



## The Effect of Digitalization on the Quality of Service and Customer Loyalty

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### Abstract

This research aims to measure the effect of digitalization on service quality through the SERVQUAL model (tangibility, reliability, responsiveness, assurance, and empathy) and customer loyalty. Also, we analyze the relationship between customer loyalty and their demographics. A quantitative method was used to achieve the objectives through a structured questionnaire, where part of the research sample was 400 clients of Kosovo banks. Results show that digitalization positively affects service quality and customer loyalty based on the OLS model. According to the T-test, there was no significant difference in customer loyalty between the genders. There has been a significant difference in loyalty between clients' ages following the one-way ANOVA test. According to the Kruskal Wallis test, it also resulted in a significant difference between levels of education. This study will provide banks with feedback on the importance of digitalization and its correlation with their customers' quality of service and loyalty. In this form, they decide to make even greater investments in digitalization by satisfying customer demands and creating loyal customers.

### Keywords:

Digitalization; Quality of Services;  
Customer Loyalty;  
Demographic Variables.

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## 1- Introduction

Rapid development, mainly in the banking industry, is advancing more and more towards digitalization and online value generation, where as a result of this hybrid interaction with customers [1], network competition, or the application of blockchain technologies, there is potential for the development of digital services [2]. Digitalization is the implementer of digital technology, which is considered crucial to overcoming time constraints that customers do not accept [3]. Therefore, the term digitalization has a broad application, which describes the process of transition to a digital business [4]. However, in addition to technological development, it is necessary to develop a deeper ecological awareness about changing customer behavior by disrupting current patterns [5]. When we talk about digitalization, the banking sector is an industry that has an intensive discussion about digitalization strategies [6]. As a result of technological development as well as tremendous competition, companies feel pressured to follow the development trend [7]. One of the industries that invest in technological developments is the banking system. The focus of the banking sector digitalization is oriented towards two approaches, at the strategic and customer levels. The strategic level aims to analyze the effects of the digitalization of banks on business models and strategies, while the goal of the client level is to describe and explain customer behavior when choosing or even adopting new technologies [8].

Information technology developments have enabled great diversity in how services are provided to customers [9]. In traditional banking, customers had to go to the bank and wait in line to perform services (deposit, withdrawal, loan application, transfer of funds, etc.). It was mandatory for the bank to hire workers to provide these services for each

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client. But now, more and more customers are using self-service options, which save time and are easier to manage. This is because of the diversity of customer requirements, which has forced banks to change how they handle customer service. So, it is considered that digitalization has affected the way of communication, obtaining information, performing services, and many other issues, where the banking sector has evolved from this trend [10], causing a switch from traditional models of service delivery to digital ones through information technology [11].

Drastic changes in technological development have led the banking industry to follow the trend of technological development by satisfying its customers and influencing their loyalty [12]. Since customers now have a leading position and have the power to put pressure on banking institutions to advance banking services based on competition and the possibility of choosing the bank based on the quality of services provided to them. The quality of service is considered a very important indicator as a decision-maker in the competition of the banking system, differentiating from competitors. If the bank offers a quality of service, customers will be loyal to the institution for the required services [13]. This helps build the perception of the organization's services, has an impact on maintaining the corporate image, and contributes to attracting new customers as well as retaining existing ones. From experience, customers tend to buy goods or services from those organizations that are confident that they will receive good-quality products or services, thus creating trust in the organization [14]. Customer loyalty is considered an important factor that depends on the banking industry's survival. Customers' use of products and services, as retaining existing ones has a lower cost than the benefit of gaining new customers. This is considered a motivation for the banking sector to create customer loyalty by providing quality services [15].

According to Parasuraman et al. (1988), the concept of service quality is considered to meet the needs and expectations of customers and is measured through the five dimensions of SERVQUAL [16]. However, this model had many theoretical and practical critiques, where many authors attempted to transform this model by adding other dimensions [17, 18]. Given these different approaches, this research tends to fill the gap in the literature, identifying the factors influencing the quality of service for digitized banking products and proving that the five classic dimensions: tangibles, reliability, responsiveness, assurance, and empathy affect the quality of service and customer loyalty in the new digital epoch. So, based on the importance of digitalization, this research will measure the effect of the digitalization of Kosovo banks on service quality and customer loyalty and will analyze the relationship between customer loyalty and their demographics.

## **2- Literature Review**

### **2-1- Digitization**

Digitalization as a process began in the 80s, when home computers began to be used in consumer markets. After that, new avenues were opened for consumers to be ordinary and gain awareness of democratic issues [19]. The term "digitalization" means the automation of processes that affect the improvement of efficiency, where the company's focus on digitalization can claim effectiveness, which has an impact on improving customer engagement [20]. Therefore, digitalization means using digital technologies that enable the creation of new business models to generate revenue and create added value as an opportunity that helps organizations improve business activities [21]. According to Deutsche Bank's 2015 report, the concept of digitalization refers to three forces: technical drive, economic benefits, and customer experience. Customers are considered indicators that influence the search for innovative and fast solutions. They have expectations for channel diversity and service sustainability, whereas it is a challenge that determines the adaptation of existing models to meet customer expectations and cost awareness for the bank [20]. Technological and digital development has created digital channels for use by the banking system, such as mobile banking, Point of Sales (POS), Automated Teller Machines (ATM), e-commerce, etc.

Mobile banking means conducting banking services and financial transactions through a mobile phone. Conducting bank transactions through mobile banking creates facilities for performing banking services [22]. Point of Sales (POS) is the digitization of a cash register, which enables payments through a bank card, transferring funds from the customer's account to the seller's account with great security. This service has created tremendous convenience and has increased the efficiency and speed of banking transaction payments. This is crucial for improving the access and use of credit and debit cards. An Automated Teller Machine (ATM) is designed to perform banking services and replace the cashier and the bank clerk to perform transactions and make payments. Banks have reduced their branches, offering services through ATMs in different areas of settlement depending on their usability. E-commerce offers the opportunity to conduct sales and purchases through electronic networks, which has influenced the increase in trade intensity by connecting digital channels of four market segments: business to consumer (B2C), business to business (B2B), business to consumer (C2B), and consumer to consumer (C2C).

