Journal of Information Systems and Technology Management – Jistem USP
Vol. 19, 2022, e202219007
ISSN online: 1807-1775
DOI: 10.4301/S1807-1775202219007 Review Article

THE USE OF THE TECHNOLOGY ACCEPTANCE MODEL TO ANALYSE THE CLOUD-BASED PAYMENT SYSTEMS: A COMPREHENSIVE REVIEW OF THE LITERATURE

Domingos Mondego[1] https://orcid.org/0000-0001-6777-3639
Ergun Gide[1] https://orcid.org/0000-0003-2258-1910

[1]Central Queensland University, Rockhampton, Queensland, Australia

ABSTRACT

Over the past decades, organisations worldwide driven by the growth in e-commerce transactions have been investing in new payment methods in order to gradually align with the current trend of cashless transactions among individuals, businesses and governments. As a result, payments conducted over the internet or cloud-based payment systems (CBPS) have significantly increased. In this sense, the aim of this study is to provide a comprehensive review of studies that used the technology acceptance model (TAM) to analyse the CBPS. The findings of this study found 134 studies conducted between 2013 and 2020, which have applied the TAM. 118 new variables were tested alongside with the 5 basic constructs of TAM. Surveys are the preferred research method of data collection. Users have been the main focus of academics. China was the country with more studies conducted in CBPS using TAM as a research-based model, followed by India, Indonesia, Spain and Malaysia. Trust was the most used construct by academics to investigate the CBPS adoption, followed by perceived risk and perceived compatibility. SEM was the preferred research instrument for analysing the relationship among constructs followed by regression analysis and multi-group analysis.

Keywords: Cloud-based payment systems, CBPS, Technology Acceptance Model, TAM, Influencing factors.

Manuscript first received: 2021-10-25. Manuscript accepted: 2021-11-10.

Address for correspondence:
Domingos Mondego, Central Queensland University, Rockhampton, Queensland, Australia, Email: d.yamagutimondego@cqumail.com
Ergun Gide, Central Queensland University, Rockhampton, Queensland, Australia, Email: E.gide1@cqu.edu.au

CC BY

INTRODUCTION

Over the past decades, the traditional payment systems have been impacted by the evolution of technology. The rise of new means of payments such as online banking, electronic wallets, mobile payments etc., have changed the way people buy and pay for goods and services received. As a result, several countries across the globe have become less dependent on cash payments, or in other words, cashless. Furthermore, the decline in cash usage to make payments could be also related to the emergence of the electronic commerce, or e-commerce, which has transformed the payment market. The adoption of e-commerce worldwide has changed the consumer's choice of payment as they have more options of electronic payments available (Mangiaracina & Perego 2009; Hampshire 2016; Yamaguti Mondego 2019).

Therefore, technology has been used as a mediator in commerce transactions and the development of new means of payment has been facilitating economic exchanges between businesses and consumers. Besides, the rise of the cloud computing has changed the way businesses are conducted.

Cloud computing, which refers to the method that allows individuals or organisations to store and access data over the Internet (Donoghue 2018), has been adopted as an effective basis for other technologies that work through networks to make improvements on their services and functions (Psannis, Batalla & Ishibashi 2020). The use of the cloud computing technology, for instance, is helping banks to have a competitive advantage in the market as it can provide reduction of costs, better profit margins, and simplify the maintenance and management of the application (Elhag 2015). Moreover, the widespread use of the Internet and mobile technology has been contributing to the evolution of the online banking and the digital payment systems (Alkhowaiter 2020).

Hence, payments conducted over the Internet, or cloud-based payment systems (CBPS), 'have been gaining momentum, enabling for the acceptance and processing of payments over the Internet rather than via physical devices' (Opus Consulting 2019).

LITERATURE REVIEW

Over the past years, researchers all over the world have been investigating the impact of new technologies on the adoption of new means of payment. These studies, which could be applied in several areas of knowledge, have investigated the reasons that could lead people to accept or reject a new payment system. In this context, several factors have been tested by academics, who have developed various research models, in order to provide 'a visual representation of theoretical constructs (and variables) of interest' (Creswell 2009 cited in Shuhaiber 2016, p.62).

Notwithstanding many research models have been created, and different factors have been tested in the information technology field, the technology acceptance model (TAM) is the most frequently used research model pointed out by various authors (Mondego & Gide 2018; Patil, Rana & Dwivedi 2018; Boteng & Sarpong 2019; Pal et al. 2019; Alkhowaiter 2020). The reason is due to the fact that TAM can predict the use of information technology and the determinants of acceptance (Kristensen 2016).

Proposed by Davis (1989), the TAM presents five constructs (external variables, perceived usefulness, perceived ease of use, attitude towards using and the actual system use) as it is depicted by Figure 1:

CC BY

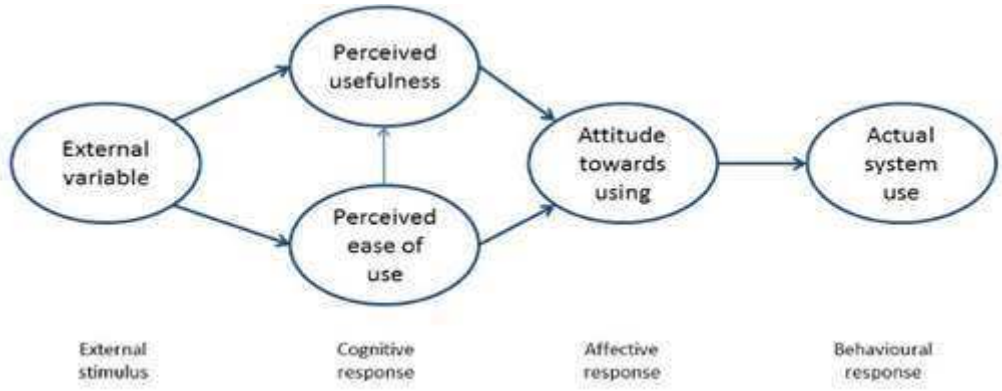

Figure 1. Technology Acceptance Model (Davis 1989 cited in Hampshire 2016, p.66)

According to Davis (1989), notwithstanding the behavioural intention to use a new technology is impacted by the external stimulus, the 'TAM is based upon two central constructs: perceived usefulness and perceived ease of use [which] reside within the cognitive response area of human psychology' (Hampshire 2016, p.11). Perceived usefulness (PU) is defined as 'the degree to which a person believes that using a particular system would enhance his or her job performance' (Davis 1989, p.320). In contrast, perceived ease of use (PEOU) refers to 'the degree to which a person believes that using a particular system would be free of effort. This follows the definition of "ease": freedom from difficulty or great effort' (Davis 1989, p.320).

It is noteworthy to point out that these external stimuli or external variables refer to the factors that could have impact on users' behaviour. Factors such as the features of the system, the development of processes and training could have an indirect impact on the adoption of a new technology as they have a direct impact on users' perceived usefulness and perceived ease of use (Duan 2012).

Thus, the 5 basic constructs of TAM (external variables, PU, PEOU, attitude and behavioural intention) can be used to explain the acceptance of new technologies. However, several academics have been adding new variables into TAM in order to test the influence of new constructs on the user's intention to adopt a new payment system. It is worth mentioning that the focus of these studies have presented a wide range of combinations and responses as it depends on the authors' approach to analyse different aspects of the users, merchants, banks and providers. Besides, the focus of the authors' studies has also been influenced by the evolution of the technology and the period in which the study was conducted.

In this context, this study has found 134 studies conducted between 2013 and 2020, which have applied the TAM. These studies are relating to all types of payments conducted over the Internet or CBPS (electronic payments, mobile payments, mobile banking, mobile wallet etc.). Table 1 shows the studies conducted in CBPS in the period analysed. It is important to mention that the analysis' acronyms are presented in Appendix 1.

CC BY

Table 1. Studies conducted in CBPS between 2013 and 2017

Author (2020)	Country	Method	N	Focus	Analysis	Author (2020)	Country	Method	N	Focus	Analysis
Malaquias & Silva (2020)	Brazil	Survey	115	Users	CFA, SEM	Ardiansaha, Charirib, Rahardjab & Udin (2020)	Indonesia	Survey	96	Consumers	SEM, CR, CA
Lee et al. (2020)	China	Survey	307	Users	DS, CR, AVE, PLS-SEM, ANN (SEM-ANN)	Chawla & Joshi1 (2020)	India	Survey	744	Users	PLS-SEM
Lin, Yang & Chang (2020)	Taiwan	Survey	606	Consumers	DS, CA, CFI, NFI, NNFI, IFI, SEM	Widaya, Masudin & Satiti (2020)	Indonesia	Survey	101	Consumers	PLS-SEM
Liébana-Cabanillas, Molinillo & Japutra (2020)	Spain	Survey	701	Users	CA, CR, AVE, HTMT, PLS-SEM	Karim et al. (2020)	Malaysia	Survey	330	Users	PLS-SEM
Pal, Funilkul & Patra (2020)	Thailand	Interview	25	Users	NA*	Tiong (2020)	Malaysia	Survey	150	Users	CA, KST MLR
Hashim et al. (2020)	Malaysia	Survey	220	Consumers	MR	Pertiwi1, Suprapto1 & Pratama (2020)	Indonesia	Survey	184	Users	DS, CA, CR, PLS
Ariffin & Lim (2020)	Malaysia	Survey	211	Users	DS, CA, MR,	Baskoro & Amini (2020)	Indonesia	Survey	195	Consumers	DS, FL, AVE, CR, SEM
Agyei et al. (2020)	Ghana	Survey	482	Users	CA, CFA, SEM						
Author (2019)	**Country**	**Method**	**N**	**Focus**	**Analysis**	**Author (2019)**	**Country**	**Method**	**N**	**Focus**	**Analysis**
Sharma, Sharma, & Dwivedi (2019)	Oman	Survey	212	Consumers	CFA, CA, CR, AVE, X^2/df, NFI, TLI, IFI, RMSEA, SEM-NN, ANN	Siyal et al. (2019)	China	Survey	200	Consumers	AVE, CR, CA, HTMT, PLS-SEM
Kalinic et al. (2019)	Spain	Survey	701	Consumers	CFA, EFA, SEM, ANN	Siyal, Ding & Siyal (2019)	Pakistan	Survey	200	Consumers	AVE, CR, CA, CB-SEM
Wang et al. (2019)	Indonesia	Survey	100	Users	DS, CR, CA, SEM	Chawla & Joshi (2019)	India	Survey	283	Users	EFA, PCA, CA, CFA, SEM, Normed x^2, NGI, CFI, TLI, NFI, RMSEA
Tounekti, Ruiz-Martínez & Gomez (2019)	52 countries	Survey	272	Users	FA, CA, CR	Briliana, Deitiana &	Indonesia	Survey	310	Users	AVE, CA, CR, PLS
Nadler, Chen & Lin (2019)	China	Survey	315	Users	FA, CA,	Phoong (2019)	Malaysia	Survey	161	Users	DS, CA, PCA, ANOVA
Liu et al. (2019)	China	Survey	245	Users	CA, CFA, AVE, CR, PLS- SEM	Li et al. (2019)	China	Survey	491	Users	CA, CR AVE, SEM
Ndofirepi & Gavai (2019)	Zimbabwe	Survey	376	Consumers	AVE, EFA, HLRA	Sun & Havidz (2019)	Indonesia	Survey	201	Users	CA, AVE, CR, HTMT, SEM
Yap & Ng (2019)	Malaysia	Survey	384	Consumers	SEM, PCA and MR	Ziwei, Tham & Azam (2019)	China	Survey	380	Users	EFA, CFA, AVE, CR, GIF, CFI, CMINDF, RMSEA, SEM

CC BY

Table 1. Cont.

