

# The effect of electronic banking service quality on customer satisfaction

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**Abstract:** Coronavirus 2019 (Covid 19) was first detected in Wuhan City, Hubei Province, China, and it was eventually spread to other countries. The spread of the virus has had a big impact on health and economy worldwide. The health of people keeps decreasing and the number of deaths is increasing day by day. In order to ensure the health of the people, the government implemented several lock downs, which causes all businesses, including the governmental and non-governmental ones and bank institutions, to close. Due to this, the bank institutions needed to depend on pervasive technologies to run their business. Thus, this research aims to investigate the effect of electronic banking service quality on electronic banking customer satisfaction. The research investigated customer satisfaction based on the reliability, privacy and security, website design and customer service and support of electronic banking services. The research also examined the relationship between factors of electronic banking service quality and electronic banking customer satisfaction. Using a random sampling technique, this research was conducted on a small district society in Malaysia. The total population is 6,716 people, with a sample size of 361 for this research. A questionnaire was distributed online as the data collection instrument. Correlation and inferential analysis were used to identify the relationship between the factors of e-Banking service quality and customer satisfaction, and the results show that the relationship between the factors of e-Banking service quality and customer satisfaction is strong and significant. It also demonstrates that customer service and support is the factor of electronic banking service quality that has the greatest influence on electronic banking customer satisfaction.

**Keywords:** Service Quality, Customer Satisfaction, Electronic Banking, Covid 19.

## 1. Introduction

Covid 19 crisis not only affected major health, but also caused the change in the global economic system. This crisis has presented obstacles to businesses and forced them to alter their methods of conducting business (Seetharaman, 2020). Covid 19 has raised the bar for business operations, forcing companies to come up with creative solutions if they want to survive the current economic downturn. In order for businesses to recoup their loss, they must come up with innovative ways to establish a flexible business strategy in order to ensure business continuity and strong relationships with the customers (Ketema & Selassie, 2020).

The past few years have been challenging for the banking sector, as banks were required to develop new solutions and to adapt to the changes caused by Covid 19. Some of the challenges that banks had to deal with included maintaining their operations while employees were working from home, tackling increased fraud activities and at the same time ensuring customers satisfaction with the offered services. Due to certain restrictions during the pandemic, the use of online banking, often known as E-banking or electronic banking, has increased while traditional banking has decreased significantly (Ul Haq & Awan, 2020). According to Offei and Gyambrah (2016), electronic banking provides customers the online banking facilities to perform their bank activities anywhere and anytime. These activities include pay bills, transfer money, and access or check account transactions or even online shopping (Khrais, 2015). Since businesses and consumers increasingly “went digital”, providing a quality of service in terms of its reliability, privacy and security, website design as well as customer service and support can boost customers satisfactions to conduct financial activities utilising internet communication without having to physically visit the premises.

Customer satisfaction is the major issue for the business that is operating in technology-based services and related services. Good customer service quality is the main factor that will determine; in the future whether the business will survive or fail (Thompson & Bokma, 2000). Due to rapid technology change and market competition, service quality becomes an increasingly important issue. Therefore, understanding a service quality issue becomes very important to satisfy the customers (Broderick & Vachirapornpuk, 2002).

## **2. Electronic banking customer satisfaction**

Customer satisfaction is commonly defined as the feeling about the product or services they expected to receive compared with the real product or service provided (Hammoud, Bizri, & El Baba, 2018). It is always related to customer gratitude for a product or service that provides a sufficient amount of satisfaction that delivers value to the customers (Biesok & Wrobel, 2011). Customers can access different financial operations through internet banking anytime, anywhere, significantly reducing handling costs (Raza et al., 2020). Oertli (2020) claims that during the Covid 19 crisis, bank clients were compelled to adjust how they interacted with the bank in terms of registrations, usage of mobile pay applications and use of contactless payment. For this reason, e-Banking customer service and support is crucial for the bank to survive and compete in the industry because it demonstrates how well customers are treated when interacting with a bank's product or service, such as how the bank pleases its customers and resolves their issues (Morgan, 2018). Customer satisfaction will help the bank improve its image and reputation, which will increase customer loyalty and attention to the customer needs, which can help improve the customer relations.

Nevertheless, internet banking, in contrast to traditional banking, allows customers to communicate with a website rather than a human, which reduces the cost of the banking system and improves better customer relationships. Hence, the e-Banking website design is the key element in creating a nice interface that will satisfy customer expectations and help the bank survive in the competitive online business environment. Furthermore, Ling et al., (2016) also stated that internet banking helps customers to make transactions more conveniently and effectively on the bank website. Customers determine the qualities of the service through their experience and information they get from their environment (Wang, 2014). Service quality is the factor that contributes to customer opinion regarding satisfaction. Service quality in electronic banking can enhance customer satisfaction as customers can access it for many financial activities.

