior literature, we can hypothesise that:

H2c: HDCVLU positively influences consumers' PV

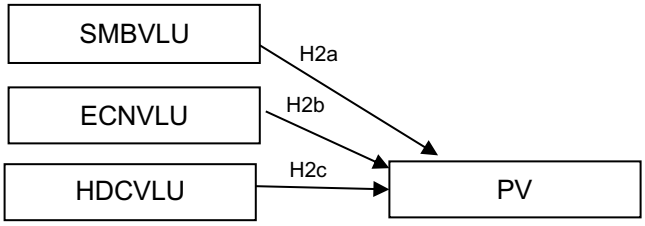

Figure 1 : Conceptualisation of Perceived Value

2.3 PR and its Effect on RSS Adoption

The possible adverse effects of adopting something unusual are characterised as a passenger's perceived risk. It is a widely acknowledged phenomenon in consumer behaviour research (Bauer, 1960) that occurs when a new product or service is purchased and acquired (Wang et al., 2019). According to Cox and Rich (1964), uncertainty and losses are vital components while considering passengers' risk perception. Researchers' explored that perceived risk has a significant barrier on customer decision-making (Chang & Tseng, 2013). Besides, based on the ride-sharing perspective, customer risk perception has been described as an unfavourable or negative consequences that they might face while using the services (Wang et al., 2019). Previous literature revealed that perceived risk acts as a barrier in individuals' decision-making. Prior studies have also found that consumers' uncertainty concerning the risk factors increases specifically in the internet-based transaction (Martins et al., 2014; Akin et al., 2021, Xu et al., 2021). People hesitate to do transactions and exchange personal information on the internet due to security and privacy breaches. Individuals are more concerned about security and privacy matters because of the prospective data breaches in an internet

environment. Belanche et al. (2012) emphasised the problem's significance by expressing concerns over the loss of personal encounters and face-to-face communications. Contemporary online-based services have an unsafe image amongst passengers due to the associated risks than traditional offline-based services (Chang & Tseng, 2013). Furthermore, various studies on sharing economy revealed that individuals' perceived risk is an essential element that has a negative impact on their willingness to adapt RSS (Ashrafi et al., 2020; Nguyen-Phuoc et al., 2021). Unlike traditional taxi services, the mobile app-based ride-sharing depends on global positioning system (GPS) which augments passengers' prospective risks. These include concerns about privacy, as well as physical and financial threats (Zhu et al., 2017). The chances of leaking personal data during online transactions are the primary sources of economic and privacy threats. On the contrary, physical risks, for instance, difficulties with accident, including compensation and loss of private property, are present in offline process (Zhang et al., 2016; Wang et al., 2019, Nguyen-Phuoc et al., 2021).

Considering prospective risk factors, passengers might hesitate and eventually avoid ride-sharing services (Ashrafi et al., 2020), which indicates risks can influence a person's decision to adapt ride-sharing. Features like GPS monitoring, along with a comprehensive and appropriate compensation system, minimise perceived risk and considerably enhance customers' involvement with ride-sharing services (Hong, 2017). Hence, we can propose the next hypothesis:

H3: Consumers' risk perceptions negatively influence their willingness to use ride-sharing

2.4 Conceptualisation of PR

Scholars have investigated customers' perceptions of risk as a uni-dimensional construct that can influence their perceptions in taking decisions (Dai et al., 2014; Yang et al., 2015; Fortes et al., 2017). A growing number of empirical investigations have been conducted in recent years where perceived risk has been shown as multi-dimensional (Gbongli et al., 2017; Wang et al., 2019; Jun, 2020; Parry et al., 2021). Moreover, cultural variations, trade environment, and unique purchasing behaviour can catalyse the determination of a consumer's risk perception (Yang et al., 2015; Thilina & Gunawardane, 2019; Bhatti & Rehman, 2020). There are various risk components

(Featherman & Pavlou, 2003), such as social, financial, time, privacy, psychological, and overall risks in internet-based services. Nevertheless, regarding data loss throughout online transfers and payment, Yang et al. (2015) also mentioned that service and security risks are vital components concerning individuals' risks. Previous studies have examined the influence of individuals' risk perceptions on their interest and willingness to engage in the sharing economy. Empirically, the most repeatedly observed risks that cause customer distress while using ride-sharing services are privacy and security threats (Chang & Wang, 2018; Wang et al., 2019). Passengers might show their concerns due to the possibility of inexperienced drivers who might not be legally licensed to provide the ride-sharing service (Wang et al., 2019). Consequently, the prospective legal aspect of risk is a vital constituent of passengers' perceived security risk. Furthermore, Hong (2017) classified that ride-sharing has four major risks: privacy, conflict, performance, and fairness. Consumers' expectations about quality and performance from a product or service in terms of economic cost are labelled as performance risk. As a result, this study employed performance risk as a component of customer perception of risk with financial risks. Besides, unfair compensation structure and policies related to customers' financial and time loss can generate conflict risk (Wang et al., 2019).

