Research Article

The Differencing Views of Technology Readiness and Acceptance Model: A Literature Review

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Abstract: Innovative technology rolled out progressive improvements in our lives. We can't deny the fact that technology and innovation assumed a significant part of our lives. Despite this, numerous innovation-based technologies and businesses never arrive at their maximum capacity, and some are just dismissed because they fail to access the readiness and acceptance of users. Although various other studies presented a literature review on a similar topic most of the talks on a specific technology and the horizon of the study were limited to a few years. Also, previous studies in our knowledge preserved literature on the technology acceptance model or technology readiness model separately. This study aims at providing a comprehensive review of all technologies without any discrimination. The current study presents the results of 112 academic papers selected from the large pool of databases on technology readiness, technology acceptance, and technology readiness and acceptance model. In this study, we are trying to present a systematic literature review on the technology readiness and technology acceptance model for the last 20 years. This paper is going to add value to the available literature on TAM and TR models and will help further to scholars working on these models.

Keywords: Technology Readiness, Technology Acceptance, Perceived usefulness, Perceived ease of use, Literature review.

1. Introduction

Technology is unavoidable in our daily lives. The improvement of new technologies allows us to save lives; it improves the standard of life and makes the arena better. In an environment stricken by technological change, businesses want to live abreast of the modern-day innovations to maintain their aggressive facet and get entry to new marketplace opportunities. This process should be continuous to keep a business up to date, but also requires that you take some time before every major technology upgrade to plan out your strategy, requirements, implementation plan, training program, and response to potential contingencies.

Numerous innovation-based technologies and businesses never arrive at their maximum capacity, and some are just dismissed (Burton-Jones & Hubona, 2006). Numerous innovative products go into production without a full review of their technological readiness, and ended with lost revenue, disappointed clients, wasted affords, and time (Clausing & Holmes, 2010; Viswanath Venkatesh & Bala, 2008). A thorough technology readiness cycle can evade this. Also, it is important to know the technology acceptance of the consumers because it ultimately leads to the success or failure of the technology. Technology readiness and acceptance are high-risk factors, have been identified as a major source of significant cost and schedule overruns, scope reduction, and cancellations of numerous commercial projects (Kujawski, 2013).

According to Porter and Donthu (Porter & Donthu, 2006), two research paradigms have emerged to explain technology adoption and acceptance. The first paradigm is system-specific and focuses on how innovation's qualities influence a person's view of innovation. This in turn affects the usage of the specific technology. The technology acceptance model (TAM) has come to be one of the most widely used models within this paradigm (King & He, 2006). The second paradigm centers around hidden personality measurements to clarify the utilization and acceptance of new advances (Porter & Donthu, 2006). It means an individual's personality influences the acceptance of technology in general. The technology readiness index (TRI) (Parasuraman, 2000) follows this approach. In the last decade, research has emerged combining the two paradigms by integrating the TRI and TAM into one model.

Although various other studies presented a literature review on a similar topic most of the talks on a specific technology and the horizon of the study were limited to a few years. Also, previous studies in our knowledge ether present literature on the technology acceptance model or technology readiness model. In this study, we are trying to present a systematic literature review on the technology readiness and technology acceptance model for the last 20 years. This paper is going to add value to the available literature on TAM and TR models and will help further to scholars working on these models.

2. Methodology

The current study presents the results of 112 academic papers selected from the large pool of database on technology readiness and technology readiness model. Articles were selected based on their impact factor and number of citations. Articles selected for this review discussed the TR and TAM models for various technologies.

A structural approach was used to determine the source of the material of review. The peer-reviewed literature; dissertation and conference preceding were the main sources of information. Literature searches were conducted using databases such as ProQuest, Google Scholar, Research gate, Elsevier, Emerald, ScienceDirect, IEEE Xplore, SpringerLink, JSTOR, etc. The search was performed with the keywords namely, technology acceptance, technology readiness, technology acceptance, and readiness extension model, etc.

A total of 147 articles were selected primarily based on the abstract. After reading the full article many articles were dropped as their focus was different from the objective of this study and some were removed because of duplicity. The selected papers were included in the literature review.