### **2-2- Quality of Service**

The main and determining factor in the success or failure of e-commerce is the quality of service. Service quality represents the relationship between customers' expectations for service and their perceptions of services received. Service quality is considered a difficult process to define and measure. Parasuraman et al. (1994) proposed the

SERVQUAL method for measuring service quality, which consists of the following components: tangibles, reliability, responsiveness, assurance, and empathy [23-25].

Tangibles are the components that have to do with their service's physical appearance or image, which customers use to make quality assessments. This affects the improvement of the company image in consistency and quality. Many companies create service quality strategies that combine this with another component [26]. Reliability is the component within the SERVQUAL model that is considered one of the most important determinants of perceptions of service quality. Consistency in meeting service perceptions and promises is very important for this component, including the accomplishment of tasks on time, keeping schedules, and ensuring that expected results are met [27].

Responsiveness is the component that includes the speed and attention paid to handling customer problems, complaints, inquiries, and requests. It is critical to be flexible and quick in handling customer requests, how quickly requests are answered, and how meticulous customer problems are handled. Assurance is a component that creates trust and loyalty and allows customers to evaluate results through consistent contact with bank employees. Empathy refers to how much banks know and understand their customers' experiences. It is very important to pay attention to this component because it creates personal relationships between customers and employees and with the banking institution.

### 2-3- Consumer Loyalty

According to the literature, attracting new customers is considered more costly than retaining current ones. For any organization, customer service must focus on the satisfaction of current customers [28] while aiming to attract more customers. So, a key indicator of customer loyalty is customer satisfaction, where a dissatisfied customer will potentially not be a bank customer looking for other options [29].

Customer loyalty is relatively difficult to define for various reasons. A customer decides to use a service or consume an organization's product in relation to the competition. According to Kotler & Keller (2016), loyalty is defined as "the commitment that customers show when they decide to buy new or even defend a product, regardless of the impact that marketing may have on their consumer behavior" [28, 30]. Loyal customers return to buy from the same brand again and maintain ongoing relationships with the organization. It is more difficult to assess loyalty in banks compared to other market segments. An advantage in banking services is the use of technology, which enables the creation of more attractive services to the competition [31]. The good experience of clients with good digital design affects loyalty to the bank [32] and makes them work as free marketing agents.

## 3- Research Methodology

A quantitative method was used to achieve the objectives of our study. We obtained information from 400 clients of Kosovo banks on the level of digitalization of banks. Moreover, we measured the impact of digitalization on service quality and customer loyalty. A structured questionnaire (Appendix I) was used to conduct this research, which was structured into four sections:

The first part of the questionnaire contains questions about customer demographics, through which the relationship between demographics and customer loyalty was measured. In the second part of the questionnaire were eight questions formulated according to the Likert scale about the digitalization of the banking system, which affects all products and services offered by the bank. The third part of the questionnaire presents questions that tend to highlight the quality of service through five dimensions of service quality such as responsiveness (RS), reliability (RE), assurance (A), tangibility (T), and empathy (E).

At the fourth and last part of the questionnaire's end, there were statements according to the Likert scale agreement for consumer loyalty. Data were collected to conduct the research by distributing the questionnaires created by Google Forms to bank customers. Then the data processing was done through the Statistical Package for the Social Sciences. The flowchart presented below explains how the paper's methodology flowed through the five stages. For more, refer to Figure 1.

This paper presents three objectives and three hypotheses:

- **Objective 1:** measuring the effect of Kosovo banks' digitalization on the quality of service.
- **H<sub>1</sub>:** *There is a significant interrelation that banks' digitalization affects the quality of services.*
- **Objective 2:** measuring the effect of Kosovo banks' digitalization on customer loyalty.
- **H<sub>2</sub>:** *There is a significant interrelation that the digitalization of Kosovo banks affects customer loyalty.*
- **Objective 3:** measuring the relationship between the loyalty of bank customers and their demographics, such as gender, age, and level of education.
- **H<sub>3</sub>:** *There is a significant relationship between customer loyalty and their demographics.*

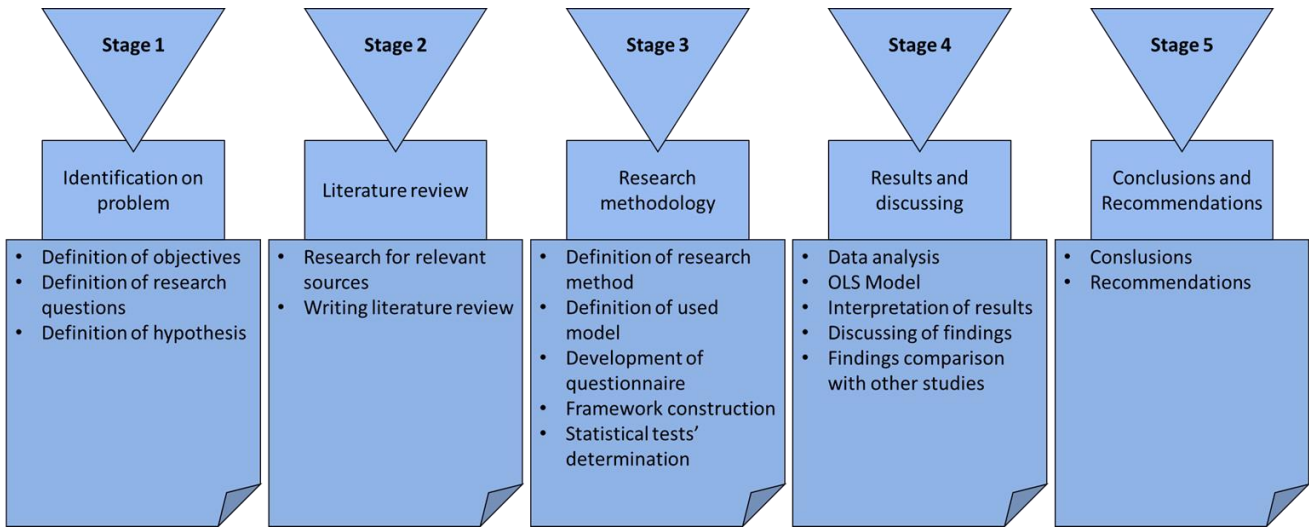


Figure 1. Flowchart of research methodology

The independent variable is the digitalization (D) of the banking system, and the dependent variables are the quality of service (QS) and customer loyalty (CL). The correlation between the independent variables and the dependent variables can be found in Figure 2:

