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The impact of e-marketing on improving customer satisfaction through enhanced interactive management: A proposed model within the framework of customer relationship management at Djezzy Company

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Abstract:

This study aims to examine the role of electronic marketing in customer relationship management, a topic of growing interest for economic institutions in general, and those in the telecommunications sector in particular. Data was collected through 120 questionnaires distributed to Djezzy customers in Saida. To analyze the relationship between variables, a descriptive analytical approach was used, and the data were analyzed using the SPSS statistical software and SmartPls4. The study concluded that the telecommunications company Djezzy implemented electronic marketing and there is a positive relationship between interactive management and customer satisfaction. However, there is an indirect relationship between e-marketing and customer satisfaction, with interactive management playing a crucial mediating role.

Key Words: *E-marketing, customer relationship management, customer satisfaction, Interactive Management, telecommunications company.*

JEL Classification : *M31, L86, L96*

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1. *Introduction*

The advent of the internet and today's rapid technological developments have led to significant changes in how organizations compete to market their products and services. E-commerce has become a cornerstone of the new global economy, driven by internet and e-commerce usage. This has resulted in a large-scale transformation of customer relationship management (CRM) functions. Customer relationship management has also evolved into electronic CRM, as online relationships are characterized by high sensitivity. Because customers often experience anxiety and discomfort during their online interactions and transactions, and in order to implement effective and efficient relationship management, organizations must maintain constant contact with them and increase their level of trust and commitment. To achieve this, modern marketing concepts have emerged, such as electronic CRM, which integrates e-marketing with CRM to acquire, retain, and build customer loyalty. Therefore, the application of digital marketing in achieving customer satisfaction, particularly in the highly competitive telecommunications industry and especially in emerging markets, still requires further investigation.

1.1 Problem statement

In light of the foregoing, the following question is proposed:

To what extent does the implementation of e-marketing contribute to improving customer satisfaction within the framework of customer relationship management (CRM) at Djezzy-Saida?

1.2 Research hypothesis

Main Hypothesis:

- The application of E-marketing leads to improved customer satisfaction through interaction management as a mediator within Djezzy Company –Saida.

Sub-hypotheses:

- The application of E-marketing leads to the improvement of interactive management within Djezzy Company –Saida.
- The application of interactive management improves customer satisfaction within Djezzy–Saida.
- The application of E-marketing leads to improved customer satisfaction within Djezzy Company –Saida.

1.3 Research objectives

This research aims to achieve the following objectives:

- To identify the current state of E-marketing implementation at the Djezzy company in Saida.
- To measure the level of interactive management practices and customer satisfaction at the Djezzy company in Saida.
- To analyze the direct impact of e-marketing implementation on improving customer satisfaction.
- To investigate the role of customer relationship management (CRM) as a mediating variable in the relationship between e-marketing and customer satisfaction.
- To propose a modified conceptual model that illustrates the nature of the relationships between e-marketing, CRM, and customer satisfaction within the company's field context.

1.4 Significance of the research

It addresses a growing need to evaluate the application of digital marketing within customer relationship management, particularly in the highly competitive telecommunications sector in emerging markets. The study provides empirical evidence on how specific e-marketing dimensions affect customer satisfaction and organizational communication functions within Djezzy-Saida. Crucially, the research reveals the vital mediating role of interactive management, demonstrating that e-marketing primarily improves customer satisfaction indirectly by enhancing direct customer interactions.

2. *THE THEORETICAL FRAMEWORK*

Through this aspect, we will address the basic concepts of electronic marketing and its dimensions, as well as the relationship with the customer and its dimensions.

2.*1 Electronic marketing and its dimensions*

Marketing is defined in language as "the study of the market" and it is the science or art of marketing.

In terms of terminology, it is the process of planning, implementing, creating, pricing, promoting, and distributing ideas, goods, or services necessary to complete the exchange process that leads to satisfying the needs of individuals and achieving the goals of organizations (Loussif, 2021, p. 167).

