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Analysing the Factors Determining the Acceptance of Blockchain Technology within the Mauritian Tourism Industry - Use of an Extended UTAUT Model

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Abstract *The aim of this study will be on the investigation of the behavioural intention to accept Blockchain Technology within the tourism industry in the Mauritian context. Partial Least Square-Structural Equation Modelling (PLS-SEM) has been employed for investigation and analysis.The research found that the most important predictors to affect the behavioural intention towards Blockchain Technology acceptance was that of Trust Transparency and Hedonic Motivation. In the same line, Performance Expectancy, Social Influence and Effort Expectancy, Security, Facilitating Conditions and Cost of Innovations had positive significance with the behavioural intention. Organisational Size was used as a moderator and was found that indirect specific effects were significant with Facilitating Conditions and Hedonic Motivation on the Behavioural Intention towards Blockchain Technology. Organisational culture has been investigated to be key emerging conditions since the concept of resistance to change, as emanated from findings, is ingrained in the culture of organisation. Attitudes and beliefs of employees may align with resistance, thus influencing how they perceive and respond to change initiatives. The study is one of the first study that has investigated the adoption of blockchain within the tourism industry in Mauritius thus contributing to new findings to the existing literature.*

Keywords: *Blockchain, UTAUT Model, Tourism, Mauritius*

INTRODUCTION

Innovative technologies have expanded and brought about disruptive changes to operational modes of many industries including changes to human life (Guo et al., 2020). Many academics have supported the fact that new doors have been opened in the production, consumption of services and facilities and that new technologies have contributed towards higher quality, increased value, time effectiveness and is expected to spearhead the industry into a new powerful paradigm shift (Forcadell et al., 2021). Within the development of Information and Communication technology and the advancement of E-learning, the industry will continue to evolve in terms of new technological advancement. One of the most cited examples is that of Artificial Intelligence and Big Data which are leading-edge representation of the Fourth Industrial Revolution, also known as Industry 4.0 (Efanov & Roschin, 2018). The potential of this technology has extended across various industries bringing about significant changes in monetary transactions, delivery of services, human resource management, interchange, and business information systems engineering (Gao & Li, 2021). It has the power to reshape traditional practices, enhance efficiency, and introduce new possibilities for businesses and organizations.

From the beginning of the 21st century, innovative technologies have continuously influenced many industries and more specifically the Tourism and Hospitality Industry. Blockchain technology has emerged as a prominent subject of interest for an increasing number of countries, institutions,

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enterprises, and researchers (Zheng, Xie, Dai & Wang, 2017). As an example of innovative and indisputably revolutionary technology, it will be very much influential in all areas of life as per the view of many academics (Wang & Luo, 2019). It has been surveyed that Blockchain Technology will cause major changes and will be revolutionised the operational modes of numerous industries due to its several attributes such as security, transparency and trustworthiness executed in the blockchain network. One of the greatest success mentioned in various studies is that of cryptocurrency and, since then, many industries have given a wise thought towards the potential of the Blockchain Technology. This form of technology will help to better integrate with the concept of Internet of Things, augmented reality and artificial intelligence applications. It can be briefly defined as a huge public ledger that is distributed and records transactions over a network (Lamberti et al., 2018). Companies, in the field of monetary transactions, logistics, banking and education, will innovate in areas such as taxation, legal official operations and banking. By means of a decentralized process and digital ID, travellers will no longer require to present their ID hardcopies at different pint of checks and will facilitate travel and reduce queuing time. Earlier introduced in the field of payment methods, cryptocurrencies will save millions of travellers in terms of extra costs paid to intermediaries such as booking.com, Skyscanner and Expedia (Revfine, 2018). Transactions will be clear and visible to all users (Calvaresi et al., 2019).

Given the ambiguous nature of Blockchain technology and unlike technologies such as artificial intelligence or big data, there is an urge to investigate on the different factors that will help towards the adoption of the technology (Casino, Dasaklis & Patsakis, 2019). While it can be contended that the innovative technological acceptance framework shares similarities with that of other technologies, numerous scholars advocate that the implementation and circumstances of various technologies will vary significantly, leading to differences in adoption factors based on the type of technology (Tseng et al., 2018). Consequently, for a business to effectively introduce a new technological initiative into its operations, it must understand which factors will enhance its acceptance among stakeholders. Therefore, there is a genuine need to critically examine the acceptance issues and the primary challenges toward implementation intention (Lai, 2017).

The debate has been continuous to whether technology supports or hinder tourism development (Sigala, 2017). There has also been a plethora of literature based on various technology applications on tourism industry but little studies have been focused on how technologies such as Blockchain Technologies are being accepted by the tourism industry (Higgins-Desbiolles, 2018). This is a common question that decision-makers have to address in the debate to accept and use a particular system. Thus, methodologies can be better designed in evaluating and predicting responses to new technologies. A recent study was conducted by Nam et al. (2019) which provided information on how blockchain technology automate processes and tasks in the industry. However, little studies have been done on how blockchain technologies are being accepted as a transformational driver of the industry and how tourism actors envision the acceptance of this technology (Sigala, 2017).