Although there are benefits and opportunities in using electronic banking, there are also dangers and drawbacks that the bank has to be aware of and appropriately manage in order to continue operating and providing excellent service quality (Ololade & Ogbeide, 2017). Electronic banking makes banks more dependent on information technology, leading to more complex operations, privacy and security concerns and a move towards more unregulated third-party alliances, outsourcing agreements and transactions. Hence, the ability of a reliable service to deliver its promised accuracy to its clients is of utmost importance. Moreover, good electronic banking service quality is important to increase customer satisfaction especially during Covid 19 as a lot of people have to purchase through online. Good service quality is crucial for maintaining a competitive edge and a positive customer relationship (Firdous & Farooqi, 2017).

## **3. Electronic banking service quality**

Service quality can be measured using a scale known as SERVQUAL, which will operationalise service quality by calculating the difference between expectations and perceptions, where the gap determines the customer satisfaction with service quality (Naik et al., 2010). In order to provide high quality e-Banking services, the bank needs to know and understand the electronic banking service quality dimensions and with this the bank can improve their service quality which will increase the customer satisfaction (Sathiyavany & Shivany, 2018).

### 3.1. Reliability

Reliability in online banking is the capacity of the banking Internet system to operate continuously, without interruption and to deliver reliable service. Shared (2019) states that reliability refers to the ability of the bank to provide high quality electronic banking services and keep promises, which make customers realize the consistency and credibility of electronic banking. Reliability has a positive impact on customer satisfaction and it is important for banks to retain their customers by ensuring their services are always accurate and complete, maintaining precise records and information, and fulfilling their promises to customers regarding the service provided (Pakurar et al., 2019). The growth of internet technology has increased the customer demand for e-Banking where customers prefer the reliability of the machine to human reliability (Munusamy & Chelliah, 2010). The reliability in electronic banking is the most important features that the customers look for when evaluating the electronic banking service quality (Hammoud, Bizri & El Baba, 2018). Therefore, in order for banks to provide a reliable electronic banking service quality, they need to deliver the services that they have promised to their customers, such as correct completion of request, ad accuracy and application delivery (Al-Hawary & Al-Smeran, 2017). Banking institutions also need to provide services that are up-to-date, accurate, easy to understand and relevant that meet customers' needs and enhance their satisfaction. Therefore, the following hypothesis was developed:

H<sub>1</sub>: There is a relationship between reliability of e-banking service quality and e-banking customer satisfaction.

### 3.2. Privacy and security

Security is the way banks protect their customer data, including data confidentiality, availability and integrity, while privacy refers to the use and control of personal data by authorized individuals (Schwartz, 2019). The privacy and security dimension in electronic banking service can gain customers' trust regarding their personal information and bank transaction are safe from any unauthorized persons, which will increase the customer satisfaction. Another major challenge is the issue of security, as many transaction occur online every single day, which could lead to the theft of customers' banking data (Abu-Shanab & Matalqa, 2015). The threats may come from inside or outside the system that can threaten information and transaction of the customers (Shahrom, Abdul Razak & Shariff, 2018). Hackers always have ways to steal and manipulate customer information, and banking cybercrime always occurs. Leakage of confidential information by unauthorized persons exceeding the authority of the financial institution can lead to loss of customers (Lukic, 2015). This means that when a change is being made in customer data in the system by an unauthorised person, it can bring harm to the bank and its customers. Internet banking transactions are always linked to security issues. Customer behaving inappropriately on the internet can cause abuses in privacy and security of bank information such as phishing, identity theft, hacking and other misuse (Ameme & Boateng, 2016). When customers use online banking, the possibility of being exposed to threats such as pharming, phishing, man-in-the-browser, man-in-the-middle-attack and malware attacks is high (Mahmadi et al., 2016). The transformation of traditional banking into electronic banking could be a sudden change (Galazova & Magomaeva, 2019). This is because the increase in number of people using ICT facilities in their daily life can open up the opportunities for criminal to do illegal activities online, such as credit card frauds, ATM frauds, spamming, Phishing, denial of service, identity thief and many more, which give a view that ICT contributes to crime in banking sector. Therefore, the following hypothesis was developed:

H<sub>2</sub>: There is a relationship between privacy and security of e-banking service quality and e-banking customer satisfaction.

### 3.3. Website design

Website design is similar to the process of creating a web page which contains the innovative ideas that can be accessed by the end user through the internet (Ideas, 2018). Web design includes

several elements during the creation of the HTML web page such as layout, colour, fonts, graphic. The electronic banking website design that can provide these functions to customers, such as providing sufficient amount of information and processing customer order faster, user navigation, nature of information, content of information and type of graphics would increase the customer electronic satisfaction (Sathiyavany & Shivany, 2018). The quality of the electronic banking websites will include the ease of login into the system, ease of performing transaction, ease of getting help if there are problems when accessing the system, providing accurate information about the customer's financial transactions, must be accurate and free from any error (Momeni et al., 2013).

