

The Role of Smartphone Applications in Enhancing Customer Relations

Rim Benaissa

University of Eloued, PEDAA laboratory (Algeria)

Benaissa-rim@univ-eloued.dz

Received: 21/07/2024

Accepted: 25/08/2024

Published 26/10/2024

Abstract

This study aimed to investigate the role of smartphone applications in enhancing customer relationships through various dimensions (reliability, ease of use, security and confidentiality, and social influence). An applied study was conducted on a sample of users of the Baridi Mob application in the Wilaya of El Oued. The descriptive-analytical method was employed to collect data. To achieve this, a questionnaire was designed and distributed to a sample of 120 individuals from the population, with 100 valid responses retrieved for analysis and processing using the Statistical Package for Social Sciences (SPSS). The study found several key results, including:

- 1. A high level of dimensions associated with the Baridi Mob application, attributed to the awareness and knowledge of the Algerian Postal Institution in El Oued regarding the importance of these dimensions and their commitment to improving institutional services and performance to achieve success in the field.*
- 2. The majority of the sample expressed satisfaction with their experience using smartphone applications, indicating the ease, variety, and quality of the services offered by the applications, which have alleviated the need for individuals to travel to the institution.*

Keywords: Smartphones, Smartphone Applications, Customer, Baridi Mob, El Oued

Introduction

In light of the immense developments witnessed globally in the 20th century within the realm of information and communication technology, which has emerged as a significant factor influencing various activities and processes related to institutions, technological advancement has contributed to transforming the nature of benefits anticipated by customers and the quality accompanying these benefits. The shift towards constant change has become essential and characteristic of successful institutions, particularly in the technology sector, which has led to the emergence of highly advanced technology products such as smartphones and similar applications that process information among individuals and institutions, or between

individuals themselves, not to mention the added value provided by smartphone applications to this information.

Given that the customer is one of the parties involved in the process and that without them there would be no production—or if production does occur, it will be based on their needs and expectations—institutions strive to gain their satisfaction and trust. This enhances their competitive position and ensures their growth and sustainability.

Research Problem: Based on the aforementioned context, we have formulated the primary research problem as follows:

- What is the role of smartphone applications in enhancing the relationship with the customer?

Research Hypothesis: To address the research problem, the following hypothesis has been formulated:

- There is a relationship between the dimensions of the Poste Mobile application and the enhancement of the relationship with the customer at the Wilaya Directorate of Algerian Postal Services in El Oued Province.

Research Methodology: To address the research problem, we relied on the descriptive-analytical approach. We collected and processed available information from theoretical references and used SPSS v25 for data processing and statistical analysis tools to present and analyze the results of the applied study.

Study Structure: To address the research problem comprehensively, the study is divided into:

- Definition and significance of smartphones
- Smartphone applications and their types
- Fundamentals of enhancing customer relationships
- Applied study

Smartphones and Their Significance: Communication technology has seen numerous developments, among which the Internet stands out as the fastest means of achieving objectives, leading to increased demand for advanced communication networks capable of meeting these growing needs and providing high-speed services. Consequently, smartphones have become smarter thanks to the applications that have permeated the technology world.

Definition of Smartphones:

- **First Definition:** Smartphones are portable computers connected to the Internet and equipped with various sensors, providing a range of powerful research tools for data collection. They offer increased computational capabilities, especially access to the Internet, Global Positioning Systems (GPS), Geographic Information Systems (GIS), accelerometers, and cameras capable of not only capturing high-resolution images but also reading QR (Quick Response) codes and recording and sharing videos via various platforms. (Amber, 2020)

- **Second Definition:** According to Safaa Hussein Jamil El-Ashry, "A smartphone is a technologically advanced electronic device used for personal communication through voice, text, image, and video, and connects devices through wireless networks based on cellular towers." (Mansour, 2012)
- **Third Definition:** A smartphone is one of the technologies that has transformed the way people live in all aspects of life, not just as a phone but as a tool for commerce, promotion, entertainment, and a completely new form of media. (Sadiq, 2011)

From these definitions, it is clear that despite their small size, smartphones perform a variety of tasks through wireless, multimedia-rich smart technologies. They have become an integral part of human life, prompting many institutions, including Algerian Post and other information facilities, to utilize them to keep pace with these needs.