For the purpose of this study, various opportunities and challenges of Blockchain Technology will be investigated within the tourism industry and a particular attention will be given to the acceptance of such technology by the industry. Also, due to scarcity in the recent literature reviews and lack of research conducted in this domain, current examples of technological applications with blockchain will be used together on the behavioural intention of the tourism industries in accepting this type of technology. In line with this, Valeri and Baggio (2021) claimed that there exists a scarcity of studies and business cases exploring the implications of blockchain technology adoption within the tourism industry. Most of the research has been done on current and future perspectives (Rashideh, 2020) and on the use of cryptocurrencies in the tourism sectors (Nakamoto, 2008). Blockchain technology has also been widely researched and applied in other field of studies (Varelas et al., 2019). Stafford and Treiblmaier (2020) examined electronic medical records and suitable literature on EMRs with blockchain technology. Biswas et al. (2020) analysed the interoperability and synchronization management of blockchain decentralized e-health services while Angieri et al. (2019) recommended on a disturbed autonomous organization for internet address management. Concerning Internet of Things, Olivares-Rojas et al. (2019) use a multitier blockchain architecture for improving cybersecurity and data protection. Despite the continuous expansion of literature exploring the potential applications of Blockchain in various industries, there is a conspicuous knowledge gap concerning its prospective utility when viewed through the lens of the tourism industry (Nam, Dutt, Chathoth & Khan, 2019).

The tourism and hospitality industry will inevitably attract such a new innovative technology and this study will help in contributing and expanding the literature about this technology by analysing its acceptance in the tourism and hospitality industry. This study will make use of an extended version of one of the most popular theoretical framework which is the Unified Theory of Acceptance and Use of Technology (UTAUT). This is known as a pronounced technology acceptance framework (Venkatesh et al., 2012; Ahn et al., 2016). Claimed to be based on the foundation of many psychological theories related to human motivation (Hoque & Sorwar, 2017) and acknowledged for its simplicity (Tarhini, El-Masri, Ali & Serrano, 2016),

UTAUT model have been able to explain about 70% of the variance in propable uses of new systems. Further to this, Guo et al. (2022), Hilkenmeier et al. (2021) and Jahanshashi et al. (2020) proposed the first study that offers an extension of the UTAUT framework based on different technological constructs that can influence its acceptance. Therefore, this study will provide some more lights towards which factors play an essential role towards the acceptance of this debatable subject in the industry.

The main aim of this study will be on the investigation of the behavioural intention to accept Blockchain Technology within the tourism industry in the Mauritian context. This investigation will be evaluated through an extended UTAUT model incorporating different technological factors such as trust, security and transparency as key independent constructs. Emerging perception and trends derived from a mixed methodology will also be considered so as to better understand Blockchain Technology adoption behaviours.

Research Objectives of Study

- Provide a 360 view of the opportunities and challenges presented by Blockchain technology in the Tourism Industry.
- Analysing derivative factors of acceptance of Blockchain technology by the tourism industry under the UTAUT framework.
- Assessing which of the factors have a stronger relationship towards adoption intention.
- Examine emerging trends and factors according to Mauritian Tourism Industry stakeholders in accepting the Blockchain Technology.

This paper consists of five sections. Section 2 is focused on the literature review. Section 3 describes the methodology of the paper and Section 4 reports the estimates, analysis and discussions. Further, Section 5 reflects on the conclusion and policy implications of the study.

LITERATURE REVIEW

Blockchain technology has been used by various scholars due to its unique features that can improve performance in many sectors such as finance, health, agriculture. It is known as ‘a particular type of distributed ledger technology (DLT) that was first used as a component of the bitcoin protocol, which is a cryptocurrency that was launched in 2009 by Satoshi Nakamoto (Rana ; Tricase & De Cesare, 2021). This technology has the potential to connect with other forms of technology and change the so-called Industry 4.0. Different scholars considered different ways in defining blockchain technology. For example, Jaber et al. (2021) defined Blockchain as a distributed ledger technology that allows the storing and sharing of data in a decentralized and immutable manner in a peer-to-peer network. Similarly, Treiblmaier (2018) considers Blockchain as a digital, distributed, and decentralized ledger, where each transaction is added and recorded in chronological order, with the goal of making a permanent and tamperproof register. Thus, Blockchain is a technology that is able to permanently store and protect data from alterations. It operates without a central authority in as a peer-to-peer network (Hawlitschek, Notheisen & Teubner, 2018). This system of operation involves open access to everyone willing to make transactions. The use of cryptographic algorithms means every node connected to the network is ensured a high level of security when making or validating transactions (Nakamoto, 2008). Through an identifiable code known as a ‘hash’, data can be easily tracked with high level of accuracy and security (Seffinga, Lyons & Bachman, 2017). It has been reviewed in many academic journals that blockchain technology will impede on different sectors. Stafford and Treiblmaier (2020) analysed electronic medical records and developed a perspective on literature on the blockchain technologies.

Tourism and Blockchain Technology

According to Shermin (2017) Blockchain Technology implementation in the Tourism industry has been considered due to three main reasons, that is, risky capital expenditures, imbalances in consumer patterns and seasonality. Added to that, Kizildag et al. (2019) laid focus on the effects of globalisation that will definitely trigger tourism destinations to implement such technologies. Due to its wide range of benefits, Blockchain Technology will help to improve transactions, remove pilferage and avoid fradulous transactions. Scholars such as Erceg, Damoska, Sekuloska and Kelic (2020) argued that Blockchain Technology will disrupt the traditional way in which the Tourism industry does transactions and a shift will be inevitable from centralised internet-based systems to transparent cryptographic systems. For instance, the Tourism industry is gradually removing middleman so as potential customers suffer less from commission fees. This process has been named as disintermediation (Flecha-Barrio et al., 2020). Booking methods, financial systems and inter-connectivity in Tourism industry have been reported as the new trends that will characterise the future of the industry. Ozdemir and Erol (2019) have mentioned about new tools such as smart contracts, decentralised applications and cryptocurrency which will shape the industry. Various authors have also surveyed that Tourism industry will receive the highest share of blockchain investment (Antoniadis et al., 2020) and other scholars have also investigated the adoption of such systems under the Technology Acceptance Model (TAM) more specifically towards cryptocurrency adoption (Valeri, 2020).