Customer satisfaction with electronic banking was significantly influenced by responsiveness, website style and guide that constitute an electronic banking website, usability of the efficiency framework and communication responsiveness of electronic banking service quality (Sadia et al., 2020). Higher levels of website usability will lead to higher levels of ongoing commitment of the customer to the website, as well as a consistent, positive and positive relationship between satisfaction in experiences and the commitment of the customer to a website of financial services (Musiime & Ramadhan, 2011). Therefore, the following hypothesis was developed:

H<sub>3</sub>: There is a relationship between website design of e-Banking service quality and e-Banking customer satisfaction.

### **3.4. Customer service and support**

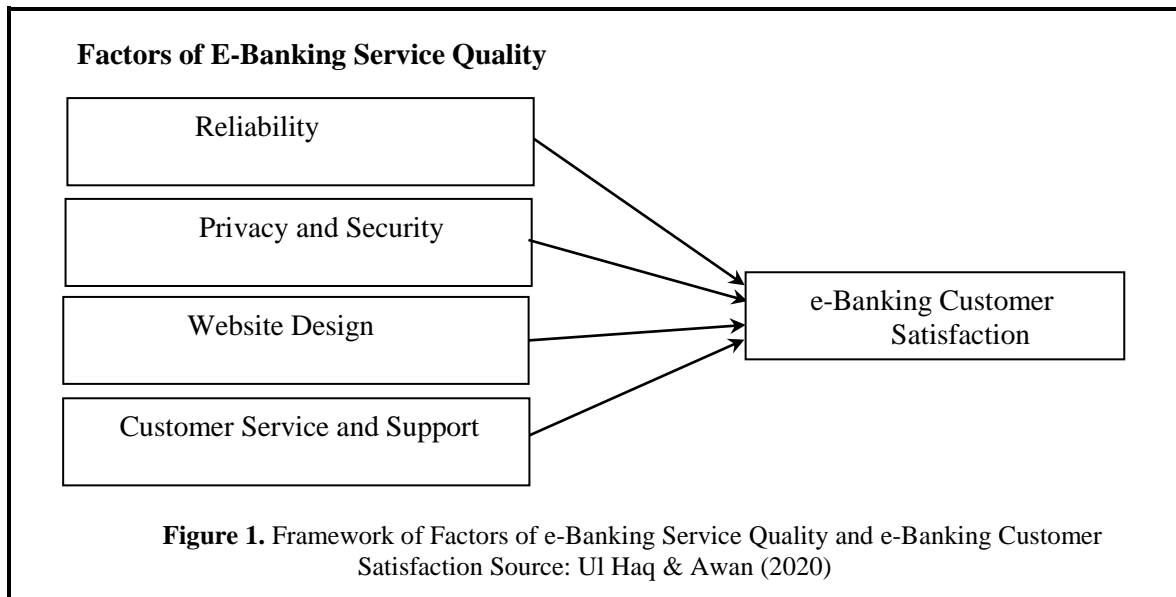
Customer service is the advice and suggestions provided to the customers by the company, such as offering assistance to their customers on how to use the products or services, assisting customers in resolving the problems they face, and ensuring that customers have a good experience when purchasing their products or service (Morgan, 2018). Customer satisfaction will increase depending on how quickly and meaningfully bank staff serve their customers in terms of electronic banking (Sleimi, Karam & Qubbaj, 2018). Having good marketing strategy and good customer relationship management, will help the customers to realize the benefits of using electronic banking services, which can increase the customer satisfaction and also give advantages to the bank (Momeni et al., 2013). Bank employees who have received good training will serve their customers with attention, courteousness and willingness to help them solve their issues regarding the electronic banking, making the customers stay loyal and increase their satisfaction (Loke et al., 2012). It is important for banks to align their strategy to meet the customer's needs to receive good service (Merugu & Vadaddi, 2018). Customers always expect to receive fast service provided by the bank because when the customers receive fast services, they will access them more positively (Saha, 2016). Using electronic banking can make the banks support their customers fully and deliver their service quickly, and it can also help the bank to control and operate the system properly; if there is a failure in their system, the bank can guide their customers on how to use the system properly, faster in providing solution to the problem they face and can answer customers' questions on the spot (Hammoud, Bizri & El Baba, 2018). Therefore, the following hypothesis was developed:

H<sub>4</sub>: There is a relationship between customer service and support of e-Banking service quality and e-Banking customer satisfaction.