Ride-sharing can provide several facilities to all associated parties, including service providers, drivers, and customers. Thus, fairness risk (i.e., uncertainties in allocating resources, revenues, and profits fairly) was not included as a perceived risk component in this study. Therefore, this factor was hypothesised as a formative second-order construct in this research to get a better understanding of risks as a multi-dimensional construct. Furthermore, the perceived risk has been proposed and contextualised as a multi-dimensional construct by incorporating the risk dimensions. Hence, four prime risk components, such as security (SRTRSK), privacy (PRVCRSK), time (TMRSK), and performance risk (PRFRSK), are highlighted in this study and discussed in the following segment.

2.4.1 Privacy Risk

Ensuring individuals' security and safety is crucial for RSS if they want to receive acceptance from the mass community (Wang et al., 2019). Concerning consumers' involvement in the sharing of economy, privacy, and security issues is considered as a key 'disincentive' in a

few studies (Teubner & Flath, 2019; Yi et al., 2020). In this study, "privacy risk" refers to threats of privacy violations, breaches, and harm caused by the misuse of personal data of an individual (Ashrafi & Easmin, 2022; Goel et al., 2016). By emphasising the possible abuse of customer data by service providers, Balapour et al. (2020) highlighted the significance of privacy risk. Furthermore, customers who use mobile-based ride-sharing apps may face privacy concerns as this service demands personal information, bank account information, and real-time location, which might result in physical and financial losses (Hong, 2017; Wang et al., 2019). Henceforth, the study proposed that the next hypothesis is based on the correlation between formative second-order construct and its first-order risk component:

H4a**:** PRVCRSK has a positive influence on consumers' PR.

2.4.2 Performance Risk

Many research has emphasised on the need to assess performance risk prior to engaging in sharing economy (Hong et al., 2019; Jun 2020; Yi, Yuan & Yoo, 2020). Featherman and Pavlou (2003) examined performance risk in the domain of ride-sharing by describing the tendency or capability of a service that cannot fulfil the user's preferred performance expectations. Several studies have highlighted the significance of performance risk in the e-commerce and mobile commerce domains. Previous literature claimed performance risk as a crucial factor to determine customers' risk perception (Wang et al., 2019). In ride-sharing services, passengers cannot evaluate their satisfaction level in advance because they cannot test the services without paying (Birinci et al., 2018). Hence, it has a negative impact on their acceptance decisions (Chen & Huang, 2017; Guru et al., 2020). While passengers' avail ride-sharing, they may not find drivers as competent as taxi drivers, and some of them are not proficient in route selections, which eventually makes the process difficult for service takers to reach their location at their preferred time (Nguyen-Phuoc et al., 2021).

Additionally, ride-sharing apps sometimes increase costs temporarily (e.g., price increase during office hours). Hence, we argued that performance risk may be viewed as a prime factor of the perceived risk that adversely affects customers' intention to adopt ride-sharing. Thus, we refer to the following hypothesis:

H4b: PRFRSK has a positive influence on consumers' PR.

2.4.3 Security Risk

A threat to the users' safety and personal property is known as a security risk (Lee et al., 2018; Abayomi et al., 2020). Sharing rides contains physical involvement, and it may affect customers' safety risk. Consequently, this may lead to property damage and personal injury. Sharing rides with strangers and drivers who can be unprofessional and ignore the safety of passengers (Roger, 2015), on the other hand, may lead to a consumer's resistance to using ride-sharing (Wang et al., 2019). In addition to that, safety concerns, verbal abuses, and sexual harassments are vital issues that may discourage female passengers from using ride-sharing services in Bangladesh (Kumar et al., 2018).

Hence, enhancing an individual's security is a significant component in the perceived risk dimension that may support the development of a positive attitude towards ride-sharing services. Furthermore, researchers found that passengers who are not so worried about safety are more likely to avail ride-sharing (Anaya-Sánchez, 2020; Wang et al., 2019). Prior literature has shown that risk perception has a significant impact on consumers' behavioural intention (Lee et al., 2018). Security risk strongly affects passengers' perception to adopt ride-sharing services (Valente et al., 2019; Ashrafi et al., 2020). Thus, this study proposed the following hypothesis:

H4c: SRTRSK has a positive influence on consumers' PR.

2.4.4 Time risk

Garnet (1986) referred to time risk as the probability of wasting time, chances of missing out an opportunity due to time-error, putting too much energy while receiving a service, or investing too much time in one activity. A study conducted by Mitchell and Greatorex (1993) in hotel services showed that time was one of the vital antecedents of perceived risk. On the other hand, in 2015, a study on sharing economy found that using such platforms requires much time and effort for having a reliable offering as it requires them to choose from a diverse range of options in the applications or websites (Carlson Wagonlit Travel, 2015).

Furthermore, as not all apps have an immediate book feature, sending messages to the host before being allowed to use a particular service would take additional time and effort (Guttentag, 2015). Hence,

in the ride-sharing context, we argued that while attempting to take the service, a user may need to wait until the destination of the rider and user are appropriately matched, which may lead to time wastage from the user's end. Thus, the subsequent hypothesis was postulated:

H4d: TMRSK has a positive impact on consumers' PR.