Application of Blockchain Technology in the Tourism Industry

Mostly, blockchain technology application in the tourism sector is mainly for three main reasons:

- Due to high risk of capital expenditures, seasonality, operational sensitivity and change in consumer spending pattern (Shermin, 2017).
- Due to fierce global digitalization competition and the need for a disruptive technology (Kizildag et al., 2019).
- Due to its benefit on the industry such as better information sharing and removal of inefficient transactions, pilferage and fraud (Zheng et al., 2017; Varelas et al., 2019).

Several components, such as hoteliers, transport industry, travel agents, tour operators, insurance companies, visitor centres, attraction centres and payment service providers, form part of the structure of the travel and tourism industry and all organisations need to work together to maintain efficiency and effectiveness of the tourism industry. Blockchain technology has been applied throughout all these organisations since 2014 due to its overall benefits (Buhalis, 2019) and a joint application with other technologies such as ICT, AI, Smartphones and mobile devices will improve the quality of the services offered to customers (Lee, 2022). In line with this, the new tourism business model has been termed as 'intelligent tourism' or 'smart tourism' (Wei et al., 2020). However, if, on the one hand, this new model of tourism helps to solve problems, meaning improved customer services, decreased competition among stakeholders, and reduced service costs (Rashideh, 2020), on the other hand, it creates new challenges, such as secure big-data storage and analysis (Wei, Wang & Liu, 2020; Buhalis, 2019).

The UTAUT Framework

The Unified Theory of Acceptance and Use of Technology (UTAUT) is a framework developed by Venkatesh et al. (2003) with the aim of predicting the acceptance of technology in organizational settings. UTAUT builds upon the foundation of eight dominant constructs with different distinctive theoretical models that span various disciplines, including human behaviour and computer science. These eight models are: Theory of Reasoned Action (Fishbein & Ajzen, 1975), Technology Acceptance Model (Davis, 1989), Theory of Planned Behaviour (Ajzen, 1991), Model of PC Utilization (MPCU) (Thompson, et al., 1991), Motivational Model (Davis et al., 1992), Combined Technology Acceptance Model (TAM) and Theory of Planned Behaviour (TPB) (Taylor & Todd, 1995), Innovation Diffusion Theory (Moore & Benbasat, 2001). This model is known to combine and integrate key elements from the above-mentioned models to create a comprehensive framework for understanding and predicting technology acceptance and use within organizational contexts. This framework has been widely adopted and applied in research related to technology adoption and organizational behaviour. The model is based on many psychological theories and has been known to explain up to 70% of user's intention in the adoption of new technology (Hoque & Sorwar, 2017). It is underpinned by four primary factors that forecast users' intentions and utilization of technology. These factors consist of Performance Expectancy (PE), Effort Expectancy (EE), Facilitating Conditions (FC), and Social Influence (SI).

- **Performance Expectancy (PE)**

The first factor in UTAUT, Performance Expectancy (PE), can be described as an individual's belief regarding whether the use of technology will yield benefits for them (Venkatesh et al., 2003). Numerous studies have established a positive relationship between PE and Behavioural Intention (BI), which is a representation of the acceptance of technology. Various studies based on different line of study have demonstrated on how Performance Expectancy can influence the adoption of new technological initiatives. Concerning the Travel and Tourism Industry, this influence have been greatly studied and well-documented as well. It has been assumed that Performance Expectancy has a positive correlation between facilitating Conditions and usage behaviour in relation to the adoption of Blockchain Technology. Therefore, it is assumed that Performance Expectancy will significantly influence the behavioural intention to implement blockchain technology.

- **Effort Expectancy (EE)**

The second factor in UTAUT is Effort Expectancy (EE), which is used to assess a user's perception of the ease of interaction with a system (Venkatesh et al., 2003). Previous research has consistently demonstrated a co-relationship between the system's ease of use (EE) and the intention to use that system (BI). These findings hold true not only for general technology use but also in organizational contexts (Mills, 2016). Ease of use or complexity is a construct closely related to perceived ease of use (Zhao & Bacao, 2020). It reflects the extent to which innovative technology is perceived as being simple or complex to use and understand. The complexity inherent in innovative technology can pose a barrier to its adoption. Various researchers have consistently demonstrated the positive impact of new technology adoption, deeming it a crucial determinant of behavioural intentions towards embracing novel technologies. This assertion has been substantiated across a spectrum of studies encompassing diverse domains such as healthcare supply chain management (Chong et al., 2015), humanitarian supply chain (Kabra et al., 2017), and manufacturing (Schniederjans, 2017).

- **Facilitating Conditions (FC)**

The next factor, Facilitating Conditions (FC), is defined as a user's perception of the availability of technical infrastructure for the system (Venkatesh et al., 2003). In organizational settings, research has consistently shown that FC directly impact on Behavioural Intention (BI) regarding technology use (Chauhan & Jaiswal, 2016). Facilitating conditions can be categorized into two forms: individual-level and group-level facilitating conditions (Ahn et al., 2016). In the context of blockchain technology, organizational support significantly affects facilitating conditions Facilitating conditions (FC) encompass various factors such as IT infrastructure, cloud storage, and Internet speed, all of which are crucial predictors of blockchain technology adoption. FC is anticipated to have a substantial impact on the behavioural intention to implement blockchain technology, directly influencing the effectiveness, reliability, and success of professionals.