## **4. Research framework**

Figure 1 depicts the relationship between the factors of electronic banking service quality as the independent variable and electronic banking customer satisfaction as the dependent variable. In this study, the framework is adapted from the study of UI Haq & Awan (2020) to examine the relationship in the context of electronic banking services in a different region and population. The independent variable, electronic banking service quality, is composed of four factors: reliability, privacy and security, website design, and customer service and support. These factors are considered to be the key determinants of the quality of electronic banking services. On the other hand, the dependent variable, electronic banking customer satisfaction, is the outcome variable that is being predicted or explained by the independent variable. Customer satisfaction is a critical

factor in the success of electronic banking, as satisfied customers are more likely to continue using the service and recommend it to others.



## 5. Methodology

This study was classified as a quantitative research. The correlational and inferential analysis study was used to identify the relationship between factors of e-Banking service quality and customer satisfaction among the society in district of Bandar Penawar, Malaysia which consists of 6716 residence. 361 users (Krejcie & Morgan, 1970) were selected as respondents by using a random sampling technique to answer comprehensive questions regarding the measurement of e-Banking service quality and customer satisfaction. The questionnaire was designed through an extensive literature review, validated by content experts and distributed online to the respondents. The distributed questionnaire used a five-point Likert scale, point one for a strongly disagreement and point five for strongly agreement. The data that was collected in this study was analysed using the Statistical Packages for Social Science (SPSS) version 26.0. Coefficient correlation analysis was used to determine the association between e-Banking service quality and customer satisfaction, and multiple regression analysis was used to determine factors of e-Banking service quality factors that most affect e-Banking customer satisfaction during Covid 19.

## 6. Findings

### 6.1. Profile of respondents

Out of a total of 361, the majority of the respondents were female, with a total of 239, representing 66.2 %, while the rest of 33.8 % (122) were male. Most of them were from the age group of 18 - 27 years old, which is 44.6 % (161), and worked in the private sector, which is 67.7 % (176). Additionally, most of the respondents' incomes was RM 1001 - RM 2000, representing 24.4% of respondents (88). 67.7% (244) of respondents had Bank Islam Malaysia and other banks as their electronic bank accounts. 42.4% (153) respondents used electronic banking 4–6 times each week, which represents the majority of respondents. With 359 respondents, 99.4% of respondents believed that online banking is useful. Additionally, the majority of respondents, 98.9% (357), believed that using electronic banking saves money and time. Other than that, the majority of respondents, 97.5% (352), believed that electronic banking can be trusted.

## 6.2. Normality analysis

Table 1 indicates the result of the normality analysis of this study based on skewness and kurtosis values for each element in the independent variable and dependent variable. By referring to Hair et al. (2011), the normal distributions are only acceptable when the skewness and kurtosis values are in the range of +/-3. Hence, table 1 shows that the data were normally distributed since the value of skewness and kurtosis is in the range of +/-3 for each variable.

**Table 1.** Normality Analysis

Variables	Skewness	Kurtosis
Reliability	-.891	1.258
Privacy and Security	-.881	.204
Website Design	-.529	-.342
Customer Service and Support	-.630	-.409
Customer Satisfaction	-.850	1.052

## 6.3. Reliability analysis

Table 2 indicates that the Cronbach's Alpha test result for the reliability section showed a score of 0.856, while the score for the privacy and security section showed a score of 0.901, the score for the website design section showed a score of 0.873, the score for the customer service and support section showed a score of 0.922, and the score for the customer satisfaction section showed a score of 0.922. Table 2, shows that the value of reliability is excellent (>0.90) for privacy and security, customer service and support, and customer satisfaction, while the reliability is good for reliability and website design (0.80 - 0.90) (Habidin et al., 2015).

**Table 2.** Reliability analysis

Scale	Cronbach's Alpha	N of Items
Reliability	.856	5
Privacy and Security	.901	5
Website Design	.873	5
Customer Service and Support	.922	5
Customer Satisfaction	.922	5

## 6.4. Coefficient correlation analysis

Table 3 shows the results of the correlation between factors of e-Banking service quality and e-Banking customer satisfaction. It shows that reliability has a strong and significant relationship between customer satisfaction with values of ( $r = 0.607$ ) and ( $p < 0.01$ ). Next, the value of ( $r = 0.708$ ) and ( $p < 0.01$ ) shows that privacy and security have strong and significant relationships between customer satisfaction. Other than that, website design has a strong and significant relationship between customer satisfaction with the value for ( $r = 0.700$ ) and ( $p < 0.01$ ). Furthermore, the value of ( $r = 0.702$ ) and ( $p < 0.01$ ) shows that there is a strong and significant relationship between customer service and support and customer satisfaction. Thus, table 3 shows that reliability, privacy and security, website design and customer service, and support of e-Banking service quality have a strong and significant relationships with e-Banking customer satisfaction during Covid 19.

