Adoption Self-Service Technologies in Public Service

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ABSTRACT: Currently, studies of consumers' tests of readiness to adopt new technologies, willingness to use, or evaluation of self-service technology and their effects on behavioral use are rarely explored. This study proposes to analyze how technology readiness impacts on customer perceptions and adoption of self-service technology to explore the correlation within technology readiness, perceived quality of self-service technology, satisfaction with self-service technology and behavioral intentions towards self-service technology. The urged theoretical framework has six research hypotheses. Respondents are customers who have used 400 self-service technology and analyzed the data with structural equation modeling (SEM). The results showed that readiness technology affects self-service technology-service quality, satisfaction with self-service technology, and behavioral intentions with self-service technology. Furthermore, the perception of the quality of self-service technology has a positive influence on customer satisfaction and behavioral intentions on self-service technology.

Keywords: behavioral intention, public service, satisfaction, self-service technology, technology readiness.

Abbreviations: SEM, Structural Equation Modeling; H, Hypotheses; ISPs, Internet Service Providers; ACSI, American Customer Satisfaction Index; X^2, Chi-Square; CFA, Confirmatory Factor Analysis; CR, reliability testing; VE, extracted value.

I. INTRODUCTION

Efficiency in employment sacrifices and innovation in technology has offered to the creation of technology-based self-service growth [14]. Many service providers have adopted technology in the service delivery process. The customer was educated to use new technology in every service without having to deal directly with the company. The trend in adopting self-service technology will continue because more and more customers are performing self-service technology in the company-customer interaction [27, 29].

Self-service technology is an interface technology that makes it easy for customers to use services to interact with companies without employee involvement [29]. Examples of self-service technology implementations are telephone or interactive voice responses, interactive newsstands, and the internet [24]. At present, understanding of what influences customer attitude and adoption of self-service technology is still limited. Because this new technology has transformed the nature of communication and customer service [21]. It is crucial to explore how customers assess self-service technology service also attributes how service outcomes are concerned.

Although consumers are very familiar when interacting with technology, they can ignore self-service technology if they feel uncomfortable, even when the benefits are evident [28]. Technology readiness must be calculated correctly to predict customer attitudes and behavior [35]. Currently, some studies test consumers' readiness to adopt new technologies, willingness to use, or evaluation of self-service technology and their effects on behavioral use. It is especially important to be able to

develop smart government characteristics such as research conducted [2].

This research proposes to integrate some relevant article to elaborate a conceptual frame to study the adoption of self-service technology and various problems that occur. The advantage of this method is the theoretical framework that is built focuses on the consumer. The writing of this paper begins by reviewing relevant literature on technology readiness, self-service technology service quality, satisfaction with self-service technology, and behavioral intentions using self-service technology besides, the conceptual frame and originated hypotheses offered forward with the methodology and research outcomes. Lastly, we explain the analysis judgments by discussing the practical implications, including the limitations of the study and giving suggestions for further research.

II. LITERATURE REVIEW

A. Technology Readiness and Perceived Self-Service Technology Service Quality

Technology readiness indicated as an antecedent of e-service quality [50]. Internet service providers (ISPs) show a positive correlation between technology readiness and ISP service quality [34]. Technology readiness can influence perceived service quality [35]. Besides, [28] suggested that technological anxiety is related to consumer evaluation of self-service technology. Technology readiness has a positive influence on the evaluation of service quality [23, 50].

H1: technology readiness positively affects self-service technology-service quality.

B. Technology Readiness and Satisfaction with Self-Service Technology

Satisfaction represents the level of positive customer feelings after receiving service [11]. Technology readiness is an overall thinking situation that involves positive and negative emotions when customers interact with technology-based services [7]. Technology readiness is related to customer satisfaction in self-service technology because customers have the character, knowledge, and greater readiness to use technology, so they enjoy and express satisfaction in self-service technology compared to customers who have lower technological readiness [23, 45].

H2: technology readiness positively influences satisfaction with self-service technology.

C. Technology Readiness and Behavioral Intentions with Self-Service Technology

Behavioral intention is an indicator that shows whether customers remain with or leave the organization [1, 11, 12, 49]. Explain specifically that beneficial behavioral intention linked to the ability of service providers to make consumers happy. Such as: speak positive things about the firm [6], promote the firm to other customers [33, 48] continue loyal to the firm [47] spend more on the company, and pay the cost premium.

Attitudes or beliefs about technology correlated with behavior related to technology. [9, 10] studies on responsive media show that consumers can be segmented based on how they view the media, and the yield segments are significantly diverse in phases of media response. Technological anxiety is significantly related to the outcome of major self-service technology meetings such as WoM and intention of repeated use [28]. Meuter et al., (2005) also explain that technology anxiety influences customer trials of self-service technology. [50] advise that technology readiness has a positive impact on e-shopping behavior [27].