Figure 1. The selection process of articles for the review

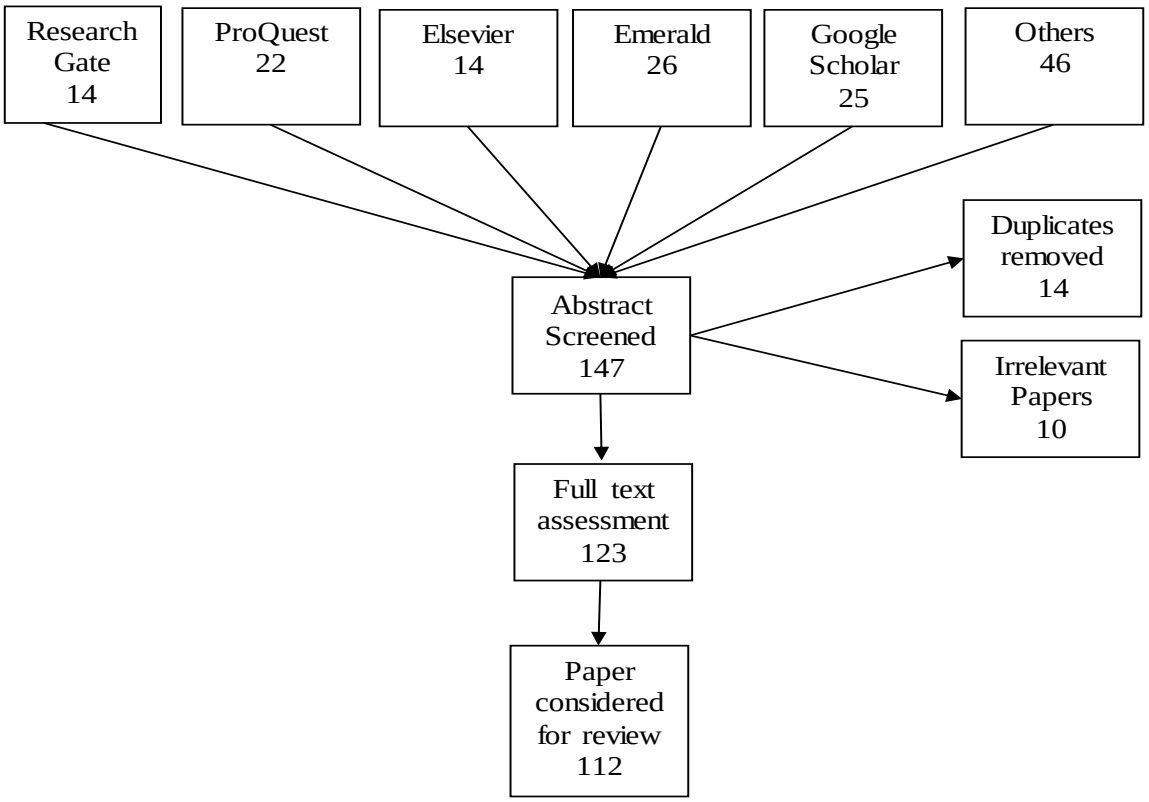

Figure 2. Year-wise distribution of articles

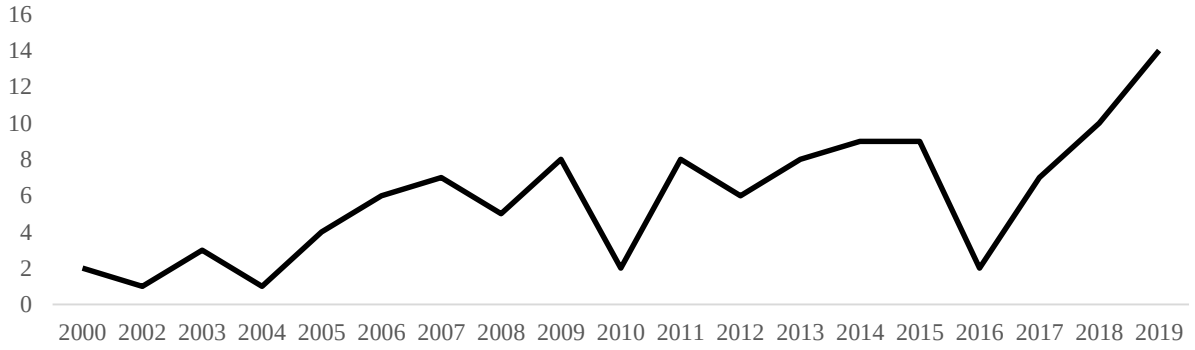

Table 1. Distribution of various papers reviewed

Journal	Number
Journal of Business Research	4
Information and Management	4
Journal of Retailing and Consumer Services	3
Journal of Services Marketing	3
Asia-Pacific Journal of Management Research and Innovation	2
Campus-Wide Information Systems	2
Computers in Human Behaviour	2
Information Systems Frontiers	2
International Journal of Bank Marketing	2
International Journal of Sports Marketing and Sponsorship	2
Internet Research	2
Journal of Research in Interactive Marketing	2
Journal of Service Research	2
Social and Behavioural Sciences	2
Sustainability	2
Others	76

3. Literature Review

Technology Readiness:

The term technology readiness was first used by the research Parasuraman in the year 2000. According to him, the technology-readiness construct refers to "people's propensity to embrace and use new technologies for accomplishing goals in home life and at work" (Parasuraman, 2000). Technology Readiness speaks to a gestalt of mental incentives and inhibitors that by and large decide an individual's inclination to utilize new advancements. During the adoption stage of new technologies, consumers develop positive or negative feelings concerning the technological product, through their either positive or negative opinions regarding the product. These feelings are examined under four sub-dimensions as Optimism, Innovativeness, Discomfort, and Insecurity.

Optimism and innovativeness specify consumers' positive feelings (motivators), discomfort, and insecurity state negative feelings (inhibitors). Innovativeness is defined as a 'tendency to be a technology pioneer and thought leader' (Parasuraman & Colby, 2007). It refers to the degree to which a person believes they are at the

forefront of testing new technological innovations. Discomfort is defined as "a perceived lack of control over technology and a feeling of being overwhelmed by it" (Parasuraman & Colby, 2007). Discomfort also refers to the extent to which people may have a prejudice against technology (J. S. C. Lin & Chang, 2011). Insecurity was first defined by Parasuraman and Colby (2001) as 'distrust of technology and skepticism about its ability to work properly'. Although the discomfort dimension appears related to the insecurity dimension, they differ in that discomfort focuses on a lack of comfort, while insecurity deals with the trust side of the technological interaction (Parasuraman & Colby, 2007).

Technology readiness relates to the perceptions, beliefs, and feelings an individual hold concerning high-tech products and services. Past studies propose that an individual can simultaneously, present both enthusiastic and adverse technology reliance and the harmony between these convictions decides their inclination to acknowledge or dismiss a new technology (Rosenbaum & Wong, 2015).

Technology Acceptance Model

The technology acceptance model was developed to predict individual adoption and use of new technologies. It posits that individuals' behavioral intention to use technology, is determined by two beliefs: perceived usefulness, defined as the extent to which a person believes that using technology will enhance his or her job performance, and perceived ease of use, defined as the degree to which a person believes that using technology will be free of effort(Davis, 1989). It further theorizes that the effect of external variables (e.g., design characteristics) on behavioral intention will be mediated by perceived usefulness and perceived ease of use (Viswanath Venkatesh & Bala, 2008).

The TAM model initially proposed by Davis (1989) is one of the various models that information technology and information systems researchers have used to predict and explain the underlying factors that motivate users to accept and adopt new technology. TAM was adopted from the Theory of Reasoned Action (TRA) (I. Ajzen & Fishbein, 1980). The TAM, as shown in Figure 1.2, Davis proposed the constructs, perceived ease of use (PEOU) and perceived usefulness (PU), as the key determinants of IT or IS acceptance behavior.

Devis defined perceived usefulness as *"the degree to which a person believes that using a particular system would enhance his or her job performance*", and defined perceived ease of use as "*the degree to which a person believes that using a particular system would be free of effort*". According to TAM, greater PU and PEOU positively influences the person's attitude toward technology.

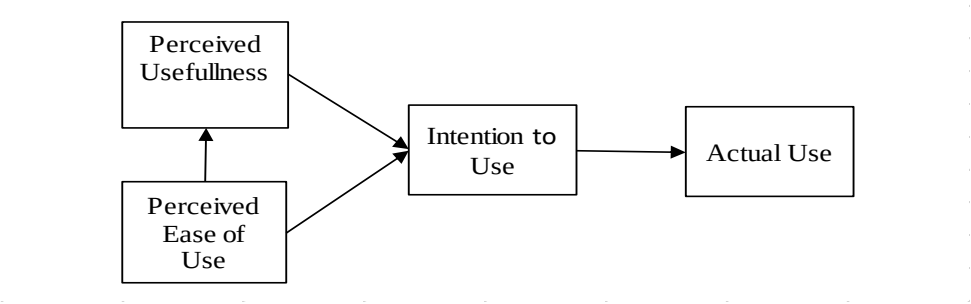

Figure 1.1 The Technology Acceptance Model (Davis, 1989)

Venkatesh and Davis (2000) proposed the TAM2 as given in figure 1.3. TAM 2 speculate users' cognitive appraisal of the match between the importance of work to be done and the results of the performing that work using a particular technology, decides his perception regarding the usefulness of the technology.

Venkatesh and Bala (2008) combined two previous theories of technology acceptance models and developed an integrated model of technology acceptance known as TAM3. Researchers built up the TAM3 utilizing the four unique sorts including the individual differences, system characteristics, social influence, and facilitating conditions which are determinants of perceived usefulness and perceived ease of use. In the TAM3 research model, the perceived ease of use to perceived usefulness, computer anxiety to perceived ease of use, and perceived ease of use to behavioral intention was moderated by experiences. The TAM3 research model was tested in real-world settings of IT implementations.