**Table 3.** Coefficient correlation analysis

		Reliability	Privacy and Security	Website Design	Customer Service and Support	Customer Satisfaction
Reliability	Pearson Correlation	1	.746**	.663**	.561**	.607**
	Sig. (2-tailed)		.000	.000	.000	.000
	N	361	361	361	361	361
Privacy and Security	Pearson Correlation	.746**	1	.793**	.665**	.708**
	Sig. (2-tailed)	.000		.000	.000	.000
	N	361	361	361	361	361
Website Design	Pearson Correlation	.663**	.793**	1	.710**	.700**
	Sig. (2-tailed)	.000	.000		.000	.000
	N	361	361	361	361	361
Customer Service and Support	Pearson Correlation	.561**	.665**	.710**	1	.702**
	Sig. (2-tailed)	.000	.000	.000		.000
	N	361	361	361	361	361
Customer Satisfaction	Pearson Correlation	.607**	.708**	.700**	.702**	1
	Sig. (2-tailed)	.000	.000	.000	.000	
	N	361	361	361	361	361

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

## 6.5. Multiple regression analysis

Based on Table 4, the R square value is .614. Thus, the table shows that the model had only explained 61.4 % of the variables while the other 38.6 % of the variances were influenced by the other factors.

**Table 4.** Model Summary<sup>b</sup>

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.784 <sup>a</sup>	.614	.610	.34313

a. Predictors: (Constant), Reliability, Privacy and security, Website design, Customer service and support

b. Dependent Variable: Customer Satisfaction

Table 5 indicates that when the combination of independent variables including reliability, privacy and security, website design and customer service, and support that affect customer satisfaction, the results indicated were statistically significant with F value of (F(4,356) = 141.676, p<.05).

**Table 5.** ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	66.723	4	16.681	141.676	.000 <sup>b</sup>
	Residual	41.915	356	.118		
	Total	108.637	360			

a. Dependent Variable: Customer Satisfaction

b. Predictors: (Constant), Reliability, Privacy and security, Website design, Customer service and support

Table 6 shows the results of the significant coefficient and Beta in the standardized coefficient. A beta value of 0.098 shows that a change of one percent standard deviation in the reliability results in 9.8 % standard deviations increase in customer satisfaction. Furthermore, a beta value of 0.258 indicates that a change of one percent standard deviation in the privacy and security results in 25.8 % standard deviations increase in customer satisfaction. Next, a beta value of 0.187 indicates that a change of one percent standard deviation in website design results in 18.7 % standard deviations increase in customer satisfaction. Other than that, a beta value of 0.343 indicated that a change of one percent standard deviation in customer service and support results in 34.3 % standard deviations increase in customer satisfaction. Thus, this analysis shows that customer service and support is the factor of e-Banking service quality that affect e-Banking customer satisfaction the most.

**Table 6.** Coefficient

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	
	B	Std. Error	Beta			
1	(Constant)	.934	.159		5.860	.000
	Reliability	.020	.010	.098	1.957	.051
	Privacy and Security	.234	.057	.258	4.109	.000
	Website Design	.185	.059	.187	3.144	.002
	Customer Service and Support	.281	.040	.343	7.105	.000

a. Dependent Variable: Customer Satisfaction

## 7. Conclusion and recommendation

The objectives of this study were to determine the relationship between the factors of e-Banking service quality and e-Banking customer's satisfaction during Covid 19 and to examine which factor of e-Banking service quality affected e-Banking customer's satisfaction the most during Covid 19. Using coefficient correlation analysis, findings for the research objectives show that reliability, privacy and security, website design and customer service, and support of e-Banking service quality have strong and significant relationships with e-Banking customer satisfaction during Covid 19. Using multiple regression analysis, it is shown that customer service and support is the e-Banking service quality factor that has the greatest impact on e-Banking customer satisfaction during Covid 19.

Any banking institution could benefit from knowing these factors in order to increase customer satisfaction and boost client business. Additionally, this research assists the banking industry in expanding its electronic banking capabilities in order to provide superior customer service. The banking institutions can enhance their services in a number of ways, including by modernising their electronic websites and applications for bank account login and by utilising artificial intelligence to enhance their electronic websites and applications for bank customer service. In addition, customers would be able to learn about the advantages and risks of utilising electronic banking. Moreover, their openness and sincerity in the cooperating for this study will serve as a benchmark for the banking industry to raise the calibre of its electronic banking services. Customers can continue to conduct their regular transactions while the banking institution is still able to forge ties with them through the use of electronic banking.