Significance of Smartphones:

- Smartphones provide quick access to the Internet and enable the downloading of various applications.
- They facilitate easy and low-cost communication between users, shortening distances between them. (Chawi, 2021)
- They support SMS technology.
- They can record and play music, and store information and images. (Rabea, 2011)
- They serve as a communication device between individuals and can be used for sending messages and functioning as a personal computer.
- They can be used as a camera, which is superior to other cameras.

Smartphone Applications: Smartphone applications are those programs available on smartphones with an operating system. These applications extend beyond mere communication devices to offer technologies that provide various services beneficial to the customer in both practical and academic life.

Types of Smartphone Applications:

1. **Native Applications:** Designed based on the operating system language, they are written in languages specified by the main platforms such as Android or iOS, allowing the application to interact seamlessly with all phone components quickly and efficiently. These applications are published on Apple and Google stores after programming. (Al-Ghany, 2022)
2. **Hybrid Applications:** Mobile applications that combine web application features (developed in HTML5) and native application features. This approach makes the application available across all platforms but may sacrifice the performance and quality distinguishing native applications. Hybrid applications are available exclusively on Android and iPhone. (Issaane, 2022)

3. **Web Applications:** These applications are similar to native applications in their operation but are generally created using CSS or JavaScript and redirect users to URLs. This type is written in web programming languages and considers the proper display of applications on smartphones. (Al-Muhidib, 2017)

Fundamentals of Enhancing Customer Relationships: The customer is the fundamental asset of any organization and is crucial for its survival in a highly competitive environment. Hence, customer relationship enhancement has become a critical aspect of organizational strategies aiming to achieve their objectives.

Definition of a Customer:

- **First Definition:** Also known as a client or beneficiary, these terms are similar in meaning but vary according to the type of organization and its specialization, such as commercial enterprises, institutions, charitable organizations, and government bodies. (Attalawi, 2014)
- **Second Definition:** The end user of services, whose decisions are influenced by internal factors such as personal beliefs and motivations, as well as external factors such as resources and family influences. Customers may be individuals or organizations. (Al-Taie, 2009)
- **Third Definition:** An individual who seeks and purchases goods or services for personal or family use. (Awarib, 2023)

Types of Customers:

- **Internal Customer:** The next user of a product from a particular unit, where each stage in production represents an internal customer for the preceding stage.
- **External Customer:** The customer who is located outside the organization and either purchases the product or expresses a desire to purchase.
- **Intermediate Customer:** Includes:
 - **Supplier:** Provides the organization with necessary resources and seeks to build a long-term relationship with them.
 - **Distributor:** Should be viewed as a potential strategic source because the relationship with distribution channels contributes to introducing new innovations to the market and acts as a strategic partner linked to the organization. (Dirringer, 2000)

Definition of Customer Loyalty:

- **First Definition:** According to Brown, customer loyalty is the expectation of frequently purchasing a brand based on previous positive experiences. (Tissier, 2002)
- **Second Definition:** Mown defines it as the degree of positive belief towards a brand and the commitment to continue purchasing it. (Keller, 2009)

- **Third Definition:** Olive defines loyalty as a deep commitment to repurchase a product or service in the future, regardless of external influences and marketing efforts attempting to alter the purchase decision. (Issa, 2009)

Types of Customer Loyalty:

1. **Absolute and Relative Loyalty:** Marketing researchers distinguish between absolute loyalty, where most of the customer's purchases or interactions are with one organization, and relative loyalty, which is less consistent. (Issa, 2009)
2. **Objective and Subjective Loyalty:** Objective loyalty is based on the customer's actual behavior and actions, while subjective loyalty is based on the customer's attitudes and preferences. Objective loyalty is often more tangible but may not always predict future behavior accurately.
3. **Negative and Positive Loyalty:** Negative loyalty is observed in behaviors not based on attitudes but due to external factors. Positive loyalty arises from genuine conviction and preference for a brand or product, making it more robust and enduring. This type of loyalty is desirable for institutions.
4. **Behavioral and Situational Loyalty:** Behavioral loyalty is based on repeated purchase behavior due to random variables, while situational loyalty is an intentional response to specific conditions or contexts, disappearing once the situation or condition changes.