Electronic marketing is defined as "the management of the interaction between the organization and the customer in the electronic environment in order to obtain mutual benefits, and the virtual environment of electronic marketing depends mainly on Internet technology, and the electronic marketing process does not focus solely on operations and solely on the processes of selling products to the customer, but rather on managing the relationships between the organization on the one hand and the customer and elements of the internal and external environment on the other hand." (Arvind , et al., 2020, p. 73)

It is also defined as "the process of using the Internet and digital technology to achieve the marketing objectives of businesses and to support the modern marketing concept, thus enabling online marketers to disseminate information about their products and partners easily, more dynamically, and freely compared to traditional marketing." (Loussif, 2021, p. 168)

It is also defined as "the process of establishing and maintaining relationships with customers through direct electronic activities, with the aim of facilitating the exchange of ideas and products that achieve the objectives of both parties. It also refers to the use of digital technology to achieve marketing objectives (Rosário & Joaquim A, 2023, p. 52)." It is also known as "the concept of marketing does not differ from traditional marketing concepts, except with regard to the means of communication with customers, as electronic marketing relies on the internet as a fast, easy, and inexpensive means of communication in order to implement the actions that constitute the main types of the marketing process in its traditional form." (Sanjay & Nishant , 2018, p. 56)

It is also known as digital marketing (e-marketing) and is an essential part of e-commerce activities, as it is defined as a series of specialized marketing functions and a comprehensive approach that is not limited to the trade of goods and services, even though it uses digital

technologies as a lever to improve the overall performance of the organization (Purnomo, 2023, p. 56). E-marketing has several dimensions on which it is based, including:

2.1.1 Electronic product

An electronic product is a product that can be exchanged entirely automatically and therefore does not require physical distribution. This means that the entire buying and selling process can be carried out from home or within an organization, and the product is exchanged via the internet without the influence of geographical boundaries. It's like buying a ready-made program from Microsoft and downloading it directly onto the customer's personal computer (Loussif, 2021, p. 171).

2.1.2 Electronic pricing

Price is defined as "everything the customer incurs in terms of expenses in exchange for obtaining a specific product that provides them with a benefit or satisfies a specific need of that customer." Electronic pricing can therefore be defined as such. "The monetary value that the customer pays electronically via electronic or traditional financing in order to obtain a product offered on the Internet according to their needs and desires" (Mark , 2022, p. 380).

2.1.3 Electronic distribution

The relationship between organizations and distribution partners has been greatly influenced by the growth of the internet, as it has provided ways to bypass certain distribution channels. This process is called disintermediation, and it means eliminating certain distribution channels with intermediaries such as distributors and brokers who previously represented a link between the organization and its customers (Rajiv , Marshall , & Abraham , 2000, p. 484).

2.1.4 Electronic promotion

It is defined as an activity that uses the Internet and other communication services to provide product information to the consumer with the aim of obtaining a behavioral response from the latter in relation to what is provided by the institution, and this takes into account the overall marketing plan and the objectives set in order to ensure the flow of goods, services and ideas from the organization to the consumer (Ilhame, 2020, p. 139).

2.1.5 Website design

The organization seeks to obtain customer visits to the website and to maximize these visits, hence the importance of website design, because the more attractive they are, the greater the ability to attract and retain them.

The site must also be qualified to provide additional value to the customer, which gives the organization a competitive advantage (Faiza & Ziani, 2022, p. 491).

2.1.6 Customer services

This refers to a set of activities and actions aimed at satisfying customers in their transactions with the organization and developing their loyalty. This requires collecting information about the customer's preferences and habits, as well as their past transactions with the organization. This information is used to improve the service provided, and the customer judges the service by how it treats everyone they interact with within the organization (Nour, 2016, p. 33).

2.1.7 Security

These are all actions put in place to prevent any form of information loss, whatever its nature (Alhassan & Alexander , 2017, p. 103).

The reasons for the need for security systems include the following:

- Prevent data loss due to computer viruses.
- Prevent the destruction of stored data
- Prevent access to private data
- Prevent data theft

2.1.8 Confidentiality

It is normal for each site to include a privacy statement, and this statement explains how information is collected and whether or not this data will be transferred to other parties.

This refers to the personal information that websites and online stores obtain from customers, and which must be protected (Labiba & Zakaria Tafiani, 2020, p. 133).

2.2 *Customer Relationship Management and its dimensions*

The concept of customer relationship management is of interest to many researchers and writers in the field of marketing, and therefore many different definitions exist for this concept, the most important of which are the following:

Customer relationship management is defined as: "a strategy that aims to retain current customers by identifying their needs and desires through modern technological means and responding to them" (Naas & Younsi, 2020, p. 213).

It is also called: "The various activities and operations carried out by the organization in order to obtain all information relating to customers, including their needs and desires, and then to establish long-term relationships with them, represent a relationship that benefits both parties" (Jude & Liz , 2023).

