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The impact of Artificial Intelligence on Customer Loyalty in Moroccan companies.

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Abstract

In a constantly changing world, competitiveness is becoming more and more pronounced. Consumer behavior has changed and the purchasing and payment methods are becoming more digitalized. Thus, the use of a well-defined strategy to attract, satisfy and retain customers is essential. Hence, the integration of AI into this process is an inevitable opportunity. With this in mind, this paper focuses on the confidentiality of consumer information and their behavior in order to satisfy and retain them through AI.

To do this, this article is divided into three main parts. A theoretical overview as well as the development of variables and the presentation of hypotheses constitute a decisive phase in us. Then, it is wise to stimulate the methodology chosen for our research, the development and administration of questionnaires as well as the software for processing the data collected. The last part is reserved for the interpretation, discussion of the results as well as the proposal of suggestions intended for entrepreneurs and managers. In this regard, a hypothetical-deductive reasoning is adopted, as well as a questionnaire was administered to 50 companies in the Casablanca-Settat region.

The data were processed by the statistical software SPSS version 26. In addition, the data relating to the respondents and the companies were illustrated via graphical representations. However, ANOVA, file and correlation tests are interesting in our case. The results of the correlation have specified the importance of AI in the social field, the confidentiality of customer information and their loyalty. In addition, a summary of the process of developing this test as well as determining the situation of the hypotheses and the implication and the limits are judicious to finalize this research.

Keywords : Artificial intelligence (AI) ; Customer satisfaction ; Social sphere ; Moroccan company; SPSS.

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Introduction

AI plays a crucial and constantly evolving role in customer retention. With the application of technologies such as machine learning and chatbots. It offers the possibility of studying customer data to identify their tastes and behaviors with the aim of anticipating their requests. It also has the ability to track customer satisfaction indexes. This enables the company to position itself effectively in the market.

In addition, artificial, intelligence (AI) is now at the center of digital transformations that are affecting all sectors of activity. AI, thanks to its analytical, learning and automation skills, helps to improve the efficiency of processes and improve decision-making. It is particularly used in the financial, e-commerce and telecommunications sectors to personalize the user experience and improve the security of operations (Russel & Norvig, 2020). Examining the benefits and challenges of integrating AI into KYC procedures is crucial from this perspective in order to better understand how it will affect customer identification and the future of digital interactions (Jain, 2023).

Similarly, the process of knowing your customer, often referred to by the acronym KYC (Know Your Customer), has become a crucial challenge for companies, especially in the banking and financial sector. It involves all the measures implemented to confirm the identity of customers, prevent fraudulent activities and ensure compliance with regulatory standards (Arasa, 2015). AI has an important role in automating KYC (know your customer), by promoting data analysis and identifying suspicious behavior more effectively, unlike the traditional approach.

The convergence of AI and KYC will not only improve business security and compliance but also strengthen customer loyalty. AI can optimize the onboarding process and make verification faster and smoother, reducing friction and improving the user experience. Additionally, analyzing behaviors and preferences allows businesses to provide more personalized services, leading to increased customer satisfaction and engagement (Chen & Prentice, 2024).

In this regard, by focusing our study on the role of social domain and the confidentiality of consumer information, our main question is formulated as follows: To what extent does artificial intelligence impact customer loyalty in Moroccan companies?

So, the intended aim of this article is to clarify the importance of AI and IT training in securing customer data. To this end, our paper is divided into three main sections. The first is a theoretical overview of artificial intelligence, customer relationship management (KYC) and the presentation of our conceptual framework and hypotheses. Next, we present our methodology. And finally, the last section is reserved for interpretation, discussion of the results and suggested recommendations.

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We administered a questionnaire to 50 companies in the Casablanca-Settat region. The data were processed using SPSS version 26 statistical software. Finally, we will conclude our essay with some limitations that researchers can take seriously to conduct academic work in greater depth.

1. Literature review

1.1. AI and customer loyalty : theoretical foundations

The digital revolution in the world has changed the strategy of entrepreneurs. Also, the behavior of consumers in terms of prospecting and purchasing has been fully influenced. In this perspective, it is wise first of all to acquire a holistic vision on the concepts mentioned in our paper.

1.1.1. AI : theoretical overview

Artificial intelligence is a technology that can help optimize municipal administration and planning procedures, improve ecological and living conditions, or encourage citizen involvement in decision-making processes (Othengrafen et al., 2025). It is a tool that helps companies locate consumers, identify their expectations, and analyze their behavior (Hari et al., 2025). Thus, the same author specifies that AI also helps reduce expenses and optimize the efficiency of customer service, marketing, and customer management. In addition, according to (Prasetyo et al., 2025), AI is an instrument that optimizes the management of open innovation projects by merging different sources of knowledge, strengthening cooperation, and providing strategic information to guide decisions.