Applied Study Study Population: The study population consists of a sample of Poste Mobile users. A random sample of users from various community segments was selected, with 120 questionnaires distributed to customers. Of these, 100 were returned valid for analysis, representing 83.33%, while 20 questionnaires were not returned, accounting for 16.66%. The following table illustrates the study sample:

Table 1: Statistics of Distributed and Returned Questionnaires for the Study Sample

Label	Percentage	Number
Number of distributed surveys	100%	120
Number of returned surveys	83.33%	100

Source: Prepared by the researcher

Statistical Tools and Programs Used in the Study:

To address the research questions and test the hypotheses, descriptive statistical methods were employed. The data was encoded and entered into the computer using the SPSS25 statistical software for social sciences. Data from the questionnaire were initially entered into Excel and then directly transferred to SPSS.

2. Statistical Methods Used in Analyzing the Questionnaire:

The data obtained from the distributed questionnaire were processed using the Statistical Package for the Social Sciences (SPSS) to achieve the study's objectives and answer all its questions. Consequently, the questionnaire data were analyzed through the statistical program using the following statistical tests:

A. Descriptive Statistics: The following statistical tests were used:

- **Mean and Standard Deviation:** To determine the relative importance of study responses concerning the study dimensions.
- **Frequencies and Percentages:** To describe the personal and professional characteristics of the study sample.

B. Multiple Regression Analysis: This was used to test the validity of the study model and the effect of the independent variable on the dependent variable (enhancing the relationship with the customer).

C. One-Way ANOVA: To address the statements in the third and fourth parts of the questionnaire, the "Likert" scale was used, which includes five points and is suitable for measuring perception and attitude. Respondents were asked to rate their agreement with each statement on the form. The Likert scale responses were analyzed as shown in the following table:

2. Reliability of the Questionnaire: The statements in the questionnaire were examined by calculating Cronbach's Alpha. The value of this coefficient ranges between 0 and 1, with a minimum acceptable value for Cronbach's Alpha being 0.6. The results are presented in the following table:

Table 2: Analysis of Validity and Reliability Cronbach's Alpha Coefficient Test (Poste Mobile Application in Enhancing Customer Relationships)

Reliability Statistics	
Cronbach's Alpha	N of Items
.833	23

Source: Prepared by the researcher using SPSS 25

From the results in the table, we see that the Cronbach's Alpha coefficient is approximately 83.3%, which is considered a good and acceptable level of reliability and trustworthiness.

Presentation and Discussion of Study Results

First: Distribution of the Sample by Gender

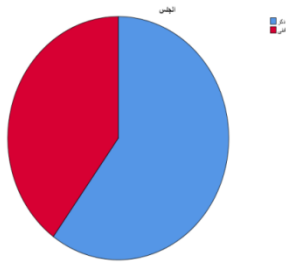
Table 3: Distribution of the Sample by Gender

Gender				
	Frequency	Percent	Valid Percent	Cumulative Percent

Valid	Male	60	60.0	60.0	60.0
	Female	40	40.0	40.0	100.0
	Total	100	100.0	100.0	

Source: Prepared by the researcher using SPSS 25

Figure 1: Distribution of the Sample by Gender



Based on the data from the table showing the distribution of respondents by gender, it was found that the percentage of females was 40%, while the percentage of males was 60%. This confirms the obtained data, indicating that the majority of the sample consists of males.