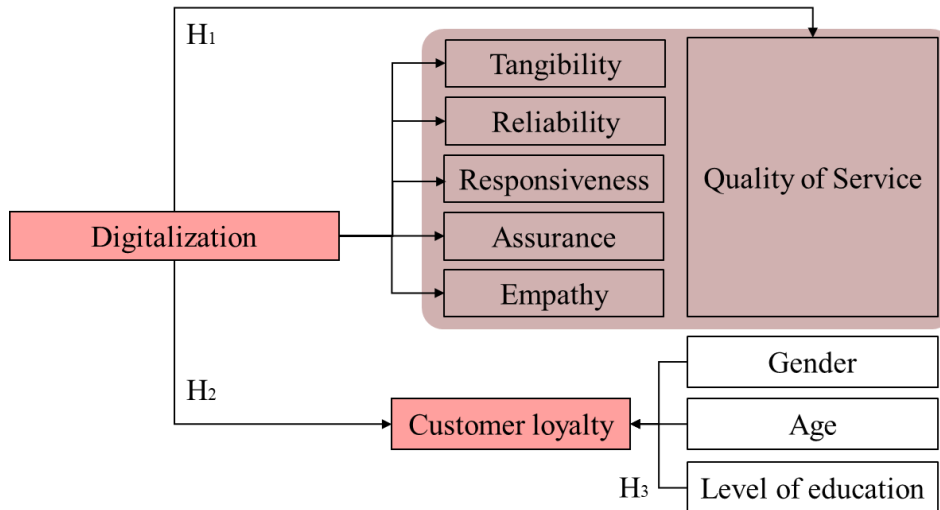


Figure 2. Framework of research

The results were presented using various statistical tests, but initially, the data distribution was tested through the normality test, namely the Kolmogorov Smirnov Test.

A test used to measure the degree of direct relationship between two continuous variables, Pearson correlation, was used to test the connection between the variables. It is denoted by "r" and takes values from -1 to +1. The Pearson correlation coefficient is calculated through Equation 1:

$$r = \frac{n(\sum xy) - (\sum x)(\sum y)}{\sqrt{[n\sum x^2 - (\sum x)^2][n\sum y^2 - (\sum y)^2]}} \tag{1}$$

Simple linear regression analysis, specifically the OLS model, was used to explain the relationship between quality of service and customer loyalty with digitalization. The Least Squares Method is used to find the parameters in the regression analysis. The aim is to find the distance of the points presented in the distribution diagram and their minimization. The parameter  $\beta_0$  is the estimated mean value of the dependent variable when  $x = 0$ .  $\beta_1$  is the regression coefficient and represents the estimated change in the value of  $y$  due to the change of a unit of  $x$ , while  $\epsilon$  represents the random error. The simple linear regression equation is presented in Equation 2:

$$Y = (\beta_0 + \beta_1 X_1) + \epsilon \tag{2}$$

To test the third research hypothesis, i.e., to test whether there is a correlation between customer loyalty and customer demographics, parametric tests –T-test and One Way ANOVA (in cases where there was homogeneity of variance) were used. Furthermore, the non-parametric test, the Kruskal Wallis test (in case there was no homogeneity of variances). The Levene test was used to test the homogeneity of the variances, as shown in Equation 3:

$$W = \frac{(N-k) \sum_{i=1}^k N_i(Z_i - \bar{Z})^2}{(k-1) \sum_{i=1}^k \sum_{j=1}^{N_j} (Z_{ij} - \bar{Z}_i)^2} \tag{3}$$

The use of the T-test enabled the measurement of the difference between the two groups (gender and customer loyalty) in the context of comparing the means. The T-test enabled us to identify the difference between these two groups using the following Equation 4:

$$t = \frac{\bar{X}_1 - \bar{X}_2}{\sqrt{\frac{s_1^2}{N_1} + \frac{s_2^2}{N_2}}} \tag{4}$$

A comparison of the two variance values was made to test whether there is a correlation between age and consumer loyalty. The first is within-group variance, measured by Mean Square Errors (MSE), which evaluates the variance regardless of whether the null hypothesis is correct. The second estimate is based on the mean variances of the groups, Mean Square Between (MSB), the estimate of which only the null hypothesis is made to be correct. This measurement was made according to Equation 5:

$$F = \frac{MST}{MSE} \quad \text{where: } MST = \frac{\sum_{i=1}^k \frac{T_i^2}{n_i} - \frac{G^2}{n}}{k-1} \quad \text{and} \quad MSE = \frac{\sum_{i=1}^k \sum_{j=1}^{n_i} Y_{ij}^2 - \sum_{i=1}^k \frac{T_i^2}{n_i}}{n-k} \tag{5}$$

The Post Hoc test was done to test where the difference comes from in case a difference was found between the groups at the end of the analysis of variance. So this test was done through the Tukey test, according to Equation 6:

$$HSD = q \sqrt{\frac{MS_w}{n_k}} \tag{6}$$

According to Levene statistics, Kruskal Wallis is an alternative to one-way ANOVA if there is no homogeneity of variance. Through this test, it is possible to compare the loyalty of customers according to their levels of education, according to the following Equation 7:

$$H = \frac{12}{N(N+1)} \left( \frac{R_1^2}{n_1} + \frac{R_2^2}{n_2} + \dots + \frac{R_k^2}{n_k} \right) - 3(N+1) \tag{7}$$

## 4- Results and Discussions

The research involved 400 clients of commercial banks in Kosovo, where 54.5% (n = 218) were female, and 45.5% were male. Given that this research aims to analyze demographics of customer loyalty, the age of respondents is an important parameter for analysis. Hence, part of the age group 18 - 25 years belonged to 41.75% (n = 167) of respondents, age group 26 - 33 years old were 29.75% (n = 119) of respondents, 34-41 years old were 13.75% (n = 55) of respondents, 42-49 years old were 9.5% of respondents, and over 50 years old were 5.3% of respondents who were clients of banks. Regarding the level of education, 0.5% (n = 2) had primary education, 6.75% (n = 27) secondary education, 51.75% of respondents had completed Bachelor studies, 40% (n = 160) and only 1% (n = 4) had completed doctoral studies.