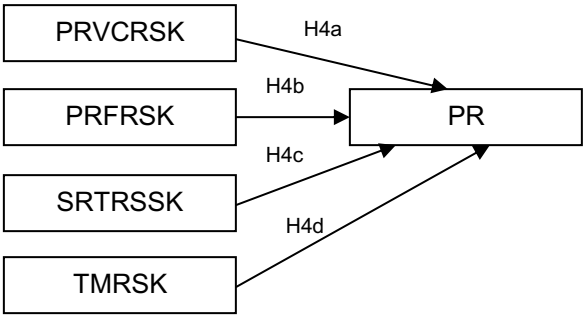

Figure 2 : Conceptualisation of PR

2.5 PR as a Moderating Variable

Consumers' value judgments may shift as risk levels rise or fall, affecting customers' acceptance behaviour (Chiu et al., 2014). As a moderator, the perceived risk may influence customers' desire to use e-services (Featherman & Fuller, 2003). A risk's moderating effect on customers' value perception and behavioural intention can change the causal connections between them.

Moreover, many studies have examined the correlation between consumers' adaption behaviour and value perception. Previous studies have found that risk has a substantial moderating influence on the association between adaption behaviour and consumers' value perception (Casidy & Wymer, 2016; Wang et al., 2019; Arruda Filho et al., 2020; Abayomi et al., 2020). Chiu et al. (2014) found that risk negatively moderates the connection between customers' intention to repurchase in online shopping and utilitarian value. On the other hand, perceived risk moderates the link between repurchase intention and hedonic value. However, product acquisition in an internet based environment is potentially risky (Wang et al., 2019). According to Chang and Tseng (2013), consumers may be interested in purchasing a product or service due to their increased value. Still, they may renounce their willingness to buy the product or service if the risk factors connected with the product/service acquisition are high.

Furthermore, the heightened level of perceived risk is going to reduce the effect of perceived value on passengers' behavioural intention to adopt ride-sharing services. Therefore, the following assumption is projected in order to investigate the connections between customers' behavioural intention, perceived risk, and perceived value:

H5: The positive relationship between consumers' PV on their intention for RSS adoption will be stronger for the group having a lower level of PR when compared to the group having a higher level of PR.

2.6 OE as a Moderating Variable

There are differences between individuals who enjoy variety and novelty, and those who strive for recognition and a set fixed schedule. More flexible and open-mindset are the characteristics found in people with a high degree of OE. On the contrary, people with a low degree of OE prefer to be comfortable in a familiar place (McCrae, 1994; McCrae & Costa Jr, 1997). People with high OE tend to participate more in innovative behaviours as it positively correlates with innovation and creativity as per an increased number of prior studies (Patterson & Zibarras, 2017; Batey & Furnham, 2006; Hammond et al., 2011). OE has also been linked to the use of preventative healthcare and health-promoting activities, for example, influenza vaccinations (Iwasa et al., 2009; Pandhi et al., 2016; Nolan et al., 2019). However, studies that have investigated the impact of OE on the passengers' motivation and willingness to engage in ride-sharing are scant. It is believed that early adopters' decisions to accept an innovation are influenced mainly by their innate innovativeness. However, Dearing (2008) argued that people who are less responsive to adopting an invention in their day-to-day lives are more likely to be affected by social pressure. Furthermore, a person with a higher level of OE is more likely to demonstrate non-conformance behaviour (McCrae & Costa Jr, 1997). It drives them to ignore objective knowledge and they adapt to a dynamic, personal, and spiritual approach to decision-making (Browne et al., 2015). Hence, it is hypothesised that the connection between perceived value and participation intention should be more robust for persons with higher OE than those with lower OE. This concern has yet to be investigated in literature and, therefore, the following hypothesis was proposed:

H6: The positive impact of consumers' PV on their intention for RSS adoption will be stronger for the group having a higher level of OE when compared to the group having a lower level of OE.

Additionally, we provided a research model (Figure 3) to explore the degree of influence of customers' perceived risk and value on their readiness to choose ride-sharing with the moderated effect of openness to experience according to the above-mentioned reviewed literature. Customers' value perception and perceived risk are characterised as formative second-order constructs which are formed by its first-order value components and risk dimensions to obtain a comprehensive understanding regarding their impact on customers' willingness to adopt the innovative mobility option called ride-sharing. Perceived value components are economic, hedonic, and symbolic value, whereas risk components are time, performance, security, and privacy risks.