- **Social Influence (SI)**

The final factor in UTAUT, Social Influence (SI), is referred to as 'an individual's belief that other people who are important to them endorse the use of the system' (Venkatesh et al., 2003). The latter have identified that the influence of important individuals as perceived by the individual (SI) significantly impacts Behavioral Intention (BI). Recent research in the field also has corroborated the affirmative impact of social influence on behavioural intentions towards adopting blockchain technology (Queiroz et al., 2020). This study will help to find evidences in terms of a quantitative analysis of the relationship between the social influence and the behavioural intention of key stakeholders of the tourism industry through the following hypothesis:

Extended UTAUT model in the Context of Blockchain Technology Acceptance

Extending the UTAUT framework, together with the four fundamental attributes and prognosticator (Ventakesh et al., 2012), can better help towards forecasting behavioural intention in adopting new technological innovation such as the Blockchain Technology. The results of studies demonstrated that when compared to the original Unified Theory of Acceptance and Use of Technology (UTAUT), the extensions introduced in UTAUT2 significantly improved the amount of variance explained in both behavioural intention and technology use (Hsu, Lin, Chen, Chang & Hsieh, 2017). Specifically, the extensions in UTAUT2 led to a substantial increase in the variance explained in behavioural intention, from 56 percent in UTAUT to 74 percent in UTAUT2. Similarly, the extensions in UTAUT2 increased the variance explained in technology use from 40 percent in UTAUT to 52 percent in UTAUT2 (Zhao & Bacao, 2020).

Additional Factors Related to Extended UTAUT

- **Hedonic Motivation**

Hedonic motivation, through many researches, has been explained as the perceived enjoyment, internal pleasure and satisfaction to ones needs when experiencing the use of new innovative technology (Tam et al., 2020). This variable has been deeply discussed in the UTAUT model whereby the term has been associated with motivation (Wang et al., 2020). Venkatesh et al. (2012) have argued that hedonic motivation play an important role towards the behavioural intention and has to be taken into considerations since the influence is on both individual and upon the organisation. (Ashfaq et al., 2021).

- **Cost of Innovation**

Cost of Innovation is one of the critical variables to be considered in this model and this has been associated towards the extended UTAUT framework (Zailani et al., 2015). It is perceived that cost of system infrastructure or means to integrate into existing operating system does cost a lot for an organisation. Investing into a new innovation system will have to undergo a certain degree of cost and benefit analysis so that the investment seems to be profitable. If the results are positive, organisation will definitely engage into the process (Venkatesh et al., 2012).

- **Trust Transparency (TT)**

Trust stands as a pivotal factor, wielding considerable influence over potential behaviors and establishing both interpersonal and commercial interactions among parties (Waseem et al., 2018). Recent literature have demonstrated the correlation between Behavioral Intention toward technology adoption (Raut et al., 2018) and the element of Trust, under technology acceptance, have been extensively explored. In addition to the fundamental construct of cognition-based trust in a system's capabilities, there are supplementary affect-based trust elements, including the general inclination to trust technology and the perceived goodwill or benevolence of the trustee towards the trustor. It has also been reasonable to link Trust with Transparency when it is important to explain socio-technical aspects of technology acceptance and many researchers have explored this interrelationship (Shin, 2021).

- **Security**

The primary model of UTAUT has not taken into consideration the element of security. Howvevr, it has been argued that security is very critical as a factor that will influence an individual's or organisation's decision towards acceptance of new technology (Tam et al., 2020; Zhang et al., 2020; Venkatesh et al., 2012). Security concerns, such as data breaches, privacy violations, identity theft, and cyberattacks, can significantly impact individuals' perceptions of the risks associated with using technology.

Perceived risk is a critical determinant of technology adoption behavior, as individuals may be hesitant to adopt new technologies if they perceive them as risky (Rashideh, 2020).

RESEARCH METHODOLOGY

The aim of the study is to analyze the factors determining the acceptance of blockchain technology within the Mauritian Tourism industry. Partial Least Square-Structural Equation Modelling (PLS-SEM) has been employed for investigation and analysis.

Target Population

100 Mauritian experts from the tourism industry will be surveyed. In total, the interview will be conducted on the tourism industry organisations from the government, system administrators, IT managers, Marketing managers and financial controllers from different field of work including travel consultants, airline industries and Destination Management Companies. On request of the subject-matter on Blockchain Technology, anonymous reporting will be applied in this survey. Upon verification only 87 questionnaires were considered as valid. Some questionnaires were discarded since they were incomplete and responses were unclear. Thus, 87 questionnaires were considered fit for survey and analysis.

Data Sample

The data of this study has been collected over a period of 2 months, that is, December 2023 to January 2024 and will make use of a mixed-method survey. Thus, both types of data will be collected and analysed respectively in terms of thematic and empirical analysis (Belk, 2013).