Banu, Mohamed & Parayitam (2019)	India	Survey	500	Consumers	DS, CA, CR, HR	Ardiansah, Chariri & Januarti, (2019)	Indonesia	Survey	96	Users	DS, CR, SEM
Sharma (2019)	Oman	Survey	225	Users	CFA. CA, CR, AVE, MSV, MaxR GFI, AGFI, TLI, CFI, RMSEA, SEM, NN	Khoa (2019)	Vietnam	Survey	918	Consumers	CA, CR AVE, HTMT, PLS-SEM
Author (2018)	**Country**	**Method**	**N**	**Focus**	**Analysis**	**Author (2018)**	**Country**	**Method**	**N**	**Focus**	**Analysis**
Liébana-Cabanillas, Muñoz-Leiva & Sánchez-Fernández (2018)	Spain	Survey	2012	Users	CA, CR, AVE, RMSEA, TLI, CFI, GFI, AGFI, FCA, SEM	Nguyen & Huynh (2018)	Vietnam	Survey	200	Users	EFA, CFA, SEM
Liébana-Cabanillas et al. (2018)	Spain	Survey	191	Users	X^2/df, RFI, NFI, CFI, TLI, IFI, RMSEA, SEM, NN	Bagla & Sancheti (2018)	India	Survey	313	Users	Inferential analysis
Ramos de Luna et al. (2018)	Spain	Survey	742	Consumers	CA, CFA, CR, AVE, RMSEA, GFI, AGFI, CFI, NFI, SEM	Singh, Kumar & Gupta (2018)	India	Survey	462	Consumers	CFA, SEM
Wong (2018)	Hong Kong	Survey	277	Users	CR, AVE, PLS-SEM	Tan, Purba &Widjaya (2018)	Indonesia	Survey	238	Consumers	CA, MR
Qu et al. (2018)	China	Survey	320	Users	EFA, CA, AVE, CR, BTS, KMO, CFA, SEM	Lai (2018a)	Southeast Asia (ASEAN)	Survey	380	Consumers	CFA, SEM
Ma et al. (2018)	China	Survey	295	Users	CA, CFA, KMO, BTS, X^2/df, RMSEA, AGFI, NFI, IFI, CFI, RMR,	Lai (2018b)	Malaysia	Survey	560	Consumers	CA, CFA, SEM
Gumussoy, Kaya & Ozlu (2018)	Turkey	Survey	225	Users	CA, MR	Sumerta & Wardana, (2018)	Indonesia	Survey	108	Users	PLS-SEM
Chandra et al. (2018)	Indonesia	Survey	284	Users	CR, AVE, PLS-SEM	Nigam & Kumari (2018)	India	Survey	210	Users	CA, FA
Saji & Paul (2018)	India	Survey	214	Consumers	IA, DS, CFI, GFI, NFI, RMSEA, SEM	Bhardwa & Aggarwal (2018	India	Survey	302	Users	EFA, FA, CA
Öztüren (2018)	Cyprus	Survey	226	Consumers	CA, RA	Su, Wang & Yan, (2018)	China	Survey	922	Users	CA, FA AVE, CFA, AGF, RMSEA
Wiradinata (2018)	Indonesia	Survey	121	Merchants	CA, CR, PLS-SEM	Kongarchapatara & Rodjanatara (2018)	Thailand	Survey	275	Users	DS, IA, CA, MR
Mutahar et al. (2018)	Yemen	Survey	482	Users	DS, CR AVE, CFA, RMSEA, DFI, NFI, PGFI, PNFI, SEM	Chawla & Joshi (2018)	India	Survey	367	Users	EFA, CFA,RA, Fishers' Z-statistics
Shankar & Datta (2018)	India	Survey	381	Users	CA,CR, AVE, CLF, CFA, GFI, AGFI, NFI, CFI, RMSEA, CB-SEM	Eelu & Nakakawa (2018)	Uganda	Survey	384	Users	FA, Correlation analysis, RA, TA
Alaeddin et al. (2018)	Malaysia	Survey	98	Users	PLS-SEM						

CC BY

Table 1. Cont.

Author (2017)	Country	Method	N	Focus	Analysis	Author (2017)	Country	Method	N	Focus	Analysis
Liébana-Cabanillas, Ramos de Luna & Montoro-Ríos (2017)	Spain	Survey	287	Users	CFA, FL, CA, CR, AVE, GFI. AGFI, CFI, NFI, RMSEA, SEM	Kumar, Lall & Mane (2017)	India	Survey	144	Users	DS, FA, CA, RA
Ramos de Luna et al.(2017)	Brazil	Survey	423	Users	CFA, CA, CR, AVE, SEM	Hebie (2017)	Burkina Faso	Survey	106	Users	DS, IA, CA, MLR
Bailey et al. (2017)	USA	Survey	240	Consumers	EFA, CFA, CFI, TLI, RMSEA, SRMR, CR, AVE, Ratio x^2	Chawla & Joshi (2017)	India	Survey	367	Users	EPA, CFA, CA, LRA
Riskinanto, Kelana, Hilmawan, (2017)	Indonesia	Survey	532	Users	CFA, PLS-SEM	Barkhordari et al. (2017)	Iran	Survey	246	Consumers	CFA, SEM
Mun, Khalid & Nadarajah (2017)	Malaysia	Survey	300	Users	CA, PCA, MR	Mutahar et al. (2017)	Yemen	Survey	482	Non-users	DS, CA, CR, AVE, SEM
Chen & Wu (2017)	Taiwan	Survey	127	Users	DS, FA, CA, PCA, RA	Baganzi & Lau (2017)	Uganda	Survey	438	Users	AVE, CR, SPA, PLS-SEM
Sharma et al. (2017)	Oman	Survey	208	Users	CA, FA, Two-staged MLR, NN	Khalilzadeh, Ozturk & Bilgihan (2017)	USA	Survey	412	Merchants	DS, CFA, CA, AVE, CR, MSV, CMB, EFA, X^2, X^2/df, AGFI, CFI, NFI, RMSEA, PCLOSE, HOELTER
Roy & Sinha (2017)	India	Survey	465	Consumers	EFA, CFA, SEM	Lwoga & Lwoga (2017)	Tanzania	Survey	292	Users	EFA, FL, KMO, CA, CFA, X^2/df, RMSEA, CFI, AVE, MGA, SEM
Munoz-Leiva, Climent-Climent, Liébana-Cabanillas (2017)	Spain	Survey	103	Users	CA, CR, AVE, CFA, SEM	William et al. (2017)	Middle East and Africa	Survey	237	Consumers	CA, AVE, CR, CMB, PLS-SEM, MGA
Author (2016)	**Country**	**Method**	**N**	**Focus**	**Analysis**	**Author (2016)**	**Country**	**Method**	**N**	**Focus**	**Analysis**
Hankun et al. (2016)	China and USA	Survey	382	Users	SPSS, CA, CR, AVE, PLS-SEM	Liu &Tai (2016)	Vietnam	Survey	90	Consumers	DS, EFA, KMO, BTS, CFA, X^2, X^2/df, CFI, TLI, RMSEA, SEM, ANOVA
Apanasevic, Markendahl, Arvidsson (2016)	Sweden	Interviews	5	Users	NA*	Cao, Dang & Nguyen (2016)	Vietnam	Survey	489	Consumers	CA, BC, MR
Lesa & Tembo (2016)	Zambia	Survey	152	Consumers	PCA, MLR	Dastan & Gürler (2016)	Turkey	Survey	225	Consumers	CFA, X^2, CMIN/df, GFI, NFI, RMASEA, AVE, CA, CR, FL
Aydin & Burnaz (2016)	Turkey	Survey	1395	Users	PLS-SEM	Kristensen (2016)	Denmark	Survey	217	Consumers	SPSS, PLS-SEM, PLS-MGA
Arif , Afshan & Sharif (2016)	Pakistan	Survey	389	Consumers	EFA, CMB, CFA, CR, CA, AVE, SEM	Ooi & Tan (2016)	Malaysia	Survey	459	Users	AVE, CR, CA, PLS-SEM-ANN, MGA

CC BY

Table 1. Cont.

Mehrad & Mohammadi, (2016)	Iran	Survey	384	Users	CR, AVE, FA, SEM, PA	Phonthanukitithaworn, Sellitto, & Fong (2016)	Thailand	Survey	529	Consumers	CFA, GFI, SRMR, RMSEA, AGFI, X^2/df, FL, AVE, CR, SMC, SPA
Hossain & Mahmud (2016)	Bangladesh	Survey	75	Users	DS, CR, AVE, PLS-SEM	Suwunniponth (2016)	Thailand	Survey	300	Consumers	CA, MR
Alalwan et al. (2016)	Jordan	Survey	343	Consumers	CA, SEM	Lai (2016)	Malaysia	Survey	450	Consumers	CFA, SEM
Ramos de Luna, Montoro-Rıos *& Liébana-Cabanillas (2016)*	Spain	Survey	190	Users	CR, AVE,CA FCA, PLS-SEM	Yuan et al. (2016)	China	Survey	434	Users	CA, EFA, SEM
Upadhyay & Jahanyan (2016)	Iran	Survey	196	Users	CFA, X^2, RMSEA, CFI, GFI, NFI, AVE, CA, PCA, LR						
Author (2015)	**Country**	**Method**	**N**	**Focus**	**Analysis**	**Author (2015)**	**Country**	**Method**	**N**	**Focus**	**Analysis**
Liébana-Cabanillas, Ramos de Luna & Montoro-Ríos (2015)	Spain	Survey	168	Users	EFA, CFA, CR, AVE, CA, X^2, RMSEA, TLI, CFI, GFI, IFI, SEM	Phonthanukitithaworn, Sellitto, & Fong (2015)	Thailand	Survey	256	Consumers	CFA, X^2/df, GFI, AGFI, CFI, NFI, SRMR, RMSEA, PA, SEM
Sidek (2015)	Malaysia	Survey and Interviews	167(M)** 682(C)** 7(D)**	Users	PLS-SEM, CFA, CA, CR, AVE	Yan & Yang (2015)	China	Survey	193	Users	SIL, AVE, CR, CA, CMV, PCA, PLS
Pham and Ho (2015)	Taiwan	Survey	402	Consumers	EFA, KMO, BTS, CFA, CFI, CMIN/DF, RMSEA, SRMR, CR, AVE, CA, PCA	Chin & Ahmad (2015)	Malaysia	Survey	389	Consumers	CFA, SEM
Tai & Liu (2015)	Vietnam	Survey	604	Consumers	DS, CA, EFA, KMO, BTS, CFA, X^2, X^2/df, CFI, TLI, RMSEA, SEM, ANOVA	Dutot (2015)	France	Survey	320	Users	DS, PCA, CFA, CR, AVE, CA, PLS-SEM
Gao & Waechter (2015)	Australia	Survey	851	Users	CFA, CA, AVE, CR, PLS-SEM,CMV,	Mha (2015)	Jordan	Survey	404	Users	PLS, CR, AVE, CA
de Reuver et al. (2015)	Netherlands	Interviews	15	Merchants	NA*	Mohammadi (2015)	Iran	Survey	128	Consumers	CFA, EFA, AVE, CR, CA, SEM
Yang et al. (2015)	China	Survey	870	Consumers	DS, ITA, PCA, CFA, AVE, CA, CR, X^2/, X^2/df, NFI, CFI, IFI, RFI, GFI, AGFI, RMSEA, SEM,						
Author (2014)	**Country**	**Method**	**N**	**Focus**	**Analysis**	**Author (2014)**	**Country**	**Method**	**N**	**Focus**	**Analysis**
Yan & Pan (2014)	China	Survey	220	Users	CFA, AVE, CR, CA, X^2/df, GFI, AGFI, CFI, NFI, RMSEA	Mingxing, Jing &Yafang, (2014)	China	Survey	196	Consumers	CR, AVE, CA, PLS-SEM
Arvidsson (2014)	Sweden	Survey	169	Consumers	MR, ANOVA	Roy & Sinha (2014)	India	Survey	167	Consumers	CA, FA

CC BY

Table 1. Cont.

