

## A STUDY ON THE SUCCESS FACTORS OF THE USED CAR WEBSITES IN S. KOREA

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**ABSTRACT.** *Used car website is an online business providing information of used cars to those who have the willingness to purchase used cars. Whereas such business is actively used in America, business operation is not fully active in South Korea. This study focused on investigating the success factors of used car websites in aspect to improve the net benefits of the used car dealers using IS success model (Information Systems success model) for 264 website users. As a result, information quality has been found to be the most important factor in the success of used car websites. Service quality and system quality also turned out to be the success factors of used car online business.*

**Keywords:** Used car, Website, Information systems success model, Success factors

**1. Introduction.** Used car websites are a kind of online business that provides used car information to customers who wish to purchase used cars. The customers can easily search for desired used car information on the used car website and make purchase decisions, and the used car website operator can earn transaction fees and run various additional businesses through used car transactions. CarMax ([www.carmax.com](http://www.carmax.com)), an American used car retailer company, is so successful that it was ranked in the Fortune 500 company in 2018 [1]. Several used car websites are operated in S. Korea such as Encar ([www.encar.com](http://www.encar.com)), K Car ([www.kcar.com](http://www.kcar.com)) and KB chachacha ([www.kbachachacha.com](http://www.kbachachacha.com)), but they are not yet active. The fundamental reason for not being activated is that the used car information provided on the website is not accurate. That is, since dealers with information of used cars tend to distort the information and present the information for their advantage, the number of cases that damage customers who use the website increases, thereby increasing distrust of the website.

The main goal of this study is to investigate the success factors of used car websites in aspect to improve the net benefits of the used car dealers. This can be done by studying the factors that determine the perceived quality of used car websites, which in turn result in the intention to continual use and increase the user satisfaction with using websites, thus leading to improved net benefits. This study used the DeLone and McLean IS success model [2], as a theoretical foundation.

This study is organized as follows. Section 2 presents the success factors of the websites and reviews of previous studies related to this study. Section 3 presents the research models and the hypotheses. Section 4 presents the methodology for data collection and analysis. In Section 5, we describe results and discussions. The conclusion of this study is described in Section 6.

## 2. Theoretical Framework.

**2.1. Information Systems success model (IS success model).** DeLone and McLean created an information system evaluating model with interdependencies between the different success factors [2]. The model consists of six interrelated dimensions of IS success: information, system and service quality, (intention to) use, user satisfaction, and net benefits. A system can be evaluated in terms of information, system, and service quality; these factors affect the use or intention to use and user satisfaction. As a result of using the system, certain benefits will be achieved. The net benefits will influence user satisfaction and further the usage of the information system [3,4]. In this study, we used this model to analyze the success factors of used car websites.

**2.2. System success factors.** Molesworth and Suortti [5] indicated that in car online adoption study, customers have an advantage in searching purchase information and improving the balance of power between themselves and car salespeople. Kuruzovich et al. [6] argued that auto retailing websites acted as an infomediary that provides price and product information and suggested the need of designing information provisioning system to facilitate transition between online market and offline market in auto retailing business.

Ojo [7] found that system, information, and service quality significantly influenced use and user satisfaction in the hospital information system success study using DeLone and McLean information system success model. Harlie et al. [8] indicated that information, system, and service quality made significant and positive impacts on the intention to adopt the technology and use the Higher Education Management Systems in Indonesia. Disastra et al. [9] showed that the dimensions of the website atmosphere consisting of virtual layout and design, virtual atmospherics, virtual theatrics and virtual social presence, had a significant effect on perceived flow and perceived flow in turn also affected purchase intention significantly. Quan et al. [10] showed that e-brand experience had impact on e-satisfaction and brand awareness, and it had the biggest effect on e-loyalty on the online shopping website. Shim and Jo [11] found that although information and service quality had a significant effect on user satisfaction and perceived benefits in online health information sites, the role of system quality received no empirical support. Mousa et al. [12] indicated that both perceived usefulness and perceived ease of use had a positive influence effect on academics and student's readiness to adopt e-learning technology.

## 3. Research Model and Hypotheses.

**3.1. Research model.** This study analyzed the success factors of the used car websites in S. Korea using the IS success model. The system quality, information quality, and service quality were used as independent success variables of the used car websites. The research model is shown in Figure 1.