**Table 1. Respondent Characteristics; Note: N=400**

		N	Percent (%)
<b>Gender</b>	Female	218	54.5
	Male	182	45.5
<b>Age</b>	18 - 25 years old	167	41.75
	26 - 33 years old	119	29.75
	34 - 41 years old	55	13.75
	42 - 49 years old	38	9.5
	Over 50 years old	21	5.3
<b>Level of education</b>	Primary school	2	0.5
	Secondary school	27	6.75
	Bachelor	207	51.75
	Master	160	40
	PhD	4	1

### 4-1- Descriptive Results

Table 2 presents the results of the descriptive analysis, in which central tendency gauges such as arithmetic mean and standard deviation participant. These central tendency indicators were measured based on the Likert degree of compliance, where 1 = strongly disagree to 5 = strongly agree.



**Table 2. Descriptive statistics for research variables**

Variables	N	Minimum	Maximum	Mean	Std. Deviation
D	400	2.00	5.00	4.1634	0.67356
RE	400	1.75	5.00	4.0056	0.84114
RS	400	1.25	5.00	3.9031	0.86683
A	400	1.33	5.00	3.7983	0.93056
E	400	1.50	5.00	3.8988	0.97288
T	400	1.00	5.00	3.9025	0.98446
CL	400	1.75	5.00	4.1356	0.83352
QS	400	1.93	5.00	3.9088	0.78135

Note: D = Digitalization, RE = Reliability, RS = Responsiveness, A = Assurance, E = Empathy, T = Tangibility, CL = Consumer loyalty, QS = Quality of service

According to the minimum 2 and the maximum 5, the digitalization (D) mean is  $\bar{x} = 4.16$ s, and  $SD = 0.673$ . Based on the average value, the respondents declared agreement regarding the digitalization of the banking system. According to them, the bank offers a new variety of activities through the internet, such as the possibility of opening an account, withdrawal and deposit services through ATMs, e-banking services to perform transactions, mobile banking service for transactions, payment service for POS, Bill payment service (telephone, internet, electricity, water, waste, and heating). They also allow applying for banking products and closing loans and other products.

Quality is measured based on the five components of service quality: reliability, tangibility, responsiveness, empathy, and assurance. According to the descriptive results, the average reliability (RE) is  $\bar{x} = 4.00$  and  $SD = 0.841$ , which means bank customers declared high compliance in terms of reliability. According to them, the banks where they are clients have the necessary equipment (online ATM service, electronic cashing, internet banking, regular employees, clear, attractive, and well-explained leaflets and statements, and suitable space for landing and waiting).

The average for the responsibility quality component is  $\bar{x} = 3.90$  and  $SD = 0.866$ . This means that the level of compliance in terms of responsibility is above average. The bank provides all services within the promised deadlines, providing security in all transactions through the bank, reflecting the reality of the bank's promotional and advertising messages and error-free record keeping.

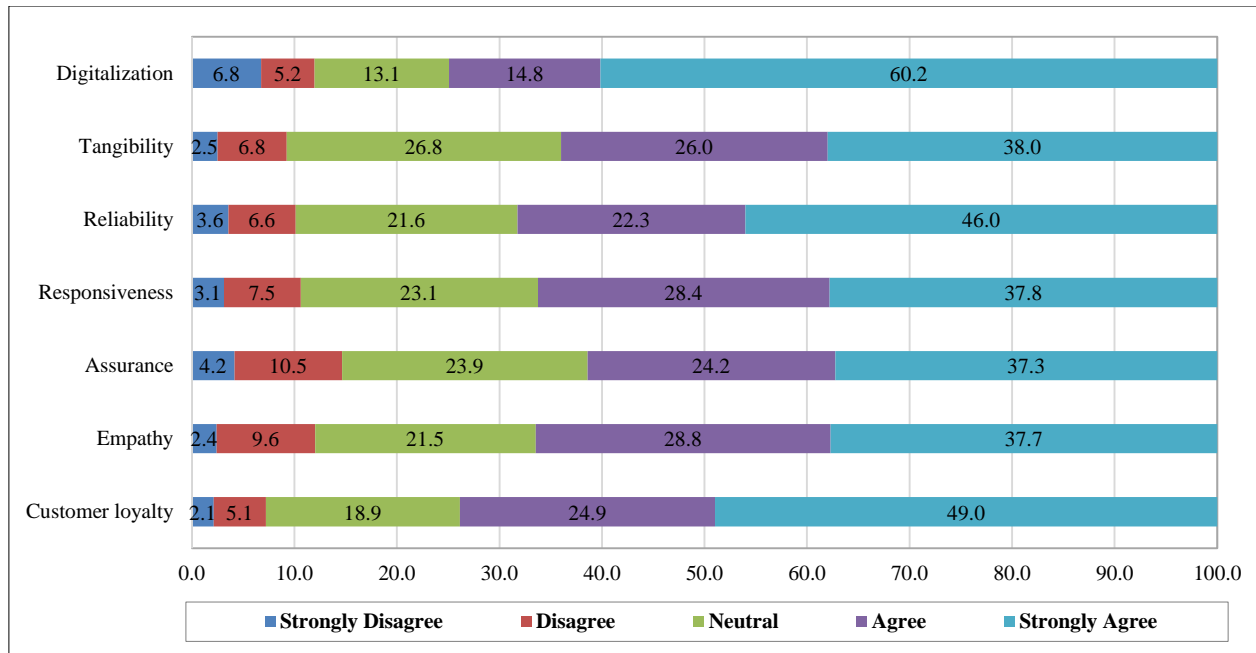
The other component in terms of service quality is assurance, where the average is  $\bar{x} = 3.79$  and  $SD = .930$ , which means that the level of compliance is above average even in terms of assurance. According to them, employees prevent long lines whenever they face a banking problem, they help customers solve the problem, and the bank operates a regular and effective training process around complaints.

Empathy is the other component of service quality, with an average of  $\bar{x} = 3.89$  and  $SD = 0.927$ . This is interpreted as above-average compliance. They stated that employees are efficient and fast in service delivery and have the knowledge to answer their questions about their operations and offerings.