Morosan (2014)	USA	Survey	556	Consumers	DS,CFA, X^2, X^2/df, RMSEA, TLI, CFI, CR, SMC, AVE, SEM	Govender & Sihlali (2014)	South Africa	Survey	71	Users	CA, MR
Anthony & Mutalemwa (2014)	Tanzania	Survey and Interviews	120(CS)*** 10(CI)*** 1(MI)***	Consumers Merchants	DS	Ahmed et al (2014)	Saudi Arabia	Interview	14	Users	NA*
Liébana-Cabanillas, Sánchez-Fernández & Muñoz-Leiva (2014a)	Spain	Survey	2012	Consumers	CA, RC, AVE, SEM, MGA	Engwanda (2014)	USA	Survey	385	Users	CA, DS, EFA, MR, FA, CM, DRM, PM, CFI, AGFI, RMR, GFI, RMSEA, PA SEM
Liébana-Cabanillas, Sánchez-Fernández & Muñoz-Leiva (2014b)	Spain	Survey	2012	Users	CFA, CA, CR, AVE, X^2, RMSEA, TLI, CFI, GFI, AGFI, SEM, MGA	Shin & Lee (2014)	Korea	Survey	585	Users	EFA, CFA, CA, CR, AVE, GFI, CFI, SRMR, RMSEA, SEM
Liébana-Cabanillas, Sánchez-Fernández & Muñoz-Leiva (2014c)	Spain	Survey	2012	Users	EFA, KMO, BTS, X^2, RMSEA, TLI, CFI, GFI, AGFI CFA, CA, CR, AVE, MGA	Li, Liu & Heikkilä (2014)	China	Survey	377	Users	FL, CR, AVE, CA, PLS-SEM
Shaw (2014)	Canada	Survey	284	Consumers	DS, CA, AVE, CR, PLS	Li, Liu & Ji, (2014)	China	Survey	623	Users	CA, CFA, GFI, AGFI, NFI, IFI, CFI, RMSEA
Author (2013)	**Country**	**Method**	**N**	**Focus**	**Analysis**	**Author (2013)**	**Country**	**Method**	**N**	**Focus**	**Analysis**
Aboelmaged & Gebba (2013)	UAE	Survey	119	Users	CFA, CA	Liébana-Cabanillas, Muñoz-Leiva & Sánchez-Fernández (2013)	Spain	Survey	684	Users	CFA, Ratio x^2, RMSEA, TLI, NFI, CFI, GFI, AGFI, FA, SEM
Ho et al. (2013)	Switzerland	Interviews	12	Users	NA*	Fonchamnyo (2013)	Cameroon	Survey	210	Consumers	CA CR, AVE, SEM
Guhr, Wiegard & Breitner (2013)	Finland, Germany, USA and Japan	Survey	270	Consumers	CR, CA, AVE, SEM						

*NA= Not Applicable

**(M) = Merchant; (C) = Consumer; (D) =Directors of Service providers

***CS= Consumers Survey; CI= Consumers Interview; MI= Merchant Interview

(cc) BY

Research Instrument and Focus

In the previous section, this paper has investigated previous studies conducted in the CBPS area, in which the TAM was applied. As a result, 134 studies conducted between 2013 and 2020 were found revealing that the preferred method of collecting data used by academics is questionnaire surveys. Interviews were conducted in 7 studies. Only two studies conducted in the period aforementioned had focus on both, surveys and interviews (Anthony & Mutalemwa 2014; Sidek 2015). Table 2 illustrates the focus of the studies:

Table 2. Focus of the studies conducted between 2013 and 2020

Research methods		Focus		
Surveys	**Interviews**	**Consumers**	**Merchants**	**Users**
130	7	50	4	81

It is important to mention that in this literature review, this study divided the focus of 134 studies in three categories: Consumers, Merchant and Users. The main reason is that in many studies the authors have classified their subjects of study with different nomenclatures such as travelers, students, tourists and so forth. In this context, in order to organise, classify and provide a better understand of these distinct groups, this study has classified Consumers as people who pay the services provided, Merchants as organisations who supply the service to consumers and Users as people in general (all stakeholders: consumers, merchants, service providers etc).

Thus, according to the literature review, the majority of studies have focus on Users (81), followed by Consumers (50). It is worth mentioning that 1 study has focus on 'non-users'. Merchants were the focus of only 4 studies.

Countries analysed

In regards to the number of countries analysed by academics, this study found 37 different countries, which were analysed between 2013 and 2020. China was the country with more studies conducted in CBPS using TAM as a research-based model. 17 out of 134 studies were conducted in China. It was followed by India (14), Indonesia (13), Spain (13) and Malaysia (13). Table 3 shows the complete list of countries analysed during the aforementioned period:

Table 3. Countries analysed

Countries analysed: 37						
China 17	India 14	Indonesia 13	Spain 13	Malaysia 13	Thailand 5	Vietnam 5
USA 4	Iran 4	Turkey 3	Oman 3	Taiwan 3	Tanzania 2	Brazil 2
Pakistan 2	Yemen 2	Uganda 2	Sweden 2	Jordan 2	Australia 1	Ghana 1
Zimbabwe 1	Hong Kong 1	Cyprus 1	Burkina Faso 1	Zambia 1	Bangladesh 1	Denmark 1
Netherlands 1	France 1	Canada 1	Saudi Arabia 1	South Africa 1	Cameroon 1	Korea 1
UAE 1	Switzerland 1					
Comparative studies that take into account more than 1 country: 5						
52 Countries 1	Southeast Asia (ASEAN) 1	Middle East and Africa 1		Finland, Germany, USA and Japan 1	China and the USA 1	

CC BY

The majority of the studies on CBPS were conducted in one country. Only 5 cross-cultural studies, comparing different countries, were found. Tounekti, Ruiz-Martínez & Gomez (2019) conducted an online survey in 52 countries with 272 respondents. Lai (2018a) investigated the Association of Southeast Asian Nations (ASEAN) which is composed of eleven countries: Brunei, Cambodia, Timor-Leste, Indonesia, Laos, Malaysia, Myanmar, Philippines, Singapore, Thailand and Vietnam (Maizland & Albert 2020). William et al. (2017) surveyed 237 people from the Middle East and Africa. Guhr, Wiegard & Breitner (2013) conducted a survey with 270 consumers in 4 different countries (Finland, Germany, the USA and Japan). Finally, Hankun et al. (2016) investigated the differences and similarities between users in China and the USA.

Influencing factors

As pointed out in the previous sections, this study have analysed 134 studies that have applied the technology acceptance model (TAM) during the period 2013-2020. Several authors have added or tested different factors with TAM in order to point out which factors have positive and negative impact on payments conducted over the Internet or CBPS (online banking, mobile banking, electronic payments, mobile payments, NFC payments, mobile wallet and so forth). It was found 118 new variables which were tested alongside with the 5 TAM constructs. Table 3 shows the different factors tested with TAM constructs:

By far trust, which can be described as the perception that individuals need to rely on another person's intentions and motives (Shuhaiber 2016; Mondego, Gide & Chaudhry 2018), was the most used construct by academics to investigate the CBPS adoption. Trust appears in 71 studies conducted between 2013 and 2020. It was followed by perceived risk (44 studies), which is the sentiment of uncertainty among users in relation to the possibility of negative consequences of adopting a new technology (Phonthanukitithaworn, Sellitto & Fong 2016; Mondego & Gide 2018). Perceived compatibility, which refers to the degree to which a new technology is perceived as compatible with the experiences, needs and lifestyle of potential users (Liébana-Cabanillas et al. 2018; Gumussoy, Kaya & Ozlu 2018; Sun & Havidz 2019) was the focus of 31 studies. Perceived security levels, which is related to the protection of the users' data against accidental or intentional disclosure to an unauthorized people (Liu, Yang & Chang 2020), was tested 28 times. Subjective norms, which can be defined as the need that individuals have to receive an approval by other members of society while making a particular decision (Gumussoy, Kaya & Ozlu 2018: Liébana-Cabanillas, Molinillo & Japutra 2020), appears 27 times. Finally, innovativeness, which is the willingness of individuals or organisations of being pioneers in adopting new ideas, products and systems (Kalinic et al. 2019; Lee et al.2020), was subject of 22 studies.

It is worth mentioning that all the other factors presented in the papers analysed, despite having appearing less than the other factors listed above, by no means are less important. It only reflects academics' viewpoint and has to be taken into consideration as it sheds some light into the factors that have a positive and negative impact on CBPS adoption.

Techniques employed to analyse data

In relation to the research instruments used by academics to analyse data from stakeholders, this study found a wide variety of techniques employed by researchers as shown in Table 5. The complete list of acronyms is presented in Appendix 1.

CC BY

Table 4. Additional factors alongside TAM constructs

Factors	Articles	Factors	Articles	Factors	Articles	Factors	Articles
Trust	71	Perceived Risk/ Risk Perception	44	Perceived Compatibility	31	Perceived Security Levels	28
Subjective Norms	27	Innovativeness/ Personal innovativeness/ Personal innovation	22	Perceived Mobility/ Mobility Access/ Individual Mobility	17	Perceived Cost / Switching Costs/ Fees/ Lower Service Cost	16
Social Influence/ Social Factors	16	Age	15	Experience / Habit/ Knowledge/ Skilfulness	15	Gender	14
Perceived Convenience	13	Self-Efficacy	12	Mobility Users' Awareness / Informal Learning	10	Perceived Enjoyment	7
Perceived Behavioural Control	7	Perceived Benefit / Relative Advantage	7	Privacy Concern/ Privacy and Opportunism/ Privacy and Security	7	User Satisfaction / Perceived Satisfaction	6
Income	6	Perceived Lifestyle/ Consumers' Lifestyle/ Lifestyle Compatibility	6	Perceived Credibility	5	Education	5
Discomfort	5	Perceived Financial Risk	4	Optimism	4	Insecurity	4
Hedonic Motivation/ Controlled motivation/ Autonomous motivation	4	Perceived Service Quality	4	Marital Status	4	Social Image	4
Perceived Reputation	4	Structural Assurance	4	Price Value/ Value for Money/ Monetary Value	4	Privacy Risk	3
Facilitating Conditions	3	Perceived Usage	3	Perceived Efficiency	3	Performance Expectancy	2
Perceived System Quality	3	Environmental Risk	2	Perceived Safety/ Safe to use	2	Perceived Information Quality	2
Effort Expectancy	2	Perceived Value / Emotional Value	2	Openness to Third Parties	2	Governance Issues/ Regulatory risk	2
Occupation	2	Trialability	2	Design	2	Word of Mouth	2
Social Risk	2	Time Risk	2	Reachability	2	Perceived Accessibility	2
Size of Business/ Business Scope	2	Qualifications	2	Demographics factors/ Personal factors	2	Absorptive Capacity	2
Perceived Task-Technology	2	Lack of Dependencies	1	Perceived Financial Resources/Availability of Resources	1	Service Availability	1
Attractiveness	1	Ubiquity	1	Transparency	1	Enticing Promises	1
Additional Values Of NFC Mobile Payment	1	Strategic Objectives and Interests	1	Perceived Expressiveness	1	Location	1
Perceived Functional Benefits	1	Trusted Service Manager (TSM)	1	Find Policies/ Government as Policy	1	Clearing System	1
Observability	1	Conflicts	1	Communication	1	Confidentiality	1
Actual System Use	1	Openness to New Experience	1	Flexibility	1	Perceived Reliability	1
Confirmation	1	Simplicity	1	Transaction Time	1	Perceived Performance Risk	1
Conscientiousness	1	Risk of Product Use	1	Quality of Internet Connection	1	Security Risk	1
Rewards	1	Neuroticisms	1	Resistance to Change	1	Agreeableness	1
Perceived Information Risk	1	Business Number	1	Extraversion	1	Brand	1
Perceived Complementarity	1	Cognitive Style	1	Use Situation	1	Economic Benefits	1
Social Interaction	1	Added Value of a Service	1	Technological Feasibility	1	New Technology Anxiety	1
Perceived aesthetics	1	Customization	1	Network Externalities and Critical Mass	1	User's Willingness	1
Technology Availability	1	Use Context	1	Perceived Interest	1	Smartness	1
Technological Uncertainty	1	Responsiveness	1	Technology readiness	1	Time Savings	1
Perceived Technological Risk	1	Perceived Asset	1	Computer Playfulness	1		

CC BY

Table 5. Techniques employed to analyse data

Techniques employed to analyse data									
DS	CMB	IA	EFA	KMO	BTS	CFA	CA	AVE	CR
26	5	4	22	7	6	55	79	56	60
RA	HR	MR	MLR	HLRA	HTMT	TA	SIL	MSV	CM
5	1	9	7	1	3	1	1	2	2
X^2	X^2/df	CFI	GFI	AGFI	PGFI	IFI	NFI	PNFI	RMSEA
12	13	27	20	17	1	7	18	1	33
SRMSR	TLI	CMIN/DF	BC	FISHER'S Z STATISTICS	ANOVA	PLS	SEM	PLS-SEM	CB-SEM
4	13	3	1	1	4	5	50	24	2
NN	SEM-NN	ANN	SEM-ANN	PLS-SEM-ANN	MGA	PLS-MGA	SPSS	PM	CLF
3	1	2	1	1	6	1	2	1	1
PA	PC	PCA	MaxR	SMC	DRM	FA	FL	ITA	KST
3	5	6	1	2	1	13	6	1	1
SPA	PCLOSE	HOELTER	MC	CRA	EPA	RFI	NGI	DFI	NNFI
2	1	1	1	1	1	2	1	1	1

Cronbach's alpha (CA) test, which measures the reliability of construct models (Liu et al. 2019; Agyei et al. 2020) or internal consistency (Ramos de Luna et. al 2017), was used in 79 studies. Confirmatory Factor Analysis (CFA), which measures the convergent and divergent validity of the scales (Ramos de Luna et. 2017; Liu et al. 2019), appears in 55 studies. It is important to highlight that although CFA was used in several studies, various researchers preferred to assess the reliability of constructs using the composite reliability (CR) and the validity of the scale using the average variance extraction (AVE) separately. CR was used in 60 studies, while AVE appeared in 56 papers.