It can be defined as the widespread use of information technologies, enterprise networks, software, and expert systems to maintain and develop customer relationships. It involves the strategic use of information, processes, technology, and people in the customer relationship, throughout the customer lifecycle, to achieve both business and customer objectives. It encompasses how the company treats its current and potential new customers, and managing these relationships is a core business function. Investing in the technology used in information systems aims to unify business management procedures surrounding the company's interaction with its customers in sales, marketing, and other services (Ledro, Anna , Andrea , Ilaria , & Thomas , 2025).

It is also defined as follows: “Customer relationship management is considered an effective means by which an organization establishes consistent behavior with what its customers desire, and gives it an understanding of the financial value of each customer. The information collected on each customer is placed in a computer in what is called a database until it is tabulated.” And carefully stored, the modern institution pays close attention to the use of modern technology, particularly in the implementation of the customer relationship management program (Abdelkader & Elghali, 2021, p. 321).

It is also defined as: "A long-term business philosophy that aims to collect and use cumulative customer information and understand them intelligently in order to conduct a continuous assessment of their needs."

Customer relationship management has also been defined as: “Customer relationship management is a combination of processes and interactive relationship between the institution

and its customers, an attempt to remain cognitively connected to the evolving desires and needs of its customers in a way that achieves a mutually beneficial outcome for both parties (the customer and the institution) (Jagdish , et al., 2024, p. 51).” Customer relationship management encompasses several dimensions upon which it is based, including:

2.2.1 ***Customer satisfaction***

Because of the realization by a number of organizations around the world that their excellence is based on customer satisfaction and respect, and regardless of the nature of the organization, production or service, it seeks to achieve customer satisfaction (Kim , 2022, p. 108).

2.2.2 ***Customer loyalty***

Customer loyalty is the cornerstone of any organization's success, and its integration with all other elements is crucial. The customer loyalty process is also one of the most challenging due to evolving customer behavior (Ahmad, et al., 2018, p. 106).

2.2.3 ***Acquiring customers***

Customer acquisition is how a business converts a potential customer into a new one. Examples of customer acquisition include email marketing, using a CRM (customer relationship management) platform, and providing excellent customer service and building a reputation for doing it well. The goal of customer acquisition is to help a business win more business, using the power of different teams, channels, and strategies (Zendesk, 2024).

2.2.4 ***Interactive management***

This approach emphasizes the importance of direct contact and personal interaction with the customer. The stronger and more effective this contact and interaction, the better the service provided (Robert , et al., 2023, p. 973).

2.2.5 ***Developing customer relationships***

The customer relationship with the organization develops by providing distinctive personal services to the customer, resulting in improvement. Customer relations and building long-term relationships (Rosário & Joaquim A, 2023, p. 46).

2.2.6 ***Customer Value***

Organizations are now focusing on creating more value for the customer by providing products in an integrated way, as customers want to get the most valuable and beneficial product (Gautam , 2020, p. 121).

3. Methodology of Research

In this experimental study, we will present the research hypotheses extracted from previous studies, in addition to presenting the model adopted for the study and reviewing experimental studies that rely on performance measurement.

3.1 Research and hypotheses

A review of the literature revealed numerous discrepancies regarding the nature of the relationship between e-marketing and customer relations. Therefore, an experimental study was designed to uncover these discrepancies by testing the extent to which the application of e-marketing affects customer relations. A set of research hypotheses was developed based on the results of the literature review and previous studies. The study is based on the following main hypothesis:

- The application of E-marketing leads to improved customer satisfaction through interaction management as a mediator within Djezzy –Saida