**3.2. Research hypothesis.** System quality represents the quality of the used car website itself, and it is a measure of the extent to which the websites are technically sound [13]. System quality of websites is determined by the quality of its hardware or software components which are essential for data and information capturing, processing, storage and retrieval capabilities. Venkatesh and Davis [14] and Venkatesh and Morris [15] found that system quality has positive relationships with behavioral intentions to use the system. Wu and Wang [16] and Halawi et al. [17] argued that system quality was found to be strongly related to usage and user satisfaction. Therefore, we hypothesize that

*H1a: System quality will have a positive effect on intention to use the used cars websites.*

*H1b: System quality will have a positive effect on user satisfaction.*

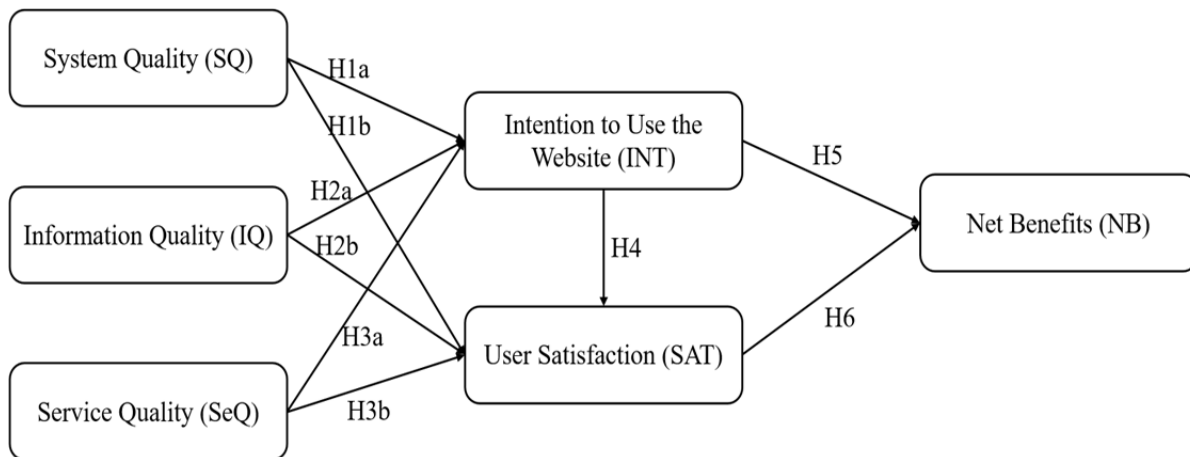


FIGURE 1. Research model

Information quality of websites refers to the quality of the contents provided by the websites [10]. Information quality is usually measured by the following dimensions: ‘Integrity’, ‘Timeliness’, ‘Usefulness’, ‘Understandability’ and ‘Customization’ [18]. Halawi et al. [17] found that information quality is significantly and positively related to intention to use and user satisfaction. Therefore, we hypothesize that

*H2a: Information quality will have a positive effect on intention to use the used cars websites.*

*H2b: Information quality will have a positive effect on user satisfaction.*

Service quality of websites refers to the degree of the overall support related to a website and delivered by the website service provider [20]. Halawi et al. [17] also found that higher service quality leads to higher intention to use and user satisfaction. Therefore, we set the following hypotheses:

*H3a: Service quality will have a positive effect on intention to use the used cars websites.*

*H3b: Service quality will have a positive effect on user satisfaction.*

Intention to use is a measure of the likelihood a customer will use a website. It is a predictive variable for system use [16]. Intention of customer to adopt and use a specific technology can be explained by the TAM [21]. DeLone and McLean [2] showed that higher intention to use leads to more user satisfaction and net benefits. Therefore, we set the following hypotheses:

*H4: Intention to use will have a positive effect on user satisfaction.*

*H5: Intention to use will have a positive effect on net benefit with used cars websites.*

User satisfaction has been defined as “the extent to which users believe that the information system available meets their information requirements” [22]. It refers to the feeling of pleasure or displeasure that results from aggregating all the benefits that a user hopes to receive from interaction with the IS (websites in this case) [23]. User satisfaction reflects a user’s perception of both quality of the system itself and the quality of the information that can be obtained from it [24]. McGill et al. [25] showed that there is a strong relationship between user satisfaction and net benefits. Therefore, we set the following hypothesis:

*H6: User satisfaction will have a positive effect on net benefits with websites.*

#### 4. Methodology.

**4.1. Collection of materials.** The data came from a survey of used car dealers in S. Korea. Most of the used car dealers who responded to this study use the used car websites in S. Korea for buying and selling used cars. A total of 324 responses were collected during four-week period between from June 16 to July 12, 2020. Of the responses, 264 responses

were considered valid after the elimination of improperly filled out questionnaires. The measurement scales in the survey used a seven-point Likert scale ranging from (1) strongly disagree to (7) strongly agree. Detailed respondents' characteristics are shown in Table 1.