The structural equation model (SEM) was the preferred research instrument for analysing the relationship among constructs. It appears in 50 studies, and its other methods, partial least square structural equation model (PLS-SEM), covariance based structural equation model (CB-SEM), neural network structural equation method (NN-SEM) and artificial neural network-structural equation model (ANN-SEM) were used in 24, 2, 1 and 1 studies respectively. It is noteworthy to highlight that the regression analysis (RA) appears in 33 studies with different approaches: multiple linear regressions (MLR), multiple regressions (MR), hierarchical regressions (HR), hierarchical linear regression analysis (HLRA), logit regression analysis (LRA), and linear regression (LR). Multi-group analysis appears in 6 studies.

Finally, the fit indices (Appendix 1), which represents the measurement of the fitness of the model (Ziwei, Tham & Azam 2019; Sharma 2019; Ardiansah et al. 2020), were used by academics in 33 studies.

SUMMARY AND CONCLUSION

This paper has provided a scoping review of the literature of studies that have applied the TAM to investigate the factors that have a positive or negative influence on CBPS adoption during the period 2013-2020.

The findings of 134 papers, published during the aforementioned period, suggest that the majority of the studies conducted questionnaire surveys as the main instrument of collecting data from participants and users were the main focus of academics. Few studies have gathering information from participants through interviews, as well as few papers take into account the point of view of merchants.

CC BY

China was the country with more studies conducted in CBPS using TAM as a research-based model. It was followed by India, Indonesia, Spain and Malaysia. Notwithstanding the number of studies have increased in some countries (e.g India and Indonesia) during the period analysed, it is noticeable that the number of studies conducted in some countries seems under-represented and in others there is no data available. Besides, only 5 studies were found, which have investigated cross-cultural similarities and differences.

Trust was the most used construct by academics to investigate the CBPS adoption, followed by perceived risk, perceived compatibility, perceived security levels and subjective norms.

Finally, many studies used the fit index to evaluate the fitness of the model and SEM was the preferred research instrument for analysing the relationship among constructs, followed by regression analysis and multi-group analysis.

Limitations and Future research opportunities

This paper has summarised studies conducted and published between 2013 and 2020. The reason to focus on the aforementioned period was that the consumers' choices of payment methods have significantly increased over the past years, due to the emergence of e-commerce and the rapid advancement of technology. Besides, the main focus of this study was to analyse recent studies conducted in the CBPS area, which has used TAM as a research-based model, and point out future research opportunities.

Future research needs to investigate the factors that have impact on CBPS adoption from the merchants' viewpoint as the majority of the studies had focus on consumers and users in general. Also, interviews with stakeholders should be encouraged, as questionnaire surveys was the main research instrument of gathering data. Furthermore, there is a need to conduct cross-cultural studies in order to analyse similarities and differences among different countries.

REFERENCES

Aboelmaged, MG & Gebba, TR 2013, Mobile banking adoption: an examination of technology acceptance model and theory of planned behavior, *International Journal of Business Research and Development*, vol. 2, no. 1, pp. 35-50.

Agyei, J, Sun, S, Abrokwah, E, Penney, EK & Ofori-Boafo, R 2020, Mobile banking adoption: examining the role of personality traits, *Sage Open*, pp. 1-15.

Ahmed, M, Almotairi, MA, Ullah, S & Alam, A 2014, Mobile banking adoption: a qualitative approach towards the assessment of TAM model in an emerging economy, *Academic Research International,* vol. 5, no.6, pp. 248-259.

Alaeddin O, Rana A, Zainudin Z. & Kamarudin F 2018, From physical to digital:

investigating consumer behaviour of switching to mobile wallet, *Polish Journal Of Management Studies*, vol. 17, no. 2, pp. 18-30.

Alalwan, AA, Dwivedi, YK, Rana, NP & Williams, MD 2016, Consumer adoption of mobile banking in Jordan: examining the role of usefulness, ease of use, perceived risk and self-efficacy, *Journal of Enterprise Information Management*, vol. 29, no. 1, pp. 118-139.

CC BY

Albashrawi, MA 2017, *Understanding mobile banking usage behavior: a multi-model perspective*, PhD thesis, University of Massachusetts Lowell.

Aldhaban, FA 2016, *Exploratory study of the adoption and use of the smartphone technology in emerging regions: case of Saudi Arabia*, PhD thesis, Portland State University.

Alkhowaiter, WA 2020, 'Digital payment and banking adoption research in Gulf countries: a systematic literature review', *International Journal of Information Management*, v.53, pp.1-17.

Almasri, M & Alshareef, H 2019, Mobile cloud-based e-payment systems in Saudi Arabia: a case study, paper presented at 3rd International Conference on Business and Information Management (pp. 5-10), viewed 14 May 2020, https://dl.acm.org/doi/pdf/10.1145/3361785.3361795

Andrews, S & Schmitz, KM 2019, 'Chapter 10 - FinTech as disruptive technology in emerging markets', in *Reinventing business through disruptive technologies - sector trends and investment opportunities for firms in emerging markets*, pp. 68-74, International Financial Corporation - World Bank Group, Washington.

Anthony, D & Mutalemwa, DK 2014, 'Factors influencing the use of mobile payments in Tanzania: insights from Zantel's Z-pesa services', *Journal of Language, Technology & Entrepreneurship in Africa*, vol. 5, no. 2, pp. 69-90.

Apanasevic, T, Markendahl, J, Arvidsson, N 2016, Stakeholders' expectations of mobile payment in retail: lessons from Sweden, *International Journal of Bank Marketing*, vol. 34, no. 1, pp. 37-61.

Ardiansah, M, Chariri, A & Januarti, I 2019, Empirical study on customer perception of ecommerce: mediating effect of electronic payment security. *Jurnal Dinamika Akuntansi,* vol. 11, no. 2, pp. 122-131.

Ardiansaha, MN, Charirib, A, Rahardjab, S & Udin 2020, The effect of electronic payments security on e-commerce consumer perception: An extended model of technology acceptance, *Management Science Letters*, vol. 10, pp. 1473–1480.

Arif, I, Afshan, S & Sharif, A 2016, Resistance to mobile banking adoption in a developing country: evidence from modified TAM, *Journal of Finance & Economics Research*, vol. 1, no.1, pp. 25-42.

Ariffin, SK & Lim, KT 2020, Investigating Factors Affecting Intention to Use Mobile Payment Among Young Professionals in Malaysia, *Advances in Economics, Business and Management Research,* vol. 141, pp. 6-11.

Arvidsson, N 2014,'Consumer attitudes on mobile payment services - results from a proof of concept test', *International Journal of Bank Marketing*, vol. 32, no. 2, pp. 150-170.

Atlam, HF, Walters, RJ & Wills, GB 2018, Intelligence of things: opportunities & challenges, Paper presented at 2018 3rd Cloudification of the Internet of Things (CIoT), pp. 1-6.

Australian Payments Network (n.d.), Australia's move towards a less cash economy, viewed 25 April 2020, https://www.auspaynet.com.au/insights/blog/lesscash

Australian Payments Network 2018, Towards an internet of payments - Global platforms redefining the payments landscape, viewed 4 February 2020, https://www.auspaynet.com.au/sites/default/files/2019-02/Towards_an_Internet_of_Payments_Dec_2018_Whitepaper.pdf

Aydin, G, Burnaz, S 2016, Adoption of mobile payment systems: a study on mobile wallets, *Journal of Business, Economics and Finance*, vol. 5, no. 1, pp. 73-92.

Baganzi, R & Lau, AK 2017, Examining trust and risk in mobile money acceptance in Uganda, *Sustainability 2017*, vol. 9, no. 12, 2233, pp. 1-22.

Bagla, RK & Sancheti V 2018, Gaps in customer satisfaction with digital wallets: challenge for sustainability, *Journal of Management Development*, vol. 37 no. 6, pp. 442-451.

CC BY

Bailey, AA, Pentina, I, Mishra, AS & Mimoun, MSB 2017, Mobile payments adoption by US consumers: an extended TAM, *International Journal of Retail & Distribution Management*, vol. 45, no. 6, pp. 626-640.

Bansal, S, Bruno, P, Denecker, O & Niederkorn, M 2018, Global payments 2018: A dynamic industry continues to break new ground, viewed14 May 2020, https://www.mckinsey.com/industries/financial-services/our-insights/global-payments-expansive-growth-targeted-opportunities

Banu, AM, Mohamed, NS & Parayitam, S 2019, Online banking and customer satisfaction: evidence from India, *Asia-Pacific Journal of Management Research and Innovation*, vol. 15, no. 1–2, pp. 68–80.

Barkhordari, M, Nourollah, Z, Mashayekhi, H, Mashayekhi, Y & Ahangar, MS 2017, 'Factors influencing adoption of e-payment systems: an empirical study on Iranian customers', *Information Systems and e-Business Management*, vol. 15, no. 1, pp. 89-116.

Barkhordari, M, Nourollah, Z, Mashayekhi, H, Mashayekhi,Y, Ahanga, MS 2017, Factors influencing adoption of e-payment systems: an empirical study on Iranian customers, Information Systems, E-Business Management vol. 15, pp. 89–116.

Barratt, A 2020, The future of payments in the cloud – misconceptions that hold brands back from embracing cloud, viewed 27 April 2020, https://www.techradar.com/news/the-future-of-payments-in-the-cloud

Baskoro, HA & Amini, A 2020, Analysis of factors influencing consumer intention toward Indonesia QR mobile payment, paper presented at Understanding Digital Industry: Proceedings of the Conference on Managing Digital Industry, Technology and Entrepreneurship (CoMDITE 2019), Bandung, Indonesia, pp. 112-116, viewed 29 August 2020,Bhardwaj, M & Aggarwal, R 2018, Understanding dynamics of mobile banking adoption by youth: empirical evidence from India, *FIIB Business Review*, vol. 5, no.2, pp. 46-56.

Biddle, S 2018, Facebook uses artificial intelligence to predict your future actions for advertisers, says confidential document, viewed 24 May 2020, https://theintercept.com/2018/04/13/facebook-advertising-data-artificial-intelligence-ai/

Boateng, R & Sarpong, MYP 2019, A literature review of mobile payments in Sub-Saharan Africa, *Conference Papers - International Federation for Information Processing (IFIP) 2019*, pp.128-146.

Bonga, D 2018, *Business to consumer mobile commerce in the Democratic Republic of the Congo: a case study*, PhD thesis, Northcentral University.

Briliana, V, Deitiana, T & Ruswidiono, W 2019, Attitudes toward mobile app payment systems: a case study among Indonesian millennials, *Advances in Economics, Business and Management Research,* vol. 145, pp. 321-325.

Brill, T, Munoz, L & Miller, RJ 2019, 'Siri, Alexa, and other digital assistants: a study of customer satisfaction with artificial intelligence applications', *Journal of Marketing Management*, vol. 35, no. 15–16, pp. 1401–1436.

Bullock, M 2019, Modernising Australia's payments system, RBA Speech to the Central

Bank Payments Conference, pp. 1-7, viewed 24 April 2020, https://www.rba.gov.au/speeches/2019/sp-ag-2019-06-25.html

Business.com (2017), How Artificial Intelligence is Improving Customer Experience, viewed 10 February 2020, https://www.business.com/articles/nathan-resnick-how-ai-improves-customer-experience/

Cao, TK, Dang, PL & Nguyen, HA 2016, 'Predicting consumer intention to use mobile payment services: empirical evidence from Vietnam'*, International Journal of Marketing Studies*, vol. 8, no. 1, pp. 117-124.