Sub-hypotheses

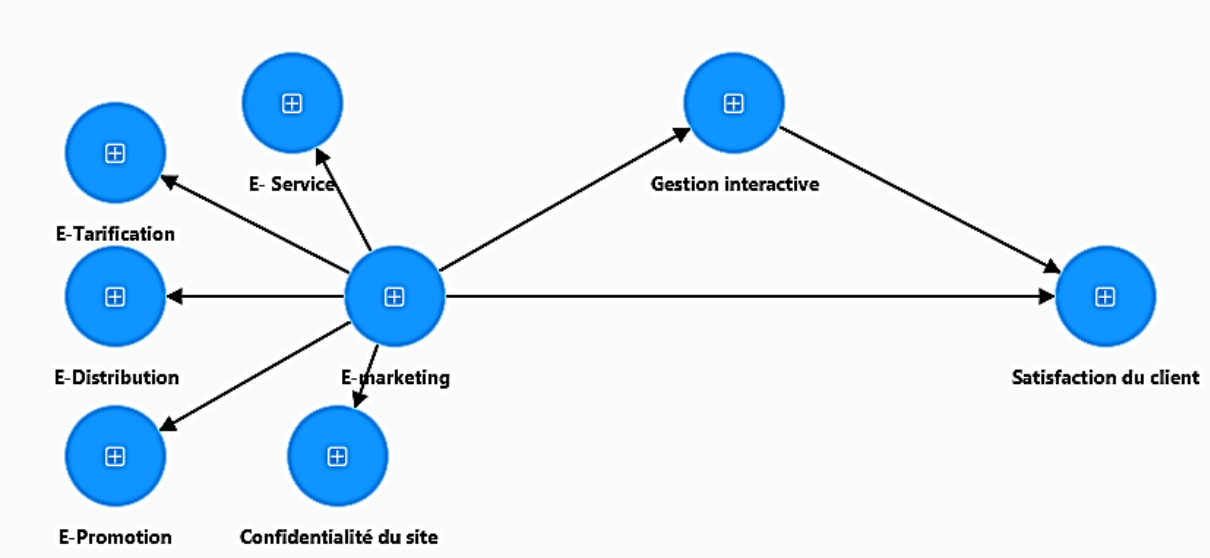
- The application of E-marketing leads to the improvement of interactive management within Djezzy –Saida.
- The application of interactive management to improve customer satisfaction within Djezzy –Saida.

The application of E-marketing leads to improved customer satisfaction within Djezzy –Saida.

3.2 Research methodology and conceptual model of the study

This study uses a survey-based research approach to analyze the relationship between electronic marketing and customer relations. The target population consists of Djezzy customers in Saïda. A standardized, closed-ended questionnaire, based on a five-point Likert scale, was used as the data collection tool. The validity and reliability of the questionnaire were verified before distribution. Two hundred questionnaires were distributed, and 120 were returned valid for analysis, representing a response rate of 60%. The data were analyzed using SPSS V27 statistical software, and the structural equations adapted to the SmartPLS4 partial regression methodology. Providing a conceptual model is considered a starting point for beginning the study, as it defines the variables of the study and their relationships:

Fig.1. Conceptual model of the study



Source: Prepared by the researchers using Smartpls4

4. Result and Discussion

4.1 Validity and reliability of the study tool

We note in the table below that the value of Cronbach's alpha reaches 0.901, which indicates that the study tool exhibits high stability, which translates into its ability to achieve the study objectives.

Table 1. Cronbach's alpha for the sample

Number of items	Cronbach's Alpha
26	0.901

Source: Prepared by the authors using SPSS V27

4.2 Study the opinions of the respondents:

We are studying the opinions of respondents to determine the level of application of the operator Djezzy to the dimensions of E-marketing and customer satisfaction.

- The orientation of respondents' opinions on E-marketing and its dimensions, Interactive Management and Customer Satisfaction, and the following table summarize the results obtained:

Table 2. Respondents' Opinions

N°	sentence	average	SD	Degree of Agreement
	E-marketing	3.56	0.488	accepted
1	**Electronic Service (ES)**	3,904	0.618	accepted
2	**Electronic Pricing (ET)**	3,495	0.864	accepted
3	**Electronic distribution (DE)**	3,733	0.726	accepted
4	**Electronic promotion (EP)**	3,419	0.833	accepted
5	**Site Privacy (CS)**	3,247	0.894	Neutral
	Interactive Management (IM)	3,628	0.773	accepted
	Customer Satisfaction (CS)	3,757	0.860	accepted