TABLE 1. Demographics of sample data

Measures		Frequency (%)
Gender	Male	238 (90.2)
	Female	26 (9.8)
Age	20-29	6 (2.2)
	30-39	39 (14.8)
	40-49	120 (45.5)
	50-59	37 (14.0)
	60 over	62 (23.5)

4.2. **Reliability, validation and structural model fits analysis.** The values of AVE above 0.5, CR (Composite Reliability) above 0.7, and Cronbach's  $\alpha$  above 0.7 are the acceptable reliability of the instruments. As shown in Table 2, all of the constructs exceeded the reference values. Convergent validity is required to have a loading factor mean above 0.7. The loading factor means of loading all items are between 0.774 and 0.876; therefore, the convergent validity is accepted.

TABLE 2. Reliability and validation test results

Variables	Cronbach's $\alpha$	CR	AVE	Loading factor mean
System Quality (SQ)	.770	.776	.635	.796
Information Quality (IQ)	.816	.818	.600	.774
Service Quality (SeQ)	.940	.941	.666	.814
Intention to Use (INT)	.936	.943	.770	.876
User Satisfaction (SAT)	.943	.944	.740	.859
Net Benefits (NB)	.944	.941	.728	.849

For discriminant validity, the square root of the AVE for each variable should be greater than the correlation values between any two variables. The inter-variable correlation matrix (see Table 3) shows that all values satisfied these recommendations for discriminant validity.

TABLE 3. Correlations of variables and square root of AVE

Variables	SQ	IQ	SeQ	INT	SAT	NB
System Quality (SQ)	<b>.797</b>					
Information Quality (IQ)	.698	<b>.775</b>				
Service Quality (SeQ)	.459	.479	<b>.816</b>			
Intention to Use (INT)	.536	.648	.563	<b>.878</b>		
User Satisfaction (SAT)	.660	.760	.573	.806	<b>.860</b>	
Net Benefits (NB)	.544	.716	.532	.737	.788	<b>.853</b>

Note: Square roots of the AVE are the bolded diagonal value.

The results for absolute fit measures were as follows:  $\chi^2/df = 2.009$ , and Root Mean Square Error of Approximation (RMSEA) = 0.062. A value of  $\chi^2/df$  less than three is considered a permissible fit [26]. An RMSEA value of less than 0.08 indicates a good fit [26]. Moreover, the Normed Fit Index (NFI), the Comparative Fit Index (CFI), and the

Turker-Lewis Index (TLI) were 0.907, 0.951, and 0.944, respectively. NFI, CFI, and TLI values greater than the 0.90 cutoff value are considered a good fit [26]. Overall, the fit statistics indicated that the proposed research model shows a good representation of the structures underlying the observed data.

TABLE 4. Structural model fit analysis

Fit measure	$\chi^2/dF$	RMSEA	NFI	CFI	TLI
Value	2.009	0.062	0.907	0.951	0.944
Recommended value	< 3	< 0.08	> 0.9	> 0.9	> 0.9

5. **Results.** The results of the structural model analysis are shown in Figure 2. Eight of the nine hypothesized associations are significant at  $p < 0.05$  or  $p < 0.01$  or  $p < 0.001$ , whereas one other hypothesis is not significant.