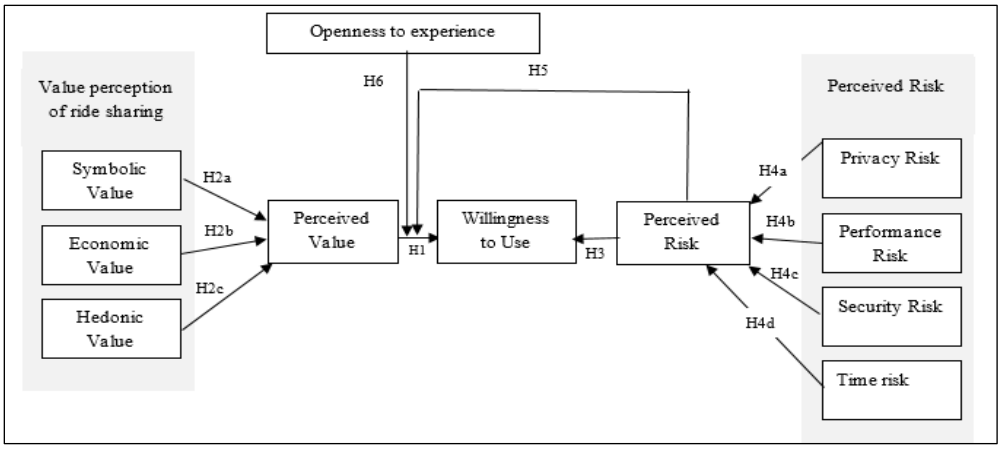

Figure 3 : Proposed Framework for The Study

3.0 Methodology

3.1 Development of Measurements and Sampling Procedure

In order to assess the proposed hypotheses, responses were gathered through a structured questionnaire. A multi-item measurement scale was designed as per the study framework, and the scale was constructed by employing existing literature connected to sharing economy and e-commerce. Moreover, it was based on validated and approved scales that were used to assess perceived value, risk, and individuals' behavioural intention for using innovative

services and technology. A pilot test with 25 participants was conducted to examine the contextual alignment and logical pertinence. Next, a few items were adjusted depending on the feedback of the respondents. Data were collected from the participants using a convenience sampling method and from the urban areas of Bangladesh. Four items from Sweeney and Soutar's (2001) study were adapted to evaluate economic and symbolic value.

For the measurement of hedonic value, items were derived from the study of Sun et al. (2016). Five items were drawn from the Yang et al. (2015) and Wang et al.'s (2019) studies to determine performance risk. Moreover, privacy risk was assessed through adapting five items from Yi et al. (2019) and Wang et al.'s (2019) studies. Four items were collected from Guttentag (2015) and Kim et al.'s (2009) studies to measure time risk.

For measuring security risk, three elements were taken from Wang et al. (2019) and Grewal et al.'s (2003) studies. Items related to customers' intention to participate in ride-sharing were drawn from the study of Hamari et al. (2015) by using three items. Nevertheless, the personality dimension named openness to experience was measured by a ten-item personality inventory (Gosling et al., 2003). The items were measured using a five-point Likert scale, with these anchors: strongly agree' (5) and 'strongly disagree' (1). According to Babakus and Mangold (1992), a five-point Likert scale provided a more user-friendly and straightforward direction in the survey, ensuring a high response rate.

3.2 Survey Administration

In this study, a global survey website named Survey Monkey was adopted to collect data. The data were collected over six months, which are from February 21 to August 18, 2021. The questionnaire, which was divided into three parts, was filled out voluntarily by the respondents. The first portion of the questionnaire provides a summary explaining the purpose of the study and a simple introduction of ride-sharing. It also includes a screening question to identify whether they are users or non-users. Next, the second segment of the questionnaire was meant to evaluate the behavioural intention for using ride-sharing services and the perceived value and risk associated with using the service.

The respondents' demographic information is presented in the final part. 542 individuals responded to the survey, out of which 348

had never utilised ride-sharing services. Only 3% of the questionnaires had missing values. So, questionnaires with missing data were omitted from the analysis. Finally, a total of 339 questionnaires were retained.

Table 1 : Descriptive Statistics

Variable		**Frequency**	**Percentage (%)**
Gender	Male	157	46
	Female	182	54
	Total	339	100
Age	<25	17	5
	25-29	87	26
	30-34	92	27
	35-39	106	31
	40-44	37	11
	>45	0	0
	Total	339	100
Educational level	High school or college	22	7
	Bachelor's degree	238	70
	Master's degree	79	23
	PhD	0	0
	Total	324	100
Income (Monthly in USD)	< 230 USD	29	8.5
	231-340 USD	162	48
	341-455 USD	116	34
	> 456 USD	32	9.5
	Total	339	100

3.3 Data Analysis Tools

For the purpose of data analysis and assessing the hypotheses, partial least squares structural equation modelling (PLS-SEM) was performed to examine whether data could fit in the research framework, as discussed in the literature. PLS-SEM was chosen as it is a powerful technique to deal with complex hierarchical models (Hair et al., 2012; Ashrafi et al., 2021). All of the latent variables in the study had been proposed as second order constructs (formative) where they included their own first-order dimensions as observable variables (Wu & Chiu, 2018). When a model is complicated or comprehensive, the PLS-SEM approach offers several advantages for data analysis. Furthermore, when a research has limited residual distribution and a small sample, the PLS-SEM approach possesses certain advantages (Hair et al.,

2012). So, this research employed the PLS-SEM technique on account of its small sample size and the fact that PV and PR are both formative second-order constructs. This study used Smart PLS 3.4.4 to ensure the robustness of the analysis (Risher & Hair Jr, 2017). A repeat indicator technique was adopted to evaluate the latent variables of the second-order constructs. For all of its first-order dimensions, the repeat indicator method had been acknowledged as a mechanism (Carlson et al., 2015) that enabled the evaluation of formative second-order constructs by their observable variables. The research model, for instance, suggested three first-order constructs: SMBVLU, ECNVLU, and HDCVLU containing twelve items that were used to assess the second-order construct PV. In similar vein, PR was assessed through their own first-order dimensions, namely SRTRSK, TRSK, PRFRSK, and PRVRSK. Next, to determine whether there are reliability and construct validity, this study assessed the measurement model by using the PLS-algorithm. Overall, a two-step approach was applied (Carlson et al., 2015) in analysing the data, and the structural model was examined to understand the relationships between the exogenous and endogenous variables. The bootstrapping method was also used to determine the significance of path coefficients for the PLS-SEM analysis.