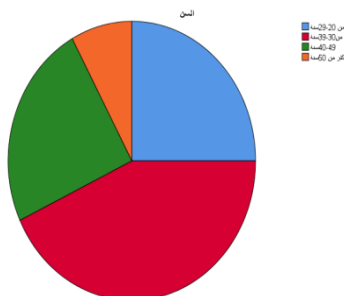
Second: Distribution of the Sample by Age

Table 4: Distribution of the Sample by Age Group

Age					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	من 20-29 سنة	25	25.0	25.0	25.0
	من 30-39 سنة	43	43.0	43.0	68.0
	سنة 40-49	24	24.0	24.0	92.0
	اكثر من 50 سنة	8	8.0	8.0	100.0
	Total	100	100.0	100.0	

Source: Prepared by the researcher using SPSS 25

Figure 2: Distribution of the Sample by Age Group



The table shows that among the respondents using the Poste Mobile application, the age group of 30 to 39 years old represents 43%. This is followed by the age group of 20 to 29 years old, which constitutes 25%, a significant proportion. The age group of 40 to 49 years old comes next with 24%, while the age group of 50 and above represents a much smaller percentage of 8%, which is quite minimal.

Distribution of the Sample by Educational Level

Table 5: Distribution of the Sample by Educational Level

Educational level		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Elementry school	1	1.0	1.0	1.0
	Medium school	11	11.0	11.0	12.0
	High school	22	22.0	22.0	34.0
	Graduate	66	66.0	66.0	100.0
	Total	100	100.0	100.0	

Source: Prepared by the researcher using SPSS 25

Figure 3: Distribution of the Sample by Educational Level



The statistical data in this table reveal that the majority of respondents are university graduates, with a percentage of 66%. This is followed by the secondary education group at 22%. The intermediate education group represents a relatively small percentage of 11%, while the primary education group has a minimal percentage of 1%.

Second Section: Usage Patterns of the Study Sample for the Poste Mobile Application

First: Distribution of the Sample by Year of First Use of "Poste Mobile"

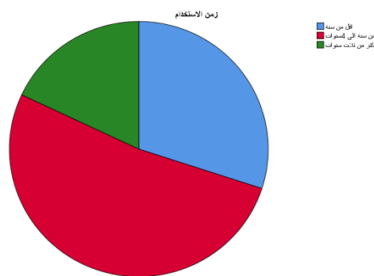
Table 6: Distribution of the Sample by Duration of Use of "Poste Mobile"

Time of use				
	Frequency	Percent	Valid Percent	Cumulative Percent

Valid	Less than a year	30	30.0	30.0	30.0
	From one year to three	52	52.0	52.0	82.0
	More than three years	18	18.0	18.0	100.0
	Total	100	100.0	100.0	

Source: Prepared by the researcher using SPSS 25

Figure 4: Distribution of the Sample by Duration of Use of "Poste Mobile"



It is evident from the previous table that the distribution of the study sample by the duration of use of the Poste Mobile application shows that 52% of users have been using the application for between one and three years. This is followed by 30% of users who have used the application for less than a year, and finally, 18% of users who have been using it for more than three years.

Distribution of the Sample by Number of Poste Mobile Application Uses per Month

Table 7: Distribution of the Sample by Number of Poste Mobile Application Uses per Month

Number of Uses					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	One time	41	41.0	41.0	41.0
	Twice	24	24.0	24.0	65.0
	Three times	35	35.0	35.0	100.0
	Total	100	100.0	100.0	

Source: Prepared by the researcher using SPSS 25

It is evident from the previous table that the distribution of the study sample by the number of uses of the Poste Mobile application shows that the most common usage frequency is once a month, accounting for 41%. This is followed by using the application three times a month at 35%, and twice a month, which represents the smallest proportion at 24%.