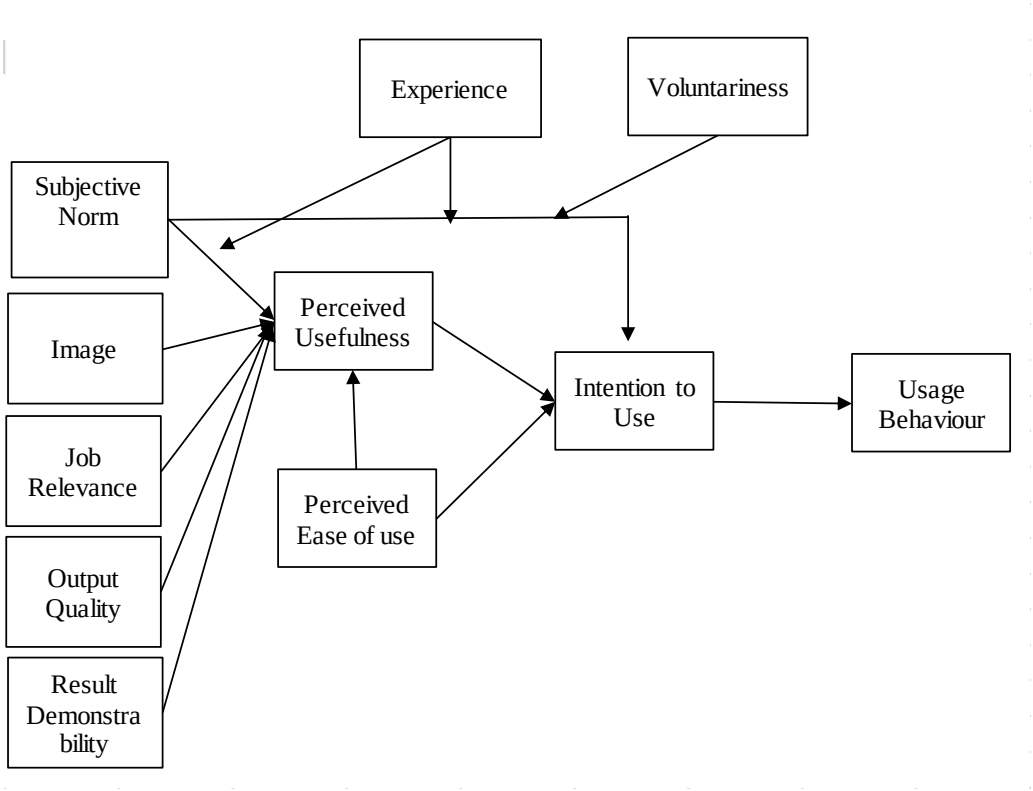

Figure 1.2 TAM2 model. (Viswanath Venkatesh & Davis, 2000)

TRAM (Technology Readiness and Acceptance model)

Chien-Hsin Lin; Hsin-Yu Shih; Peter J. Sher, 2007 proposed and empirically tested and integrated technology readiness and acceptance model. This model increased the scope of previous technology readiness and acceptance models in terms of applicability and explanatory power in a way to measure technology adoption in situations where adoption is not instructed by organizational objectives(Lin; Shih; Sher, 2007). The findings revealed technology readiness theorized to be a causal antecedent of both perceived usefulness and perceived ease of use, which subsequently affect consumers' intentions to use e-services. Perceived usefulness and perceived ease of use together had complete mediation effects between technology readiness and consumers' use intentions. Further similar kind of work had been done by various authors for different technology like e-HRM (Esen & Erdoğmuş, 2014), Sports and fitness wearable devices(T. Kim & Chiu, 2019), e-payment (Acheampong et al., 2017), Data interoperability (Buyle et al., 2018), ERP (Larasati, 2017), a Software application (Walczuch et al., 2007), new technology in general (Godoe & Johansen, 2012), m-shopping (Göze, 2015), etc.

Similarly, some researchers tried to develop the extended TRAM model with additional variables. New variables like compatibility, complexity, social influence (Oukes et al., 2019), demographics (Blut & Wang, 2020; Hallikainen & Laukkanen, 2016; Rojas-Méndez et al., 2017; Yousafzai & Yani-de-Soriano, 2012), satisfaction (Blut & Wang, 2020; Hallikainen & Laukkanen, 2016; Yousafzai & Yani-de-Soriano, 2012), loyalty recommend, loyalty patronage (Hallikainen & Laukkanen, 2016; Kaur Sahi & Gupta, 2013), superior functionality, adaptiveness, store reputation, attitude (Kaur Sahi & Gupta, 2013; Lin & Chang, 2011; Roy et al., 2018; Yang et al., 2012), technology, firm, country, controls, quality, value (Blut & Wang, 2020), perceived ubiquity, privacy concerns (Roy & Moorthi, 2017), perceived enjoyment (Oh et al., 2014), compatibility, knowledge sharing intention, social presence (Jubran & Sumiyana, 2016), perceived risk, social pressures, coercive pressures, normative pressures, mimetic pressures (Yang et al., 2012), usefulness, cost saved, self-control, customer value (Ho & Ko, 2008), subjective norms (Gombachika & Khangamwa, 2012) were discussed under various studies.

Attitude

Attitude is studied in various articles as an extension of the TAM and TARM model. Consumer's behavior is usually prompted through attitude. Attitude is a factor through which we can expect and provide an explanation for why buyers behave in a selected manner (Michael R. Solomon, 2016). In the previous work on TAM and TR, we found perceived usefulness had a significant positive relation with attitude (Aboelmaged & Gebba, 2013; Kaur Sahi & Gupta, 2013; Manis & Choi, 2019) while few contradictions were there (Curran & Meuter, 2005; Liu & Hsu, 2018). Perceived ease of use was the second variable which was discussed most with attitude. The literature

says perceived ease of use affects attitude positively (Manis & Choi, 2019; Roy et al., 2018; Zabukovšek et al., 2019) while some researchers present a different view on this (Aboelmaged & Gebba, 2013; Galib et al., 2018). Technology readiness had a positive relationship with attitude and the construct of technology readiness optimism had a positive impact on attitude (Shih & Fan, 2013; Theotokis et al., 2008), while other constructs innovativeness, discomfort, and insecurity shows the mixed results (Shih & Fan, 2013; Theotokis et al., 2008).

For various technology models, different variables were studied with attitude. It was seen relative advantage, trust, adaptiveness, store reputation, subjective norms, perceived entertainment, and perceived knowledge have a positive impact on attitude (Kaushik & Rahman, 2015; Kleijnen et al., 2004; Kwak & McDaniel, 2011; Liu & Hsu, 2018; Manis & Choi, 2019; Roy et al., 2018). Also, system accessibility, perceived cost, risk, self-efficiency, need for interaction, level of technology, had no impact on attitude towards technology (Curran & Meuter, 2005; Kleijnen et al., 2004; Lee et al., 2006; Park, 2009). Attitude had a significant effect on behavior intention, actual use, engagement, (Galib et al., 2018; Gbongli et al., 2019; Manis & Choi, 2019; Moreno Cegarra et al., 2014).

Satisfaction and Loyalty

Customer satisfaction is a result of a purchase experience, which could be psychological or economical. Higher customer satisfaction leads to customer loyalty and willingness to purchase (Chen, 2011; Taylor et al., 2002). Loyalty is defined as the deep commitment of an individual for a company. Satisfaction with technology leads to continuance intention (Chen et al., 2013) and word of mouth publicity, which again leads to loyalty (Chen, 2011). Loyalty towards technology is a result of confirmation of expectation(Chen et al., 2013), quality (Lin & Hsieh, 2006; Vize et al., 2013), and value (Taylor et al., 2002) provided by technology.

Previous studies show the perceived ease of use (PEOU) and perceived usefulness (PUSE) affect customer satisfaction(Cheng, 2017; Hallikainen & Laukkanen, 2016). Technology readiness has a significant influence on satisfaction (Cheng, 2017; Vize et al., 2013), while some studies gave contradictory results (Lin & Hsieh, 2006). The constructs of technology readiness were also studies with satisfaction and loyalty. It was found Optimism, innovativeness had a positive influence on satisfaction while discomfort and Insecurity had a negative influence on satisfaction (Pham et al., 2018).