3.4 Measurement Model Evaluation

In this study, construct reliability and validity tests were conducted before evaluating the projected hypotheses. Composite reliability (CR) scores and Cronbach alpha were used to assess the internal consistency of each item (Fornell & Larcker, 1981) corresponding to constructs. The CR values of the constructs ranged from 0.78 to 0.93, as shown in Table 2. It is evident that all values surpassed the accepted range of 0.70, as shown in Table 2. (Hair et al., 2014). The Cronbach alpha values were above than the suggested benchmark of 0.70. The values ranged from 0.73 to 0.86, indicating an adequate and acceptable internal consistency. Henceforth, as per these findings, the measurement model was proved to be reliable.

Table 2 : Reliability and Validity of the Constructs

Construct	AVE	Composite reliability	Cronbach alpha
SMBVLU	0.68	0.78	0.74
ECNVLU	0.85	0.85	0.78
HDCVLU	0.76	0.82	0.77
PRFRSK	0.71	0.86	0.8
PRVCRSK	0.83	0.93	0.86
SRTRSK	0.77	0.87	0.83
TMRSK	0.68	0.79	0.73
WLTUSE	0.81	0.89	0.81
OE	0.64	0.78	0.82

Note: TMRSK, time risk; PRFRSK, performance risk; SRTSK, security risk; PRVCRSK, privacy risk; HDCVLU, hedonic value; SMBVLU, symbolic value; ECNVLU, economic value, WLTUSE, willingness to use

Discriminant and convergent validity were examined to verify that the measures accurately reflected the relevant constructs. The average variance extracted (AVE) proposed by Hair et al. (2006) was applied to analysed convergent validity. The average variance extracted (AVE) values were greater than the suggested benchmark of 0.50, ranging from 0.68 to 0.85 (Hair et al., 2019). The item loadings for each of the items were greater than the indicated value of 0.70 (Hair et al., 2012). Discriminant validity was evaluated through the Fornell-Larcker criterion and HTMT ratio. Table 3 shows that all of the values were below 0.85 and met the required benchmark (Hair et al., 2016; Henseler et al., 2015).

Moreover, the VIF values were assessed, and the values ranged from 1.35 to 2.71. Therefore, no multicollinearity issues were detected (Petter, DeLone, & McLean, 2008). Additionally, the inner VIF values were examined, and they were below the required threshold of 3.30, as suggested by Kock (2015). Hence, the model was free from CMB (common method bias). According to Tables 3 and 4, all the values have met the required benchmark (Hair et al., 2012; Henseler et al., 2015; Teo et al., 2008; Fornell & Larcker, 1981). Therefore, the measurement scales were appropriate for calculating the components of the proposed research model.

Table 3 : Discriminant Validity (Fornell-Larcker criterion)

	SMBVLU	HDCVLU	ECNVLU	PRVCRSK	PRFRSK	SRTRSK	TMRSK	WLTUSE
SMBVLU	**0.81**							
HDCVLU	0.4	**0.84**						
ECNVLU	0.33	0.45	**0.82**					
PRVCRSK	-0.03	0.04	-0.02	**0.85**				
PRFRSK	-0.31	-0.04	-0.07	0.21	**0.89**			
SRTRSK	-0.42	-0.08	0.07	0.31	0.47	**0.86**		
TMRSK	-0.31	-0.09	0.02	0.41	0.61	0.54	**0.87**	
WTUSE	0.81	0.42	0.35	-0.04	-0.41	-0.39	-0.33	**0.88**

Note. Off-diagonal elements are the construct correlations, while diagonal elements in bold and italic are the square root of the AVE.

Table 4 : Discriminant Validity (HTMT ratio)

	SMBVLU	HDCVLU	ECNVLU	PRVCRSK	PRFRSK	SRTRSK	TMRSK	WLTUSE
SMBVLU								
HDCVLU	0.568							
ECNVLU	0.71	0.67						
PRVCRSK	0.74	0.68	0.79					
PRFRSK	0.72	0.64	0.57	0.61				
SRTRSK	0.612	0.718	0.745	0.72	0.674			
TMRSK	0.72	0.59	0.65	0.823	0.564	0.653		
WTUSE	0.641	0.673	0.782	0.764	0.756	0.718	0.811	

Note: TMRSK, time risk; PRFRSK, performance risk; SRTSK, security risk; PRVCRSK, privacy risk; HDCVLU, hedonic value; SMBVLU, symbolic value; ECNVLU, economic value, WLTUSE, willingness to use