Future studies may concentrate further on particular respondents from a particular mobile banking application or particular behaviours. Future studies can also take into consideration additional aspects of the effectiveness of e-banking services and persuasive technology to influence consumer behaviour.



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## REFERENCES

- Abu-Shanab, E. & Matalqa, S. (2015) Security and fraud issues of e-banking. *International Journal of Computer Networks and Applications (IJCNA)*. 2(4). <https://www.ijcna.org/Manuscripts/Volume-2/Issue-4/Vol-2-issue-4-M-04.pdf>.
- Al-Hawary, S. I. S. & Al-Smeran, W. F. (2017) Impact of electronic service quality on customers satisfaction of islamic banks in jordan. *International Journal of Academic Research in Accounting, Finance and Management Sciences*.7(1). doi: 10.6007/ijarafms/v7-i1/2613.
- Ameme, B. K. & Yeboah-Boateng, E.O. (2016) Internet banking security concerns: an exploratory study of customer behaviours based on health belief model. *ResearchGate*. [https://www.researchgate.net/publication/298794389\\_Internet\\_Banking\\_Security\\_Concerns\\_An\\_Exploratory\\_Study\\_of\\_Customer\\_Behaviors\\_based\\_on\\_Health\\_Belief\\_Model](https://www.researchgate.net/publication/298794389_Internet_Banking_Security_Concerns_An_Exploratory_Study_of_Customer_Behaviors_based_on_Health_Belief_Model). [Accessed: November 29, 2020]
- Biesok, G. & Wyród-Wróbel, J. (2011) Customer satisfaction — Meaning and methods of measuring. In: H. Howaniec, W. Waszkielewicz (eds.) *Marketing and logistic problems in the management of organization*. Bielsko-Biała: Wydawnictwo Naukowe Akademii Techniczno-Humanistycznej w Bielsku-Białej, pp. 23-41. [https://www.researchgate.net/publication/318013354\\_Customer\\_satisfaction\\_-\\_Meaning\\_and\\_methods\\_of\\_measuring.pdf](https://www.researchgate.net/publication/318013354_Customer_satisfaction_-_Meaning_and_methods_of_measuring.pdf). [Accessed: December 12, 2020]
- Broderick, A. J. & Vachirapornpuk, S. (2002) Service quality in Internet banking: the importance of customer role. *Marketing Intelligence & Planning*. 20(6), 327–335. doi:10.1108/02634500210445383.
- Firdous, S. & Farooqi, R. (2017) Impact of Internet Banking Service Quality on Customer Satisfaction. *Journal of Internet Banking and Commerce*. 22 (1), 1-17.
- Galazova, S. S. & Magomaeva, L. R. (2019) The Transformation of Traditional Banking Activity in Digital. *International Journal of Economics and Business Administration*. VII (Special Issue 2), 41–51. doi:10.35808/ijeba/369.
- Habidin, N. F., Mohd Zudbir, A. F., Mohd Fuzi, N., Md Latip, N. A. & Azman, M.N.A, (2015) Sustainable Performance Measures for Malaysian Automotive Industry. Table 2 : Cronbach's alpha rule of thumb. *World Applied Sciences Journal*. 33(6), 1017-1024. doi: 10.5829/idosi.wasj.2015.33.06.257.
- Hair, J. F., Ringle, C. M. & Sarstedt, M. (2011) PLS-SEM: Indeed a Silver Bullet. *Journal of Marketing Theory and Practice*. 19(2), 139–152. <https://doi.org/10.2753/mtp1069-6679190202>. [Accessed: December 19, 2020]
- Hammoud, J., Bizri, R. M. & El Baba, I. (2018) The impact of e-banking service quality on customer satisfaction: evidence from the lebanese banking sector. *SAGE Open*. 8(3). doi: 10.1177/2158244018790633.
- Ideas, E. B. (2018) Detailed Meaning of Web Design. *Medium*. <https://medium.com/@eonian.social/detailed-meaning-of-web-design-c037ca93b582>. [Accessed: December 23, 2020]
- Ketema, E. & W/Selassie, Y. (2020) The impact of m-banking quality service on customers satisfaction during covid-19 lock down: the case of bank of Abyssinia, Ethiopia. *African Journal of Marketing Management*. 12(2), 21–37. doi: 10.5897/AJMM2020.0651.

