

**The effect of electronic service quality in achieving customer satisfaction through
the mediating role of the technology acceptance model
An analytical study of the opinions of customers of online shopping sites**

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Abstract

Current study seeks to identify the impact of electronic service quality through its dimensions (system availability, privacy, efficiency, fulfillment), on customer satisfaction as a dependent variable, through the mediating role of the technology acceptance model through its dimensions (perceived benefit, perceived ease of use, trend towards use, behavioral intentions) for customers of e-shopping sites. The problem of the study was the possibility of explaining the relationship between the quality of electronic service and the quality of electronic recovery in customer satisfaction, while the study's goal was to verify the correlation and influence between the study variables. The study sample included (283) customers of electronic shopping sites, and for the purpose of achieving the goal of the study, a questionnaire was adopted to collect data related to the study variables, and the descriptive analytical approach was adopted in the study, and then analyzed by adopting some statistical methods such as (arithmetic mean, standard deviation , linear correlation coefficient, simple and multiple regression coefficient) using statistical program such as (spss.v.24) and (amos.v.24) program to test the scale, (alpha cronbach, factor analysis) was employed

Keywords: Electronic service quality, customer satisfaction, technology acceptance model

المستخلص

يسعى البحث الحالي الى التعرف على تأثير جودة الخدمة الالكترونية عبر أبعادها (اتاحية النظام, الخصوصية, الكفاءة, الوفاء), وجودة الاسترداد الالكتروني عبر أبعادها (الاستجابة, التعويض, التواصل) في رضا الزبون بوصفه متغيراً تابعاً, عن طريق الدور الوسيط لنموذج تقبل التكنولوجيا عبر ابعاده (المنفعة المدركة, سهولة الاستخدام المدركة, الاتجاه نحو الاستخدام, النوايا السلوكية) لزبائن مواقع التسوق الالكتروني وتمثلت مشكلة الدراسة بإمكانية تفسير العلاقة بين جودة الخدمة الالكترونية وجودة الاسترداد الالكتروني في رضا الزبون, في حين تمثل هدف الدراسة بالتحقق من علاقة الارتباط والتأثير بين متغيرات الدراسة, وقد شملت عينة الدراسة (283) من زبائن مواقع التسوق الالكتروني, ولغرض تحقيق هدف الدراسة تم اعتماد الاستبانة في جمع البيانات المتعلقة بمتغيرات الدراسة, وتمّ اعتماد المنهج الوصفي التحليلي في الدراسة, ومن ثم تحليلها باعتماد بعض الاساليب الاحصائية مثل

(الوسط الحسابي، والانحراف المعياري، ومعامل الارتباط الخطي، ومعامل الانحدار البسيط والمتعدد) باستخدام البرنامج الاحصائي مثل (SPSS.V.24) وبرنامج (Amos.V.24) ولاختبار المقياس تم
توظيف (الفا كرونباخ ، التحليل العاملي).

Introduction

E-shopping sites are witnessing a sharp competitive struggle imposed by very complex and rapidly changing marketing environment data in a way that is different from what it is in other service sectors, and as a result of the increasing importance of this sector being the most growing sector in the world, which made it very attractive through the profits it offers that exceed The average industry, and perhaps the Iraqi market is a promising and profitable market as a result of the changes taking place in the needs and desires of the Iraqi consumer.

The quality of the electronic service is one of the most important methods that can be employed to attract the largest number of customers, and from an intellectual side, the quality of the electronic service attracted the interests of researchers in the scope of customer responses as an emerging and important field in management, and given the breadth and complexity of the factors affecting those responses, it was a source of more Research and studies to identify the nature of individual behavior changing in the light of the multiplicity of options and the expansion of competition.

Methodology

First: Research Problem

Various organizations operating in the electronic market seek to achieve the quality of electronic service by attracting customers, as these organizations can achieve customer satisfaction by focusing on improving the quality of electronic service, and the technology acceptance model is the most used model to study the behavior of individuals to accept technology rather than reject it. Although there are many e-shopping sites that seek to provide the best e-services to customers in the midst of a highly competitive environment, there is still a clear weakness in the demand for these services by e-shopping site customers in Iraq compared to developed countries.