Furthermore, AI is a technology that increasingly relies on large-scale and structured experiments, generic pattern recognition algorithms, and modularized techniques (Dorigo et al., 2025). AI applications are the result of deep collaboration between end users, experts, and data scientists through a shared language (Boaro et al., 2025). AI systems are designed to operate with varying degrees of autonomy, which indicates that they possess a certain measure of independence in their actions, without systematically relying on human intervention (Saam, 2024).

1.1.2. KYC : Definition of concepts and objective

Know-your-customer (KYC) regulations in the financial sector require institutions to focus on confirming identity, suitability, and assessing associated risks while preserving a business relationship (Hannan et al., 2023). Manual extraction of identification data, such as passport photos and background checks for new customers, has proven to be a laborious operation for individual banks, compounded by the massive scale of KYC identity verification (Vinther

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Daugaard et al., 2024). Identity verification uses methods to authenticate users' identities and ensure compliance with regulations such as KYC (Tunzina et al., 2024).

KYC allows individuals to share their financial information with financial services and other providers in favor of KYC platforms (Arner et al., 2020). KYC is an essential process that allows users to benefit from the services offered by entities, highlighting its crucial role in complying with regulatory standards (Yadav & Bajpa, 2020). The KYC process should be completed once by each customer, and not at each institution that customer collaborates with (Parra Moyano & Ross, 2017).

1.2. Presentation of variables and development of hypotheses

1.2.1. AI and Customer Information Privacy

The use of artificial intelligence systems to classify customers imposes a primary obligation on companies, including ensuring data protection and honoring consumer autonomy (CNIL, 2017). The same author specified that this implies embracing ethical methods that encourage fairness and reject all kinds of discrimination. Finding such a balance is crucial to maintaining customer trust while using AI responsibly (Union Interparlementaire, 2025).

More and more companies are focusing on using artificial intelligence (AI) systems to classify their customers, with the aim of improving their customer management and increasing their profits (Bitrix24, 2024). This author also noted that these devices facilitate the examination of vast volumes of customer data, such as purchasing habits, previous exchanges and individual inclinations, in order to assign a value or rank to each customer. This classification, generally based on predictive models, supports companies in detecting their most profitable customers or those with the most potential for future prospects, thus giving them the opportunity to adapt their proposals and strategically allocate their resources (Langlois Avocats, 2023).

However, this approach raises ethical issues and questions. Automating prioritization can cause unintentional discrimination if AI models are biased or poorly designed (Bpifrance, 2023). The same author gives the example that if the information used to train the system reproduces disparities or prejudices that are already present, these distortions can be accentuated, neglecting certain groups of customers or unfairly favoring others. In addition, customers categorized as « lower priority » could consider this as a form of exclusion or discrimination, which could tarnish the company's image (IBM, 2023). Based on this, our first hypothesis is: Artificial intelligence is closely correlated with consumer privacy.

1.2.2. AI and the Social Consumer Domain

While computer science and engineering are essential to the technical evolution of artificial intelligence, the contribution of social sciences is equally vital (Ménissier, 2023). The same

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author stated that these studies help to contextualize technologies by analyzing consumer actions, ethical issues, and the societal impacts of AI-based business methods. This harmony between technological progress and societal reflection is essential for an AI implementation that is not only efficient, but also responsible and human-centered (UNESCO, 2021).

There is an increasingly notable intersection between social sciences and artificial intelligence (AI), which allows a better understanding of human behaviors and influence on social dynamics (Abifandi-Cedeño et al., 2025). The same authors specified that artificial intelligence offers social science researchers powerful instruments for analyzing large volumes of data, whether social networks, surveys or demographic data. Using machine learning algorithms, we are now able to detect trends, simulate human actions or anticipate societal phenomena, such as the diffusion of ideas, migratory flows or changes in political preferences (Ackermann et al., 2025). The same authors indicated that these instruments provide an essential perspective for disciplines such as sociology, economics and social psychology, opening new avenues for research and knowledge use.

However, the use of artificial intelligence in the social sciences raises ethical and methodological questions (Rahman et al., 2025). The same authors noted that the acquisition and examination of sensitive data, such as those from social media, can raise questions about privacy and consent of participants. In addition, the algorithms deployed can reflect or intensify biases present in the data, which could distort the results and maintain social disparities (Haque et al., 2025). The same authors stated that it is therefore crucial that social scientists work together with AI professionals to create systems that are ethical, transparent and attentive to human rights, while seeking to exploit the potential of AI for a better understanding of the complex dynamics of our contemporary societies. Referring to the social domain, our second hypothesis is presented below: AI has a significant and positive impact on customer behavior.