Capgemini 2019, World payments report 2019, Capgemini Research Institute, viewed 28 April 2020, https://www.capgemini.com/news/world-payments-report-2019/

CC BY

Chakravorti, B & Mazzotta, B 2014, The cost of cash in India, viewed 28 June 2017, http://fletcher.tufts.edu/~/media/Fletcher/Microsites/Cost%20of%20Cash/COC-India- lowres.pdf

Chandra, YU, Kristin, DM, Suhartono, J, Sutarto, FS & Sung, M 2018, Analysis of determinant factors of user acceptance of mobile payment system in Indonesia (a case study of go-pay mobile payment), paper presented at 2018 International Conference on Information Management and Technology (ICIMTech), Jakarta, Indonesia, pp. 454-459, viewed 27 August 2020, https://ieeexplore.ieee.org/abstract/document/8528182

Chawla, D & Joshi, H 2017, High versus low consumer attitude and intention towards adoption of mobile banking in India: an empirical study, *Vision*, vol. 21, no. 4, pp. 410–424.

Chawla, D & Joshi, H 2018, The moderating effect of demographic variables on mobile banking adoption: an empirical investigation, *Global Business Review*, vol. 19, no.3S, pp. 90S–113S.

Chawla, D & Joshi, H 2019, Scale development and validation for measuring the adoption of mobile banking services, *Global Business Review,* vol 20, no. 2, pp. 434–457.

Chawla, D & Joshi, H 2020, Role of mediator in examining the influence of antecedents of mobile wallet adoption on attitude and intention, *Global Business Review*, pp. 1–17.

Chen, LY & Wu, WN 2017, 'An exploration of the factors affecting users' satisfaction with mobile payments', *International Journal of Computer Science & Information Technology (IJCSIT)*, vol. 9, no.3, pp.97-105**.**

Chen, Z, Khoa, LD, Teoh, EN, Nazir, A, Karuppiah, EK & Lam, KS 2018, 'Machine learning techniques for anti-money laundering (AML) solutions in suspicious transaction detection: a review', *Knowledge and Information Systems*, vol. 57, no. 2, pp. 245-285.

Chin, LP & Ahmad, ZA 2015, Perceived enjoyment and Malaysian consumers' intention to use a single platform e-payment, *SHS Web of Conferences,* viewed 24 August 2020, http://dx.doi.org/10.1051/shsconf/20151801009

Chowdhury, N 2018, *Factors influencing the adoption of cloud computing driven by big data technology: a quantitative study*, PhD thesis, Capella University.

CIO review 2019, How is cloud influencing payments?, viewed 27 April 2020, https://www.cioreview.com/news/how-is-cloud-influencing-payments-nid-30673-cid-171.html

Cohen, L, Manion, L & Morrison, K 2007, *Research method in education*, 6th edn, Routlage, New York.

Creswell, JW 2007, *Qualitative inquiry & research design – choosing among five approaches*, Sage Publications, Thousand Oaks.

Dastan, I & Gürler C 2016, 'Factors affecting the adoption of mobile payment systems: an Empirical Analysis', *Emerging Markets Journal*, vol.6, no.1, pp.17-24.

Davis, FD 1989, 'Perceived usefulness, perceived ease of use, and user acceptance of information technology'*, MIS quarterly,* pp. 319-340.

Dawson, C 2002, Practical research methods: a user-friendly guide to mastering research techniques and projects, How to books Ltd, viewed 11 January 2018, http://www.modares.ac.ir/uploads/Agr.Oth.Lib.21.pdf

de Reuver, M, Verschuur, E, Nikayin, F, Cerpa, N & Bouwman, H 2015, 'Collective action for mobile payment platforms: a case study on collaboration issues between banks and telecom operators'*, Electronic Commerce Research and Applications*, vol. 14, no. 5, pp. 331-344.

Deloitte Insights 2018, The fourth industrial revolution is here—are you ready?, viewed 22 April 2020, https://www2.deloitte.com/content/dam/Deloitte/tr/Documents/manufacturing/Industry4-0_Are-you-ready_Report.pdf

CC BY

Digalaki, E 2019, The impact of artificial intelligence in the banking sector & how AI is being used in 2020, viewed 20 August 2020, https://doi.org/10.1108/EBR-11-2018-0203

Donoghue, M 2018, Six reasons you need to consider a cloud-based payment system, viewed 4 February 2020, https://ipsi.com.au/author/michaeld/

Doyle, MA, Fisher, C Tellez, E & Yadav, A 2017a, How Australians pay: evidence from the 2016 Consumer Payments Survey, RBA Bulletin, pp. 1-41.

Doyle, MA, Fisher, C Tellez, E & Yadav, A 2017b, How Australians pay: new survey evidence, RBA Bulletin, pp. 59-66.

Duan, X 2012, *An integrated solution to the adoption of electronic market in Australian small-and-medium sized enterprises*, PhD thesis, RMIT University.

Dutot, V 2015, Factors influencing Near Field Communication (NFC) adoption: an extended TAM approach, *Journal of High Technology Management Research,* vol. 26, pp. 45–57.

Eelu, S & Nakakawa, A 2018,

Framework towards enhancing adoption of electronic payment in a developing economy: a case of Uganda, *The African Journal of Information Systems*: vol. 10, no. 3, pp. 222-245.

Elhag, HM 2015, *Enhancing online banking transaction authentication by using tamper proof & cloud computing*, PhD thesis, University of Surrey.

eMarketer 2019, Contactless competition and digital limitations stifle proximity mobile payment growth in the UK, viewed 8 September 2020, https://www.emarketer.com/content/contactless-competition-and-digital-limitations-stifle-proximity-mobile-payment-growth-in-the-uk

Engwanda, MN 2014, *Factors Affecting Mobile Banking Adoption in the United States*, PhD thesis, Walden University.

Fintech News 2019, The critical role of artificial intelligence in payments tech, viewed 5 February 2020, https://www.fintechnews.org/the-cririal-role-of-artificial-inteliigence-in-payments-tech/

Fonchamnyo, DC 2013, Customers' perception of e-banking adoption in Cameroon: an empirical assessment of an extended TAM, *International Journal of Economics and Finance*, vol. 5, no. 1, pp. 166-176.

Gao, L & Waechter, KA 2015, 'Examining the role of initial trust in user adoption of mobile payment services: an empirical investigation', *Information Systems Frontiers*, pp. 1-24.

Gavrilović, Z & Maksimović, M 2019, The concept of cloud marketing, paper presented at 7th International Scientific Symposium „EkonBiz: Modern business in the function of the development of the national economy—, Bijeljina, 20-21nd June 2019.

Genovese, W 2017, Accelerating success in the 4th industrial revolution, viewed 27 April 2020, https://www.huawei.com/en/about-huawei/publications/winwin-magazine/29/accelerating-success-in-the-4th-industrial-revolution

Global Market Insights 2019, Cloud POS Market Share 2019-2025, *Industry Forecast Report,* viewed 28 April 2020, https://www.gminsights.com/industry-analysis/cloud-pos-market

Gossett, S 2019, 10 AI in banking examples you should know, viewed 20 August 2020, https://builtin.com/artificial-intelligence/ai-in-banking

Govender, I & Sihlali, W 2014, A study of mobile banking adoption among university students using an extended TAM, *Mediterranean Journal of Social Sciences,* vol. 5, no. 7, pp. 451-459.

Government Accountability Office (GAO) 2018, Artificial intelligence: emerging opportunities, challenges, and implications for policy and research, viewed 28 April 2020, https://www.gao.gov/assets/700/692793.pdf

CC BY

Grix, J 2010, *The foundations of research*, 2nd edn, Palgrave Macmillan, London.

Guhr, N, Wiegard, TLR, & Breitner, MH 2013, Technology readiness in customers' perception and acceptance of m(obile)-payment: an empirical study in Finland, Germany, the USA and Japan, paper presented at 11th International Conference on Wirtschaftsinformatik, Leipzig, Germany, pp. 1-8, viewed 26 August 2020, https://aisel.aisnet.org/cgi/viewcontent.cgi?article=1007&context=wi2013

Gumussoy, CA, Kaya, A & Ozlu, E 2018, Determinants of mobile banking use: an extended TAM with perceived risk, mobility access, compatibility, perceived self-efficacy and subjective norms, *Lecture Notes in Management and Industrial Engineering*, pp. 225-238, viewed 26 August 2020, https://doi.org/10.1007/978-3-319-71225-3_20

Hair, JF, Risher, JJ, Sarstedt, M & Ringle, CM 2019, When to use and how to report the results of PLS-SEM, *European Business Review,* vol. 31, n.1, pp. 2-24, https://

Hampshire, C 2016, *Exploring UK consumer perceptions of mobile payments using smart phones and contactless consumer devices through an extended technology adoption model*, PhD thesis, University of Chester.

Hankun, H, Yafang, L, Xuemei, H & Jing, F 2016, A comparative study of China and US users' acceptance of online payment, paper presented at 2016 13th International Conference on Service Systems and Service Management (ICSSSM), Hangzhou, China, viewed 29 August 2020, https://ieeexplore.ieee.org/abstract/document/7538582

Hashim, NAAN, Zulkifli,WFW, Aziz, RC, Nawi, NMM, Awang, Z, Muhammad, NH &

Yusoff, AM 2020, Grab Pay app: the factors influencing tourists' behavioural intention-to-use, *Talent Development & Excellence*, vol. 12, no. 3s, pp. 820-828.

Hebie, AP 2017, *Improving mobile phone banking usefulness, usability, risk, cost, and intention to adopt,* DBA dissertation, Walden University.

Hinojo-Lucena, FJ, Aznar-Díaz, I, Cáceres-Reche, MP & Romero-Rodríguez, JM, 2019, 'Artificial intelligence in higher education: a bibliometric study on its impact in the scientific literature', *Education Sciences*, vol. 9, no. 1, p. 51.

Ho, E, Apostu, S, Michahelles, F & Ilic, A 2013, Digital receipts: fostering mobile payment adoption, *International Joint Conference on Ambient Intelligence*, vol. 8309, pp. 140-149.

Hossain, A & Udin, MN 2018, A differentiate analysis for credit card fraud detection, Paper presented at 2018 2nd International Conference on Innovations in Science, Engineering and Technology (ICISET), Bangladesh, 27-28 October, viewed 27 April 2020, https://ieeexplore.ieee.org/abstract/document/8745592

Hossain, R & Mahmud, I 2016, Influence of cognitive style on mobile payment system adoption: an extended technology acceptance model, paper presented at 2016 International Conference on Computer Communication and Informatics (*ICCCI* -2016), Coimbatore, India, viewed 27 August 2020, https://ieeexplore.ieee.org/document/7479973

Hyson, DE 2014, *Factors influencing the adoption of cloud computing by medical facility managers,* PhD thesis, Capella University.

Imran, M, ul Hameed, W & ul Haque, A 2018, 'Influence of industry 4.0 on the production and service sectors in Pakistan: evidence from textile and logistics industries', *Social Sciences*, vol. 7, no. 12, pp. 1-21.

Jenkins, P & Ophoff, J 2016, Factors influencing the intention to adopt NFC mobile payments - a South African perspective, Refereed papers from the International Conference on Information Resources Management (CONF-IRM), pp. 1-12, viewed 28 December 2017, http://aisel.aisnet.org/cgi/viewcontent.cgi?article=1031&context=confirm2016

CC BY

Jiao, Y 2018, *Applications of artificial intelligence in e-commerce and finance*, PhD thesis, Telecom SudParis.

Kagermann, H, Helbig ,J, Hellinger, A & Wahlster, W 2013, Recommendations for implementing the strategic initiative industrie 4.0: securing the future of German manufacturing industry, final report of the industrie 4.0 working group, Forschungsunion.

Kalinic, Z, Marinkovica, V, Molinillo, S & Liébana-Cabanillas, F 2019, A multi-analytical approach to peer-to-peer mobile payment acceptance prediction, *Journal of Retailing and Consumer Services*, vol. 49, pp. 143–153.

Karim, W, Haque, A, Ulfy, MA, Hossain, A, Anis, Z 2020, Factors influencing the use of e-wallet as a payment method among Malaysian young adults, *Journal of International Business and Management,* vol. 3, no. 2, pp. 1-12.