Source: Prepared by the authors using SPSS V27

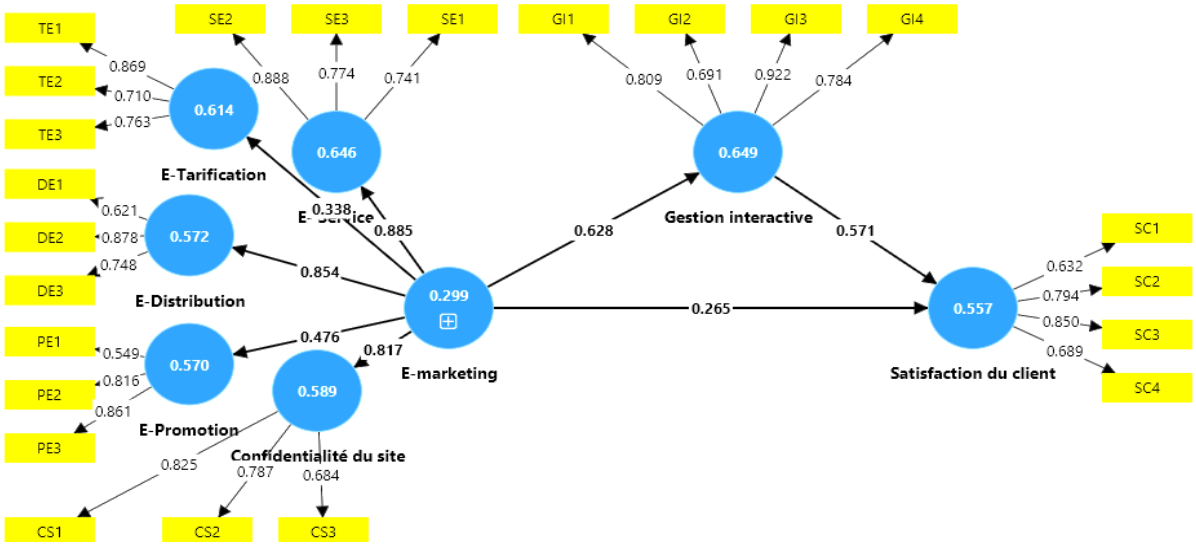
trend of respondents' opinions is that the Djezzy operator in Saida applies E-marketing through its dimensions (E-service - E-pricing - E-distribution - E-promotion - site confidentiality), and applies interactive management, and customer satisfaction.

The results indicate that participants highly value Djezzy's e-service quality, particularly its e-pricing, e-distribution, and e-promotion, with the latter scoring lower than the other dimensions. This aligns with the findings of Ahmed et al. (2018), who emphasized that customer service activities are essential for building loyalty. It also supports the findings of Rosario and Joaquim (2023), who defined e-marketing as maintaining relationships through direct online activities, highlighting service as the most prominent dimension. Studies also suggest that promotion is often the most challenging dimension to improve. While website privacy received a neutral rating, this suggests that participants were undecided about their privacy concerns, despite Labiba and Zakaria (2020) emphasizing that confidentiality is crucial for building trust in online transactions.

4.3 Exploratory and confirmatory study (PLS) model

Due to the nature of the latent variables chosen for the study, we were led to consider more interpretive statistical tools by opting to use structural equation modeling. Therefore, to address the research problem, we resort to a more precise and in-depth analysis through exploratory and confirmatory analysis (PLS analysis). Structural equation modeling is one of the modern statistical methods where the phenomenon under study is examined by constructing a measurement model that includes a set of indicators that indicate it and by testing the validity of this model, where the process of determining the relationships of influence and influence between the variables that make up the study is carried out.

Fig .2. Results of the model analysis



Source: Prepared by the authors using Smartpls4

A. Convergent validity

Convergent validity is the extent to which questions are close and consistent with each other, based on (Hair, Sarstedt, Ringle , & Mena , 2012, p. 421). The criteria for evaluating convergent validity are: factor loading, composite reliability (CR) and average variance extracted (AVE).

Table 3. Results of convergent validity

Item	Loading	AVE	CR	Item	Loading	AVE	CR
E-Marketing			**0.862**	**Interactive management**			**0.842**
SE1	0.741			**GI1**	0.861		
SE2	0.888	0.646	0.729	**GI2**	0.686	0.649	0.842
SE3	0.774			**GI3**	0.878		
TE1	0.869			**GI4**	0.602		
TE2	0.710	0.614	0.807	**Satisfaction du client**			**0.746**
TE3	0.763			**SC1**	0.855		
DE1	0.621			**SC2**	0.750	0.557	0.746
DE2	0.878	0.572	0.720	**SC3**	0.749		
DE3	0.748			**SC4**	0.754		
PE1	0.549						
PE2	0.816	0.570	0.725				
PE3	0.861						
CS1	0.825						
CS2	0.787	0.589	0.655				
CS3	0.684						

Source: Prepared by the authors using Smartpls4

The results in the table above show that:

-The external load of the indicators exceeds 0.70 according to (Hulland, 1999), which indicates that each measurement indicator distributes more variance to the latent variable, i.e. higher than its distribution on the measurement error.

- All AVE coefficients are significant and statistically acceptable because their values are greater than 0.50 according to (Fornell & Larcker, 1981), which indicates that each latent variable explains more than half of the variances of its indicators.
- All CR coefficients are significant and statistically acceptable because their values are greater than 0.70 according (Hulland, 1999), which is consistent with the composite reliability index, as this coefficient is more accurate than Cronbach's alpha coefficient because it incorporates errors in its calculation process. Thus, convergence validity was achieved in this model according to (Hair, Ringle, & Sarstedt, PLS-SEM: Indeed a Silver Bullet, 2011).