The main problem of the study emerged through the weakness of the positive attitude of most customers in accepting technology in the e-shopping process, so the current study attempts to explain the relationship between the study variables by formulating a main question that (Is it possible to explain the relationship between the quality of electronic service in achieving customer satisfaction from During the mediating role of the TAM Technology Acceptance Model, the following sub-questions emerged from it:

- 1-What is the customer's level of acceptance of the use of technology in online shopping?
- 2-What are the factors affecting the use of technology in online shopping?

3-What is the level of awareness of customers on e-shopping sites of the quality of e-service?

4-Is there an effect of the dimensions (perceived benefit, perceived ease of use, tendency towards use, behavioral intentions) on customer decisions in the electronic market?

5-What is the nature of the relationship between the quality of electronic service and customer satisfaction through the mediating role of the technology acceptance model?

6- Is there an impact of the technology acceptance model in achieving customer satisfaction?

Second: Importance Of Research

The importance of the research emerges by addressing modern variables in the field of service quality, and because of its important role in electronic shopping sites, in addition to its content of its dimensions due to the lack of previous studies, especially the quality of recovery and the model of technology acceptance, and the importance of the study can be limited to the following-:

1-This study gained its importance due to the novelty of the variables that it touched upon, especially the technology acceptance model variable and its dimensions.

2-Defining the sample (under study) on the subject of electronic service quality, customer satisfaction, and the technology acceptance model.

3-There are no previous studies related to the reality of electronic service quality, customer satisfaction, and technology acceptance model. In light of the studied sample, especially in the field of electronic shopping sites to the knowledge of the researcher, and therefore this study is the first of its kind that dealt with this subject in light of the problems and obstacles that the studied sample suffers from.

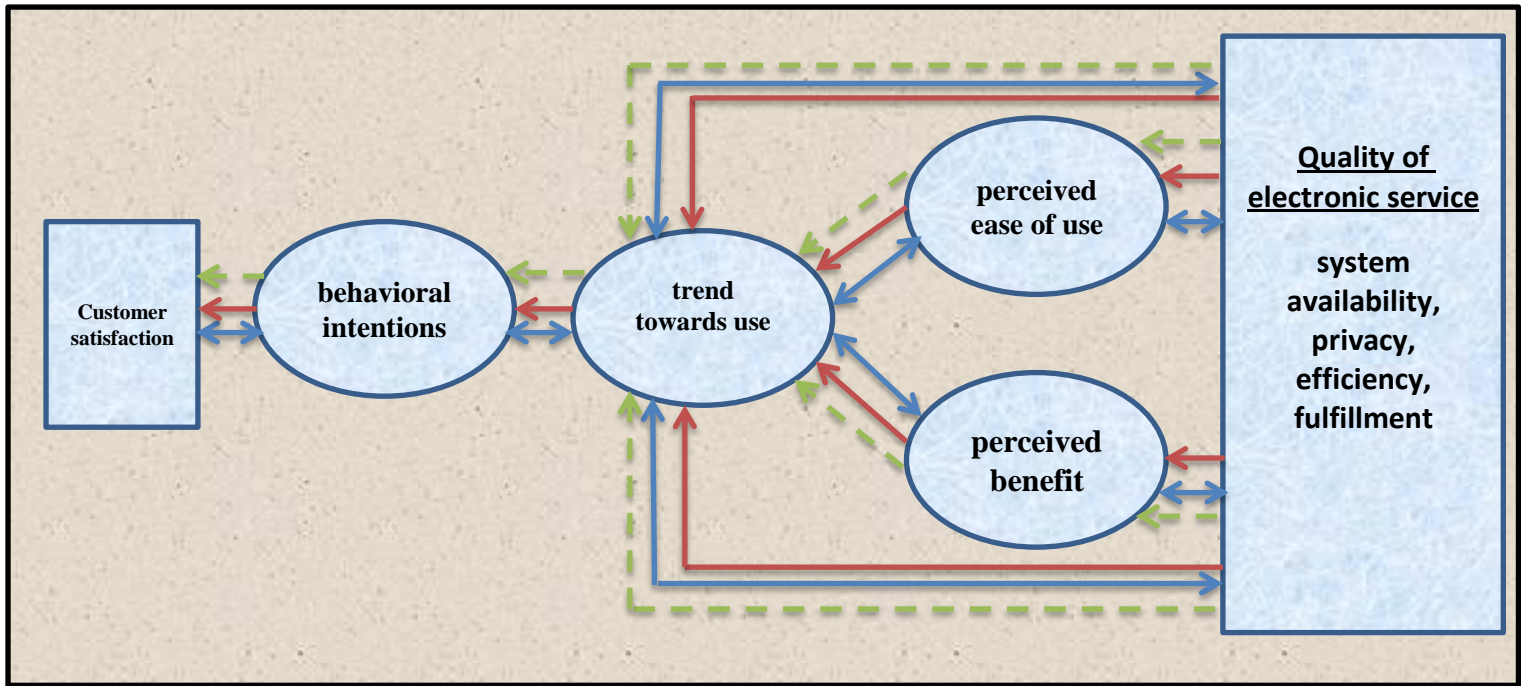
4- Develop appropriate professional and psychological guidance programs that help direct electronic shopping sites (society) towards addressing issues and attention to the issue of electronic service quality and the technology acceptance model.