The last component is tangibility, with an average  $\bar{x} = 3.90$  and  $SD = 0.984$ , meaning that in this component, too, the level of compliance is above average. Banks tend to maintain strong relationships with customers, provide information on new schemes, and give suggestions for making the right decision. Referring to the value of quality of service (QS), the overall average is  $\bar{x} = 3.90$  and  $SD = 0.781$  which means that the compliance of respondents in terms of quality of service in the bank is above average.

Another variable addressed is consumer loyalty (CL), whose average is  $\bar{x} = 4.13$  and  $SD = 0.781$  which means that the level of customer loyalty of commercial banks is above average. Regular customers of the bank do not intend to change the bank because they use it whenever they need to make financial transactions and always consider the bank as the first choice.

Figure 3 shows the degree of compliance by frequency percentage for the variables treated in the paper. According to the results, over 75% of respondents have shown compliance with the banking system's digitalization, while 12% did not agree with these opportunities. The data suggests that banks have the opportunity to open online accounts, ATM withdrawals, and deposit services and provide e-banking services and mobile banking. The possibility of making payments through POS, and applying for online banking products and services, etc., is also available. The reason for the non-compliance is that Kosovo operates banks with both foreign and local capital. Banks with local capital could not follow the pace of development in terms of digitalization like those with foreign capital.



**Figure 3. Respondents' degree of compliance**

Regarding tangibility as the first component of service quality, compliance was about 64%, while 9.3% disagreed with the tangibility level at the bank where they are customers. The level of compliance for reliability was 68.3, while non-compliance showed 10.2% of respondents. In terms of responsiveness, 66.2% of respondents agreed with the bank's response, and 10.6% disagreed with the response level. According to the figure below, 61.5% of respondents agreed with assurance for the bank that provides services, and 14.7% disagreed. The last component addressed in terms of service quality is empathy. 66.5% agreed on the presence of sensitivity in the bank, and 1% did not show compliance.

The variable with the highest compliance was consumer loyalty, at 73.9%, and non-compliance, at only 7.2%. The reason for this high result is that the respondents mainly had loans in the respective banks and, without depending on some dissatisfaction about the quality of products or services, did not have the convenience to change banks due to the possibilities of lending and familiarity with the system and bank services.

#### 4-2- Verification of Hypothesis $H_1$

Before performing the tests, the test of normality was performed to confirm the hypotheses. Also, the Kolmogorov-Smirnov and Shapiro-Wilk tests were performed to confirm whether the distribution is normal. Given that  $p = 0.200 > 0.05$ , the data distribution is normal, and the conditions for the realization of the correlation and the OLS model are met.

Also, referring to the value of the Durbin-Watson 1,691 test, there is no autocorrelation in the model, and the second condition for using the following tests is met. In addition, the value of the Cronbach Alpha coefficient is an important parameter, where according to Table 3 seems that  $\alpha = 0.925$  means acceptable reliability of the questionnaire.

**Table 3. Instrument reliability**

Variables	Cronbach Alpha Coefficients
D	0.932
RE	0.982
RS	0.991
A	0.871
E	0.879
T	0.909
CL	0.911
Total	0.925

According to the normal distribution, Pearson correlation was used to measure the correlation between digitalization, service quality (SERVQUAL dimensions), and customer loyalty. According to the value of the Pearson coefficient,  $r = 0.531$  and  $p = 0.000 < 0.01$ , it is found that between digitalization (D) and quality of service (QS), there is a moderate positive linear relationship, while according to the value  $r = 0.384$  and  $p = 0.000 < 0.01$ , it is found that there is a weak positive linear relationship between digitalization (D) and consumer loyalty (CL).

According to the results, the dimensions of SERVQUAL (responsiveness, reliability, assurance, tangibility, and empathy) are directly proportional to the quality of service. This means an increase in these dimensions will increase the quality of services. Also, the correlation showed a fair proportion between digitalization, service quality, and service loyalty. This means the more digitalized the banking system, the better the quality of service will be, and more customers will stay loyal to the bank, or vice versa.

**Table 4. Correlation matrix**

Variables	D	RE	RS	A	E	T	CS	QS
D	1							
RE	0.571** 0.000	1						
RS	0.465** 0.000	0.719** 0.000	1					
A	0.431** 0.000	0.673** 0.000	0.685** 0.000	1				
E	0.356** 0.000	0.654** 0.000	0.643** 0.000	0.771** 0.000	1			
T	0.406** 0.000	0.685** 0.000	0.653** 0.000	0.663** 0.000	0.650** 0.000	1		
CL	0.384** 0.000	0.547** 0.000	0.474** 0.000	0.568** 0.000	0.562** 0.000	0.616** 0.000	1	
QS	0.531** 0.000	0.884** 0.000	0.882** 0.000	0.874** 0.000	0.837** 0.000	0.824** 0.000	0.629** 0.000	1

\*\* Correlation is significant at the 0.01 level (2-tailed). Notes: D = Digitalization, RE = Reliability, RS = Responsiveness, A = Assurance, E = Empathy, T = Tangibility, CL = Consumer loyalty, QS = Quality of service

Table 5 shows the Model Summary<sup>b</sup>, where the value of R Square (R<sup>2</sup> = 0.282; Sig = 0.000 < 0.05) shows that 28.2% of the quality of service (QS) in the banking sector in Kosovo depends on digitalization (D), while 71.8% of service quality (QS) depends on variables or indicators which are not incorporated in the existing model.

**Table 5. Model Summary<sup>b</sup> for digitalization and quality of service**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	0.531 <sup>a</sup>	0.282	0.281	0.66270	0.282	156.669	1	398	0.000	1.691

a. Predictors: (Constant), Digitalization; b. Dependent Variable: Quality of service.

According to the significant value of model F (1, 398) = 156,669; sig = 0.000) from the ANOVA analysis, it is found that the model used is important. According to the OLS model (Table 6), the value of (β<sub>0</sub> = 1.342, Sig. = 0.000) indicates that, despite the presence of digitalization, banks provide a high quality of service; as the number of units in digitalization increases, so does the level of service (β = 0.617, Sig. = 0.000)

$$y = \beta_0 + \beta_1 \times x_1 + \varepsilon$$

$$Y(\text{Quality of service}) = 1.342 + 0.617 \times x(\text{Digitalization})$$

The results of the OLS model (Table 6) confirm that there is a significant relationship. Digitalization affects the increase in service quality.