B. Discriminatory validity

There are two criteria:

❖ ***Cross- loading***

The value of the relationship between the question and its latent variable must be greater than the value of its relationship with another latent variable, in order to say that the questions are independent.

Table 4. Cross loading

Items	SE	YOU	OF	PE	CS	GI	SC
SE1	0.741	0.182	0.544	0.147	0.550	0.257	0.370
SE2	0.888	0.191	0.599	0.320	0.474	0.425	0.357
SE3	0.774	0.021	0.645	0.165	0.473	0.511	0.466
TE1	0.269	0.869	0.170	0.189	0.139	0.224	0.401
TE2	-0.036	0.710	0.075	0.053	0.011	-0.038	0.203
TE3	0.013	0.763	0.291	0.076	0.086	0.109	0.201
DE1	0.359	0.235	0.621	0.225	0.148	0.193	0.019
DE2	0.750	0.325	0.878	0.200	0.653	0.573	0.549
DE3	0.483	-0.061	0.748	0.132	0.346	0.486	0.456
PE1	0.030	-0.012	0.281	0.549	0.068	-0.059	-0.118
PE2	0.159	0.368	0.122	0.816	0.176	0.169	0.122
PE3	0.322	0.009	0.192	0.861	0.409	0.328	0.350
CS1	0.562	0.193	0.447	0.113	0.825	0.401	0.476
CS2	0.502	-0.043	0.393	0.279	0.787	0.573	0.507
CS3	0.347	0.130	0.465	0.402	0.684	0.264	0.231
GI1	0.500	0.042	0.413	0.384	0.514	0.809	0.510
GI2	0.284	0.079	0.354	0.224	0.432	0.691	0.411
GI3	0.393	0.186	0.494	0.101	0.483	0.922	0.765
GI4	0.414	0.235	0.606	0.140	0.329	0.784	0.632
SC1	0.400	0.214	0.358	0.022	0.341	0.441	0.632
SC2	0.245	0.458	0.314	0.061	0.399	0.653	0.794
SC3	0.460	0.272	0.467	0.272	0.536	0.562	0.850
SC4	0.383	0.143	0.380	0.317	0.298	0.525	0.689

Source: Prepared by the authors using Smartpls4

According to the results in the table above, the value of the relationship between the question and its latent variable is greater than the value of its relationship with another latent variable, and from this we say that the questions are independent.

❖ ***variable correlation-R^2 of AVE (Fornell-Larcker Criterion)***

Dimensions are independent when the value of the relationship between the dimension and itself is greater than the value of its relationship with another dimension, according to Fornell 's criterion.

Table 5. variable correlation-R 2 of AVE

	CS	SE	OF	PE	YOU	GI	SC
CS	0.767						
SE	0.619	0.804					
OF	0.566	0.741	0.756				
PE	0.335	0.266	0.238	0.755			
TE	0.124	0.165	0.241	0.160	0.783		
ghee	0.541	0.497	0.586	0.251	0.177	0.806	
SC	0.534	0.492	0.508	0.229	0.374	0.737	0.746

Source: Prepared by the authors using Smartpls4

The results in the table above show that the value of each latent variable's relationship with itself is greater than the value of its relationship with any other latent variable. According to the Fornell-Larcker criteria, we can conclude that these latent variables are independent.

4.4 Evaluation of the structural model:

4.4.1 Hypothesis testing:

Table 6. Research hypotheses; Path factor

Relationship	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	Statistics T (|O/STDEV|)	P values
E-marketing -> Customer satisfaction	0.265	0.257	0.172	1.537	0.124
E-marketing -> Interactive management	0.628	0.637	0.113	5.535	0.000
Interactive management -> Customer satisfaction	0.571	0.584	0.149	3.831	0.000

Source: Prepared by the authors using Smartpls4

The results in the table above:

- No, the application of E-marketing does not lead to improved customer satisfaction within Djezzy –Saida. So, by looking for the indirect effect.

- Yes, the application of E-marketing leads to the improvement of interactive management within Djezzy –Saida.
- Yes, the application of interactive management to improve customer satisfaction within Djezzy –Saida.

4.4.2 Coefficient of determination (R-squared)

The coefficient represents the cumulative effects of external variables on the internal latent variable. According to (Chin, 1998), who determined the criterion for the strength of the effect according to the R2 value (low, medium, high): greater than 0.67 (high effect), between 0.33 and 0.67 (medium effect) and less than 0.33 (low effect), and according to (Hair, Sarstedt, Ringle , & Mena , 2012) and (Falk & Miller, 1992) , the R^2 value is accepted when it is greater than 0.10.