Third: Research objectives

The main objective of the study is to verify the correlation and influence between (electronic service quality, customer satisfaction, and technology acceptance model), within the framework of the study problem and its importance, and the study objectives can be summarized as follows- :

1-Recognizing the reality of electronic service quality, customer satisfaction, and the model of technology acceptance in the studied online shopping sites.

2-Diagnosing the dimensions of electronic service quality, customer satisfaction, and the model of technology acceptance in electronic shopping sites.



Fourth: Hypotheses

H₀₋₁: There is a significant statistically significant correlation between the quality of electronic service and customer satisfaction.

H₀₋₂: There is a significant statistically significant correlation between the quality of electronic service and the technology acceptance model.

H₀₋₃: The trend towards usage and behavioral intentions has a sequentially intermediate relationship between the quality of electronic service and customer satisfaction.

Fifth: Materials and Methods

We relied on the questionnaire to obtain data from the operational side. The questionnaire in its final form included three parts, the first of which dealt with the information of the individuals who were examined, while the second included questions to deal with the quality of electronic service and was prepared on the basis of the random sampling method. The third includes measures after customer satisfaction and the technology acceptance model.

Sixth: Study sample

The study population consists of customers of e-shopping sites, as a sample of customers was chosen to test the hypotheses of the study and achieve its objectives, and (283) questionnaire forms were distributed to customers of e-shopping sites.

Literature Review

First: The Concept Of Quality of electronic service

service quality is a fairly recent concept unlike the concept presented by (Parasuraman et al., 2005), as he defined the quality of electronic service, the extent to which a website facilitates shopping, purchasing and delivery efficiently and effectively (Halaris, 2005: 2).

(Ojasalo, 2010: 128) believes that it is the appropriateness of what customers expect from the service provided to them, with their actual awareness of the

benefit that they obtain as a result of obtaining the service. The Internet as a new marketing channel has its own unique and distinctive characteristics from the rest of the other communication channels, which are characterized by speed and low costs, and it represents the e-marketing strategy, and works to shift from the spatial market to the space market. It was defined (Li et al., 2009:5) as site design, reliability, security, and customer service. Whereas (Águila-Obra et al., 2013:2) sees it as comprehensive customer evaluations and judgments related to the excellence and quality of providing electronic services in the virtual market. And (Heidari et al., 2014:616) it represents the extent to which a website facilitates shopping, purchasing and delivery efficiently and effectively.

Second: The Importance Of Quality Of Electronic Service

E-service enables organizations to exceed customer expectations, which helps in long-term investment by promoting customer growth, and keeping customers in the state of loyalty to the organization (Al-Hawary et al., 2016:176). As a result, the uses of technology in customer service are important to reach the basic survival goals of the organization (Mensah, 2017:39).