Figure 5: Distribution of the Sample by Number of Uses of the Poste Mobile Application per Month

Third: Distribution of the Sample by Source of Knowledge about the Poste Mobile Application

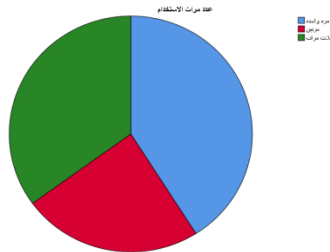


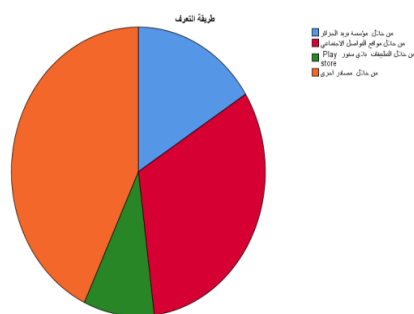
Table 8: Distribution of the Sample by Source of Knowledge about the Poste Mobile Application

Method of discovery		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Through the Algerian Post Office	16	16.0	16.0	16.0
	Through social media platforms	32	32.0	32.0	48.0
	Through the Play Store applications	9	9.0	9.0	57.0
	Through other sources	43	43.0	43.0	100.0
	Total	100	100.0	100.0	

Source: Prepared by the researcher using SPSS 25

The previous table shows the distribution of the study sample by source of knowledge about the Poste Mobile application. It is observed that the largest proportion of knowledge sources comes from other sources, accounting for 43%. This is followed by knowledge through social media platforms at 32%, knowledge through the Algerian Post Office at 16%, and finally, knowledge through the Play Store applications at 9%.

Figure 6: Distribution of the Sample by Source of Knowledge about the Poste Mobile Application



Third Section: Statements Related to the Use of the Poste Mobile Application

Dimension One: Ease of Use

Table 9: Analysis of Results for the First Variable (Ease of Use Dimension)

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
The Poste Mobile application is distinguished by its ease and clarity of use and is suitable for all individuals regardless of their educational level.	100	2	5	3.92	.918
The Poste Mobile application features a simple and streamlined interface that allows users to manage their finances.	100	1	5	4.04	.665
The Poste Mobile application is easy to use and offers fast and diverse services.	100	2	5	4.14	.792
Through the Poste Mobile application, we can check the balance and pay phone and internet bills to your account without the hassle of traveling.	100	2	5	4.41	.668
The Poste Mobile application allows for sending and receiving money from your account to another account at any time.	100	1	5	4.10	.927
Ease	100	3.00	5.00	4.1220	.44576
Valid N (listwise)	100				

Source: Prepared by the researcher using SPSS 25

It is evident from the previous table that the opinions of the sample regarding the dimension of ease of use have an average score of 4.12 with a standard deviation of 0.44. Statement number 4 ranked highest with an average score of 4.41 and a standard deviation of 0.66. This is attributed to the enhancements and updates made by the institution to the application periodically, which have made it multifaceted and relatively comprehensive in its services. Conversely, statement number 1 ranked lowest among the statements in this dimension with an average score of 3.92 and a standard deviation of 0.91, due to variations in the educational levels of individuals.

Dimension Two: Security and Confidentiality

Table 10: Analysis of Results for the Second Variable (Security and Confidentiality Dimension)

Descriptive Statistics				
	N	Mean	Std. Deviation	Variance
The Poste Mobile application allows users to stay updated on their financial matters without the need to leave their homes and manage their money comfortably.	100	4.39	.737	.543
The Poste Mobile application features robust security measures that protect all user data.	100	4.13	.787	.619
The Poste Mobile application is an innovative solution from the Algerian Post Office designed to make financial transactions simple and secure.	100	4.20	.696	.485
I believe that all my personal information is protected within the Poste Mobile application.	100	4.02	.853	.727
Security	100	4.1850	.55348	.306
Valid N (listwise)	100			

Source: Prepared by the researcher using SPSS 25

It is evident from the previous table that the opinions of the sample regarding the dimension of security and confidentiality have an average score of 4.18 with a standard deviation of 0.55, which are quite high values indicating a strong sense of trust and security among the customers of the Wilaya Directorate of the Algerian Post. Statement number 1 ranked highest with an average score of 4.39 and a standard deviation of 0.73. In contrast, statement number 4 ranked lowest among the statements in this dimension with an average score of 4.02 and a standard deviation of 0.85, reflecting a slight degree of skepticism in the minds of the customers.