- Khrails, L. T. (2015) Highlighting the vulnerabilities of online banking system. *The Journal of Internet Banking and Commerce*. 20(3). doi:10.4172/1204-5357.1000120. <https://www.icommercentral.com/open-access/highlighting-the-vulnerabilities-of-online-banking-system.php?aid=61518>. [Accessed: December 15, 2020]
- Krejcie, R. V. & Morgan, D. W. (1970) Determining Sample Size for Research Activities. *Educational and Psychological Measurement*. 30(3), 607–610. doi:10.1177/001316447003000308.
- Ling, G. M., Fern, Y. S., Boon, L. K. & Huat, T. S. (2016) Understanding customer satisfaction of internet banking: a case study in Malacca. *Procedia Economics and Finance*. 37, 80–85. doi: 10.1016/s2212-5671(16)30096-x.
- Loke, S.-P., Mohd Noor, N. & Khalid, K. (2012) Customer satisfaction towards internet banking services: case analysis on a Malaysian bank. *Research Gate*. [https://www.researchgate.net/publication/261054743\\_Customer\\_satisfaction\\_towards\\_internet\\_banking\\_services\\_Case\\_analysis\\_on\\_a\\_Malaysian\\_bank](https://www.researchgate.net/publication/261054743_Customer_satisfaction_towards_internet_banking_services_Case_analysis_on_a_Malaysian_bank). [Accessed: December 19, 2020]
- Lukic, A. (2015) Benefits and security threats in electronic banking. *International Journal of Managerial Studies and Research (IJMSR)*. 3(6), 44–47. <https://www.arcjournals.org/pdfs/ijmsr/v3-i6/7.pdf>. [Accessed: January 20, 2021]
- Mahmadi, F., Zaaba, Z. & Osman, A. (2016) Computer security issues in online banking: An assessment from the context of usable security. *IOP Conference Series: Materials Science and Engineering*, 160, 012107. doi: 10.1088/1757-899x/160/1/012107.
- Merugu, P. & Vaddadi, K. M. (2018). Customer satisfaction towards online banking with reference to greater visakhapatnam city. *International Journal of Management, Technology and Engineering*. 8(XII). <http://ijamtes.org/gallery/357.pdf>. [Accessed: March 17, 2021]
- Momeni, M., Kheiry, B. & Dashtipour, M. (2013) Analysis the Effects of Electronic Banking on Customer Satisfaction and Loyalty (Case study: Selected Branches of Melli Bank in Tehran). *Interdisciplinary Journal of Contemporary Research in Business*. 4(12). <https://journal-archives31.webs.com/230-241.pdf>. [Accessed: July 16, 2021]
- Morgan, B. (2018). Customer experience vs. customer service vs. customer care. *Forbes*. <https://www.forbes.com/sites/blakemorgan/2018/03/05/customer-experience-vs-customer-service-vs-customer-care/?sh=2f20ac504167>. [Accessed: June 13, 2021]
- Munusamy, J., Chelliah, S. & Mun, H.W. (2010) Service quality delivery and its impact on customer satisfaction in the banking sector in Malaysia. *International Journal of Innovation, Management and Technology*. 1(4), 398–404. [https://www.researchgate.net/publication/303238622\\_Service\\_quality\\_delivery\\_and\\_its\\_impact\\_on\\_customer\\_satisfaction\\_in\\_the\\_banking\\_sector\\_in\\_Malaysia.pdf](https://www.researchgate.net/publication/303238622_Service_quality_delivery_and_its_impact_on_customer_satisfaction_in_the_banking_sector_in_Malaysia.pdf). [Accessed: March 19, 2021]
- Musiime, A. & Ramadhan, M. (2011) Internet banking, consumer adoption and customer satisfaction. *African Journal of Marketing Management*. 3(10), 261–269. [https://academicjournals.org/article/article1379684738\\_Musiime%20and%20Ramadhan.pdf](https://academicjournals.org/article/article1379684738_Musiime%20and%20Ramadhan.pdf). [Accessed: November 23, 2020]
- Naik, C. N. K., Gantasala, S. B. & Prabhakar, G. V. (2010) (PDF) Service quality (Servqual) and its effect on customer satisfaction in retailing introduction - measures of service quality. *ResearchGate*. [https://www.researchgate.net/publication/267989820\\_Service\\_Quality\\_Servqual\\_and\\_its\\_Effect\\_on\\_Customer\\_Satisfaction\\_in\\_Retailing\\_Introduction\\_Measures\\_of\\_Service\\_Quality](https://www.researchgate.net/publication/267989820_Service_Quality_Servqual_and_its_Effect_on_Customer_Satisfaction_in_Retailing_Introduction_Measures_of_Service_Quality).
- Oertli, K. (2020) How digital innovations helped banks adapt during Covid-19. *World Economic Forum*. <https://www.weforum.org/agenda/2020/08/how-digital-innovations-helped-banks-adapt-during-covid-19/>. [Accessed: January 13, 2021]
- Offei, M. O. & Gyambah, K. N. (2016) the contribution of electronic banking to customer satisfaction: A case of gcb Bank Limited - Koforidua. *International Journal of Managing Information Technology*, 8(1), 01-11. doi: 10.5121/ijmit.2016.8101.