Keller, B., Baleis, J., Starke, C. and Marcinkowski, F. 2019, Machine Learning and artificial intelligence in higher education: a state-of-the-art on the German university landscape, pp.1-31, viewed 2 January 2020, https://www.phil-fak.uni-duesseldorf.de/fileadmin/Redaktion/Institute/Sozialwissenschaften/Kommunikations-_und_Medienwissenschaft/KMW_I/Working_Paper/Keller_et_al.__2019__-_AI_in_Higher_Education.pdf

Khalilzadeh, J, Ozturk, AB & Bilgihan, A 2017, 'Security-related factors in extended UTAUT model for NFC based mobile payment in the restaurant industry', *Computers in Human Behavior*, vol. 70, pp. 460-474.

Killian, D, & Kabanda, S 2017, Mobile payments In South Africa: middle income earners' perspective, Refereed papers from the Twenty First Pacific Asia Conference on Information Systems (PACIS), Langkawi, viewed 27 December, http://aisel.aisnet.org/cgi/viewcontent.cgi?article=1241&context=pacis2017

Klug, WE 2014, *The determinants of cloud computing adoption by colleges and universities*, PhD thesis, Northcentral University.

Kongarchapatara, B & Rodjanatara, C 2018, Factors affecting adoption versus behavioral intention to use QR code payment application, paper presented at International Conference on e-Commerce, e-Administration, e-Society, e-Education, and e-Technology, Osaka, Japan, viewed 29 August 2020, https://www.researchgate.net/publication/325170335

Köster, A, Matt, C & Hess, T 2016,'Carefully choose your (payment) partner: how payment provider reputation influences m-commerce transactions', *Electronic Commerce Research and Applications*, vol. 15, pp. 26-37.

Kristensen, SM 2016, *Understanding factors influencing Danish consumers' intention to use mobile payment at point-of-sale*, MSc thesis, Aarhus University.

Kumar, R & O'Brien, S 2019, 2019 Findings from the Diary of Consumer Payment choice, Cash Product Office, Federal Reserve System, viewed 24 April 2020, https://www.frbsf.org/cash/files/2019-Findings-from-the-Diary-of-Consumer-Payment-Choice-June2019.pdf

Kumar, R 2011, 'Research methodology: a step-by-step guide for beginners', 3rd edition. Los Angeles, SAGE.

Kumar, VVR, Lall, A & Mane, T 2017, Extending the TAM model: intention of management students to use mobile banking: evidence from India, *Global Business Review*, vol. 18, no. 1, pp. 238–249.

Lai, PC 2016, Design and security impact on consumers' intention to use single platform E-payment, *Interdisciplinary Information Sciences*, vol. 22, no. 1, pp. 111–122.

Lai, PC 2018a, Security as an extension to TAM model: consumers' intention to use a single platform e-payment system, *Asia-Pacific Journal of Management Research and Innovation,* vol. 13, no. 3–4, pp. 110–119.

Lai, PC 2018b, Single platform e-payment system consumers' intention to use, *Journal of Information Technology Management*, vol. XXIX, no. 2, pp. 22-28.

CC BY

Landrum, B & Garza, G 2015, 'Mending fences: defining the domains and approaches of quantitative and qualitative research', *Qualitative Psychology*, vol. 2, no. 2, pp. 199–209.

Latentview 2018, How to make Artificial Intelligence work for your organization, viewed 10 February 2020, https://www.latentview.com/blog/business-benefit-from-ai/

Lee, J, Suh, T, Roy, D & Baucus, M 2019, 'Emerging technology and business model innovation: the case of artificial intelligence', *Journal of Open Innovation: Technology, Market, and Complexity,* vol. 5, no. 3, pp. 1-13.

Lee, MC 2009, 'Factors influencing the adoption of internet banking: an integration of TAM and TPB with perceived risk and perceived benefit', *Electronic commerce research and applications*, vol. 8, no. 3, pp. 130-141.

Lee, VH, Hewa, JJ, Leong, LY, Tan, GWH & Ooi, KB 2020, Wearable payment: a deep learning-based dual-stage SEM-ANN analysis, *Expert Systems with Applications*, vol. 157 no. 113477, pp. 1-14.

Lesa, E & Tembo, S 2016, Study on factors affecting mobile payment systems diffusion in Zambia, *Management*, vol. 6, no. 2, pp. 36-45.

Li, H, Liu, Y & Heikkilä, J 2014, Understanding the factors driving NFC-enabled mobile payment adoption: an empirical investigation, paper presented at Pacific Asia Conference on Information Systems (PACIS), Chengdu, China, viewed 28 August 2020, http://aisel.aisnet.org/pacis2014/231

Li, J, Liu, JL & Ji, HY 2014, Empirical study of influence factors of adaption intention of mobile payment based on TAM model in China, *International Journal of u- and e- Service, Science and Technology*, vol.7, no.1, pp.119-132.

Li, J, Wang, J, Wangh, S & Zhou, Y 2019, Mobile payment with Alipay: an application of extended technology acceptance model, *IEEE Access*, vol. 7, pp. 50380-50387.

Liébana-Cabanillas, F, Leiva, FM & Fernández, JS 2017, 'Examining merchants' refusal to adopt mobile payment systems in Spain', In Nawaz Mohamudally (Ed.), Smartphones from an Applied Research Perspective, InTech, e-book, viewed 15 January 2018, https://www.intechopen.com/books/smartphones-from-an-applied-research- perspective/examining-merchants-refusal-to-adopt-mobile-payment-systems-in-spain

Liébana-Cabanillas, F, Marinkovic, V, Ramos de Luna, IR & Kalinic, Z 2018, Predicting the determinants of mobile payment acceptance: A hybrid SEM-Neural Network approach, *Technological Forecasting & Social Change*, vol. 129, pp. 117–130.

Liébana-Cabanillas, F, Munoz-Leiva, F & Rejón-Guardia, F 2013, 'The determinants of satisfaction with e-banking', *Industrial Management & Data Systems*, vol. 113, no. 5, pp. 750- 767.

Liébana-Cabanillas, F, Muñoz-Leiva, F & Sánchez-Fernández, J 2013, The impact of risk on the technological acceptance of mobile payment services, *Global Business Perspective*, vol.1, pp. 309–328.

Liébana-Cabanillas, F, Muñoz-Leiva, F & Sánchez-Fernández, J 2018, A global approach to the analysis of user behavior in mobile payment systems in the new electronic environment, *Service Business*, vol. 12, pp. 25–64.

Liébana-Cabanillas, F, Ramos de Luna, I & Montoro-Ríos, F 2015, User behaviour in QR mobile payment system: the QR payment acceptance model, *Technology Analysis & Strategic Management*, vol. 27, no. 9, pp. 1031-1049.

Liébana-Cabanillas, F, Ramos de Luna, I & Montoro-Ríos, F 2017, Intention to use new mobile payment systems: a comparative analysis of SMS and NFC payments, *Economic Research-Ekonomska Istraživanja*, vol. 30, no. 1, pp. 892-910.

CC BY

Liébana-Cabanillas, F, Sánchez-Fernández, J & Muñoz-Leiva, F 2014a, 'Antecedents of the adoption of the new mobile payment systems: the moderating effect of age', *Computers in Human Behavior*, vol. 35, pp. 464-478.

Liébana-Cabanillas, F, Sánchez-Fernández, J & Muñoz-Leiva, F 2014b, 'Role of gender on acceptance of mobile payment', *Industrial Management & Data Systems*, vol. 114, no. 2, pp. 220-240.

Liébana-Cabanillas, F, Sánchez-Fernández, J & Muñoz-Leiva, F 2014c, 'The moderating effect of experience in the adoption of mobile payment tools in Virtual Social Networks: The m-Payment Acceptance Model in Virtual Social Networks (MPAM-VSN)', *International Journal of Information Management*, vol. 34, no. 2, pp.151-166.

Lin*, WR,* Yang, FJ & Chang, YH 2020, The impact of risk factors and attitudes on use mobile payment intention, *Journal of Accounting, Finance & Management Strategy*, vol. 15, no. 1, pp. 129-158.

Liu, GS & Tai, PT 2016, 'A study of factors affecting the intention to use mobile payment services in Vietnam'*, Economics*, vol. 4, no. 6, pp. 249-273.

Liu, Y, Wang, M, Huang, D, Huang, Q, Yang, H & Li, Z 2019, The impact of mobility, risk, and cost on the users' intention to adopt mobile payments, *Information Systems and e-Business Management*, vol. 17, pp. 319–342.

Lowe, P 2019, A payments system for the digital economy**,** RBA - Address to the 2019 Australian payments network summit, pp.1-12, viewed 24 April 2020, https://www.rba.gov.au/speeches/2019/sp-gov-2019-12-10.html

Lwoga, E & Lwoga, N 2017, User acceptance of mobile payment: the effects of user-centric security, system characteristics and gender, *The Electronic Journal Information Systems in Developing Countries*, vol. 81, no. 3, pp. 1-24.

Ma, L, Su, X, Yu, Y, Wang, C, Lin, K & Lin, M 2018, What drives the use of m-payment? An empirical study about Alipay and WeChat payment, paper presented at 2018 15th International Conference on Service Systems and Service Management (ICSSSM), Hangzhou, China, pp. 1-6, viewed 27 August 2020, https://ieeexplore.ieee.org/abstract/document/8465029

MacDonald, S, & Headlam, N 2008, Research methods handbook: introductory guide to research methods for social research. Manchester, Centre for Local Economic Strategies.

Maizland, L & Albert, E 2020, What is ASEAN? viewed 07 December 2020, https://www.cfr.org/backgrounder/what-asean#:~:text=The%20Association%20of%20Southeast%20Asian%20Nations%20(ASEAN)%20is%20a%20regional,Singapore%2C%20Thailand%2C%20and%20Vietnam.

Malaquias, RF & Silva, AF 2020, Understanding the use of mobile banking in rural areas of Brazil, *Technology in Society*, vol. 62, no. 101260, pp. 1-9.

Marjetic, D. & Lesjak, D. 2018, 'Potential usage of artificial intelligence and big data analytics in higher education enrollment in Slovenia', *Issues in Information Systems*, vol. 19, n. 4, pp. 96-105.

Mbama, CI 2018, *Digital banking services, customer experience and financial performance in UK banks*, PhD thesis, Sheffield Hallam University.

McCarthy, J 2007, What is artificial intelligence?, Computer Science Department Stanford University, viewed 10 February 2020, http://jmc.stanford.edu/articles/whatisai/whatisai.pdf

McCorduck, P 2004, Machines Who Think A Personal Inquiry into the History and Prospects of Artificial Intelligence, A K Peters, Ltd., Natick, Massachusetts.

Mehrad, D & Mohammadi, S 2016, Word of Mouth impact on the adoption of mobile banking in Iran, *Telematics and Informatics*, pp. 1-13, viewed 25 August 2020, http://dx.doi.org/10.1016/j.tele.2016.08.009

CC BY

Mejia, N 2019, Artificial intelligence for payments – current capabilities and use cases, viewed 20 August 2020, https://emerj.com/ai-sector-overviews/artificial-intelligence-for-payments/

Mha, K 2015, A Mobile banking adoption model in the Jordanian market: an integration of TAM with perceived risks and perceived benefits, *Journal of Internet Banking and Commerce,* vol. 20, no. 3, pp. 1-35.

Mingxing, S, Jing, F & Yafang, L 2014, An empirical study on consumer acceptance of mobile payment based on the perceived risk and trust: Refereed paper from the International Conference on Cyber-Enabled Distributed Computing and Knowledge Discovery 2014, pp. 312-317, viewed 17 January 2017, http://ieeexplore.ieee.org.ezproxy.cqu.edu.au/stamp/stamp.jsp?tp=&arnumber=6984325

Mohammadi, H 2015, A study of mobile banking loyalty in Iran, *Computers in Human Behavior*, vol. 44 pp. 35–47.

Mondego, D & Gide, E 2018, 'The effect of trust on mobile payment adoption: a comprehensive review of literature', *International Journal of Arts & Sciences*, vol. 11, n.1, pp. 375- 389.

Mondego, D, Gide, E & Chaudhry, G 2018, The effect of personal factors on consumers' trust in mobile payment systems in Australia: Refereed paper from the 2018 5th Asia-Pacific World Congress on Computer Science and Engineering (APWC on CSE), pp. 156-163, viewed 28 June 2020, https://ieeexplore.ieee.org/document/8853737

Morosan, C 2014, 'Toward an integrated model of adoption of mobile phones for purchasing ancillary services in air travel', *International Journal of Contemporary Hospitality Management*, vol. 26, no. 2, pp. 246-271.