Dimension Three: Reliability

Table 11: Analysis of Results for the Third Variable (Reliability Dimension)

Descriptive Statistics				
	N	Mean	Std. Deviation	Variance
Using Poste Mobile for electronic payments gives the customer a sense of trust, security, and accuracy.	100	4.18	.770	.594
I have great confidence in the services of the Poste Mobile application.	100	3.97	.870	.757
The Poste Mobile application provides effective services.	100	4.15	.821	.674
Reliability	100	4.1000	.66244	.439

Valid N (listwise)	100			
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Source: Prepared by the researcher using SPSS 25

It is evident from the previous table that the opinions of the sample regarding the dimension of reliability have an average score of 4.10 with a standard deviation of 0.66. These are quite high values, indicating a strong level of trust that customers have in the services of the Poste Mobile application, as anticipated. Statement number 1 ranked highest with an average score of 4.18 and a standard deviation of 0.77. In contrast, statement number 2 ranked lowest among the statements in this dimension with an average score of 3.97 and a standard deviation of 0.82, reflecting the trust placed in the Poste Mobile application's services.

Dimension Four: Social Influence

Table 12: Analysis of Results for the Fourth Variable (Social Influence Dimension)

Descriptive Statistics				
	N	Mean	Std. Deviation	Variance
Important people to me use the Poste Mobile application instead of visiting postal offices.	100	3.80	.995	.990
Communication media (radio, social media, television, etc.) have influenced my decision to use this application.	100	3.42	.976	.953
I was influenced by my surroundings in their reliance on the Poste Mobile application for conducting postal transactions.	100	3.66	1.037	1.075
Using the Poste Mobile application helps improve the optimal management and continuous monitoring of the customer's current account at any time.	100	4.11	.751	.564
The Poste Mobile application has seen improvements in its features and functionalities.	100	3.93	.782	.611
Social Influence	100	3.7840	.54582	.298
Valid N (listwise)	100			

Source: Prepared by the researcher using SPSS 25

It can be observed from the table that the overall average for the social influence dimension is 3.78 with a standard deviation of 0.54, which are relatively high values indicating the impact of the Poste Mobile application on the community. Statement 4 ranked first with an average of 4.11 and a standard deviation of 0.75, while statement 2 ranked last among the statements of this dimension with an average of 3.42 and a standard deviation of 0.97. This reflects the influence of community opinions on the Poste Mobile application.

Dimension Four: The Stereotypical Image of the Reputation of the Wilaya Postal Directorate among its Customers

Table 13: Analysis of Results for Variable Two (Customer Relationship)

Descriptive Statistics

	N	Mean	Std. Deviation	Variance
The Wilaya Postal Directorate uses electronic means (computers, phones, ATMs, etc.) to provide its services.	100	3.91	.698	.487
The Wilaya Postal Directorate has electronic guidance boards to facilitate customer service.	99	3.67	.937	.878
The diverse services of the Postal Directorate meet your desires and needs, which makes you feel satisfied.	100	3.92	.837	.701
The quality of electronic applications in terms of efficiency and accuracy enables effective use by customers.	100	3.86	.829	.687
Using smartphone applications helps avoid handling paper money and protects it from theft and loss.	100	4.23	.777	.603
My use of the Poste Mobile application has increased my connection with the Postal Directorate.	100	3.83	.888	.789
Customer Relationship	100	3.9027	.48998	.240
Valid N (listwise)	99			

Source: Prepared by the researcher using SPSS 25

It is evident from the previous table that the overall mean for the variable "Customer Relationship" is 3.90 with a standard deviation of 0.48. Statement number 5 ranked first with a mean of 4.23 and a standard deviation of 0.77, while statement number 2 ranked last among the statements for this variable with a mean of 3.67 and a standard deviation of 0.93. This is attributed to the long-standing establishment of the institution, indicating a strong connection with the institution prior to the introduction of the application.