Anxiety

Anxiety refers to an unpleasant emotion stated as frustration, uneasiness, and fear when using or considering using a particular technology (Venkatesh, 2000). In the adoption of new technology, uneasiness with technology leads to anxiety (Parasuraman, 2000). Scholarly results found interesting results with Anxiety. Anxiety was negatively related to the perceived ease of use while it was positively related to usefulness (Park et al., 2014) for teleconferencing. For mobile-based banking and payment services, similar relations were contradictory (Gbongli et al., 2019). Anxiety was positively related with actual use (Park et al., 2014) which was quite surprising because it shows employee feels uncomfortable to use technology, still, he or she is more likely to use a system. One other work on anxiety checked three models, out of them for two models they found anxiety was negatively related to actual use but for the third model, the results reflected a positive relationship between them (Kim & Forsythe, 2009).

Perceived Enjoyment

Perceived enjoyment was first discussed by Davis et al., as an extension of the technology acceptance model. They define it as a degree to which a technology is enjoyable and pleasant (Davis et al., 1992). Previous studies found perceived enjoyment has a positive impact on perceived ease of use and perceived usefulness (Bouwman et al., 2014; Lai, 2018). Moreover perceived enjoyment has a positive effect on behavior intention and usage (Bouwman et al., 2014; Lai, 2018; Manis & Choi, 2019). Results of a study specified customers who were willing to pay more have higher perceptions of enjoyment than those willing to pay less (Manis & Choi, 2019). It was found for a higher level of image technology the perceived enjoyment was higher (H. H. Lee et al., 2006).

Trust

Trust is defined as an individual's belief controls his or her perceptions regarding bound attributes. Trust has three dimensions honesty, benevolence, and competence (Kaushik & Rahman, 2015). The majority of previous studies suggest trust as an antecedent of perceived usefulness and perceived ease of use. Trust had a direct and positive effect on perceived usefulness and perceived ease of use (Ashraf et al., 2014). Trust is one of the key variables significantly affecting a consumers' intention toward the adoption (Ashraf et al., 2014; Kaushik & Rahman, 2015) as well as satisfaction with new technology (Lu et al., 2012). Trust has studied with the technology readiness model also, Technology readiness driver in terms of perceived optimism had a positive impact on user-perceived trust and technology readiness inhibitor in terms of perceived discomfort had a negative impact on user perceived trust (Lu et al., 2012).

Subjective norm

Subjective norm originally came from the theory of reasoned action (Ajzen et al., 1975), which was the base for the technology acceptance model (Venkatesh & Davis, 2000). Subjective norm was defined as a "person's perception that most people who are important to him think he should or should not perform the behavior in question" (Icek Ajzen et al., 1975). Previous studies articulated a positive influence of subjective norm on perceived usefulness (Ngangi & Santoso, 2019; Venkatesh & Davis, 2000) and found no influence on perceived ease of use (Ngangi & Santoso, 2019; Park, 2009). Subjective norms influenced intention to use (Kaushik & Rahman, 2015; Park, 2009) and the adoption of a technology (Aboelmaged & Gebba, 2013).

Quality

The literature available on quality was classified in output quality, service quality, product quality, and relationship quality. Output quality refers to the performance of the technology and its outcomes. Output quality had a positive effect on perceived usefulness and perceived ease of use (Ngangi & Santoso, 2019; Saeed et al., 2018; Venkatesh, 2000). Service quality was defined as the ability of a business to achieve or exceed the expectations of consumers (Parasuraman et al., 1985). In the literature service quality and product quality were leading to satisfaction and behavior intention (Lin & Hsieh, 2007; Taylor et al., 2002; Vize et al., 2013) but shown mixed results with value (Lee et al., 2009; Taylor et al., 2002). Few articles tried to study service quality with the technology readiness model and found technology readiness was positively related to service quality (Vize et al., 2013).

Relationship quality was discussed in some extended technology acceptance model. Relationship quality was defined as an outcome from the interaction of two parties. Trust and satisfaction were the two constructs of relationship quality (Crosby et al., 1990). Perceived usefulness and perceived ease of use both had a positive influence on relationship quality, which had a positive influence on the continuation intention of technology (Chen, Liu, Li, et al., 2013).

Demographics

Demographic variables like age, education, income, occupation, and race were discussed in various extended technology acceptance and readiness model. Young and educated individuals were motivated to adopt new technology and showed a positive influence on technology readiness (Mishra et al., 2018; Rojas-Méndez et al., 2017). The level of technology readiness was differing for various age groups and education levels but shown no variation for different occupations (Lee et al., 2009). It was found in some studies age was positively effacing perceived usefulness but negatively effecting perceived ease of use (Manis & Choi, 2019). Perceived ease of use was lower for individuals who were less educated whereas perceived usefulness and perceived access barriers were lower for individuals who were old, had lower incomes (Porter & Donthu, 2006). Perceived usefulness and perceived access barrier vary among different races (Porter & Donthu, 2006).

Perceived Risk

Perceived risk is a belief regarding possible negative consequences or dangers associated with anything. It could be linked with anxiety, concern, discomfort, uncertainty, and cognitive dissonance. Previous literature differentiated perceived risk into three categories; security risk, privacy risk, and monetary risk (Thakur & Srivastava, 2014). Perceived risk was found an important factor for customer technology uses (Galib et al., 2018) and hurt purchase intention and attitude (Curran & Meuter, 2005; Galib et al., 2018).

Technology acceptance and readiness across the cultures

Few articles tried to compare technology acceptance and readiness for different countries. A study compared the technology acceptance model for e-commerce for Pakistan and Canada (Ashraf et al., 2014), found the predictive power of the technology acceptance model seems robust and holds for both Pakistan and Canada, despite noteworthy differences between the two cultures. The importance of perceived ease of use and perceived usefulness on consumers' intentions to shop online was validated across both cultures; the results highlight complex relationships between perceived ease of use, perceived usefulness, and intention to adopt in each country. A similar kind of study was performed for South Korea and China (Oh et al., 2014), Norway, United States and Great Britain (Godoe & Johansen, 2012), USA and Chile (Rojas-Méndez et al., 2017), China, and USA (Elliott et al., 2008). Study for South Korea and China and China and USA, specified Chinese users which were influenced by negative technology readiness factors such as discomfort and insecurity (Elliott et al., 2008; Oh et al., 2014). South Koreans were highly influenced by the drivers of positive technology readiness such as innovativeness and optimism. American consumers were more likely than Chinese consumers to use self-service technologies to complete retail transactions. A study conducted for the USA and Chile indicated age was significantly related to the four technology readiness dimensions in both the countries. For both countries, this relationship between

education and TR dimensions was significant and positive in the case of innovativeness and optimism, and negative for discomfort and insecurity. Demographic variables performed as better predictors in Chile, with educational level outperforming age and gender. Attitudinal variables were better predictors of pro-technological behavior in the USA, with technology-related insecurity being the most important of four attitudinal dimensions included in the analysis.

The summery of work done by various scholars on technology acceptance and readiness model is given in Table 1 and Table 2.