**Table 6. OLS model for digitalization and quality of service**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.342	0.208		6.460	0.000
	Digitalization	0.617	0.049	0.531	12.517	0.000

a. Dependent Variable: Quality of service



#### 4-3- Verification of Hypothesis H<sub>2</sub>

Table 7 presents the Model Summary<sup>b</sup>, where the value of R Square ( $R^2 = 0.147$ ; Sig = 0.000 < .05) shows that 14.7% of consumer loyalty (CL) in the Kosovo banking sector depends on digitalization (D), whereas 85.3% of customer loyalty (CL) depends on variables or indicators which are not incorporated in the existing model.

**Table 7. Model Summary for digitalization and customer loyalty**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	0.384 <sup>a</sup>	0.147	0.145	0.77069	0.147	68.702	1	398	0.000	1.906

a. Predictors: (Constant), Digitalization; b. Dependent Variable: Customer loyalty

According to the ANOVA analysis' significant value of model F (1, 398) = 68.702; Sig = 0.000), it is found that the model used is important. According to the OLS model (Table 8), the value of ( $\beta_0 = 2.159$ , Sig. = 0.000) shows that despite the existence of digitalization of the banking system, customers have loyalty to the bank. With the increase of each unit in digitalization, consumer loyalty will increase ( $\beta = 0.475$ , Sig. = 0.000).

$$y = \beta_0 + \beta_1 \times x_1 + \varepsilon$$

$$y_{(\text{Customer loyalty})} = 2.159 + 0.475 \times x_{(\text{Digitalization})}$$

**Table 8. OLS model for digitalization and customer loyalty**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1	(Constant)	2.159	0.242	8.936	0.000
	Digitalization	0.475	0.057	8.289	0.000

a. Dependent Variable: Customer loyalty

The results of the OLS model (Table 8) prove that there is a significant relationship, and digitalization has an increasing impact on consumer loyalty.

#### 4-4- Verification of Hypothesis H<sub>3</sub>

According to descriptive analysis (Table 9), the average of females (n = 218) in terms of consumer loyalty is  $\bar{x} = 4.16$  and SD = 0.857, while the average of males (n = 182) for consumer loyalty is  $\bar{x} = 4.10$  and SD = 0.804. An independent Samples Test was used to determine the significance of the means (see Table 10). Given the value of Sig > 0.05 there is no significant difference between the genders in terms of consumer loyalty, so as with men, women also showed the same consumer loyalty for the banks where they perform services.

**Table 9. Descriptive statistics for gender about customer loyalty**

Gender		N	Mean	Std. Deviation	Std. Error Mean
Customer loyalty	Female	218	4.1628	0.85759	0.05808
	Male	182	4.1030	0.80487	0.05966

**Table 10. Independent Samples Test**

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper	
Customer loyalty	Equal variances assumed	1.098	0.29	0.714	398	0.475	0.059	0.083	-0.104	0.224
	Equal variances not assumed	-	-	0.718	392	0.473	0.059	0.083	-0.103	0.223

According to Table 11, the mean age of a1 (18 - 25 years old) in the context of consumer loyalty is  $\bar{x} = 4.30$  and SD = 0.773, a2 (26 - 33 years old) is  $\bar{x} = 4.07$  and SD = 0.805, a3 is  $\bar{x} = 3.75$  and SD = 0.906, a4 (42 - 49 years old) is  $\bar{x} = 4.05$  and SD = 0.904, and a5 (Over 50 years old) is  $\bar{x} = 4.27$  and SD = 0.801. The differences in the average showed the variability in consumer loyalty, but the significant difference in the average is explained by ANOVA, referring to the value of sig < 0.05 (Table 12).

**Table 11. Descriptive statistics for age about customer loyalty**

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Min	Max
					Lower Bound	Upper Bound		
a1	167	4.3069	0.77308	0.05982	4.1888	4.4250	2.50	5.00
a2	119	4.0714	0.80593	0.07388	3.9251	4.2177	2.00	5.00
a3	55	3.7591	0.90646	0.12223	3.5140	4.0041	1.75	5.00
a4	38	4.0526	0.90449	0.14673	3.7553	4.3499	2.25	5.00
a5	21	4.2738	0.80197	0.17500	3.9088	4.6389	2.75	5.00
Total	400	4.1356	0.83352	0.04168	4.0537	4.2176	1.75	5.00

Notes: a1= 18 - 25 years old; a2 = 26 - 33 years old; a3=34 - 41 years old; a4=42 - 49 years old; a5= Over 50 years old

**Table 12. ANOVA results**

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	13.849	4	3.462	5.193	0.000
Within Groups	263.356	395	0.667		
Total	277.205	399			

Table 13 presents the results for the variance homogeneity test, where the value sig> 0.05 gives us an indication of the variance homogeneity. So, according to the results, it can be concluded that the results obtained from this test are sound.

**Table 13. Test of Homogeneity of Variances**

Variable	Central tendency	Levene Statistic	df1	df2	Sig.
Customer loyalty	Based on Mean	0.452	4	395	0.771
	Based on Median	0.765	4	395	0.548
	Based on Median and with adjusted df.	0.765	4	373.337	0.549
	Based on trimmed mean	0.584	4	395	0.675

The ANOVA test determines if consumer loyalty differs between ages. From the value of F = 5.193 and the significance p =0.000 < 0.05. It confirms a statistically significant correlation that there is a difference in consumer loyalty between ages. The origin of the age difference is determined through the Turkey and Bonferroni tests (Post Hoc tests).

According to Table 14, groups are created based on the level of customer loyalty. For example, a1 is included in a group with a2, indicating that a1 and a2 have different customer loyalty from other age groups, whereas a3, a4, and a5 have loyalty to the same consumer (different from group 2). Thus, the inclusion of age groups a1 and a2 in a group (group 2) and a3, a4, and a5 in a group (group 2) shows that they have the same level of consumer loyalty in their respective groups.