4.0 Evaluation of the Structural Model

The p values of all of the path coefficients were less than 0.05, indicating that all paths were significant. As a result, all of the hypothesis for the suggested research model were confirmed. Figure 6 depicts the suggested model's explanatory power, and according to the R square value, the model accounted for 49 percent of the variation in customers' willingness to participate in RSS. Figure 6 shows that perceived value had a substantial positive influence on customers' propensity to adopt RSS (β_{H1}= 0.62, p=0.001, t-value=5.76) and contained three components: SMBVLU, HDCVLU, and ECNVLU. Thus, H1 was supported. PR that is comprised of four risk elements indicated a negative correlation with customers' willingness to use RSS (β_{H3}= -0.29, p= 0.01, t-value=6.87), supporting H3. Table 5 reveals that

three value dimensions (SMBVLU, HDCVLU, and ECNVLU) are essential components of consumers' PV, confirming the multidimensional nature and complexity of PV. As a result, H2a, H2b, and H2c were supported. Furthermore, consumers' PR was defined as multidimensional in the study and results showed that PRFRSK, PRVCRSK, SRTRSK, and TMRSK were all significant components of PR. Hence, as per the results of the second-order analysis (see Table 5 and Figure 6), H4a, H4b, and H4c were supported.

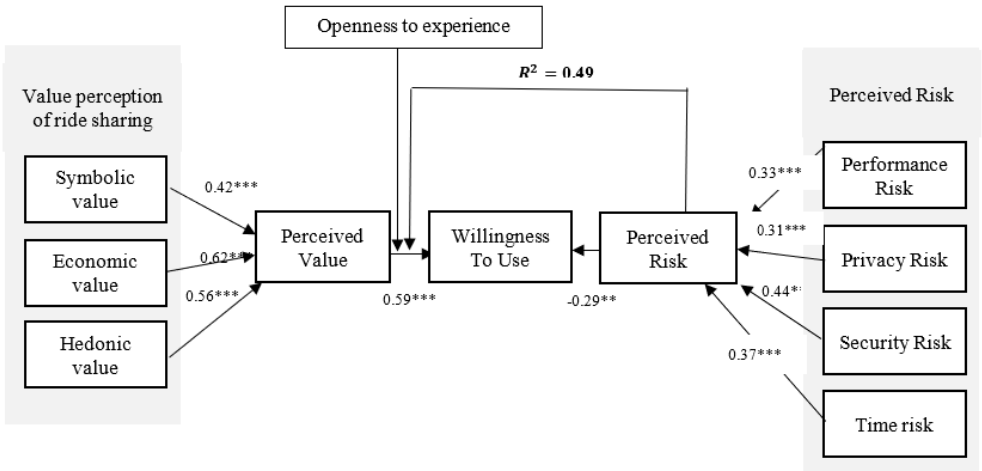

Figure 4 : Path Analysis. Notes: *$p < 0.05$, **$p < 0.01$, ***$p < 0.001$

Table 5 : Path Analysis

Path of hypotheses	Estimate	t value	Result
H1: PV→ WLTUSE	0.59	5.76	Significant
H2a: SMBVLU→ PV	0.42	6.74	Significant
H2b: ECNVLU→ PV	0.62	4.76	Significant
H2c: HDCVLU→ PV	0.56	5.86	Significant
H3: PR→ WLTUSE	-0.29	6.87	Significant
H4a: PRFRSK→ PR	0.33	4.27	Significant
H4b: PRVCRSK → PR	0.31	5.48	Significant
H4c: SRTRSK→ PR	0.44	6.68	Significant
H4d: TMRSK → PR	0.37	9.54	Significant

Note: TMRSK, time risk; SRTSK, security risk; PRFRSK, performance risk; PRVCRSK, privacy risk; PR, perceived risk; PV, perceived value; SMBVLU, symbolic value; HDCVLU, hedonic value; ECNVLU, economic value, WLTUSE, willingness to use

4.1 PR and OE's Moderating Effects

The product indicator technique has been employed in a number of scientific studies to evaluate the interrelationships between reflective constructs (Chin et al. (2003). However, both PR and PV were presented as formative constructs in the research model. Therefore, the multiple group approach was adopted to investigate the moderating impact of customers' PR and OE (Wang et al., 2019; Chiu et al., 2014). Based on the medians of PR and OE, the sample was categorised into two groups with regard to PR and OE. One set of respondents (N=167) reported to have a higher level of PR, while the other group (N=172) reported to be having a low PR. In similar vein, one set of respondents reported a higher level of OE (N=152), and on the contrary, the other group reported a lower level of OE (N= 132). Next, the moderating effect was statistically evaluated by comparing the path coefficients values from consumers' PR to their willingness to engage in RSS of participants with high PR and OE with the path coefficients of those with lower PR and OE. The following procedure was used in this investigation, as proposed by Keil et al. (2000):

$$S_{pooled}=\sqrt{\left\{\left[\frac{N_1-1}{N_1+N_2-2}\right]XSE_1^2+\left[\frac{N_2-2}{N_1+N_2-2}\right]XSE_2^2\right\}} \quad (1)$$

$$t=(PC_1-PC_2)/[S_{Pooled}X\sqrt{(\frac{1}{N_1}+\frac{1}{N_2})}] \quad (2)$$

In the mentioned equation S_{pooled} is the pooled variance estimator and t refers to test statistics with N1 + N2 -2 degrees of freedom. While Ni is the sample size for group i dataset, SE is the standard path error for group i in the structural model. Moreover, PC is the path coefficient of group i.