Conceptual Model for Blockchain Technology Acceptance

The conceptual framework of the study is illustrated as follows:

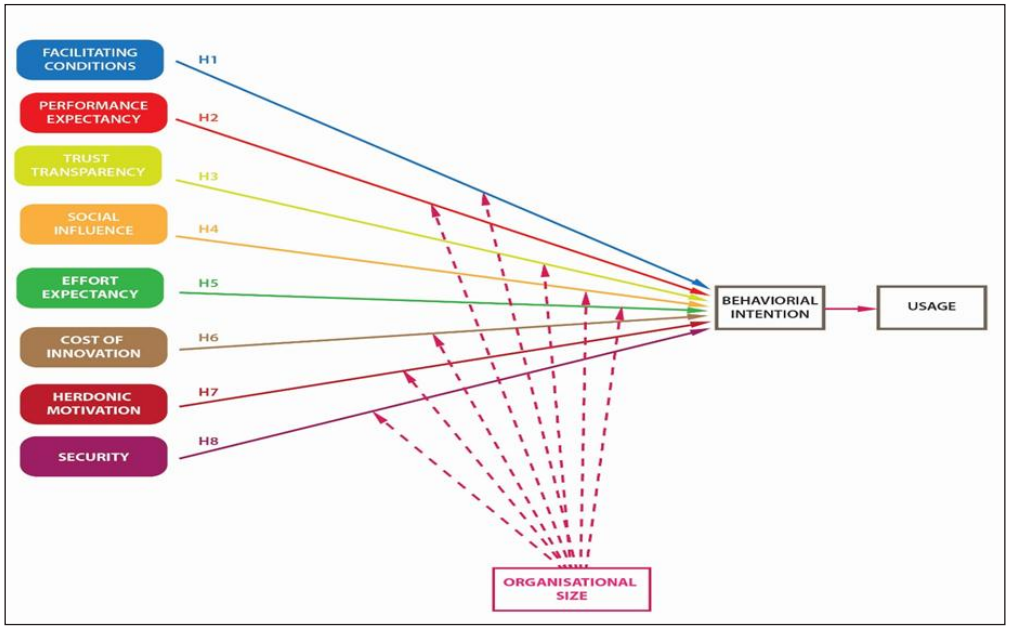

Fig. 1

Research Hypothesis

H1: Facilitating Conditions will positively influence the behavioural intention to accept Blockchain Technology.

H2: Performance Expectancy will positively influence the behavioural intention to accept Blockchain Technology.

H3: Trust Transparency will positively influence the behavioural intention to accept Blockchain Technology.

H4: Social Influence will positively influence the behavioural intention to accept Blockchain Technology.

H5: Effort Expectancy will positively influence the behavioural intention to accept Blockchain Technology.

H6: Cost of Innovation will positively influence the behavioural intention to accept Blockchain Technology.

H7: Hedonic Motivation will positively influence the behavioural intention to accept Blockchain Technology.

H8: Security will positively influence the behavioural intention to accept Blockchain Technology.

Organisational Size as Moderator

One of the most significant moderators that will influence new technology adoption is that of organisational size. Several studies have been conducted in the line of organisational attributes that influence the inclination towards new technologies (Aibar-Guzman et al., 2022). Consequently, Ma et al. (2018) demonstrated that organisational size will impede on organisational resources and quality that are prime factors towards acceptance of new technological implementation. Organizations with more resources and larger scales tend to possess increased capabilities for adopting and integrating technological changes into their operations. This is due to the substantial investment and extended duration required for such implementation processes (Zafar et al., 2020). Thus, it is assumed that:

H9: Organisational size will significantly moderate Facilitating Conditions towards Blockchain Technology acceptance.

H10: Organisational size will significantly moderate Performance Expectancy towards Blockchain Technology acceptance.

H11: Organisational size will significantly moderate Trust Transparency towards Blockchain Technology acceptance.

H12: Organisational size will significantly moderate Social Influence towards Blockchain Technology acceptance.

H13: Organisational size will significantly moderate Effort Expectancy towards Blockchain Technology acceptance.

H14: Organisational size will significantly moderate Cost of Innovation towards Blockchain Technology acceptance.

H15: Organisational size will significantly moderate Hedonic Motivation towards Blockchain Technology acceptance.

H16: Organisational size will significantly moderate Security towards Blockchain Technology acceptance.

Questionnaire Design

The questionnaire will be made online to ease responses and will consist of close and open questions. Close-ended questions will be in the form of Likert-scale responses and will be based on the different indicators for the different variables. Open-ended answers will help to obtain information based on a set of pre-determined questions. These questions will be set in such a way that they will encourage subjective interpretation, that is, individualised opinions and open for discussion (Kiger & Varpio, 2020).

Reliability and Validity Test

Table 1: Discriminant Validity Test Estimates

	Behavioural Intention	Effort Exp.	Fac. Condition	Hedonic Motivation	Innov. Cost	Performance Exp.	Security	Social Influence	Trust Transparency
Behavioural Intention	0.977								
Effort Expectancy	0.754	0.908							
Facilitating Conditions	0.690	0.601	0.802						
Hedonic Motivation	0.860	0.809	0.640	0.945					
Innovation Cost	0.736	0.625	0.477	0.718	0.913				
Performance Expectancy	0.885	0.778	0.717	0.904	0.795	0.962			
Security	0.654	0.522	0.522	0.548	0.266	0.556	0.868		
Social Influence	0.362	0.580	0.358	0.419	0.386	0.468	0.316	0.835	
Trust Transparency	0.660	0.645	0.712	0.632	0.441	0.699	0.718	0.411	0.804

The Fornell and Larcker criterion test has been a robust method for evaluating discriminant validity. It is advisable to set an inference threshold (0.85 or 0.90) by considering the model structure, level of conservativeness, and sample size (Henseler, Hubona & Ray, 2016). Accordingly, the discriminant validity is confirmed, as indicated in the table, at a threshold of 0.9. The discriminant validity of this model is affirmed, as presented in Table 1, with a threshold of 0.9. all values horizontally and vertically are less than the indicators values showing that all indicators used have relevant and well different from each other. Hence, using these indicators has contributed a lot towards analysing the different factors affecting the acceptance of Blockchain Technology.