Third: Dimensions Of Quality Of Electronic Service

1- system availability

Availability refers to the extent to which the services provided by the site can be obtained and used, and the correct technical performance of the site, as this dimension deals with the extent to which information resources are prepared over the Internet to provide customers with the required products / services that are easy to locate (Momotaz, 2018:103).

2- privacy

Privacy refers to the degree of website security and the protection of customer information, as this dimension occupies an important position in the electronic service, and customers are also aware of great risks in the virtual environment of the electronic service that stem from the possibility of improper use of their financial and personal data (Li et al., 2009: 5).).

3- efficiency

It is represented in the ease of use of the website, and that it is properly organized and requires a minimum amount of information to be entered by the customer (Agrawal et al., 2014:3655).

4- fulfillment

This dimension indicates the extent to which websites' promises regarding order delivery and availability of items ordered by customers have been fulfilled (Agrawal et al., 2014:3655).

Fourth: Concept Customer satisfaction

Many organizations realize that creating customer satisfaction is an intangible asset for gaining competitive advantage, and with regard to services, customer satisfaction is a set of customers' emotional and cognitive responses to the services received as a basis for the organization to establish

long-term relationships (Jamali et al., 2017:118). Customer satisfaction is a marketing term resulting from how the good or service is delivered by the organization in accordance with the expectations of customers (Riorini&Widayati, 2019:56). It is the performance process that must be observed and compared with the expectations that revolve in the minds of customers and their needs, and accordingly, if the performance is more than expected, he will be completely satisfied to the point of making him feel happy, but if the performance matches his expectations, he will achieve his satisfaction. Dissatisfaction and disappointment, and leaves the organization dealing with the future(Krisnanto,2019:2). It is also a measure that determines the extent of the electronic customer's satisfaction with the organization's services and capabilities, as customer satisfaction information, including surveys and evaluations, can help the organization in determining the best ways to improve or change its services (Hasfar et al., 2020:12).

Fifthly :The Importance Of Customer satisfaction

Customers are important stakeholders in the survival of organizations, and their satisfaction is a priority for management, as organizations are committed to providing more services in addition to their offerings, and service quality has become an aspect of customer satisfaction, and customer satisfaction can provide the organization with major competitive advantages, which can lead directly to increased profitability and business growth (Amin et al., 2011:1520); (WA et al., 2018:2). Customer satisfaction is a critical factor for the organization's business survival and development, moreover, it has become one of the main elements of quality improvement in the global competitive market, as it affects customer retention and thus the profitability and competitiveness of the organization (Putri et al., 2018:25).

Sixth: Technology Acceptance Model (TAM)

The model of acceptance of technology is one of the most influential models to explain the behavior of using technology, as this model shows that the acceptance of the behavior of the individual in using technology (or the behavioral intention to use technology) determines through his attitude towards accepting the use of technology (Chuttur, 2009:11). Technology has consistently shown that it is able to explain a great deal of variation in technology use and receptive behavior across diverse contexts (Tao et al., 2020:1348).

As indicated by (Granic & Marangunic, 2019: 2573), this model is based on the theory of reasonable action, as it determines whether the user will be able to accept a new technology and the extent to which it can be dealt with. (Al-Emran et al., 2018:389) states that the intentions or desires of the individual are intrinsically linked to his behavior, so the model of accepting technology came with the intention of clarifying the behavior of working individuals and their expectations in their dealings with the computer in the workshops, and many researchers have used this model Gradually to show what are the main factors that drive individuals working towards accepting new technology.

The importance of the technology acceptance model

The importance of studying technology and its applications is one of the most important criteria for the success of technology, which is the customer satisfaction and acceptance of it. Amount and volume rates of subscription to applications to show the need for interest in studying the acceptance or rejection of technology (Scherer et al., 2019:15).