As per the findings, the PR had a substantial moderating impact (t=8.74, p=0.001) and surprisingly, the positive effect of PV on customers' willingness to use RSS was significantly reduced by PR, as opposed to H5. The results also showed that OE revealed a significant moderating impact on the association between PV and passengers' willingness to adopt mobile application based RSS. Passengers who believed that the threat and uncertainty of using RSS were higher, would find that the PV had a stronger influence on their willingness for using these services. To put it another way, the PV would have a lesser impact on passengers' desire to participate in RSS if they believed the

risks to be low compared to passengers who perceived the risks to be high. On the other hand, passengers having higher OE found that the PV had a stronger influence on their willingness to use RSS than those with a lower degree of OE.

Table 6 : Moderating Impact of PR

Path of hypothesis	High PR-β	Low PR-β	Difference	t value	Decision
H5: PV →WLTUSE	0.57	0.44	0.13	6.82***	Not supported

Note. *** p< 0.001

Table 7 : Moderating Impact of OE

Path of hypothesis	High OE-β	Low OE-β	Difference	t value	Decision
H6: PV*OE→WLTUSE	0.64	0.39	0.25	7.62***	Supported

Note. *** p< 0.001

5.0 Discussion

The objectives of this paper were to address two questions: Whether PR and OE influence the relationship between customer PV and willingness to use RSS? and does an individuals' sense of risk and value impact their decision to adapt ride-sharing services? PV and PR were analysed and conceived as formative second-order constructs with first-order components. Findings of the study highlighted the moderating effect of OE and PR in predicting the correlation between passengers' willingness to use RSS and their overall value perception. In line with the results of Ashrafi et al. (2021), Wang et al. (2019), and Lee et al. (2018), this study showed that PR adversely impacted passengers' willingness to adopt the emerging mode of transportation, i.e., ride-sharing. In contrast, the PV on consumers' willingness revealed to have a positive impact. Particularly, Ashrafi et al. (2021), Wang et al. (2019), and Chin et al. (2003) found that customers' intention to use RSS was significantly influenced by PV (t=22.37; p 0.001). The findings suggested that passengers are more concerned with values such as saving money and time than with the risks of adopting RSS. Furthermore, this study attempted in investigating how strong the link was between PV and its first-order components. As per the results, the path coefficient for all value constituents: SMBVLU, HDCVLU, and ECNVLU was significant (p=0.001). The findings showed that SMBVLU had a lower effect than ENCVLU and HDCVLU. To portray it in another way, HDCVLU and ECNVLU were more

important aspects of consumers' PV than SMBVLU. These findings are in line with the results of the studies conducted by Lee et al. (2018), Wang et al. (2019), and Zhu et al. (2017), Henceforth, there should be a greater emphasis on convenience, cost-effectiveness, enjoyment, and pleasure in designing managerial strategies. Consequently, there was a significant deviation in path coefficients between ECNVLU and HDCVLU. ECNVLU had a stronger influence on customers' ride-sharing decisions, such as convenience and economic benefits.

Furthermore, HDCVLU was revealed to be a major determinant for customers' perceived value that incorporated elements such as pleasure and entertainment. Nevertheless, findings showed that consumers' impression of SMBVLU is critical, and it displayed a significant impact on their decision to participate in RSS. These findings are in line with those of Sharma (2019) and Roy et al. (2018) whereby SMBVLU had a significant influence on passengers' willingness to participate in RSS. Considering the PR, it had four aspects, and each of them exhibited a significant influence on customers' decision to use RSS. SRTRSK had a stronger effect on consumers' adoption behaviour than the other three risk dimensions: PRFRSK, PRVRSK, and TMRSK. It means, a company's attention to a customer's security should no longer be optional; instead, it should be enforced mandatorily. Surprisingly, the results revealed that PR moderated the link between customers' willingness to use RSS and their PV (Ashrafi et al., 2021; Parayitam et al., 2020; Wang et al., 2019). Results suggested that PV significantly influences passengers' desire to adapt RSS if they feel there is a possibility of higher PR. In the field of ride-sharing, the findings revealed a positive moderating impact of the PR that contrasted with the results of many previous studies (Chang & Tseng, 2013; Chang & Chao, 2018). One of the primary reasons for this incongruity is that passengers who were more concerned about their high PR tended to focus more on reducing uncertainties by emphasising the benefits they obtained from using RSS (Belanche et al., 2012).

Additionally, the study also revealed that a higher level of OE strengthens the link between PV and intention to adopt RSS. In other words, the association between PV and ride-sharing intention is more substantial for individuals who are more receptive to new experiences than those who are less open. However, the RSS offers various benefits like cost reduction, time savings, and social identity. Therefore, consumers may find adopting ride-sharing worthy even after having

high-risk potential. Nevertheless, risk-taking is assumed to be courageous to some individuals. As a result, there is a powerful impact on passenger's willingness to adopt ride-sharing of those value components, as per the view of Muuss and Porton (1998). According to the evidence in this research, we can conclude that PV is the most critical factor in influencing passengers' ride-sharing decisions.