Table 2: Reliability Test Estimates

	Loading Factor	Cronbach's Alpha	Composite Reliability (rho_a)	Composite Reliability (rho_c)	Average Variance Extracted (AVE)
Behavioural Intention		0.988	0.989	0.991	0.955
BI1	0.951				
BI2	0.982				
BI3	0.981				
BI4	0.972				
BI5	0.999				
Effort Expectancy		0.947	0.952	0.959	0.824
EE1	0.933				
EE2	0.877				
EE3	0.931				
EE4	0.926				
EE5	0.87				
Facilitating Conditions		0.862	0.88	0.9	0.643
FC1	0.75				
FC2	0.788				
FC3	0.767				
FC4	0.877				
FC5	0.822				
Hedonic Motivation		0.939	0.951	0.961	0.892
HM1	0.96				
HM2	0.974				
HM3	0.898				
Innovation Cost		0.901	0.953	0.937	0.833
IC1	0.94				
IC2	0.974				
IC3	0.817				
Performance Expectancy		0.98	0.98	0.984	0.925
PE1	0.98				
PE2	0.965				
PE3	0.929				
PE4	0.968				
PE5	0.966				
Security		0.917	0.925	0.938	0.754
S1	0.755				
S2	0.919				
S3	0.938				
S4	0.854				
S5	0.864				
Social Influence		0.858	0.917	0.902	0.697
SI1	0.923				
SI2	0.84				
SI3	0.81				
SI4	0.76				

	Loading Factor	Cronbach's Alpha	Composite Reliability (rho_a)	Composite Reliability (rho_c)	Average Variance Extracted (AVE)
Trust Transparency		0.864	0.88	0.901	0.647
TT1	0.861				
TT2	0.843				
TT3	0.726				
TT4	0.767				
TT5	0.817				

The results, presented in Table 2, confirm the overall consistency of the survey, with all Cronbach's Alpha values surpassing 0.7. Therefore, the survey questionnaire demonstrates high reliability.

To meet the SEM requirements, both reliability and validity tests were conducted to assess the model fit. Factor Loadings and Average Variance Extracted (AVE) were used to gauge the validity of the scale, with a minimum required value of 0.5 for both scales (Persada et al., 2020). The results indicated that the data for this study exceeded the required values for all scales, confirming the reliability and validity of the data.

RESULTS AND DISCUSSION

Demographic Information

The survey demonstrated a maximum number of male respondents who answered the questionnaire and most of them were aged around 55-64 years of age. Most of the information obtained from the employment history portrayed respondents mainly from the Information Technology sector, Finance sector and Sales and Marketing department. All respondents were employees of the Tourism Industry in Mauritius. Added to that, they belong to organisations ranging mainly from 101-150 employees to 151-200 maximum. Most of them worked in the Tourism Industry for more than 15 years. Hence, information obtained were reflected of the professionalism and quality of responses.

A Second test was conducted to examine the most influential factors upon Blockchain Technology acceptance. This test was done by examining each indicator as a dependent variable and values obtained through the T-test was used for comparison (Table 3 to 5). This test is incoherence with the work conducted by Venkatesh et al. (2003) and Gupta et al. (2008). This test will also help to examine the importance of an extended version of the UTAUT model with new constructs such as Trust Transparency, Hedonic Motivation and Cost of Innovation. A summary of the results with the average values of the T-statistics is provided below:

Table 3: Average T Values

	PE	EE	SI	FC	HM	CI	TT	S	BI	Average T Values
PE					5.015	3.661	2.093		2.064	3.208
EE			3.358		4.352					3.855
SI		3.491							2.833	3.162
FC							3.565			3.565
HM	4.598	3.711								4.15
CI	3.505							2.296		2.90
TT				2.92				6.068		4.494
S						2.02	6.035		2.799	3.618

According to the table above, the positioning of the most influential factor for Blockchain Technology adoption can be classified as follows:

Table 4: Summary of Results of Average T-Values

Variable	Average T-Value
Trust Transparency	4.494
Hedonic Motivation	4.150
Effort Expectancy	3.855
Security	3.618
Facilitating Conditions	3.565
Performance Expectancy	3.208
Social Influence	3.162
Cost of Innovation	2.90

Discussion of Estimates

Hence, results have clearly shown that the most influential factor for Blockchain technology is the element of Trust Transparency. A considerable amount of research have been done on the issues of trust transparency on the acceptance of innovative technology by various researches (Slyke et al., 2004). Trust and transparency in information have essential role towards the adoption of new technologies and this has been clear assumptions in studies conducted by Al-Khouri (2012). In the context of this study, the average value of t-statistics has demonstrated the highest score and can be considered as the most influential factor towards the acceptance of Blockchain Technology. Stakeholders have a positive attitude towards the acceptance of this technology regarding the secure access, implementation and management of such system. Thus, the characteristics of trust transparency will significantly affect the intention to use Blockchain systems. Findings have also demonstrated that the Mauritian Tourism Industry plays a large role towards building Blockchain due to data trustworthiness and transparency in the system. Recent studies conducted by Shin and Hwang (2020) have been contended that security should be readily evident, particularly in the absence of a standard interface in blockchain services, making it effective as a preceding variable classified under technological affordances in their model. Trust Transparency has demonstrated a greater influence because typical users perceive transparency as aiding in the comprehension of emerging technology in this era.