Table 7. Coefficient of determination R²

Variables	Dimensions	R²	Impact
E-Marketing	E-Service	0.782	strong
	E-Pricing	0.114	weak
	E-Distribution	0.730	strong
	E-Promotion	0.227	weak
	Site privacy	0.668	strong
Interactive management		0.394	AVERAGE
Customer satisfaction		0.585	AVERAGE

Source: Prepared by the authors using Smartpls4

Based on the results in the table above :

E-Marketing explains (SE, DI, CS) strongly, and explains (TE, PE) weakly, therefore we reform the conceptual model.

E-Marketing explains 39.4% of Interactive Management, and E- Marketing with Interactive Management explains 58.5% of Customer Satisfaction.

4.4.3 Evaluate the size of the effect (f-square)

Coefficient that measures the size of the effect of one variable on another while fixing the other variables.

According to the criteria of (Cohen, 2013), the guidelines for evaluating f^2 are : $0.35 \leq f^2$ strong effect, $0.35 > f^2 \geq 0.15$ medium effect, $0.15 > f^2 \geq 0.02$ weak effect and $0.02 > f^2$ no effect.

Table 8. Coefficient of *f*2

	E-Marketing	Interactive management	Effect
Interactive management	0.650		strong
Customer satisfaction	0.103	0.476	Weak-Strong

Source: Prepared by the authors using Smartpls4

The results in the table above show that the effect of the E- Marketing variable on customer satisfaction is strong when the Interactive Management variable is fixed; the f^2 values are greater than 0.02 according to Cohen's (Cohen, 2013) criteria. This highlights the importance of these latent variables in the model.

4.4.4 Quality of the fit GOF

GOF (GOF (goodness-of-fitting) index measures the reliability of the study model, meaning it shows the overall performance of the model.

$$\mathbf{GOF}=\sqrt{\overline{R^2} \times \overline{AVE}} \;=\; \sqrt{0.3644 \times 0.5995} \cong 0.2184$$

The GOF value is equal to 0.2184, which is less than 0.36 according to the standards of (Wetzels, Gaby , & Oppen, 2009). This indicates that the fit to the study model is not good enough to account for the overall validity of the model.

Low fit quality indicates that while some individual variables (such as e-service, e-pricing, etc.) may exhibit acceptable reliability and validity, the overall explanatory power of the model is limited. In practice, this means the model captures some relationships but does not fully explain the variance in customer satisfaction. However, the GOF being low indicates that the latent constructs do not collectively explain customer satisfaction as strongly as expected. Although Cronbach's alpha (0.901) and composite reliability values were high, showing internal consistency. The low GOF reinforces this: direct paths from e-marketing to satisfaction are weak, but mediated paths are stronger. This is consistent with Hair et al. (2011), who note that low GOF often signals indirect rather than direct effects.

4.5 Study of the mediator variable

The electronic marketing facilitates a constant interaction greatly among those that include chatbots, single platforms and push notifications. These technologies allow companies to provide 24/24 availability, provide response times and increase customer satisfaction.

Unsupported theories/conceptual solid is a practical condition essential for exploring the media effects. When this support is present, the analysis of the media can provide a statistical analysis, which is correct in the future (Hair et al., 2016, p. 234). For consequent, our hypotheses will be replaced by:

- The application of E-marketing supports the customer's satisfaction during the interaction between the mediator and the Djezzy-Saida user.
- To respond to these hypotheses, there are several steps to analyze the mediator's presence (Preacher & Hayes, 2008):

The first step: Indirect effects:

Table 9. Total indirect effects

Relationship	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	Statistics T (|O/STDEV|)	P values
E-marketing -> Interactive management -> Customer satisfaction	0.358	0.368	0.108	3.329	0.001

Source: Prepared by the authors using Smartpls4

The results show that there is an indirect effect between e-marketing and customer satisfaction with the existence of interactive management as a mediator.

The study concluded that digital marketing impacts satisfaction with interaction management, a finding consistent with the relational marketing theory of (Rosário & Joaquim A, 2023, p. 60), which posits that digital tools are merely channels. This supports the conclusion that Daisy's digital marketing relies primarily on interaction management, the idea that "digital marketing" is a technical capability, while "interaction" is the process of value creation. This finding aligns more closely with researchers who consider the quality of dialogue (the interactive element) to be the key factor in retaining customers of telecommunications companies (Naas & Younsi, 2020, p. 220).