H3: technology readiness positively influences behavioral intentions with self-service technology.

D. Quality and Behavioral Intentions with Self-Service Technology

Many kinds of research contribute to academic and practical justifications about the correlation linking service quality, also customer satisfaction [12, 32]. Investigations relating to SST and information systems have confirmed the statement that higher service quality perceptions lead to greater consumer satisfaction. The service quality in the area of information systems affects customer satisfaction [16, 17]. Other researchers explain that consumers' perceptions of e-service quality can develop electronic-based customer satisfaction [38, 39].

H4: self-service technology-service quality positively influences behavioral intentions with self-service technology.

E. Quality and Behavioral Intentions Toward Self-Service Technology

Prior study has proven a positive correlation linking service quality and repurchase intentions, enthusiasm to recommend, loyalty, and behavioral intentions [11, 12, 49]. Researchers and service provider companies have recognized that implementing service quality will manage to the more prominent use of services [5, 8, 48]. Studies in information systems and SST also support a correlation linking service quality, also behavioral intentions.

Electronic-customer retention can only reach by providing superior service quality [37]. Electronic-service quality has a positive influence on customer electronic buying behavior [50]. DeLone and McLean (1992) and Delone and Mclean (2004) [16, 17] provide recommendations that service quality in the field of information systems will influence user intentions. Besides, studies related to self-service technology empirically have proven that service quality perceived by customers has a positive influence on the intention to reuse or repurchase or loyalty [22, 30, 36, 38, 42].

H5: self-service technology-service quality positively influences behavioral intentions with self-service technology.

F. Satisfaction and Behavioral Intentions Toward Self-Service Technology

Proof of the impact of satisfaction on behavioral intentions comes from multiple studies about services. The result is the customer satisfaction has a positive influence on repurchase intentions, the possibility to provide recommendations, loyalty, and behavioral intentions [11, 13, 15]. Customers who have less satisfaction, tend to find information about alternatives, consider competing bids, refuse to establish close relationships with service provider companies, or make moves to decrease dependency on service provider companies [4].

The same results were found in researches related to self-service technology. MacDonald and Smith (2004) noticed a significant influence among satisfaction, including communication interfered with technology and intentions in the future [26]. Customer loyalty is affected by customer satisfaction in the electronic customer relationship management atmosphere (Taylor & Hunter, 2002) [39] while some the researcher finds that electronic satisfaction shows a positive influence on electronic loyalty [4, 43, 44]. Besides, many other self-service technology-related investigations of e-commerce and e-service suggest that consumer satisfaction can improve word-of-mouth and intention to repurchase to self-service technology [38, 40, 46]. The hypothesized relationship (H1-H6) notated in the framework shown in Fig. 1.

H6: satisfaction with self-service technology positively influence on behavioral intentions with self-service technology.
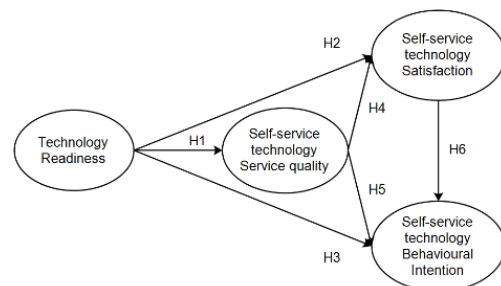

Fig. 1. Conceptual framework.

III. METHODOLOGY

A. Data Collection

The method for distributing questionnaires was carried out by enumerators scattered in several locations that provided self-service technology, such as in shopping centers, airports, cinemas, train stations, and others. Respondents were randomly selected, and they were given a questionnaire in the google form with the table facilities that we provided, then given a souvenir. In responding to the questionnaire, respondents were asked to evaluate their overall experience in using self-service technology from service provider firms. Respondents were selected based on the experience of at least the past one year in using self-service technology. The target sample is 650 respondents, and those who respond are 400 respondents, so the respondent's rejection rate is 38%.

Characteristics of respondents with female sex as much as 74% by an ordinary age of 20 to 40 years. While male respondents were 26% with an ordinary age of 20-30 years, all respondents have experience using various SSTs for at least one year, namely, self-check-in at the airport (35%), ATMs (25%), machine boxes (5%), ticket boxes in cinema (10%), internet banking (15%), and train reservations (10%).

B. Measurement

The questionnaire was designed and tested to ensure that respondents well understood the statement. Respondents responded on a Likert scale 5 point that is "strongly agree" (5) and "strongly disagree" (1).