Morrar, R, Arman, H & Mousa, S 2017, 'The fourth industrial revolution (industry 4.0): a social innovation perspective', *Technology Innovation Management Review*, vol. 7, n. 1, pp. 12-20.

Mou, X 2019, Artificial intelligence: investment trends and selected industry uses, International Financial Corporation - World Bank Group, viewed 21 April 2020, https://pdfs.semanticscholar.org/aa98/17a63f53d2e48768bf0e80312d17070b99ea.pdf

Muna, YP, Khalidb, H & Nadarajah, D 2017, Millennials' perception on mobile payment services in Malaysia, *Procedia Computer Science,* vol. 124, pp. 397–404.

Munoz-Leiva, F, Climent-Climent, S, Liébana-Cabanillas, F 2017, Determinants of intention to use the mobile banking apps: An extension of the classic TAM model, *Spanish Journal of Marketing – ESIC*, vol. 21, pp. 25-38.

Mutahar, AM, Daud, NM, Ramayah, Isaac, O, Adnan H. Aldholay, AH 2018, The effect of awareness and perceived risk on the technology acceptance model (TAM): mobile banking in Yemen, *International Journal of Services and Standards,* vol. 12, no. 2, pp. 180-204.

Mutahar, AM, Daud, NM, Ramayah, Lennora Putit, T, Isaac, O 2017, Examining the effect of subjective norms and compatibility as external variables on tam: mobile banking acceptance in Yemen, *Science International*, vol. 29, no. 4, pp. 769-776.

Nadler S, Chen, AN & Lin, SF 2019, E-payment usage among young urban Chinese, *Journal of Business Diversity*, vol. 19, no. 3, pp. 75-88.

Ndofirepi, TM & Gavai, P 2019, The adoption of mobile banking among college students in Zimbabwe, *African Journal of Business and Economic Research,* vol. 14, no. 4, pp. 105 – 132.

Neuman WL 2014, Social research methods: qualitative and quantitative approaches, 7th edn, Pearson Education Limited, Harlow.

Nguyen, TD & Huynh, PA 2018, The roles of perceived risk and trust on e–payment adoption, *Econometrics for Financial Applications, Studies in Computational Intelligence*, vol. 760, pp. 926-940.

CC BY

Nicholas-Donald, A 2014, *The economic worth of cloud computing adoption: a financial analysis*, PhD thesis, The University of Texas at El Paso.

Nigam, A & Kumari, S 2018, Adoption of United Payment Interface Application: An Empirical Investigation Using TAM Framework, *CPJ Global Review*, vol. X, no.2, pp. 29-36.

Ooi, KB & Tan, GWH 2016, 'Mobile technology acceptance model: an investigation using mobile users to explore smartphone credit card', *Expert Systems with Applications*, vol. 59, pp. 33-46.

Opus Consulting 2019, Why Cloud-Based payments are gaining momentum, viewed 10 February 2020, https://www.opusconsulting.com/why-cloud-based-payments-are-gaining-momentum/

Öztüren, A 2018, Acceptance of mobile payment technologies by the travellers visiting North Cyprus, paper presented at 7th Intentational Conference on Tourism & Hospitality Management, pp.166-175, viewed 27 August 2020, http://jotr.eu/pdf_files/V19.pdf#page=166

Pal, A, De, R, Herath, T & Rao, HR 2019, 'A review of contextual factors affecting mobile payment adoption and use', *Journal of Banking and Financial Technology*, vol. 3, pp. 43-57.

Pal, D, Funilkul, S & Patra, S 2020, Paying by your messaging application? a trust model, paper presented at 11th International Conference on Advances in Information Technology (IAIT), Bangkok, Thailand, viewed 28 August 2020, https://www.researchgate.net/publication/342678659

Pan, YC, Jacobs, A, Tan, C & Askool, S 2018, Extending technology acceptance model for proximity mobile payment via organisational semiotics, *International Federation for Information Processing*, pp. 43-52.

Patel, RK 2016, *Examining predictors of satisfaction with mobile payment systems among small business users*, PhD Thesis, Northcentral University.

Patil, PP, Rana, NP & Dwivedi, YK 2018, Digital payments adoption research: A review of factors influencing consumer's attitude, intention and usage, *Conference papers – International Federation for Information Processing (IFIP) 2018*, pp. 45-52.

Pertiwi, D, Suprapto, W & Pratama, E 2020, Perceived usage of e-wallet among the Y generation in Surabaya based on technology acceptance model, *Jurnal Teknik Industri*, vol. 22, no. 1, pp. 17-24.

Pfisterer, B 2018, Why you should invest in cloud based payments this financial year, viewed 10 February 2020, https://insidesmallbusiness.com.au/technology-software/why-you-should-invest-in-cloud-based-payments-this-financial-year

Pham, TTT & Ho, JC 2015, 'The effects of product-related, personal-related factors and attractiveness of alternatives on consumer adoption of NFC-based mobile payments', *Technology in Society*, vol. 43, pp. 159-172.

Phonthanukitithaworn, C, Sellitto, C & Fong, MW 2015, 'User intentions to adopt mobile payment services: a study of early adopters in Thailand', *Journal of Internet Banking and Commerce*, vol. 20, no. 1, pp. 1-29.

Phonthanukitithaworn, C, Sellitto, C & Fong, MW 2016, 'An investigation of mobile payment (m-payment) services in Thailand'*, Asia-Pacific Journal of Business Administration*, vol. 8, no. 1, pp. 37-54.

Phoong, SW, Phoong, SY, Moghavvemi, S & Yeong, WC 2019, Are We Ready for Mobile Payment?, *Advances in Business Research International Journal, pp. 1-6.*

Prentice, C, Lopes, SD & Wang, X 2020, The impact of artificial intelligence and employee service quality on customer satisfaction and loyalty, *Journal of Hospitality Marketing & Management*, pp. 1-18, viewed 20 August 2020, https://doi.org/10.1080/19368623.2020.1722304

Priyadarshinee, P, Raut, RD, Jha, MK & Gardas, BB 2017, 'Understanding and predicting the determinants of cloud computing adoption: a two staged hybrid SEM - Neural networks approach', *Computers in Human Behavior*, vol.76, pp. 341-362.

CC BY

Profecta Marketing (n.d.), Tips and Strategy for your business, viewed 25 April 2020, https://www.profectamarketing.com/blog

Psannis, KE, Batalla, JM & Ishibashi,Y 2020, Artificial intelligence for cloud based big data analytics- big data research, viewed 25 April 2020, https://www.researchgate.net/publication/338178494

Qu, Y, Rong, W, Chen, H, Ouyang, Y & Xiong, Z 2018, Influencing factors analysis for a social network web based payment service in China, *Journal of Theoretical and Applied Electronic Commerce Research*, vol. 13, no. 3 / pp. 99-113.

Ramos de Luna, I, Montoro-Ríos, F & Liébana-Cabanillas, F 2016, Determinants of the intention to use NFC technology as a payment system: an acceptance model approach, *Information Systems E-Business Management*, vo. 14, pp. 293–314.

Ramos de Luna, I, Montoro-Ríos, F, Liébana-Cabanillas, F & de Luna, JG 2017, NFC technology acceptance for mobile payments: a Brazilian perspective, *Review of Business Management*, vol. 19, no. 63, pp. 82-103.

Ramos de Luna, IR, Liébana-Cabanillas, F, Sánchez-Fernández, J &Muñoz-Leiva, F 2018, Mobile payment is not all the same: the adoption of mobile payment systems depending on the technology applied, *Technological Forecasting & Social Change*, pp. 1-14, viewed 27 August 2020, https://doi.org/10.1016/j.techfore.2018.09.018

Riskinanto, A, Kelana, B, Hilmawan, DR 2017, The moderation effect of age on adopting e-payment technology, paper presented at 4th Information Systems International Conference 2017, ISICO 2017, 6-8 November 2017, Bali, Indonesia, viewed 25 August 2020, https://www.sciencedirect.com/science/article/pii/S1877050917329551

Rivera, IL 2016, *Developing online trust in electronic commerce: a generational cohort study in Puerto Rico*, DBA dissertation, Universidad Del Turabo.

Roy Morgan Research 2020, Afterpay, Apple Pay and Google Pay are driving the adoption of new digital payment services, viewed 27 April 2020, http://www.roymorgan.com/findings/8308-digital-payment-solutions-december-2019-202003100329

Roy, S & Sinha, I 2014, Determinants of customers' acceptance of electronic payment system in Indian banking sector – a study, vol. 5, no. 1, pp. 177-187.

Roy, S & Sinha, I 2017, Factors affecting customers' adoption of electronic payment: an empirical analysis, *IOSR Journal of Business and Management*, vol. 19, no. 12, pp. 76-90.

Saji, TG & Paul, D 2018, Behavioural intention to the use of mobile banking in Kerala: an application of extended classical technology acceptance model, Metamorphosis, vol. 17, no. 2, pp. 111–119.

Sandema-Sombe, CN 2019, *Relationship between perceived usefulness, ease of use, and acceptance of business intelligence systems*, DBA dissertation, Walden University.

Sanders, M, Lewis, P & Thornhill, A 2009, Research methods for business students, 5th edn, Pearson Education, Harlow.

Shankar, A & Datta, B 2018, Factors affecting mobile payment adoption intention: an Indian perspective, Global Business Review, vol. 19, no.3S, pp. 72S–89S.

Sharma, G & Lijuan, W 2015,'The effects of online service quality of e-commerce Websites on user satisfaction', *The Electronic Library*, vol. 33, n. 3, pp. 468 – 485.

Sharma, SK, Govindaluri, SM, Al-Muharrami, S & Tarhini, A 2017, A multi-analytical model for mobile banking adoption: a developing country perspective, Review of International Business and Strategy, vol. 27, no. 1, pp. 133-148.

CC BY

Sharma, SK, Sharma, H & Dwivedi, YK 2019, A hybrid SEM-Neural Network Model for predicting determinants of mobile payment services, *Information Systems Management,* vol. 36, no. 3, pp. 243-261.

Sharma, SK 2019, Integrating cognitive antecedents into TAM to explain mobile banking behavioral intention: a SEM-neural network modeling, *Information Systems Frontier*, vol.21, pp.815-827.

Shaw, N 2014, 'The mediating influence of trust in the adoption of the mobile wallet', *Journal of Retailing and Consumer Services*, vol.21, no.4, pp. 449-459.

Shaw, N 2015, Younger persons are more likely to adopt the mobile wallet than older persons, or are they? the moderating role of age, Conference Papers - Twenty-first Americas Conference on Information Systems, Puerto Rico, pp.1-15.

Shin, S & Lee, WJ 2014, The effects of technology readiness and technology acceptance on NFC mobile payment services in Korea, *The Journal of Applied Business Research,* vol. 30, no. 6, pp. 1615-1626.

Shuhaiber, A 2016, *Factors influencing consumer trust in mobile payments in the United Arab Emirates*, PhD thesis, Victory University of Wellington.

Siau, K & Wang, W 2018, 'Building trust in artificial intelligence, machine learning, and robotics', *Cutter Business Technology Journal*, vol. 31, n. 2, pp. 47-53.

Sidek, N 2015, *Determinants of electronic payment adoption in Malaysia: the stakeholders' perspectives*, PhD thesis, University of Queensland.

Simon, JP 2019, 'Artificial intelligence: scope, players, markets and geography', *Digital policy, Regulation and Governance*, vol. 21, n. 3, pp. 208-237.

Singh, B, Kumar, B & Gupta, R 2018, The role of consumer's innovativeness & perceived ease of use to engender adoption of digital wallets in India, paper presented at 2018 International Conference on Automation and Computational Engineering (ICACE - 2018) Amity University Greater Noida Campus, U. P., India, viewed 25 August 2020, https://ieeexplore.ieee.org/document/8686875

Singh, N., Sahu, G., Rana, N., Patil, P. & Gupta, B. 2018, Critical Success Factors of the Digital Payment Infrastructure for Developing Economies, *Smart Working, Living and Organising*, pp. 1-13.

Singh, YK, 2006, Fundamental of research methodology and statistics, New Age International, New Delhi.

Siyal, AW, Ding, D & Siyal, S 2019, M-banking barriers in Pakistan: a customer perspective of adoption and continuity intention, *Data Technologies and Applications*, vol. 53, no. 1, pp. 58-84.

Siyal, AW, Ding, D, Umrani, WA, Siyal, S, & Bhand, S 2019, predicting mobile banking acceptance and loyalty in Chinese bank customers, *Sage Open*, pp. 1-21.