Table1. Summary of Literature Available on TR and TAM

S. No.	Author	Theory	Technology	Sample Size	Location	Statistical tool
1	Oukes; Bon; Raesfeld, 2009	TR, TAM	Artificial Pancreas	534 (425 self-selected & 109 invited)	Netherland	Independent t-tests and regression, multiple regression
2	Kim; Chiu, 2019	TAM, TR	Sports and fitness wearable devices	247	Korea	SEM
3	Ngangi; Santoso, 2019	TAM	CRM	200	Indonesia	SEM
4	Ritz; Wolf; McQuitty, 2019	TAM	Digital marketing and do-it-yourself (DIY) model	250	NA	SEM
5	Donmez-Turan, 2019	UTAUT, TAM	Electronic documentation system	262	Turkey	explanatory and second-order confirmatory factor analyses, SEM
6	Fauzi; Ali; Amirudin, 2019	TAM, UTAUT	Augmented reality-based construction technology education	41	Malaysia	Descriptive statistics, paired sample t-test
7	Gbongli; Xu; Amedjonekou, 2019	TAM, PIMM, TAMM	Mobile-based banking and payment services	539	Togo	SEM, Artificial neural network (ANN)
8	Mohammadi; Mahmoodi, 2019	TAM	Educational Technology	285	Iran	SEM
9	Dwivedi; Rana; Clement; Williams, 2019	UTAUT, TAM	Information system (IS) and information technology (IT)	162	NA	Meta-analysis, SEM
10	Ahmed; Qin; Martínez, 2019	TAM, EREB	e-business, DSS	331	UK	Factor analysis, SEM
11	Zabukovšek; Picek; Bobek; Klančnik; Tominc, 2019	TAM	ERP	172	Croatia	SEM, IPMA
12	Blut; Wang, 2019	TR, TAM	NA	163	NA	Meta-analysis, SEM
13	Scherer; Siddiq; Tondeur, 2019	TAM	Digital technology in education	114	NA	Correlation-based meta-analytic structural equation modeling (MASEM), SEM

14	Manis; Choi, 2019	TAM	VR	150+283 = 433	USA	SEM
15	Saeed; Ahmed; Hussainy; Faridz, 2018	TAM, UTAUT, DOI	e-learning	220	Pakistan	Descriptive Statistics, Factor analysis, regression
16	Galib; Hammou; Steiger, 2018	TAM	s-CRM	305	USA	Factor analysis, SEM
17	Roy; Balaji; Quazic; Quaddusd, 2018	TAM, TR	Smart technologies in the retail	361	Australia	SEM, fuzzy set qualitative comparative analysis
18	Buyle; Compernolle; Eveline; Mechant; Vlassenroot; Mannens, 2018	TR, TAM	Data interoperability	205	Belgium	SEM
19	Mishra; Maheswarappa; Colby, 2018	TR	Cutting-edge technologies	381	India	SEM
20	Rad; Nilashi; Dahlan, 2018	TAM	IT	352	NA	NA
21	Lai, 2018	TAM	e-payment	380	Malaysia	SEM
22	Lai, 2018	TAM	e-payment	560	Malaysia	SEM
23	Pham; Nguyen; Huy; Luse, 2018	TR	Self-service technology SST	368	Vietnam	SEM
24	Liu; Hsu, 2018	TAM, DOI	Beacon	495	Taiwan	SEM
25	Taherdoost, 2017	TR,TIB,TPB,TAM, SCT,DOI, MM,U & G, MPCU, UTAUT	NA	NA	NA	NA
26	Leung; Chen, 2017	TR	e - health/m health	1,007	Hong Kong	Factor Analysis
27	Acheampong; Zhiwen; Antwi; Otoo; Mensah; Sarpong, 2017	TR, TAM	e-payment	1500	Ghana	Descriptive statistics, Gaussian radial basis function (GRBF)
28	Larasati; Widyawan; Santosa, 2017	TR, TAM	ERP	222	Indonesia	SEM
29	Roy; Moorthi, 2017	TR, TAM	M-commerce	822	India	Factor analysis, SEM
30	Lai, 2017	DIT, TRA, TPB, TAM	e-payment	NA	NA	NA
31	Rojas-Méndez; Parasuraman; Papadopoulos, 2017	TR, TAM, TPB, TRA	Technology-based products and services	1000	USA and Chile	t-tests, Pearson correlations, Spearman correlations, $\chi 2$ tests, multiple regression
32	Hallikainen; Laukkanen, 2016	TR, TAM	Digital services in healthcare	385	Finland	SEM
33	Butt; Tabassam; Chaudhry; Nusair, 2016	TAM	Online shopping	340	Pakistan	Factor Analysis, SEM
34	Parasuraman; Colby, 2015	TAM, TR	Internet access, mobile commerce, social media, and cloud computing	878	USA	Factor Analysis, CFA, correlation

35	Kurnia; Choudrie; Mahbubur; Alzagooul, 2015	TAM, DOI, NIP	E-commerce technology	300	Malaysia	Factor analysis, Variance inflation factor, correlation
36	Ramaseshan; Kingshott; Stein, 2015	TR	Self-service technology (SST)	434	USA	SEM, Factor analysis
37	Jubran; Sumiyana, 2015	TR, TAM	Virtual Communities	306	NA	SEM
38	Huang; Liao, 2015	TAM	Augmented-reality interactive technology	220	Taiwan	Harman's single-factor test, SEM
39	Kaushik; Rahman, 2015	TAM	Self-service technologies	651	India	SEM
40	Basgoze, 2015	TR, TAM	m-shopping	345	Turkey	SEM
41	Lai; Zainal, 2015	TAM	e-payment	384	Malaysia	SEM
42	Bhattacharya, 2015	DOI	RFID	74	USA	Descriptive statistics, multivariate discriminate analysis, one sample t-tests
43	Thakur; Srivastava, 2014	TAM, UTAUT	Mobile Payment	774	India	SEM
44	Esen; Erdogmus ,2014	TR, TAM	E- HRM	500	Turkey	SEM, correlation
45	Bouwman; Kommers; Deursen, 2014	TAM	Location-based social network	200	Netherland	SEM
46	Ashraf; Thongpapanl; Auh, 2014	TAM	e- commerce	466	Pakistan, Canada	Factor analysis, SEM
47	Shin; Lee, 2014	TR, TAM	Mobile payment	585	Korea	SEM
48	Özbek; Alnıaçık; Kocc; Akkılıçd; Kaşe, 2014	TAM	Smart phone	401	Turkey	Factor Analysis, SEM
49	Oh; Yoon; Chung, 2014	TR, TAM	Mobile internet services	348	South Korea, China	SEM
50	Cegarraa; Navarroa; Pachón, 2014	TAM	e-government	307	Spain	Factor analysis, Multinomial logistic regression
51	Park; Rhoads; Hou; Lee, 2014	TAM	Teleconferencing	155	USA	Factor analysis, Multiple regression, Pearson's correlation
52	Elliott; Hall; Meng, 2013	TR	Self-Service Technology in Retail	1,079	NA	SEM
53	Vize; Coughlan; Kennedy; Chadwick, 2013	TR	Web Service Solution Provider (WSSP)	133	Ireland	SEM
54	Shih; Fan, 2013	TR	Instant messaging	188	Taiwan	Multiple-regression
55	Gombachika; Khangamwa, 2013	TR, TAM	Information and communication technologies in e-learning	125	Malawi	Correlation and regression