5.1 Theoretical Implications

This study explored the impacts of PR and PV on customers' willingness to adopt RSS. This study emphasised on how customers' motivation is enhanced through PV. According to Nguyen-Phuoc et al. (2021), PR is a barrier for users to use mobile applications-based RSS. Early researchers explored that PV and PR are vital components in determining a customer's behavioural intentions (Gu et al., 2021). Therefore, this study has helped in gaining a critical understanding and for providing a profound explanation regarding the relationship between consumers' PV and their interest in using ride-sharing services. Moreover, this study also investigated PR that affects a person to avoid RSS. This research contributes to the existing literature on how passengers' intention to avail RSS depends on associated PR and PV with empirical evidence. A key strategic challenge for the sharing economy is assessing consumer behaviour and this study has added to the body of knowledge on this topic. This study has explored the moderating role of perceived risk in predicting the association between PV and willingness to use RSS. It has also discovered the role of OE in ride-sharing and showed how it moderates the relationship between individual's PV and the intention to adopt RSS. Furthermore, by reviewing the multi-dimensional nature of consumers' PV and PR, this study contributes to the current knowledge and enhances the existing literature. Additionally, this research augmented the theoretical depth by demonstrating PV and PR as formative second-order constructs, indicating that they are critical predictors of customers' willingness to accept RSS. Nonetheless, the study was developed based on examining non-users' attitudes towards ride-sharing and it may help legislators, policymakers, and marketers to manage risks more effectively (Nguyen-Phuoc et al., 2021).

5.2 Practical Implications

This research aimed to identify practical approaches for policymakers and service providers to encourage acceleration in the demanding ride-sharing market. The positive relationship between individuals' PV and their willingness to use RSS in under high risk circumstances suggest that PV is a critical element in the customers' point of view while they decide to engage in RSS. As a result, service regulators and providers should focus primarily on maximising the PV and advantages of adopting ride-sharing while attempting to reduce PR. According to the findings of this study, value-based perceptions are the most critical element for identifying a customer's willingness to adopt RSS. One of the prominent components was ECNVLU, showing that economic gain is a critical variable influencing passengers' eagerness to use ride-sharing. Hence, ride-sharing platforms must publicise their services by disseminating coupons or discounts based on total distance in order to attract more passengers. In ride-sharing, on the contrary, both drivers and passengers use the same route. Consequently, they should be connected with a practical and dynamic ride-sharing system. Furthermore, service providers must regularly evaluate and enhance user-friendliness of the system to provide passengers with more value (Agatz et al., 2012). Marketing managers should take necessary steps to ensure a positive match between drivers and passengers. Additionally, smartphone-based applications should be well-constructed so that consumers are able to compare fares for various kinds of vehicles. It will simplify the selection process for passengers, allowing ride-sharing businesses to enhance their success rate by increasing customers' willingness to participate in RSS. Besides, service providers must ensure HDCVLU is getting enough importance and should continue focusing on the emotional and sensitive aspects of ride-sharing to spur consumers' interest. SMBVLU seems to be a critical factor in making ride-sharing services familiar to the mass community. As a result, ride-sharing platforms and other relevant authorities should highlight ride-sharing benefits to society and the environment. Passengers are also sensitive about security and privacy issues; therefore, resolving these concerns is critical to minimising their PR. Ride-sharing service providers should use a reliable rating system, driver tracking software, and take accountability that their drivers are well-trained and professional.

5.3 Conclusions, Limitations and Directions for Future Research

Despite highlighting many surprising findings, this study has some drawbacks as well. To begin with, a customer's willingness and intention to use the service are not always necessarily direct to their actual behaviour. Hence, future studies should concentrate on their real adoption of RSS. Nonetheless, majority of the participants were between the age of 20 and 45. As a result, the sample used in this study was quite homogeneous and might not reflect the total population of Bangladesh. Thus, questionnaires should be better distributed to a wide-ranging and extended set of respondents, reflecting the entire population of Bangladesh, which can be considered for future studies.

The study highlighted that people who used ride-sharing services earlier perceived its value and risk differently than people who had never used the services. Moreover, this study only examined the behavioural intention of all the participants who never used RSS. For a better understanding, future research should emphasise on the acceptability of this sustainable transportation option by both users and non-users. As according to Gurumurthy and Kockelman (2020), studies on the acceptability of shared autonomous vehicle are not sufficient. Hence, additional research on users' acceptability indicators for such unique mobility option is plausible.

Finally, this study contributes to the current literature through underlining consumers' perceptions as a multi-dimensional. In this study, both PV and PR were explored as second-order constructs. Moreover, it contributes to the existing sociological debate surrounding ride-sharing platforms from the perspective of Bangladesh. This research may assist policymakers, entrepreneurs, and managers to better understand the factors that influence PV and PR. Finally, the study may help firms, policymakers, and marketers to better understand the significance of PR and PV that may assist them to reduce risks and enhance the value via policy reformulations and image repositioning.

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