Measuring for technology readiness, consist of 36 statement by adapting [35]. Self-service technology-service quality consists of 20 statements by adopting the study of [24]. Customer satisfaction with SST consists of 3 statements by adopting the American Customer Satisfaction Index - ACSI scale [3, 18, 19, 41]. Measurement of behavioral intention towards SST there is three statements by adopting [11, 25].

IV. RESULTS AND DISCUSSION

A. Validation

Validation measurement, we use confirmatory factor analysis (CFA) (Table 1) with the first-order method. Technology readiness consists of four dimensions. The optimism dimension consists of ten statements; innovation consists of seven statements; discomfort consists of ten statements, and insecurity consists of nine statements. Self-service technology-service quality consists of seven dimensions. The functionality dimension consists of five statements; enjoyment consists of four statements. Furthermore, the dimensions of privacy, assurance, design, convenience, and customization have two statements each.

Table 1: Confirmatory factor analysis.

Variable	Dimension/ Indicator	λ	λ^2	e	CR	VE
Technology readiness	OP	0.98	0.96	0.04	0.99	0.97
	INN	1.00	1.00	0.00		
	DISC	0.98	0.96	0.04		
	INSC	0.99	0.98	0.02		
Self-service technology–Service quality	FUNC	0.91	0.83	0.17	0.96	0.77
	ENJ	0.91	0.83	0.17		
	SEC	0.89	0.79	0.21		
	ASSU	0.86	0.74	0.26		
	DESG	0.85	0.72	0.28		
	CONV	0.90	0.81	0.19		
	CUST	0.83	0.69	0.31		
Self-service technology–Satisfaction	SAT1	0.86	0.74	0.26	0.87	0.69
	SAT2	0.81	0.66	0.34		
	SAT3	0.83	0.69	0.31		
Self-service technology–Behavioral intention	BI1	0.79	0.62	0.38	0.83	0.62
	BI2	0.80	0.64	0.36		
	BI3	0.78	0.61	0.39		

The loading factor value for each item statement already has a value greater than 0.5 so that each item reflects each variable [20]. For internal consistency, reliability testing (CR) meets the requirements, which is higher than 0.7 [31], and the variance extracted value (VE) is more significant than 0.5 [20].

B. Structural Model

After validating all measurement models, the structural model results shown in Fig. 2. The goodness of Fit Statistics is an evaluation of the overall index value that can be used as a guideline to assess whether the model that has designed can be said to be appropriate within the theoretical-based research model and empirical-based research data [20]. SEM does not have the best

statistical test to explain the predictive power of a model, so some index criteria are required to evaluate the fitness of the model, especially if the samples used are more than 200 [20]. The entire index will summarize in one table, and it is cut-off values.

Based on the results of calculating the suitability of the model (Table 2) with several criteria for the suitability index, there were eleven criteria measured, and there were two indices that did not meet the suitability of the model, namely the Chi-Square and Sig. Probability, while the other nine indexes are in good criteria. The expected Chi-Square value for model compatibility is smaller than the Chi-Square-table and the Sig. The expected probability is higher than 0.05. Hair et al., (2018) [20] explained that Chi-Square is very sensitive

to the large sample used. If the number of extensive sample studies is more than 200 samples, then Chi-Square (X^2) must be accompanied by other test equipment. This study uses a sample of 400 customers so that the Chi-Square and Sig. Probability can still be considered valid because the nine other index criteria tested have met the suitability of the model. The estimated structural coefficients standardized then checked to assess partially hypotheses.

Based on Tabel 3, all hypotheses are accepted. It means that the entire relationship within readiness technology has a positive and significant impact on self-service technology-service quality, self-service technology-satisfaction, also self-service technology-behavioral intention (H1-H3). Furthermore, self-service technology-service quality has a positive and significant impact on self-service technology-satisfaction and self-service technology-behavioral intention (H4, H5).

Finally, self-service technology-satisfaction has a positive and significant impact on self-service technology-behavioral intention (H6).
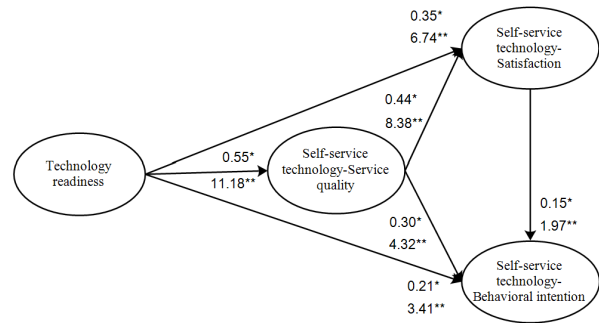

Fig. 2. Structural model.