Part Two of the Analysis: Analyzing the Relationship Between Smartphone Applications and Customer Relationship

Main Hypothesis: The Relationship Between Smartphone Applications and Customer Relationship

- **H0:** There is no statistically significant effect of smartphone applications on customer relationship.
- **H1:** There is a statistically significant effect of smartphone applications on customer relationship.

Table 14: Analysis of Variance

ANOVA ^a						
Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	11.247	4	2.812	21.332	.000 ^b

	Residual	12.521	95	.132		
	Total	23.768	99			
a. Dependent Variable: Customer Relationship						
b. Predictors: (Constant), Social Influence, Reliability, Ease of Use, Security						

Source: Prepared by the researcher using SPSS 25

From the above table, we can see the following:

- The sum of squares for regression is 11.247, the sum of squares for residuals is 12.521, and the total sum of squares is 23.768.
- The degrees of freedom for regression are 4, and the degrees of freedom for residuals are 95.
- The mean square for regression is 11.43, and the mean square for residuals is 0.132.
- The F-value for the regression analysis is 21.332.
- The significance level of the test is 0.00, which is less than the significance level of 0.05, so we reject the null hypothesis. Therefore, the regression line fits the data.

Table 15: Model Parameter Estimates

Coefficients ^a						
Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	.633	.395		1.601	.113
	Ease	.078	.103	.071	.755	.452
	Security	.224	.085	.253	2.635	.010
	Reliability	.196	.069	.265	2.819	.006
	التأثير الاجتماعي	.319	.070	.356	4.541	.000
a. Dependent Variable: customer relationship						

Source: Prepared by the researcher using SPSS 25

From the previous table, we can identify the intercept of the regression line **b**, the slope of the regression line for **reliability**, and the slope of the regression line for **security and privacy** according to the following equation:

$$Y = b + c.1 + b2 + d3 + e4$$

Thus, the regression line equation is:

$$Y = 0.078 \times 1 + 0.224 \times 2 + 0.196 \times 3 + 0.078 \times 4$$

When examining the **SIG** section, we find that all values are acceptable as they are less than 0.05, confirming the hypothesis **H1**, except for the value related to **ease of use**. We conclude that the most important factors leading to customer satisfaction are **security and privacy, reliability, and social influence**.

Table 16: Standardized Coefficients of the Estimated Model

Model Summary ^b										
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	.688 ^a	.473	.451	.36305	.473	21.332	4	95	.000	1.823

a. Predictors: (Constant), Social Influence, Reliability, Ease of Use, Security
 b. Dependent Variable: customer relationship

Source: Prepared by the researcher using SPSS 25

Through linear regression analysis using the least squares method at a significance level of 0.05:

1- Testing the effect using simple regression between the total dimensions of smartphone applications on the overall relationship with the customer:

In this section, we will use the simple regression equation between the dimensions of smartphone applications and the overall relationship with the customer by proposing the following main hypothesis:

- **Null Hypothesis (H0):** There is no statistically significant effect of the dimensions of smartphone applications on the customer relationship.

To test this hypothesis, simple regression analysis was used, as shown in the following table:

Table 17: Results of testing the effect of smartphone application dimensions on the customer relationship

Sig (Significance Level)	β (Regression Coefficient)	Sig (Significance Level)	DF (Degrees of Freedom)	F (Calculated)	R ² (Coefficient of Determination)	R (Correlation)	Dependent variable
0.000	0.633	0.000	4	21.332	0.473	0.688	Degrees of Freedom
			95				
			99				

Source: Prepared by the researcher using SPSS 25
 The simple regression equation was as follows:
 $Y = 1.947X + 0.633$
 $T = (11.247) (12.521)$

The results from the previous table, based on the opinions of the study sample, indicate a statistically significant effect of mobile applications on customer relationships. The correlation coefficient (R) reached 0.688, which indicates a strong positive correlation that is statistically significant at the 5% significance level. The coefficient of determination (R²) reached 0.473, meaning that 47.3% of the change in customer relationships is attributed to changes in the dimensions of mobile applications. The effect size (β) was calculated as 1.947, indicating that a one-unit increase in the dimensions of mobile applications leads to a 63.3% improvement in customer relationships. This is statistically significant as the calculated t-value was 11.247, and its p-value was 0.000, which is less than 0.05.