56	Liu; Lin, 2013	TR	m - services	368	Taiwan	NA
57	Aboelmaged; Gebba, 2013	TAM, TAB	m-banking	119	UAE	Factor analysis, correlation, regression
58	Sahi; Gupta, 2013	TR, TAM	Self-service technology (ATM)	268	India	SEM
59	Chen; Liu; Li;Yen, 2013	TAM	e-appointment	334	Taiwan	SEM
60	Yieh; Chen; Wei, 2012	TR	High-speed rail	548	Taiwan	SEM - multiple indicators /multiple causes (MIMIC)
61	Godoe; Johansen, 2012	TR, TAM	Technology in general	186	Norway, United States, and Great Britain	SEM
62	Pantano; Pietro, 2012	TAM	NA	130	NA	NA
63	Yousafzai; Soriano, 2012	TR, TAM	Internet banking	435	UK	Factor analysis, Cluster analysis, SEM
64	Yang; Yang; Liu, 2012	TAM, TR	Self-service technologies	NA	NA	NA
65	Lu; Wang; Hayes, 2012	TR	e-commerce	512	China	Factor analysis, SEM
66	Erdogmus; Esen, 2011	TAM, TR	e-HRM	500	Turkey	Factor analysis, correlation, SEM
67	Šumak; Pušnik; Polančič,2011	TAM	e-learning technologies	235	NA	SEM
68	Bennett; Savani, 2011	TAM	U-computing, RFID	255	UK	SEM
69	Jr; Chen; Nadler, 2011	TR	RFID	325	USA	SEM
70	Lin; Chang, 2011	TR, TAM	Self-service technology	410	NA	SEM, Hierarchical moderated regression analysis
71	Jaw; Yu; Gehrt, 2011	TAM	Online payment services	1297	Taiwan	Pearson correlation, t-test, regression
72	Chen, 2011	TR	3C product (computers, telecommunication, and consumer electronics)	260	Taiwan	SEM
73	Kwak; McDaniel, 2011	TAM	Online entertainment – fantasy sports leagues	244	USA	Moderated multiple regression,
74	Chen; Li, 2010	TR	e-service	405	Taiwan	SEM
75	Jiang; Chen; Lai, 2010	TAM, TOE	Technology in general	NA	NA	NA
76	Jaeger; Matteson, 2009	TAM	e -Government websites	NA	NA	NA
77	Kim; Garrison, 2009	TAM	Mobile wireless technology	242	Korea	SEM
78	Zolait; Mattila; Sulaiman, 2009	TR, TAM, UIBR	Internet banking services	369	Yemen	Multivariate diagnostic tests, Factors analysis, correlation, multiple linear

						regression
79	Straub, 2009	TA	Computing adoption	NA	NA	NA
80	Kim; Forsythe, 2009	TAM	Sensory enabling technologies	1,471	USA	SEM
81	Park, 2009	TAM	e-learning	628	Korea	SEM
82	Wang; Wu; Wang, 2009	TAM, UTAUT	m-learning	330	Taiwan	SEM
83	Lee; Chiu; Chiang; Chiu, 2009	TR	High-tech products	424	Taiwan	SEM, MANOVA
84	Ho; Ko, 2008	TAM, TR	e-banking	771	Taiwan	Factor analysis, SEM
85	Venkatesh; Bala, 2008	TAM	IT	468	NA	SEM, Factor analysis, Harmon's single factor test, and marker variable test
86	Elliott; Meng; Hall, 2008	TR	Self-service technology SST	468	China and USA	Descriptive Analysis, t-test, regression
87	Lai, 2008	TR	Internet	110	Malaysia	Descriptive analysis
88	Theotokis; Vlachos; Pramatari, 2008	TR	Retail technology	603	Greece	SEM
89	Lin; Shih; Sher, 2007	TR, TAM, TRAM	e-service (online stock trading)	406	Taiwan	SEM
90	Walczuch; Lemmink; Streukens,2007	TR, TAM	Software application employees use most	810	Belgium	Descriptive statistics, SEM
91	Schepers; Wetzels, 2007	TAM	Microcomputer	63	NA	Meta-analysis, SEM
92	Chen; Mort, 2007	TR	Mobile phone/ services	23	NA	Manual analysis
93	Huang; Lin, 2007	TAM	m-learning	313	Taiwan	SEM
94	Ling; Moi, 2007	TR, TAM	e-learning	453	Malaysia	Descriptive analysis, t-test
95	Lin; Hsieh, 2007	TR	SST	413	Taiwan	SEM
96	King; He, 2006	TAM	NA	88	NA	Descriptive statistics, Correlation
97	Liljander; Gillberg; Gummerus; Riel, 2006	TR	Self service technology SST	1258	NA	Correlation, regression, discriminate analyses, Independent t-tests
98	Blackwell; Charles, 2006	TAM	ERP	238	USA	SEM, Independent samples T-test, correlations
99	Lin; Hsieh, 2006	TR	SST	436	Taiwan	SEM
100	Porter; Donthu, 2006	TAM	Internet	539	USA	SEM
101	Lee; Fiore; Kim, 2006	TAM	Image interactivity technology	152	USA	SEM
102	Darsono, 2005	TAM	Internet technology	300	Indonesia	SEM
103	Ma; Andersson; Streith, 2005	TAM	Computing adoption	84	Sweden	SEM
104	Curran; Meuter, 2005	TAM	Self-service	628	USA	SEM

			technologies (ATM, Bank by phone, Online banking)			
105	Ramayah; Yan; Sulaiman, 2005	TR	e-business, e-commerce, Internet in general	300	Malaysia	Descriptive analysis, t-test, correlation, regression, factor analysis
106	Kleijnen; Wetzels; Ruyter,2004	TAM	m commerce/ wireless finance	105	NA	SEM, regression analysis
107	Lee; Kozar; Larsen, 2003	TAM	NA	101 +32	NA	NA
108	Legrisa; Ingham; Collerettec, 2003	TAM	Information systems	80	NA	NA
109	Ramayah; Jantan; Roslin; Siron, 2003	TR	Information and Communication Technology (ICT)	102	Malaysia	t-test, One way ANOVA
110	Taylor; Celuch; Goodwin, 2002	TR	e-Insurance	734	USA	SEM
111	Venkatesh;. Davis, 2000	TAM	NA	156	NA	Factor analysis, correlation
112	Parasuraman, 2000	TR	NA	1,000	USA	Factor analysis

Table 2. Relationship studies in various technology acceptance and readiness model

Relationship between variables	Number of time discussed	Significant	Insignificant
Perceived Ease of Use -> Perceived Usefulness	44	42	2
Perceived Ease of Use -> Attitude	21	16	5
Perceived Ease of Use -> Intention to use	20	13	7
Perceived Ease of Use -> Behavioral Intention/Intention	11	8	3
Perceived Ease of Use -> Perceived enjoyment	4	3	1
Perceived Usefulness -> Intention to use	23	20	3
Perceived Usefulness -> Behavior Intention/Intention	17	13	4
Perceived Usefulness -> Attitude	21	20	1
Perceived Usefulness -> satisfaction	3	3	0
Perceived Usefulness -> Continuance intentions	4	3	1
Attitude -> Intention/ behavioral intention	23	21	2
Attitude -> Actual Use/ adoption	7	7	0
Optimism –> Ease of Use	9	6	3
Optimism –> Usefulness	8	6	2
Optimism -> Intention to use	3	3	0
Optimism -> Attitude	2	2	0
Discomfort –> Ease of Use	9	4	5
Discomfort –> Usefulness	8	3	5
Discomfort –> Attitude	2	1	1
Discomfort –> Actual uses	2	2	0
Insecurity –> Attitude	2	1	1
Insecurity –> Compatibility	2	0	2
Insecurity -> Actual uses	2	2	0
Insecurity –> Ease of Use	9	4	5
Insecurity –> Usefulness	7	1	6
Innovativeness – > Ease of Use	8	6	2
Innovativeness –> Usefulness	7	4	3
Innovativeness – > Actual usage	4	2	2
Innovativeness -> Intention to use	3	3	0