The second most influential factor is that of Hedonic Motivation. The findings of this research agree with the work conducted by Tam et al. (2020). Respondents have agreed to the fact that they may derive a sense of satisfaction, pleasure, perceived enjoyment while using innovation technology such as Blockchain Technology. As most of the respondent are from the Gen X and the Millennials, they tend to keep abreast with new happenings and like to indulge into Smart Technology. Despite being less used or have less variety in Mauritius, respondents may have had ideas or mastered their knowledge on Blockchain through social media and other online sources. Hedonic Motivation has been a fundamental driver and a core estimator of the behavioural intention (Wans et al., 2020). Empirical research has revealed that hedonic motivation plays a significant role in technology adoption, impacting both individual and organizational contexts (Ashfaq et al., 2021). As Mauritius is in line with the Sustainable Development Goals, Blockchain technology can hopefully help the destination to achieve its targets by 2030 by favouring green consumerism.

Effort Expectancy, as the third most important influence in the UTAUT model. The findings in the study is also in line with research conducted by Ventakesh et al. (2003) as one of the most influential factors in the UTAUT model. It can be deduced that most of the tourism organisations in Mauririus have the intention or are ready to use Blockchain Technologies. This supports the existing literature on the topic that use of a system is dependent on how easy it is to use it (Ahn et al., 2016). Despite the fact that most of the organisation are not yet matured with this technology, they have been able to educate themselves through social media and participation into seminars. It is through this knowledge that organisation is keen towards acceptance of new technologies. Several studies have shown that the ease of use of new technologies can be the real motivator to accept new technologies as a replacement for actual technologies (Karampournioti & Wiedmann, 2022).

Security, as an indicator, has taken the fourth position in this study. According to the indicators in the questions formulated, organisation are quite reluctant due to external threats such as hacking, security issues from information leakage, misuse of information, data forgery and alterations and outflow from personal information. Despite various advantages argued by Rashideh (2020), there are still complex issues like security threats due to peer to peer network usage and shortcomings in system maintenance of the Blockchain Technology. This can be due to inefficiency, lack of awareness about the technology and the infrastructure that need to be address effectively (Gausdal et al., 2018). The findings are also in agreement with studies conducted by Filimonau and Naumova (2020) who emphasised on the major challenges of block management in the Blockchain Technology which can put personal data at high risk. Valeri (2020) has also purported that most of the research done on Blockchain Technology are either conceptual or exploratory and lack of empirical studies especially on the domain of security concerns for Blockchain technology.

Facilitating Conditions take the 5th place in the most influential factor for the acceptance of Blockchain technology. Findings, in this study, contradict previous research done through the use of standard UTAUT model

Tariq et al. (2016). However, Shazad et al. (2020) pointed out that in order for people to accept new technologies, a particular level of technical support and assistance need to set so as people have confidence and eventually accept the technology. For the case in Mauritius, various seminars have been organised on Blockchain technology but most of them were done on Financial Technology and less were done on the diverse range of Blockchain Technology acceptance. The most probable reason is that Mauritius as a Small Island Developing States still lack the required investment to build in the incorporation of such technologies.

Performance Expectancy scored the 6th ranking in the most influential factor. It can be said that, according to this survey, this result does not support Performance Expectancy as being the most influential variable for Blockchain Technology acceptance. However, for the hypothesis testing on Behavioural intention, the results show that Performance Expectancy reflects a total degree of agreement with the intention to implement and that the use of such system will help to improve performance of tasks. This can be explained in terms of acceptability of Blockchain Technology in the Mauritian context. The fact that this technology has only been discussed theoretically and major importance has been associated mainly towards application of Blockchain Technology towards financial institutions, organisations in Mauritius tend to have not yet tested this technology in terms of speed, accessibility and impact on productivity. Therefore, a lack of knowledge will totally result towards a lack of confidence. The majority of Tourism Governmental institutions tend to have a more rigid management style whereby new innovations tend to be slow in implementation and are more resistant towards change.

Social Influence is influenced by peers. This variable was tested as a dependent variable with other variables and was found that the average T-value was about 3.162. Results obtained were less conclusive as the most influential factor in the Blockchain Technology. The main reasons can be that organisations are not particularly influenced in terms of their intention to use this technology. Also, given the fact that Blockchain Technology, especially in the field of Tourism Industry, is still in the state of infancy as highlighted by many scholars (Treiblmer et al., 2021; Guo et al., 2022) therefore there is no major influences and feedbacks from different stakeholders to be diffused from adopter to potential adopter (Mansfield, 1963; Bourke & Roper, 2014). Also, potential reasons could be on the too much focus on cryptocurrency and other digital currencies than focusing on other derivatives of this technology on Tourism Industry application.

Cost of Innovation has obtained the least of score in the survey (2.90) and has been classified as an important factor for this extended UTAUT model. This is because the cost of implementation of new technological framework greatly affect organisation's budget. Thus a significant impact on Blockchain Technology adoption. (Tam et al., 2020). However, Ventakesh et al. (2012) argued that when the benefits of new innovative technological acceptance are greater compared to financial costs, the innovation costs will show positive results and have a constructive influence on the adoption intention. According to the Mauritian Tourism Industry, innovations such as Blockchain are being scrutinised for opportunities and surveys are being conducted by benchmarking and mimicking other destinations that have implemented such systems. Studies have shown that despite the high cost of implementation, such technologies can be very lucrative in the long-run (Zailani et al., 2015; Wei et al., 2018).