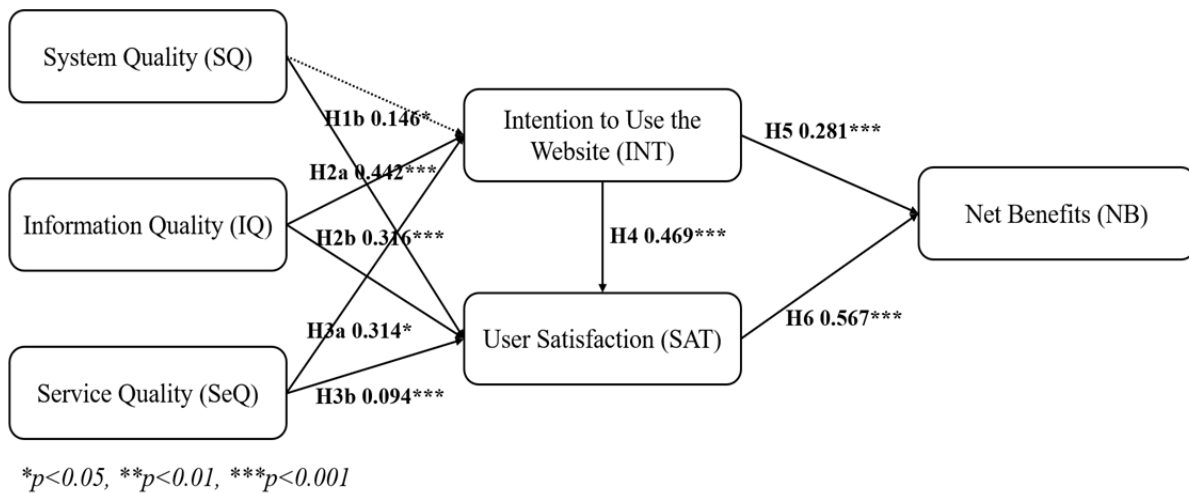


FIGURE 2. Results of structural model analysis

Although system quality has no significant effect on intention to use the websites, system quality has a significant positive effect on the user satisfaction (path coefficient = 0.146,  $p < 0.05$ ), therefore supporting H1b. In addition, the system quality has a positive effect on net benefits through user satisfaction. It means that the system quality is a factor that affects user satisfaction, but not the factor that affects the intention to use the websites.

Information quality has a significant positive effect on the intention to use (path coefficient = 0.442,  $p < 0.001$ ) and user satisfaction (path coefficient = 0.316,  $p < 0.001$ ), therefore supporting H2a and H2b. In addition, the information quality has a positive effect on net benefits through mediating intention to use and user satisfaction. It means that information is the factor that most affects the usage and activation of the websites in this study. Therefore, it is necessary to enhance information quality in order to improve continuous usage and user satisfaction of the used car websites.

Service quality has also a significant positive effect on the intention to use (path coefficient = 0.314,  $p < 0.05$ ) and user satisfaction (path coefficient = 0.094,  $p < 0.001$ ), therefore supporting H3a and H3b. In addition, the service quality has also a positive effect on net benefits through mediating intention to use and user satisfaction. It means that the service quality is also an important factor affecting used car websites use and activation.

Intention to use the websites has a significant effect on user satisfaction (path coefficient = 0.469,  $p < 0.001$ ) and net benefits (path coefficient = 0.281,  $p < 0.001$ ), therefore supporting H4 and H5. However, the effect on net benefits is relatively low than the effect on user satisfaction. It means that a positive intention to use has more influence on inducing user satisfaction rather than generating net benefits. Finally, user satisfaction not only has a significant effect on net benefits (path coefficient = 0.567,  $p < 0.001$ ) but also affects net benefits as a mediating variable of intention to use the websites.

**6. Conclusions.** In this study, we verified the success factors of the used car websites service, and the implications are as follows. Information quality has been found to be the most influential factor in the usage of the used car websites. Information quality has a positive effect on the intention to use, user satisfaction, and net benefits. This means that information on used cars is of the utmost importance when dealing with used cars. Therefore, the operator of a used car website needs to provide accurate used car information for the website to succeed.

Service quality also has been found to be the success factors to succeed the used car websites. Therefore, there is a need to strengthen customer services such as help desk operation for customers, regular website maintenance, customer information protection, and technical support. The service quality is an important factor in supporting customers' continued usage.

It was analyzed that the system quality had a positive effect on user satisfaction, but not the intention to use. This result is contrary to the results that the system quality has a positive effect on the intention to use in most of the system success factor analysis studies. This is presumed to be due to the fact that the used car website users are fundamentally distrusting the used car websites in S. Korea. In the survey process of this study, the respondents fully recognized the necessity of the website for their used car transactions, but always had distrust of the information provided by the website in actual use. Therefore, for the success of the used car website, it is necessary to establish trust in the website such as providing accurate information by pre-verifying used car information.

The results of this study can be used to operate used car websites and establish its marketing strategy. However, only three success factors were analyzed in this study. Therefore, it is needed to consider various factors which affect the success of the used car websites in S. Korea in future study.

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