The contribution of technology readiness in explaining (R^2) self-service technology-service quality is 0.30 or 30%. The contribution of self-service technology-satisfaction in explaining (R^2) self-service technology-service quality, also technology readiness, is 0.48 or 48%. Finally, the contribution of self-service technology-service quality, self-service technology-satisfaction, also technology readiness in explaining (R^2) self-service technology-behavioral intention is 0.32 or 32%.

Table 2: The goodness of fit statistics.

GoF Indeks	Cut of Value	Result	Criteria
	Chi-Square		
Chi-Square	Expected X2< X2 table	212.93	Poor
Sig. Probability	P > 0.05	0.00	Poor
	Absolute Fit Measures		
GFI	≥ 0.90	0.94	Good
RMSEA	≤ 0.08	0.053	Good
Normed Chi-Square	< 2 or < 5	2.1	Good
	Incremental Fit Indices		
NFI	0.90	0.99	Good
NNFI	0.90	0.99	Good
CFI	0.90	0.99	Good
RFI	0.90	0.98	Good
	Parsimony Fit Indices		
AGFI	0 − 1	0.91	Good
PNFI	0 − 1	0.62	Marginal

Table 3: Hypothesis testing.

Path	Standardized coefficient	t-value	Decision
TR → SST.SQ	0.55	11.18	H1-accept
TR → SST.S	0.35	6.74	H2-accept
TR → SST.BI	0.21	3.41	H3-accept
SST.SQ → SST.S	0.44	8.38	H4-accept
SST.SQ → SST.BI	0.30	4.32	H5-accept
SST.S → SST.BI	0.15	1.97	H6-accept
SST.SQ = 0.54*TR, R² = 0.30			
SST.SAT = 0.44*SST.SQ + 0.34*TR, R² = 0.48			
SST.BI = 0.31*SST.SQ + 0.15*SST.SAT + 0.22*TR , R² = 0.32			

Although self-service technology is increasingly easy to access and provides many benefits for customers and service providers. However, an understanding of the perception and use of this technology has not yet entirely carried out. The results of this study help in explaining perceptions and behavior when customers use self-service technology. First, technology readiness is the primary stimulus of self-service technology-service quality and intention to behave in self-service technology. It explains the proposition of [50]. Improved technology readiness from customers starts to higher

service quality perceptions and positive behavioral intentions when practicing self-service technology. Second, the perception of self-service technology-service quality has a positive and significant effect on self-service technology-satisfaction and self-service technology-behavioral intention. The perceived higher quality of service tends to lead to customers who are satisfied and have the intention to behave better about self-service technology. Third, this research proves that the extra satisfied consumers are in using self-service technology, the over likely they are to apply it again and

suggest to others. These outcomes strengthen the character of technology readiness in the interaction of consumer-self-service technology. Thus, service providers must satisfy appropriate attention to technology readiness to increase profitable outcomes when implementing self-service technology.

This investigation explain that there is a positive correlation within technology readiness and self-service technology-satisfaction so that it supports the results of the study of [50] and the empirical study [28]. Zeithaml et al., [50] study results explain that technology readiness affects consumer behavior and service quality. The empirical study of [28] revealed that technology readiness had a significant influence on behavioral intentions, for example, by word-of-mouth. Previous researches have shown that technology readiness has a positive influence on satisfaction [23, 45]. However, this investigation only investigates the simple correlation linking technology readiness and satisfaction without developing a more complex framework. Our analysis is limited to examining causality between constructs in the model. Our results show that the power of technology readiness on self-service technology-satisfaction and self-service technology-behavioral intention mediated by self-service technology-service quality. Namely, consumers with a more reliable positive mindset toward technology, the sense to use technology, and enthusiasm to adopt technology are also likely to value self-service technology to produce a higher opinion of service quality that can ultimately increase customer satisfaction. This new decision requires a further academic and practical assessment of incoming research.

V. CONCLUSION

This investigation concluded that readiness technology affects self-service technology-service quality, satisfaction with self-service technology, and behavioral intentions with self-service technology. Furthermore, the perception of the quality of self-service technology has a positive influence on customer satisfaction and behavioral intentions on self-service technology. The limitation of this research is the number of observations, where we only examined one area where the level of self-service usage was very high.

VI. FUTURE SCOPE

Future research must consider several industries that implement self-services by adding study areas. Besides, the analysis of the actual behavior of self-services users needs to be done as a more precise understanding of this problem.

Conflict of Interest. The author's declaration doesn't have any conflicts of interest.

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