**Table 14. Tukey test - Table of subgroups**

Age	N	Subset for alpha = 0.05		
		1	2	
	a3	55	3.7591	
	a4	38	4.0526	
Tukey HSD <sup>a, b</sup>	a3	119	4.0714	
	a2	21	4.2738	
	a1	167	4.3069	
Sig.			0.345	0.557

Means for groups in homogeneous subsets are displayed; a. Uses Harmonic Mean Sample Size = 46.945; b. The group sizes are unequal. The harmonic mean of the group sizes is used. Type I error levels are not guaranteed.

According to the test for homogeneity of variance and Levene statistics, there is a lack of homogeneity of variance in Table 15. The p-value (Sig <0.05) shows that the variances are not homogeneous. So, in this case, non-parametric tests (Kruskal Wallis) apply the relationship between the level of education and consumer loyalty.

**Table 15. Test of Homogeneity of Variances**

Variable	Central tendency	Levene Statistic	df1	df2	Sig.
Customer loyalty	Based on Mean	2.639	4	395	0.034
	Based on Median	2.113	4	395	0.078
	Based on Median and with adjusted df	2.113	4	377.210	0.079
	Based on trimmed mean	2.459	4	395	0.045

The mean rank indicates which level of education has the highest overall level in terms of consumer loyalty. The highest consumer loyalty has been shown by bank customers with primary education according to the average. As a result, clients with primary education adapt to a bank and what it offers and have no ambition for a better quality of service and no demand for other digitalization opportunities. In contrast, those with education PhDs have more information demand and are always looking for more sophisticated digitalization opportunities, resulting in better service quality. For more information, refer to Table 16.

**Table 16. Mean rank of level of education**

Level of Education	N	Mean Rank
Primary school	2	337.50
Secondary school	27	225.33
Bachelor	207	215.58
Master	160	175.65
PhD	4	178.25
Total	400	-

The Kruskal-Wallis test, the non-parametric alternative to One-Way ANOVA, enables comparing between three or more sets of continuous variables. Based on the value  $H = 15.665$  and  $Sig < 0.05$ , there is a significant difference in consumer behavior, where customers with primary education show greater loyalty to the bank where they perform services. The alternative hypothesis confirms a statistically significant correlation between consumer loyalty and educational level.

**Table 17. Kruskal Wallis test – Test statistics<sup>a, b</sup>**

Customer Loyalty	
Kruskal-Wallis H	15.665
df	4
Asymp. Sig.	0.004

<sup>a</sup> Kruskal Wallis Test;

<sup>b</sup> Grouping Variable: Level of education.

According to the findings, reliability resulted as the determinant with the strongest correlation with overall service quality based on the Pearson correlation. The findings from the research are consistent with the findings of Al-Hawary and Al-Smeran (2017) [33]. Also, their results in terms of responsiveness were identical to this research's findings, where responsiveness is considered a critical factor in the perception of service quality. The findings were contrary to those made by Ighomereho et al. (2022), where responsiveness had a significant but negative impact on the quality of banking services [34]. According to Wang et al., technology development affects customer satisfaction [35, 36], the client's emotions, and digital design [37]. The design of modern styles, mainly in retail banking, gives positive results in the emotional reaction of customers compared to classic designs. Therefore, the digital design resulted in a positive impact on consumers [38]. Previous studies proved the positive impact of digital design on customer loyalty [39, 36], with findings similar to the findings of this current study, where it turned out that digitalization has a positive impact on customer loyalty.

According to previous study, the effect of service quality is positive on customer loyalty, so quality means improved customer loyalty. Similar findings have been shown by Iqbal et al. (2021) [15], where service quality and customer loyalty had a positive linear correlation resulting from digitalization. Their findings are also consistent with the findings of this research, where digitalization showed a positive impact on service quality and customer loyalty.

## 5- Conclusions

Research results conclude that the banking system is quite digitalized in general. Customers are satisfied with these services, which they deem to be of high quality, and are loyal to the bank in which they are customers. However, suppose that banks are categorized by capital. In that case, there is a significant difference in the provision of digital banking services, as well as the quality of service, with banks with foreign capital offering a higher percentage of the depositing service and withdrawing money through ATMs, the possibility of paying taxes, customs and other duties digitally, payment of services, providing the opportunity to make payments through POS, providing banking to make various payments and transactions, providing mobile banking for performing various payments and transactions, the possibility of opening bank accounts digitally, the possibility of terminating the contract with the bank digitally, the provision of e-commerce service, rather than banks with local capital. As a result, the quality of service is higher in banks with foreign capital than in local ones. So, according to the results, banks with foreign capital are more digitalized. There is a constant tendency for further development to provide digital services, thus influencing better service quality and greater consumer loyalty. In addition, based on the Pearson's coefficient value,  $r = 0.531$  and  $p = 0.000 < 0.01$ , it is concluded that there is a moderate positive linear relationship between digitalization and service quality, whereas based on the value  $r = 0.384$  and  $p = 0.000 < 0.01$ , between digitalization and customer loyalty there is a weak positive relationship. Also, according to the OLS model, it is concluded that the digitalization of the banking system describes 28.2% of service quality. In comparison, customer loyalty is described by only 14.7% by digitalization, so in this case, hypotheses H1 and H2 are confirmed.

Regarding the correlation of customer loyalty with their demographics, based on the T-test, it is concluded no statistically significant correlation differs in consumer loyalty between females and males. The tests showed that both women and men had the same level of customer loyalty to the bank where they performed services. However, suppose the comparison is made with the clients' age. According to a one-way ANOVA, it is concluded that there is a significant difference in the clients' loyalty depending on the age group. The comparison of consumer loyalty was also made between the levels of education, where the most loyal clients had primary education and the least loyal clients had doctoral studies. This is because clients with primary education did not have ambitions for the sophistication of digitalization opportunities. They created a comfort zone with the bank's products and services by making them loyal to the bank where they were customers. The opposite happened with customers who had completed postgraduate studies; they were always looking for more opportunities for digitalization and providing the highest quality products and services, which made them less loyal to the bank where they were customers.