Dimensions of the technology acceptance model

1-Perceived Benefit

The model is one of the reliable models to explain the behavior of individuals in accepting and using information systems technology from the samples that were used in a large number of tests and actual use, as the perceived benefit indicates that it is the extent to which the individual believes that the use of technology will enhance the performance of his task (Tao et al., 2020:1348).

2-Perceived Ease Of Use

Perceived usability refers to the extent to which an individual believes that the use of technology will be effort-free, moreover, perceived usability affects the situation indirectly through perceived utility (Tao et al., 2020:1348).

3- Trend Towards Use

User attitude is a key factor in accepting or rejecting technology, as many studies indicate that user attitude towards using technology has a positive impact on intention towards using technology (Holden & Karsh, 2010: 161).

4-Behavioral intentions

Intention is a person's willingness to perform a specific behavior and it is the preceding factor completely before any behavior, and behavior is the clear response to a circumstance according to a specific goal, and the presence or absence of intention towards the expected behavior is the only and best indicator to predict the possibility of initiating that behavior (Byun et al., 2018:58).

Applied Aspect Of Research

First: Coding the main study variables, their sub-dimensions, and their description

The current study includes two main variables, and Table (1) shows the variables, their sub-dimensions, their coding in the statistical analysis of the data, and the number of paragraphs that measure each dimension.

Table (1) Coding and Characterization

Source	code	number of paragraphs	Dimension	Variable
Parasuraman et al.,2005:214	ES	4	system availability	Quality Of Electronic Service
	PR	3	privacy	
	EF	6	efficiency	
	FU	5	fulfillment	

Tao et al.,2020:1353	BE	4	perceived benefit	Technology Acceptance Model
	SE	3	perceived ease of use	
	AT	4	trend towards use	
	IN	2	behavioral intentions	
Lucia-Palacios et al.,2020:2	ST	10	one-dimensional	Customer satisfaction

Second: Analyze and interpret the search results

This researcher addresses the presentation, analysis and interpretation of the results of the applied study by reviewing the views of the researchers revealed by their responses to all paragraphs of the study tool. To that end, the researcher used descriptive statistical analyses (such as arithmetic averages and standard deviations), the level, direction and relative importance of the answer, and (SPSS.V.26).

1- Description and diagnosis of the e-service quality variable

The description and diagnosis of the e-service quality variable includes a description and diagnosis of paragraphs and dimensions of this variable in detail, and then description and diagnosis of the variable as a whole.

Table (2) Arithmetic averages, standard deviations, degree of answer, and ordinal importance of the main dimensions of the electronic service quality variable (n = 283)

Order of importance	Relative importance	answer level	Standard deviation	mean	Dimensions
3	0.80	High	0.707	4.02	system availability
4	0.79	High	0.784	3.97	privacy
1	0.84	High	0.808	4.21	efficiency
2	0.82	High	0.869	4.09	fulfillment
***	0.81	High	0.792	4.07	e-service quality variable

2- Technology Acceptance Model

The description and diagnosis of a model variable that accepts technology includes a description and diagnosis of the paragraphs and dimensions of this variable in detail, and then the description and diagnosis of the variable as a whole.

Table (3) Arithmetic averages, standard deviations, degree of answer, and ordinal importance of the main dimensions of the technology acceptance model variable (n = 283)

Order of importance	Relative importance	answer level	Standard deviation	mean	Dimensions
1	0.79	High	0.996	3.95	perceived benefit
4	0.74	High	0.978	3.68	perceived ease of use

3	0.78	High	0.986	3.88	trend towards use
2	0.78	High	0.974	3.91	behavioral intentions
***	0.78	High	0.984	3.86	Technology Acceptance Model

3- Customer satisfaction

This paragraph is related to the description and diagnosis of the customer satisfaction variable, as it is clear from Table (28) that the customer satisfaction variable was measured in fifteen paragraphs, in which the first paragraph whose content was (I am satisfied with the sites that I deal with.) is the highest in terms of the arithmetic mean, which reached (4.16) with a standard deviation of (0.794), and this indicates that the level of the answer was high and with a relative importance of (83%), and this result shows that the sample has a high satisfaction with the online shopping sites that they deal with.