Innovativeness – > Attitude	2	1	1
Personal Innovativeness -> Attitude	2	2	0
Innovativeness -> Perceived usefulness	2	1	1
Innovativeness -> Perceived ease of use	2	2	0
discomfort and insecurity -> Technology readiness	2	1	1
Technology Readiness -> Perceived usefulness	6	5	1
Technology Readiness -> satisfaction	6	5	1
Technology Readiness -> Intention to use	5	3	2
Technology Readiness -> Perceived ease of use	5	5	0
Technology Readiness -> Attitude	5	4	1
Technology Readiness -> customer responses (service quality, satisfaction, loyalty)	5	5	0
Technology Readiness -> Adaptiveness	4	3	1
Technology Readiness -> Behavioral Intention	2	2	0
Technology Readiness -> Product quality/service quality	2	1	1
Technology Readiness -> in-use customer perceived value	2	1	1
Positive TR -> Perceived Enjoyment	2	0	2
Negative TR -> Perceived Enjoyment	2	1	1
Positive TR -> Perceived Ease of Use	3	3	0
Negative TR -> Perceived Ease of Use	3	2	1
Positive TR -> Perceived Usefulness	3	2	1
Negative TR -> Perceived Usefulness	3	3	0
Informational-based readiness / information -> attitude	2	2	0
Behavioral Intention / Intention -> Usage Behavior	4	4	0
Behavior -> Intentions (to discontinue/ continue)	3	2	1
Perceived behavioral control -> continuance intention	2	1	1
Intention to Use -> Technology Adoptions/Behavior/ Actual use	4	4	0
Self efficiency -> Perceived Ease of use	4	4	0
Perceived Enjoyment -> Perceived Usefulness	4	4	0
Perceived Enjoyment -> Perceived ease of use	4	3	1
Perceived Entertainment/enjoyment -> Attitude	6	6	0
Perceived Enjoyment -> Behavioral intention/ intention to use	10	7	3
Subjective norm -> Intention	6	4	2
Subjective Norm -> Perceived Usefulness	4	3	1
Subjective norm -> Attitude	2	2	0
Subjective norm -> Perceived ease of use	2	0	2
Social influence -> Intention to Use	4	2	2
Satisfaction -> Continuance intention	3	2	1
Satisfaction -> Loyalty recommended	3	3	0
Satisfaction -> behavioral intentions	4	4	0
Service Quality/ Quality -> Satisfaction	4	4	0
Quality -> behavioral intentions	3	2	0
Output Quality/ quality-> Perceived ease of use	3	3	0
Quality -> value	2	2	0
Output Quality-> Perceived Usefulness	2	2	0
Risk -> Attitude	3	1	2
Perceived risk -> intention to use	3	3	0
Gender -> Discomfort	2	2	0
Gender -> Optimism	2	0	2
Gender -> Innovativeness	2	2	0
Gender -> Insecurity	2	2	0
Age -> Technology Readiness	4	2	2
Age -> Perceived usefulness	2	0	2
Age -> Perceived ease of use	2	2	0
Education -> Technology Readiness	3	3	0
Developing and developed country -> Technology	2	2	0

readiness			
Trust -> Perceived usefulness	2	2	0
Trust -> Perceived ease of use	2	2	0
Trust -> Attitude	2	2	0
Trust -> Intention	3	3	0
Anxiety -> Perceived ease-of-use	2	2	0
Anxiety -> perceived usefulness	2	0	2
Anxiety -> Actual uses	2	1	1
Loyalty -> behavioral intentions	2	1	1
Value -> satisfaction	2	2	0
Value -> Behavioral Intentions	2	0	2
Cost saved /cost -> Customer value/ Value	3	3	0
Cost -> behavioral intentions	2	2	0
Self efficiency -> Perceived usefulness	2	2	0
Self-Efficiency -> behavioral intention to use	3	3	0
Performance expectancy -> behavioral intention to use	2	2	0
Effort expectancy -> behavioral intention to use	2	2	0
Need for interaction -> attitude	3	0	3
Compatibility -> Intention to use	2	2	0
Self-management of learning -> Behavioral intention to use	2	1	1
Knowledge -> Intention	2	1	1
Screen Design/ Design -> Perceived ease of use	2	2	0
Screen Design/ Design -> Perceived usefulness	2	2	0
Perceived support/ perceived institutional support -> perceived usefulness	2	2	0

For measuring technology readiness the first scale with 36 items was developed by Parasuraman (2000), which was further updated for several revolutionary technologies (mobile commerce, social media, and cloud computing), and a new scale was prepared with 16 items by Parasuraman and Colby (2015). A new reliability scale was developed for self-service technology consisting of four dimensions: managerial acquiescence, customer alignment, employee engagement, and channel integration (Ramaseshan et al., 2015).

Measurement for technology acceptance evolved. First Davis (1985) developed a scale with 12 items for measuring usefulness and ease of use. With the development of new models, new scales emerged but the base of those scales was the original scale given by Davis. Venkatesh (2000) and Venkatesh and Bala (2008) further extended the TAM model and came with new constructs. Various studies used those standard scales for their studies. Table 3 is representing the reliability values of those constructs used in TR, TAM, or TRAM and their extended models.

Reliability Values of variables

Variables	Average Value	Reliability	Maximum	Minimum
Perceived Usefulness	0.884		0.968	0.712
Perceived Ease of Use	0.881		0.960	0.650
Behavioural Intention/Intention	0.878		0.980	0.760
Intention to use	0.895		0.970	0.721
Intention to purchase, reuse, and revisit	0.906		0.961	0.866
Actual use	0.844		0.967	0.700
Post-use evaluation	0.959		0.959	0.959
Technology Adoption	0.875		0.919	0.839
Attitude	0.863		0.980	0.420
Attitude towards using	0.960		0.980	0.940
Attitude towards Buying	0.920		0.920	0.920
Personal innovativeness	0.825		0.890	0.750
Compatibility	0.815		0.893	0.738
Perceived Fun/ Enjoyment/ Entertainment/ Playfulness	0.868		0.980	0.700
Perceived Reliability	0.803		0.803	0.803
Relative Advantage	0.824		0.865	0.783
Subjective Norm	0.832		0.896	0.714