Slade, E, Williams, M, Dwivedi, Y & Piercy, N 2015, 'Exploring consumer adoption of proximity mobile payments', *Journal of Strategic Marketing*, vol. 23, no. 3, pp. 209-223.

Song, X, Yang, S, Huang, Z & Huang, T 2019, The application of artificial intelligence in electronic commerce, Refereed papers from Journal of Physics: Conference Series, vol. 1302, n. 3 pp. 1-6.

Spiess, J, T'Joens, Y, Dragnea, R, Spencer, P& Philippart, L 2014, 'Using Big Data to Improve Customer Experience and Business Performance', *Bell Labs Technical Journal*, vol. 18, n. 4, pp.3–17

Spratto, EM 2018, *In search of equality: Developing an equal interval Likert response scale*, PhD thesis, James Madison University.

Springfield, C 2018, The impact of cloud computing on the banking sector, *International Banker*, viewed 25 April 2020, https://internationalbanker.com/banking/the-impact-of-cloud-computing-on-the-banking-sector/

CC BY

Strusani, D & Houngbonon, GV 2019, The role of artificial intelligence in supporting development in emerging markets, International Financial Corporation - World Bank Group, viewed 21 April 2020, http://documents.worldbank.org/curated/en/539371567673606214/pdf/The-Role-of-Artificial-Intelligence-in-Supporting-Development-in-Emerging-Markets.pdf

Su, P, Wang, L & Yan, J 2018, How users' Internet experience affects the adoption of mobile payment: a mediation model, Technology Analysis & Strategic Management, vol. 30, no. 2, pp. 186-197.

Sumerta, K & Wardana, M 2018, Analysis Of intention to use electronic money in Denpasar city: TAM approach, *Archives of Business Research,* vol.6, no.10, pp. 86-103.

Sun, Y & Havidz, SAH 2019, Factors impacting the intention to use m-payment, paper presented at 2019 International Conference on Information Management and Technology (ICIMTech), Jakarta & Bali, Indonesia, pp. 290-294, viewed 27 August 2020, https://ieeexplore.ieee.org/abstract/document/8843758

Suwunniponth, W 2016, Customers' intention to use electronic payment system for purchasing, *International Journal of Social, Behavioral, Educational, Economic, Business and Industrial Engineering*, vol.10, no:12, pp.3864-3869.

Sveriges Riksbank 2016, The Swedish Financial Market 2016, viewed 26 June 2017, http://www.riksbank.se/Documents/Rapporter/Finansmarknaden/2016/rap_finansm_160831 _eng.pdf

Talwar, S, Dhir, A, Khalil, A, Mohan, G & Islam, AKMN 2020, Point of adoption and beyond. Initial trust and mobile-payment continuation intention, *Journal of Retailing and Consumer Services*, vol. 55, pp. 1-12.

Tan, JD, Purba, JT & Widjaya, AE 2018, Financial technology as an innovation strategy for digital payment services in the millenial generation, *Advances in Social Science, Education and Humanities Research*, vol. 292, pp. 364-373.

TechTarget 2019, Use of AI in payments industry is set to explode, viewed 5 February 2020, https://searchenterpriseai.techtarget.com/feature/Use-of-AI-in-payments-industry-is-set-to-explode

Teoh, WMY, Chong, SC, Lin, B & Chua, JW 2013, 'Factors affecting consumers' perception of electronic payment: an empirical analysis'*, Internet Research*, vol. 3, no. 4, pp. 465-485.

Tiong, WN 2020, Factors influencing behavioural intention towards adoption of digital banking services in Malaysia**,** *International Journal of Asian Social Science*, vol. 10, no. 8, pp. 450-457.

Topol, E 2019, *Deep medicine: how artificial intelligence can make health care human again*, Hachette Book Group, New York.

Tounekti ,O, Ruiz-Martínez, A & Gomez, AFS 2019, Users supporting multiple (mobile) electronic payment systems in online purchases: an empirical study of their payment transaction preferences, *IEEE Access*, vol. 8, pp. 735-766.

Tran, K 2015, *E-business adoption in micro business in NSW, Australia: does the government tick the right boxes? A qualitative multiple case study*, DBA dissertation, Southern Cross University, Lismore, NSW.

Trend Micro (2015) Next-Gen Payment Processing Architectures, viewed 26 April 2020, https://www.trendmicro.com/vinfo/au/security/news/security-technology/next-gen-payment-processing-architectures

Ungerer, L.M. 2019, AI in higher education: Considering the ecosystem in an emerging-country context, University of South Africa, pp. 19-41.

Upadhyay, P & Jahanyan, S 2016, Analyzing user perspective on the factors affecting use intention of mobile based transfer payment, *Internet Research*, vol. 26, no.1, pp. 38-56.

Vanneschi, L, Horn, DM, Castelli, M & Popovic, A 2018, 'An artificial intelligence system for predicting customer default in e-commerce', *Expert Systems with Applications*, vol. 104, pp. 1-21.

CC BY

Vasileiadis, A 2014, Security concerns and trust in the adoption of m-commerce, *Social Technologies,* vol.4, no.1, pp.179-191.

Venkatesh, V, Brown, SA & Bala, H 2013, 'Bridging the qualitative-quantitative divide: guidelines for conducting mixed methods research in information systems', *MIS Quarterly*, vol. 37, no. 1, pp. 21-54.

Wadhwani, P & Gankar, S 2019, Cloud POS market share 2019-2025 – industry forecast report, viewed 27 April 2020, https://www.gminsights.com/industry-analysis/cloud-pos-market

Walch, K 2019, Use of AI in payments industry is set to explode, viewed 20 August 2020, https://searchenterpriseai.techtarget.com/feature/Use-of-AI-in-payments-industry-is-setto-explode

Wall, LD 2018, 'Some financial regulatory implications of artificial intelligence', *Journal of Economics and Business*, vol. 100, pp. 55-63.

Walliman, N 2010, *Research methods: The basics,* Routledge, viewed 11 July, 2020, http://uni.delf.pro/uploads/7/1/0/7/7107980/research_methods_the_basics.pdf

Wang, G, Putri, NM, Christianto, A & W, DH 2019, An empirical examination of characteristics of mobile payment users in Indonesia, *Journal of Theoretical and Applied Information Technology*, vol.96, no 1, pp. 169-182.

Widayat, W, Masudin, I & Satiti, NR 2020, E-money payment: customers' adopting factors and the implication for open innovation, *Journal of Open Innovation: Technology, Market, and Complexity,* vol. 6, no. 57, pp. 1-14.

Williams, MD, Roderick, S, Davies, GH & Clement, M 2017, Risk, trust, and compatibility as antecedents of mobile payment adoption, Refereed papers from the Twenty-third Americas Conference on Information Systems, pp.1-10, Boston, viewed 5 February 2018, https://aisel.aisnet.org/cgi/viewcontent.cgi?article=1039&context=amcis2017

Wiradinata, T 2018, Mobile payment services adoption: the role of perceived technology risk, paper presented at 2018 International Conference on Orange Technologies (ICOT), Nusa Dua, Bali, Indonesia, pp. 1-5, viewed 27 August 2020, https://ieeexplore.ieee.org/abstract/document/8705859

Wong, ATT 2018, A study of consumer acceptance of mobile payment services in Hong Kong, *Journal of Economics, Management and Trade,* vol. 21, no. 3, pp. 1-14.

World Economic Forum (n.d.), Fourth industrial revolution, viewed 22 April 2020 on https://www.weforum.org/focus/fourth-industrial-revolution

Xu, X 2017, *The effects of website quality on customer satisfaction, use intention, and purchase intention: a comparison among three types of booking channels*, PhD thesis, Iowa State University.

Yamaguti Mondego, D, 2019, *A framework to build trust in mobile payment systems for Australian consumers*, Master's by Research Thesis. Central Queensland University, http://dx.doi.org/10.25946/5cd8a80e2eb61

Yan, H & Pan, K 2014, Examine user adoption of mobile payment using the TAM: a trust transfer perspective, Refereed papers from the Wuhan International Conference on e-Business (WHICEB 2014), pp.402-409, viewed 27 December 2017, http://aisel.aisnet.org/cgi/viewcontent.cgi?article=1060&context=whiceb2014

Yan, H & Yang, Z 2015, Examining mobile payment user adoption from the perspective of trust, *International Journal of u-and e-Service, Science and Technology*, vol. 8, no. 1, pp. 117- 130.

Yang, Q, Pang, C, Liu, L, Yen, DC & Tarn, JM, 2015, Exploring consumer perceived risk and trust for online payments: an empirical study in China's younger generation, *Computers in Human Behavior*, vol. 50, pp. 9-24.

Yaokumah, W, Kumah, P & Okai, ESA 2017, 'Demographic influences on e-payment services', *International Journal of E-Business Research*, vol. 13, n. 1, pp. 44-65.

CC BY

Yap, CM & Ng, BA 2019, Factors influencing consumers' perceived usefulness of m-wallet in Klang Valley, Malaysia, *Review of Integrative Business and Economics Research*, vol. 8, no. 4 pp. 1-23.

Yuan, S, Liu, L, Su, B & Zhang, H 2020, Determining the antecedents of mobile payment loyalty: Cognitive and affective perspectives, *Electronic Commerce Research and Applications,* vol. 41, pp. 1-9.

Yuan, S, Liu, Y, Yao, R & Liu, J 2014, An investigation of users' continuance intention towards mobile banking in China, *Information Development*, vol. 32, no.1, pp. 20–34.

Zhang, WK & Kang, MJ 2019, Factors affecting the use of facial-recognition payment: an example of Chinese consumers, *IEEE Access*, *7*, pp. 154360-154374.

Zhou, T 2013, An empirical examination of continuance intention of mobile payment services, *Decision Support Systems*, vol. 54, no. 2, pp. 1085-1091.

Zhou, T 2015, An empirical examination of users' switch from online payment to mobile payment*, International Journal of Technology and Human Interaction (IJTHI)*, vol. 11, no. 1, pp. 55-66.

Ziwei, F, Tham, J & Azam, SMF 2019, Determinants of users' willingness to use mobile payment: an empirical study in Tongren University, China, *European Journal of Management and Marketing*, vol. 4, no. 4, pp. 16-38.

CC BY

Appendix 1 – Acronyms

ANN – Artificial Neural Network

AVE – Average Variance Extracted

BC - Bivariate Correlations

BTS – Bartlett's Test of Sphericity

CA – Cronbach's alpha

CFA – Confirmatory Factor Analysis

CLF – Common Latent Factor

CM – Correlation Matrix

CMB/ CMV – Common Method Bias/ Common Method Variance

CR – Composite Reliability

CRA - Correlation Analysis

DRM – Data Reduction Method

DS – Descriptive Statistics (Mean and Standard Deviation)

EFA – Explanatory Factor Analysis

FA – Factor Analysis

FL- Factor Loadings

FCA – Factorial Correspondence Analysis

FI – Fit index (CFI= Comparative Fit Index; GFI= Goodness of Fit Index; AGFI= Adjusted Goodness of Fit Index; PGFI= Parsimony Goodness of Fit Index; IFI= Incremental Fit Index; NFI= Normed Fit Index; PNFI= Parsimony Normed Fit Index; RMSEA= Root Mean Squared Error of Approximation; SRMSR= Standardized Root Mean Square Residual; TLI= Tucker-Lewis Index; X^2= Chi-Square; X^2/ df= Normed x^2 or Chi-Square/ df; CMIN/df= Minimum Discrepancy)

HR – Hierarchical Regression

HLRA - Hierarchical Linear Regression Analysis

HTMT – Heterotrait-monotrait Ratio of Correlations

IA – Inferential Analysis

ITA – Item Analysis

KMO – Kaiser-Meyer-Olkin

LR – Linear Regression

LRA – Logit Regression Analysis

MGA – Multi-Group Analysis

CC BY

MaxR– Maximal Reliability

MLR – Multiple Linear Regressions

MR – Multiple Regressions

MSV – Maximum Shared Values

NN – Neural Network

PA – Path Analysis

PC – Pearson's Correlation Analysis

PCA – Principal Component Analysis

PLS-SEM – Partial Least Square Structural Equation Modeling

PM- Pattern Matrix

SEM – Structural Equation Modeling

SIL – Standardized Item Loading

SMC – Square Multiple Correlations

SPA – Structural Path Analysis

RA – Regression Analysis

TA – Thematic Analysis

CC BY