Order of importance	Relative importance	answer level	Standard deviation	mean	Phrase
1	High	0.83	0.794	4.16	I am satisfied with the sites I deal with.
3	High	0.83	0.804	4.14	The online shopping sites that I deal with always meet my needs
9	High	0.80	0.780	3.99	I am generally happy with the services of the sites I deal with
10	High	0.78	0.782	3.89	I am very satisfied with the services provided by the sites I deal with
8	High	0.81	0.782	4.03	Online shopping sites are easy to use
6	High	0.81	0.829	4.05	Based on all my experience with online shopping sites, I feel completely satisfied.
7	High	0.81	0.823	4.04	Overall I am satisfied with the online purchase decision
4	High	0.82	0.815	4.09	If I had to buy again, I would feel differently about buying from these online shopping sites
5	High	0.81	0.842	4.06	My choice to buy from this site was good
2	High	0.83	0.838	4.15	The online purchase decision has improved my web skills
	High	0.81	0.809	4.06	Customer satisfaction

Third: - Study Hypotheses Test

1-Testing the first major correlation hypothesis:

The main correlation hypothesis relates to testing the extent of correlation by testing the correlation between the variable e-service quality as an independent variable and the variable customer satisfaction as a dependent variable, which states (there is a positive correlation with a significant significance between e-service quality and customer satisfaction)

Table (5) a matrix of correlation coefficients between the quality of electronic service in its dimensions and the variable of customer satisfaction

		Correlations					
		system availability	privacy	efficiency	fulfillment	Quality of electronic service	Customer satisfaction
system availability	Pearson Correlation	1	.410**	.383**	.346**	.628**	.376**
	Sig. (2-tailed)		.000	.000	.000	.000	.000
	N	283	283	283	283	283	283
privacy	Pearson Correlation	.410**	1	.809**	.736**	.897**	.637**
	Sig. (2-tailed)	.000		.000	.000	.000	.000
	N	283	283	283	283	283	283
efficiency	Pearson Correlation	.383**	.809**	1	.790**	.910**	.702**
	Sig. (2-tailed)	.000	.000		.000	.000	.000
	N	283	283	283	283	283	283
fulfillment	Pearson Correlation	.346**	.736**	.790**	1	.872**	.694**
	Sig. (2-tailed)	.000	.000	.000		.000	.000
	N	283	283	283	283	283	283
Quality of electronic service	Pearson Correlation	.628**	.897**	.910**	.872**	1	.731**
	Sig. (2-tailed)	.000	.000	.000	.000		.000
	N	283	283	283	283	283	283
Customer satisfaction	Pearson Correlation	.376**	.637**	.702**	.694**	.731**	1
	Sig. (2-tailed)	.000	.000	.000	.000	.000	
	N	283	283	283	283	283	283

** . Correlation is significant at the 0.01 level (2-tailed).

2 - The second major correlation hypothesis test

The main correlation hypothesis relates to testing the extent of coherence through testing the correlation between the e-service quality variable as an independent variable and the technology acceptance model as an intermediate variable, which states (there is a direct correlation with a significant significance between the quality of electronic service and the technology acceptance model).

Table (6) The matrix of correlation coefficients between the quality of electronic service, its dimensions, and the technology acceptance model variable

		Correlations					Technology Acceptance Model
		Quality of electronic service	perceived benefit	perceived ease of use	trend towards use	behavioral intentions	
Quality of electronic service	Pearson Correlation	1	.746**	.622**	.695**	.603**	.783**
	Sig. (2-tailed)		.000	.000	.000	.000	.000
	N	283	283	283	283	283	283
perceived benefit	Pearson Correlation	.746**	1	.673**	.674**	.586**	.873**

benefit	Sig. (2-tailed)	.000		.000	.000	.000	.000
	N	283	283	283	283	283	283
perceived ease of use	Pearson Correlation	.622**	.673**	1	.639**	.564**	.825**
	Sig. (2-tailed)	.000	.000		.000	.000	.000
trend towards use	N	283	283	283	283	283	283
	Pearson Correlation	.695**	.674**	.639**	1	.740**	.888**
behavioral intentions	Sig. (2-tailed)	.000	.000	.000		.000	.000
	N	283	283	283	283	283	283
Technology Acceptance Model	Pearson Correlation	.603**	.586**	.564**	.740**	1	.840**
	Sig. (2-tailed)	.000	.000	.000	.000		.000
	N	283	283	283	283	283	283
	Pearson Correlation	.783**	.873**	.825**	.888**	.840**	1
	Sig. (2-tailed)	.000	.000	.000	.000	.000	
	N	283	283	283	283	283	283