Voluntariness	0.813	0.865	0.760
Image	0.865	0.865	0.865
Job relevance/ Relevance	0.865	0.888	0.833
Output Quality / Sevice quality	0.863	0.920	0.710
Result demonstrability	0.885	0.885	0.885
Technology Readiness	0.824	0.930	0.562
Optimism	0.807	0.960	0.600
Innovative	0.817	0.950	0.580
Discomfort	0.769	0.956	0.520
Insecurity	0.780	0.940	0.600
Complexity	0.780	0.854	0.706
Social presence	0.820	0.820	0.820
Social influence	0.853	0.938	0.810
Facilitating conditions	0.860	0.860	0.860
Job Security	0.838	0.838	0.838
Security risk/ Security Concern	0.835	0.840	0.830
Privacy risk	0.850	0.850	0.850
Perceived Risk	0.821	0.890	0.763
Economic benefit	0.890	0.890	0.890
Lack of product availability	0.907	0.907	0.907
Lack of product quality	0.757	0.915	0.598
Control	0.867	0.930	0.809
Self-improvement	0.789	0.789	0.789
Satisfaction	0.850	0.950	0.702
Intentions to discontinue digital marketing	0.830	0.830	0.830
Perceived Benefits	0.881	0.950	0.822
Perceived Organization Resources and governance	0.912	0.912	0.912
Perceived Industry Structure and Standards	0.813	0.813	0.813
Perceived Supporting Services/ Customer Service	0.819	0.849	0.789
Perceived Environmental Pressure	0.933	0.933	0.933
Confirmation of expectations	0.830	0.830	0.830
Lifestyle improvement	0.750	0.750	0.750
Anxiety	0.916	0.932	0.887
Self Efficiency/ Efficiency/ self efficacy	0.882	0.970	0.760
Performance expectancy	0.914	0.947	0.880
Effort expectancy	0.930	0.949	0.910
Self-management	0.898	0.956	0.840
Wikis' characteristics / Technology characteristics	0.920	0.920	0.920
Managerial acquiescence	0.740	0.740	0.740
Customer alignment	0.830	0.830	0.830
Engagement	0.890	0.890	0.890
Channel integration	0.650	0.650	0.650
Loyalty	0.848	0.883	0.808
Perceived ubiquity	0.920	0.920	0.920
Perceived reachability	0.802	0.802	0.802
Superior functionality/ functionality	0.829	0.880	0.736
Adaptiveness	0.880	0.880	0.880
Store Reputation	0.900	0.900	0.900
Preparedness	0.850	0.850	0.850
Top management support/ Commitment/ institutional support	0.857	0.940	0.780
Strategic fit	0.850	0.850	0.850
Pre-existing technology	0.850	0.850	0.850
Perceived barriers	0.885	0.920	0.850
Satisfaction with existing technologies	0.856	0.856	0.856
Extraversion	0.730	0.730	0.730
Certainty	0.841	0.841	0.841
Collaboration	0.874	0.874	0.874
System performance/ Logistics performance	0.893	0.936	0.850

User Manuals	0.860	0.860	0.860
Quality of system	0.890	0.920	0.860
Quality of informatin	0.890	0.890	0.890
Training and education	0.900	0.900	0.900
Hostage position	0.895	0.895	0.895
Past Inexperience	0.850	0.850	0.850
Industry Trust	0.840	0.840	0.840
Trust	0.832	0.900	0.760
Switching Costs	0.860	0.860	0.860
Perceived cost	0.857	0.920	0.790
Concept-oriented communication	0.810	0.810	0.810
Informative peer	0.810	0.810	0.810
Normative peer	0.840	0.840	0.840
Informative media	0.810	0.810	0.810
Continuity/ Continuance intentions	0.849	0.910	0.810
Immediacy	0.820	0.820	0.820
Searchability	0.837	0.837	0.837
Portability	0.824	0.824	0.824
Awareness	0.776	0.841	0.710
Collection	0.903	0.903	0.903
Knowledge	0.874	0.957	0.777
Experience	0.882	0.894	0.870
Exposure	0.750	0.750	0.750
Responsiveness	0.888	0.888	0.888
Smartness	0.753	0.753	0.753
perceived value	0.745	0.950	0.425
Extroversion	0.670	0.670	0.670
Agreeableness	0.790	0.790	0.790
Conscientiousness	0.660	0.660	0.660
Neuroticism	0.880	0.880	0.880
Openness	0.730	0.730	0.730
Curiosity	0.780	0.780	0.780
Presence	0.830	0.830	0.830
Perceived Aesthetics	0.850	0.850	0.850
Service Excellence	0.770	0.770	0.770
Aesthetics	0.850	0.850	0.850
Perceived behavioural control	0.870	0.870	0.870
Self control	0.830	0.830	0.830
Customer readiness	0.980	0.980	0.980
Terminology	0.826	0.826	0.826
Screen design/ design	0.862	0.930	0.746
Confirmation of Expectations	0.880	0.880	0.880
Readiness toward change	0.620	0.620	0.620
Resistance To Change	0.900	0.900	0.900
Security	0.830	0.870	0.790
Need for interaction	0.600	0.600	0.600
convenience	0.830	0.910	0.750
Infrastructure and technology	0.920	0.920	0.920
Human Capital	0.940	0.940	0.940
Price Attribute	0.519	0.519	0.519
Observability	0.761	0.761	0.761
Trialability	0.783	0.783	0.783
Perceived Use Efficiency	0.769	0.769	0.769
Perceived Use Effectiveness	0.818	0.818	0.818
Assurance	0.890	0.890	0.890
Customization	0.870	0.870	0.870
Utilitarian shopping orientation	0.700	0.700	0.700
Hedonic shopping orientation	0.950	0.950	0.950
Electronic word of mouth	0.750	0.750	0.750
Relationship quality	0.750	0.750	0.750

Persuasion	0.806	0.806	0.806
Implementation	0.700	0.700	0.700

4. Conclusions and recommendation

The objective of this paper was to present a systematic literature review on the technology readiness and technology acceptance model for the last 20 years. In this paper, we tried to include papers across the technologies. Technology readiness and technology readiness both have proven to be a useful theoretical model in helping & explaining the users' behavior for a different kind of technology. These two models evolved over a while and tested for various technologies separately. TAM and TR had empirically tested for ERP, self-serving services, computers, internet, e-payment, e-education, etc.

Few researchers tried to integrate both the models and gave it a name; 'Technology Readiness and Acceptance Model (TRAM)', which also showed a tremendous role in understanding consumers' readiness and acceptance for various technologies. Limited studies tried to compare the acceptance and readiness across the cultures and countries, which did a comparison of only two countries. There is further scope to test acceptance and readiness at a broader level among different countries.

The models discussed in the above literature were tested for different technology, for a different set of respondents in different countries and cultures. The results of the studies were differing for diverse technology, which makes this topic more appealing for further new technologies. Multiple variables were introduced in the extended models ranging from demographic, personality, quality, trust, risk, etc. Although few studies included risk and trust in their study, still these two factors could be discussed rigorously for new emerging technology like AI, VR, Beacon, etc. We tried to summarize the reliability value of various measurement scales discussed in previous studies.

5. Limitations and scope of the research

Although an effort has been done to present a literature review for technology acceptance and readiness over a while (2000-2019), it might have been affected by some limitations. First, this paper is completely dependent on the earlier studies and is more focused on identifying and relating the various factors which were already discussed. Secondly in this review, we tried to cover the reliability of the measurement scale instead of correlation among variables.

This review highlighted the different theories and variables prevalent in technology adoption and readiness studies at different levels of adoption, i.e., organizational, group/team, and individual. From the various analyses and reviews presented in this paper, it is expected that this review can be further referred to in the new studies for the understanding of technology acceptance and readiness. This article may also benefit the strategy makers to understand the various factors which affect the adoption and readiness for new technologies.

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