It is recommended that local banks follow more technological developments and invest more in the digitalization of the banking system by following the pace of development of banks with foreign capital. In this way, the quality of service will increase, and customers will be more loyal to the bank. The results of this research have important managerial implications. Bank managers need to see the quality of service from their customers' perspectives by meeting or exceeding their expectations. According to the results, the five dimensions of SERVQUAL (responsiveness, reliability, assurance, tangibility, and empathy) showed significant links with service quality. This gives managers an indication of which components are the most critical as customers perceive them. The contribution of each dimension of SERVQUAL is noteworthy and gives them the ability to address each one properly. Because customer loyalty is so important for an organization to achieve long-term results and as customer demands and expectations evolve, incorporating digitalization into banks is an inevitable process that improves access to customers, facilitates the provision of many services, increases customer loyalty, and enables the attraction of new customers.

### 5-1- Limitations and Suggestions for Further Research

Since the effect of digitalization on service quality and customer loyalty is analyzed only from customers' perspectives, it may not have a clear picture of the situation in terms of issues addressed. Based on this, it recommends that future researchers who deal with a similar issue include the evaluation of the variables treated from the bank's perspective in their analysis. The inclusion of the qualitative method in the research would further enrich the study. The other limitation in this study was the difficulties encountered by the authors in comparing the findings of this study with the studies of other authors due to the lack of relevant literature, which would enable the discussion chapter to be more prosperous.

## 6- Declarations

### 6-1-Author Contributions

Conceptualization, L.S, A.B and F.Q; methodology, A.B; software, A.B; validation, L.S; formal analysis, A.B; investigation, F.Q; resources, F.Q; writing—original draft preparation, L.S, A.B and F.Q; writing—review and editing, L.S; visualization, F.Q. All authors have read and agreed to the published version of the manuscript.

### 6-2- Data Availability Statement

The data presented in this study are available on request from the corresponding author.

### 6-3- Funding and Acknowledgements

Many thanks for AAB College for financing the publication and cover the costs of conducting research.

### 6-4- Institutional Review Board Statement

*Not applicable.*

### 6-5- Informed Consent Statement

Informed consent was obtained from all subjects involved in the study.

### 6-6- Conflicts of Interest

The authors declare that there is no conflict of interest regarding the publication of this manuscript. In addition, the ethical issues, including plagiarism, informed consent, misconduct, data fabrication and/or falsification, double publication and/or submission, and redundancies have been completely observed by the authors.

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## Appendix I: Questionnaire

Dear,

I wish you a nice day!

First of all, thank you for your time and sincerity in completing this questionnaire. Your contribution by completing this questionnaire is very important in providing your answers, analysis and conclusions, which will improve digital products, customer service and customer loyalty to banks. The implementation of this questionnaire will be done in confidence, your data will be used for analysis purposes and will not be shared with other parties. It will take you about 10 minutes to complete this questionnaire.

This questionnaire was created and is being implemented in the framework of research by the authors Lulzim Shabani, Arberesha Behluli and Fidan Qerimi.

If you have any questions about the survey, please email me at: [arberesha.behluli@hotmail.com](mailto:arberesha.behluli@hotmail.com).

Thank you very much for your time and suggestions. Please answer all questions and honestly, to have a clear picture of your opinion.

### *Session 1 - Demographic questions*

#### **1. Gender:**

- a) Female
- b) Male

#### **2. Age:**

- a) 18 - 25 years old
- b) 26 - 33 years old
- c) 34 - 41 years old
- d) 42 - 49 years old
- e) Over 50 years old

#### **3. Level of education:**

- a) Primary school
- b) High school
- c) Bachelor
- d) Master
- e) PhD

#### **4. The bank where I provide the services is a bank with:**

- a) Foreign Capital
- b) Public Capital

### *Session 2 - Digitalization*

*1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, 5 = Strongly Agree*

D1 - The bank offers the opportunity to open an account online.	1	2	3	4	5
D2 - The bank offers ATM withdrawal and deposit services.	1	2	3	4	5
D3 - The Bank provides e-Banking service for transactions and other services.	1	2	3	4	5
D4 - The bank offers mobile banking service for conducting transactions and other services.	1	2	3	4	5
D5 - The bank offers payment service through POS.	1	2	3	4	5
D6 - The bank offers payment services (telephone, internet, electricity, water, waste, heating, etc.)	1	2	3	4	5
D7 - The bank offers the opportunity to apply for banking products through the Internet.	1	2	3	4	5
D8 - The bank offers the possibility of closing loans and other products through the Internet.	1	2	3	4	5

**Session 3 – Quality of services**

RE1 - The bank has the necessary to perform services such as: online banking ATM service, electronic collection of credit cards, online banking, etc.	1	2	3	4	5
RE2 - Employees are polite, orderly and communicative.	1	2	3	4	5
RE3- Bank pamphlets have clear descriptions, attractive design and good explanation.	1	2	3	4	5
RE4 - All bank branches have suitable facilities for queuing and waiting in line.	1	2	3	4	5
RS1 - All services the bank offers within the promised deadlines.	1	2	3	4	5
RS2 - Feel safe for any transaction you make within the bank.	1	2	3	4	5
RS3 - The advertisements for the services offered by the bank are real and show the reality.	1	2	3	4	5
RS4 - The bank always offers error-free services.	1	2	3	4	5
A1 - Employees are effective and indicators in eliminating long waits.	1	2	3	4	5
A2 - Employees always show willingness to help solve problems.	1	2	3	4	5
A3 - The Bank has an effective grievance redressal process.	1	2	3	4	5
E1 - Employees are fast and efficient in providing services.	1	2	3	4	5
E2 - All employees have strong knowledge to answer your questions about their offerings and operations.	1	2	3	4	5
T1- The bank maintains strong relationships with customers.	1	2	3	4	5
T2 - The bank always provides information about its offers and gives suggestions which influence the customer to make the right decision.	1	2	3	4	5

**Session 4 – Customer loyalty**

L1 - I visit this bank regularly, I rarely think of changing this bank to another.	1	2	3	4	5
L2 - I use this bank whenever I need to make a financial transaction.	1	2	3	4	5
L3 - I consider this bank as my favorite choice.	1	2	3	4	5
L4 - Whenever I want to make a financial transaction, this bank is my first choice.	1	2	3	4	5