The significance of the effect of mobile applications' dimensions is further supported by the calculated F value (21.332 = F), which is statistically significant at the 5% level since the p-value is 0.000. Therefore, the null hypothesis is rejected, and it can be concluded that there is a statistically significant effect of mobile applications' dimensions in enhancing customer relationships at the 5% significance level.

Testing the effect using multiple regression between the dimensions of mobile applications management in enhancing customer relationships:

To determine the effect of each dimension of mobile applications management, multiple regression was conducted between each dimension (independent variables) and overall customer loyalty. The following main null hypothesis was posed:

Main Null Hypothesis (H0): There is no statistically significant effect of the dimensions of mobile applications management (ease of use, security, reliability, and social influence) on enhancing customer relationships in economic institutions.

The results of the test are shown in the following table:
Table 18: Multiple Regression Results of Mobile Applications' Dimensions in Enhancing Customer Relationships

Sig (Significance Level)	β (Regression Coefficient)	Sig (Significance Level)	DF (Degrees of Freedom)	F (Calculated)	R ² (Coefficient of Determination)	R (Correlation)	Dependent variable
0.000	After ease 0.460	0.000	4	21.332	0.451	0.473	Relationship with customer
0.000	After security 0.478						

0.000	After reliability 0.368		95				
0.009	After social influencing 0.443		94				

Source: Prepared by the researcher based on SPSS 25 outputs

The multiple regression equation was as follows:
 $\hat{Y} = 1.947 + 0.460 X_1 + 0.478 X_2 + 0.368 X_3 + 0.443 X_4$
 $T = (1.601) (0.755) (2.635) (2.819) (4.541)$

The results from the previous table, based on the opinions of the study sample, show that each dimension of mobile applications has a statistically significant effect in enhancing customer relationships, as their values were significant, i.e., the p-value was less than 0.05. The effect size for each dimension was as follows:

- **(β1 = 0.460):** This indicates that a one-unit increase in the ease of use dimension leads to a 4.6% improvement in customer relationships. However, it is not significant in the model since the calculated t-value was 1.601, which is greater than 0.05.
- **(β2 = 0.478):** A one-unit increase in the security dimension leads to a 4.7% improvement in customer relationships, and it is significant in the model since the calculated t-value was 0.755 and the p-value was 0.000, which is less than 0.05.
- **(β3 = 0.368):** A one-unit increase in the reliability dimension leads to a 3.68% improvement in customer relationships. It is significant in the model since the calculated t-value was 2.635, with a p-value of 0.000, which is less than 0.05.
- **(β4 = 0.443):** A one-unit increase in the social influence dimension leads to a 4.43% improvement in customer relationships, and it is significant in the model as the calculated t-value was 2.819, with a p-value of 0.000, which is less than 0.05.

The significance of the impact of mobile application dimensions in enhancing customer relationships is confirmed by the calculated **F-value** (21.332 = F), which is statistically significant at the 5% level as the **p-value = 0.000**.

Main conclusion: All dimensions significantly affect enhancing customer relationships.

First: Hypothesis Testing

Based on the results of this research, which was founded on the hypothesis: “There is a strong statistically significant relationship between the Baridi Mob application and enhancing customer relationships,” this study reveals that as the level of Baridi Mob application usage increases, customer satisfaction also increases.

Second: Study Findings

- There are clear differences in the use of Baridi Mob based on personal and demographic variables.
- The importance of mobile applications for business institutions in enhancing customer relationships and gaining loyalty, leading to increased market share and competitive advantage.
- The focus of Algeria Post on the quality and features of the Baridi Mob application.
- The contribution of Baridi Mob to improving Algeria Post's reputation among its customers in an effective way, as it often serves as a complementary tool to other services.

Third: Recommendations

Based on the above findings, the following recommendations can be made:

- Immediate updates should be implemented for transactions conducted via the app.
- A section should be added within the app for customers to report issues and provide suggestions.

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