****.** Correlation is significant at the 0.01 level (2-tailed).

The results shown in Table (6) indicate that there is a direct correlation with a significant significance between the electronic service quality variable and the technology acceptance model variable, as the value of the correlation coefficient between them reached (0.783**) and this value indicates the direct trend of correlation between the independent variable service quality The electronic and the dependent variable is the technology acceptance model, as the positive correlation was at a significant level (0.01) and with a confidence level of (99%), as the above correlation indicates the existence of a direct correlation between the two variables from the sample point of view within the field of application of the study sample. It is within the level of a very strong direct correlation relationship between the independent variable and the mediating variable, as these results indicate that the existence of the quality of the electronic service, which is reflected in achieving a high level of the model of accepting technology in electronic shopping sites, and based on the foregoing, the second main hypothesis of the relationship of The relationship between the electronic service quality variable and the technology acceptance model variable.

The results shown in Table (6) indicate the existence of a direct correlation with a significant significance between the e-service quality variable and the customer satisfaction variable, as the value of the correlation coefficient between them reached (0.731**) and this value indicates the direct trend of correlation between the independent variable e-service quality And the adopted variable is customer satisfaction, as the positive correlation was at a significant level (0.01) and with a confidence level of (99%), as the above correlation indicates the presence of a direct correlation between the two variables from the sample point of view within the field of application of the study sample. It is within the level of a very strong direct correlation between

the independent variable and the dependent variable, as these results indicate that the existence of the quality of electronic service, which is reflected in achieving a high level of customer satisfaction through electronic shopping sites. **Based on the foregoing, the first main hypothesis of the correlation between the e-service quality variable and the customer satisfaction variable can be accepted.**

Conclusions and Recommendations

1-Conclusions

1-There is a direct correlation with a significant significance between the e-service quality variable and the customer satisfaction variable, as the correlation indicates the presence of a direct correlation between the two variables from the sample point of view within the field of application of the study sample. This is within the level of a very strong direct correlation between the independent variable and the dependent variable, and these results indicate that the presence of quality electronic service supports achieving a high level of customer satisfaction through electronic shopping sites.

2-There is a direct correlation with a significant significance between the system availability dimension and the customer satisfaction variable.

3-There is a positive, direct correlation between the privacy dimension and the customer satisfaction variable, as this result indicates the direct correlation between the privacy dimension and the customer satisfaction variable within the level of a strong positive relationship, and this result indicates that the presence of good levels of privacy will lead to an increase in the level of Customer satisfaction from the point of view of the study sample.

4-There is a positive direct relationship with a significant significance between the efficiency dimension and the customer satisfaction variable, as this result indicates a direct correlation between the efficiency dimension and the customer satisfaction variable within the level of a strong direct relationship. point of view of the study sample.

5- There is a direct correlation with a significant significance between the fulfillment dimension and the customer satisfaction variable, as this result indicates a direct correlation between the fulfillment dimension and the customer satisfaction variable within the level of a strong direct relationship. View the study sample.

2-Recommendations

1-Emphasizing the interest in not freezing the pages of e-shopping sites after entering customer order information.

2-Increasing the interest of online shopping sites in maintaining the privacy of customers during the purchase process.

3-The need for e-shopping sites to pay attention to obtaining what customers need from the products in the sites it deals with.

4-Emphasis on the need for e-shopping sites to pay attention to the elements necessary for timely delivery to customers.

5- The need for online shopping sites to be interested in quickly solving the problems facing customers.

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