Discussion on Moderating Test

According to Aibar-Guzm et al. (2008), organisational size refers specially to the number of employees in the organisation and has been considered to be the most influential characteristics on the intention to accept innovative technologies. This research has also considered organisational size as a moderating variable (Ma el al., 2018). According to Lin et al. (2008), the organisational size and resources further accentuates the adoption of new innovative technology. The higher the resources and size of an organisation, the greater is the probability to accept and integrate new technologies into their operations. However, it is a lengthy process (Hair et al., 2017). Again SmartPLS-4 software was employed to conduct the test. Specific indirect effect test was used and 5000 samples were run so as to check the moderating effect of organisational size on the independent variable and the behavioural intention. The end result has been summarised below according to data obtained from Table 5.

Table 5: Moderating Effect of Organisational Size on Variables

Moderators	T-Statistics	P-Values
FC -> OS -> BI	3.212	0.001
HM ->OS -> BI	3.158	0.002

The results have shown the impact of organisational size on Facilitating Conditions (3.212) and Hedonic Motivation (3.158) which have a significant T-value of more than 1.96. As for this moderator, it has been categorised between options such as 50-100 employees, 101-150 employees, 151-200 employees and those having a capacity greater than 200 employees. End results for the organisation size has been provided below:

Table 6: Results on Organisational Size

Organisational Size	Frequency	Percentage (%)
50-100	07	08%
101-150	39	44.8%
151-200	33	37.9%
More than 200 employees	08	9.2%

A significant result was found between higher range organisational size of more than 100 employees. Smaller organisational size, than is between the range of 50-100, were very less. Positive significance of organisational size was relevant for indicators such as Hedonic Motivation and Facilitating Conditions. This can be explained in terms of organisational investment in terms of technology and system infrastructure that encourages employees to work in a much more conducive environment. Staff are motivated when management engage towards job efficiency and effectiveness through investment in the organisation (Zhang, 2010). Thus, staff found it more convenient and enjoyable to attend the workplace. However, in terms of Blockchain technology acceptance, studies have demonstrated that some staff may be resilient towards new technology adoption. As a result, training and education will play essential roles towards blockchain technology acceptance. Organisations with more than 100 employees were found to have a positive relationship with Facilitating Conditions as well. This can be explained in terms of resources and financial investment by larger organisations into their job environment and the fact that immense amount of investment require time as well. These findings are congruent with Shahzad (2020). However, insignificant results were obtained for other indicators and therefore support the findings of Venkatesh et al. (2003).

CONCLUSION

The aim of the study is to analyze the factors determining the acceptance of blockchain technology within the Mauritian Tourism industry. The research found that the most important predictors to affect the behavioural intention towards Blockchain Technology acceptance was that of Trust Transparency and Hedonic Motivation. In the same line, Performance Expectancy, Social Influence and Effort Expectancy, Security, Facilitating Conditions and Cost of Innovations had positive significance with the behavioural intention. Another survey was carried out to analyse the most influential factor for the modified version of the UTAUT and results obtained were that of Security and Cost of Innovation. Organisational Size was used as a moderator and was found that indirect specific effects were significant with Facilitating Conditions and Hedonic Motivation on the Behavioural Intention towards Blockchain Technology. Using these insights, stakeholders should be able to convince different partners in the acceptance of Blockchain Technology in Mauritius. The first and foremost step forward was the Knowledge building on Blockchain Technology as this technology has evolved and a large version of this technology could be applied into our existing systems. Further research is required to expand different specifics of this study in order to determine replicability and generalisability of findings.

Recommendations

Another very crucial element of this research has been the emergence of new findings that could eventually be used as predictors of new innovative technology acceptance. According to the qualitative analysis, key attributes and themes based on the issue of sustainability was constantly evoked. Thus, considerations have to be given to sustainability issues as a key construct towards acceptance of new technological innovations. Green Technological Innovations will become the future requirements before implementation of new systems and will help organisations and destinations to meet Sustainable Development Goals. As awareness of climate change and sustainability grows, green technologies will play an increasingly vital role in shaping a more resilient, equitable, and sustainable future for generations to come. As applied to Blockchain Technology, many researches are still being done on how the new version of Blockchain 4.0 can be applied in order to become more sustainable.

Secondly, another new construct has been found to be as important as other indicators. The findings refer to organisational culture and behaviour. Organisational culture has been investigated to be key emerging conditions since the concept of resistance to change, as emanated from findings, is ingrained in the culture of organisation. Attitudes and beliefs of employees may align with resistance, thus influencing how they perceive and respond to change initiatives. As such, resistance to change is also manifested in the behaviour of individuals within an organisation. Employees may exhibit behaviours such as passive resistance, scepticism, or outright opposition when faced with organizational changes. These behaviours can impact the implementation and success of change initiatives. Additionally, self-efficacy has also been emanated from the findings. It is believed that this concept can be influenced by organisation culture and behaviour. An organizational culture that fosters a growth mindset and values continuous learning and development may enhance employees' self-efficacy beliefs. Conversely, a culture that is risk-averse or punitive may undermine employees' confidence in their abilities. Employees with high self-efficacy are more likely to take on challenging tasks, persist in the face of obstacles, and

exhibit proactive behaviours. These behaviours contribute to overall organizational effectiveness and performance. As a result, both organisational culture and behaviour can be recommended to be used in the UTAUT model for better analysis on new innovation technology acceptance.

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