Ololade, B. & Ogbeide, S. (2017) E- Banking in Nigeria: Issues and challenges. *Research Journal of Finance and Accounting*. 8(6), 16. <https://www.iiste.org/Journals/index.php/RJFA/article/view/36296>. [Accessed: March 23, 2021]

Pakurár, M., Haddad, H., Nagy, J., Popp, J. & Oláh, J. (2019) The service quality dimensions that affect customer satisfaction in the Jordanian banking sector. *Sustainability*. 11(4), 1113. doi:10.3390/su11041113.

Raza, S.A., Umer, A., Qureshi, M.A. & Dahri, A.S. (2020) Internet banking service quality, e-customer satisfaction and loyalty: the modified e-SERVQUAL model. *The TQM Journal*. 32(6), 1443-1466. doi:10.1108/TQM-02-2020-0019.

Saha, S. P. (2016) An analysis of internet banking service quality affecting customer satisfaction with a focus on united commercial bank limited in Bangladesh. *Journal of Marketing and Consumer Research*, 20. <https://core.ac.uk/download/pdf/234694103.pdf>. [Accessed: February 13, 2021]

Sathiyavany, N. & Shivany, S. (2018). E-Banking Service Qualities, E-Customer Satisfaction, and e-Loyalty: A conceptual Model. *The International Journal of Social Sciences and Humanities Invention*. 5(6), 4808-4819. doi:10.18535/ijsshi/v5i6.08. [https://www.researchgate.net/publication/326045919\\_E-Banking\\_Service\\_Qualities\\_E-Customer\\_Satisfaction\\_and\\_e-Loyalty\\_A\\_conceptual\\_Model](https://www.researchgate.net/publication/326045919_E-Banking_Service_Qualities_E-Customer_Satisfaction_and_e-Loyalty_A_conceptual_Model). [Accessed: February 13, 2021]

Schwartz, K. D. (2019) Data privacy and data security: What's the difference?. *ITProToday*. <https://www.itprotoday.com/security/data-privacy-and-data-security-what-s-difference>. [Accessed: January 11, 2021]

Seetharaman, P. (2020) Business models shifts: Impact of Covid-19. *International Journal of Information Management*. 54, 102173. doi: 10.1016/j.ijinfomgt.2020.102173.

Shahrom, M., Abdul Razak, N. F. & Shariff, S. H. (2018) Investigating factors that influence individual's behavioural intention to disclose personal information on digital workforce platforms. *International Journal of Advanced Science and Technology*. 30(3), 491-495.

Shared, A. H. (2019) The relationship between e-service quality and e-customer satisfaction: an empirical study in Egyptian banks. *International Journal of Business and Management*. 14(5). DOI:10.5539/ijbm.v14n5p171. [https://www.researchgate.net/publication/332654266\\_The\\_Relationship\\_between\\_E-Service\\_Quality\\_and\\_E-Customer\\_Satisfaction\\_An\\_Empirical\\_Study\\_in\\_Egyptian\\_Banks](https://www.researchgate.net/publication/332654266_The_Relationship_between_E-Service_Quality_and_E-Customer_Satisfaction_An_Empirical_Study_in_Egyptian_Banks).

Sleimi, M. T., Karam, A. A. & Qubbaj, I. S. (2018). The Impact Of E-Banking Services Quality On Customers Satisfaction Moderated By Customer Trust: Survey On Arab Bank In Amman, Jordan. 24, مجلة جامعة القدس المفتوحة للبحوث الإدارية والاقتصادية. *Journal of Al-Quds Open University for Administrative & Economic Research*. 3(9). doi:10.33977/1760-003-009-016. [Accessed: April 22, 2021]

Thompson, R. L. & Bokma, B. A. (2000) Customer E-Services: Problems and Solutions. *Journal of Electronic Commerce Research*. 1(1), 50-65.

Ul Haq, I. & Mumtaz Awan, T. (2020) Impact of e-banking service quality on e-loyalty in pandemic times through interplay of e-satisfaction. *Emerald Insight*. <https://www.emerald.com/insight/content/doi/10.1108/XJM-07-2020-0039/full/pdf?title=impact-of-e-banking-service-quality-on-e-loyalty-in-pandemic-times-through-interplay-of-e-satisfaction>. [Accessed: April 14, 2021]

Wang, Y. (2014) The Impact of Internet Banking Service Quality on Customers' Satisfaction: A Case study of Industrial and Commercial Bank of China in KunMing, The People's Republic of China. *AU-GSB e-JOURNAL*, 7(2). <http://www.assumptionjournal.au.edu/index.php/AU-GSB/article/view/1068>. [Accessed: May 13, 2021]



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