Second step: confidence interval

This is the study of the lower and upper limits of the confidence interval.

Table 10. Confidence Interval

Relationship	Original sample (O)	Sample mean (M)	2.5%	97.5%
E-marketing -> GI -> S-Client	0.358	0.368	0.163	0.574

Source: Prepared by the authors using SmartPls4

Based on the results in the table above, we observe that the indirect path coefficient between e-marketing and customer satisfaction, with interactive management as the mediating variable, falls within the confidence interval [0.163; 0.574] at a 95% probability level. We note that this confidence interval does not include the value zero, consistent with (Hair, Sarstedt, Ringle , & Mena , 2012).

5. CONCLUSION

In this research, we analyzed the impact of E-marketing on customer satisfaction – Djezzy Saida. A conceptual framework model was developed and tested to study the hypothetical relationship between variables, providing a suitable model developed through a thorough review of the literature and previous studies.

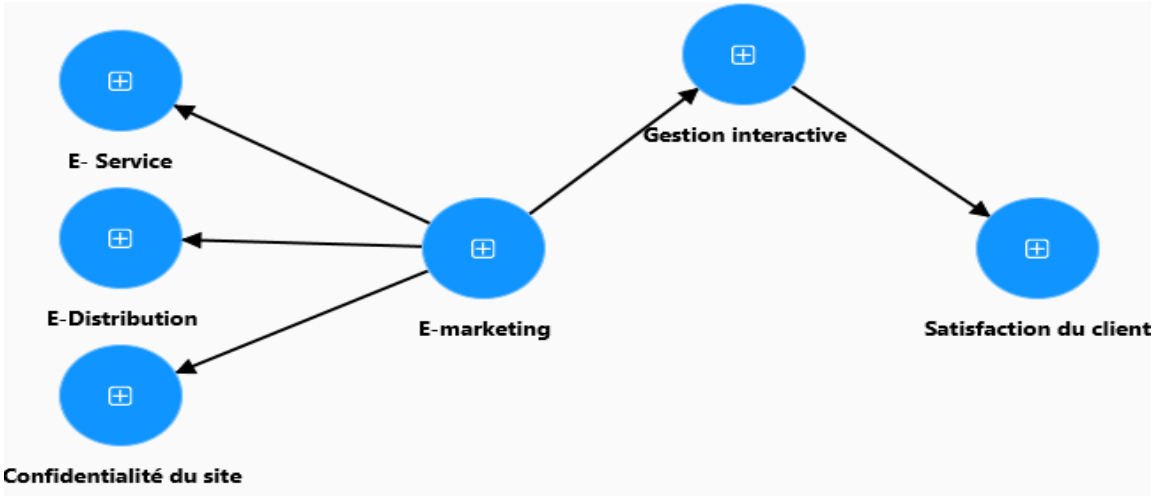
This model has demonstrated the effectiveness of e-marketing on interactive management, providing insight into the fact that the approval and encouragement of e-marketing methods lead to improved communication functions of organizations.

The results of the model analysis confirm that:

- The relationship between E-marketing and its dimensions: positive effect on (E-Service; E-Distribution; Website Confidentiality), and negative effect on (E-Pricing; E-Promotion).
- The application of e-marketing does not lead to improved customer satisfaction. In fact, the direct relationship is very weak.
- There is a positive relationship between e-marketing and interactive management.
- There is a positive relationship between interactive management and customer satisfaction. However, there is an indirect relationship between e-marketing and customer satisfaction, with interactive management playing a crucial mediating role. This relationship is said to be partial.

The fit to the study model is not satisfactory enough to guarantee the overall validity of the model. Based on the results of the study for the target sample (Djezzy-Saida), the proposed model was modified as shown in the following path diagram:

Fig .3. Proposed model



Djezzy-Saida Corporation offers preferential information via SMS or the internet about its various services and also provides attractive rates for its online services. You can also access the organization's services at any time. The organization handles all interactions with website customers privately and securely.

Djezzy-Saida aims to enhance its services and meet customer needs, introducing new and appropriate ideas. Djezzy Corporation is committed to providing excellent customer service and simplifying transaction procedures.

The organization also hires highly qualified and competent employees to retain its current clients through services that meet their needs, thereby generating customer loyalty.

Recommendations:

- Invest in AI-driven chatbots and 24/7 support.
- Expand digital distribution channels (apps, online stores, partnerships).
- Redesign promotional campaigns to be more interactive and personalized.
- Train staff in proactive digital engagement.
- Focus on improving promotion and privacy, as these reduce overall model fit (GOF).

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