1.2.3. AI and customer loyalty

While computer science and engineering are essential to the technical evolution of artificial intelligence, the contribution of social sciences is equally vital (Ehess, 2019). The same author specified that these studies help to put technologies into context by analyzing consumer actions, ethical issues, and the societal repercussions of AI-based business methods. This harmony between technological progress and societal reflection is essential for an AI implementation that is not only efficient, but also responsible and human-centered (Marcellis-Warin et al., 2020).

The use of artificial intelligence (AI) in customer loyalty strategies is radically transforming the way companies communicate with their customers (Döring et al., 2025). The same authors

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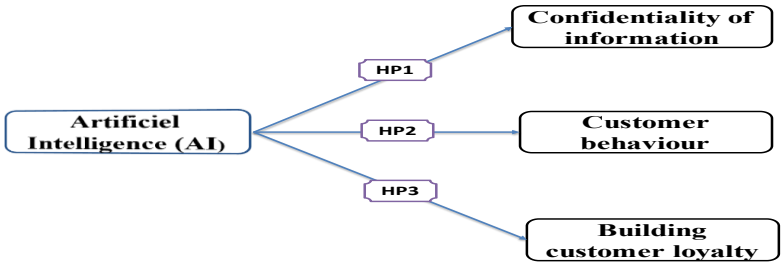
indicated that by using sophisticated data analysis algorithms, AI is able to study purchasing habits, personal tastes, and previous interactions with customers in order to personalize their experiences. For example, AI systems are able to suggest personalized products or services to each consumer, offer special promotions at the ideal time, or predict future demands, thereby increasing their brand loyalty (Campbell et al., 2025). Furthermore, the same authors reported that artificial intelligence facilitates the optimization of loyalty programs by identifying the most profitable customer segments and adapting rewards to increase their effectiveness.

However, despite the considerable benefits that AI brings in terms of loyalty, it also creates issues related to ethics and the protection of personal data (Meier, 2025). The same author stated that the frequent exploitation of personal data requires clear authorization from customers and transparency on the use made of this information. In addition, too much personalization, if not well managed, can make customers feel intrusive or manipulated (Richards, 2025). The same author specified that in order to make the most of artificial intelligence while maintaining consumer trust, companies must ensure that their methods comply with regulations.

Based on this previous work, we formulated our third hypothesis as follows: Artificial intelligence (AI) favorably impacts customer loyalty. Following the analysis carried out previously, we developed our conceptual framework which illustrates the link between our variables as well as the three hypotheses formulated.

FigureN°1 : Conceptual framework of our article



Source : Ourselves

2. Research methodology

Theoretical research involves studying the concepts presented in this article. Empirical analysis enables us to compare these theories with the reality observed in the field (Denzin and Lincoln, 2011). In addition, the hypothetico-deductive approach, which is central to our methodology, is based on the development of hypotheses and their evaluation through data collection and analysis.

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In order to respect the scientific method of the development of our paper, it is interesting to carry out a quantitative analysis in order to examine the data and apply statistical studies (Malhotra et Bouguerra, 2007). This method aims to deduce conclusions based on indications in order to evaluate the behaviors of a population (Vandercammen et Gauthy-Sinechal, 2014). In addition, this method offers a strong guarantee of generalization of the results (Malhotra et Bouguerra, 2007).

In the same vein, we administered our questionnaire to 50 Moroccan companies in the Casablanca-Settat region. We used the five-level Likert scale (strongly agree, agree, neutral, disagree, strongly disagree). The questionnaire is divided into two parts, one of which is reserved for collecting information on companies and respondents, and the other for their attitudes. In other words, the examination of the theoretical framework helped us define our problem and establish the three hypotheses stated below :

Hypothesis 1 : Artificial intelligence is closely correlated with consumer privacy ;

Hypothesis 2 : AI has a significant and positive impact on customer behavior ;

Hypothesis 3 : Artificial intelligence (AI) has a positive impact on customer loyalty.

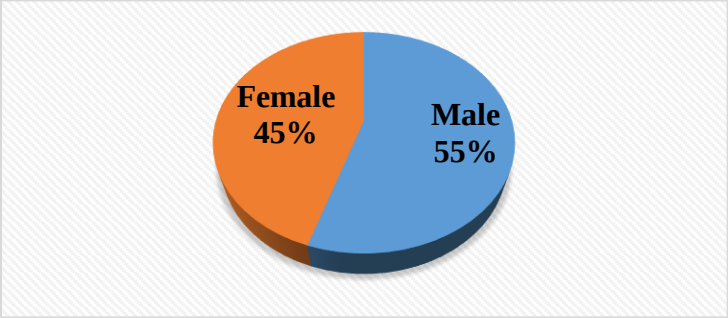
3. Interpretation of results

3.1. Descriptive statistics

The expected objective of our empirical study is to evaluate our hypotheses, however, it seems interesting to us to present statistics on the respondents in order to have a holistic idea of their levels of education, their genders and the activity of the companies.

To this end, this pie chart reflects a distribution of the participants in our survey according to their gender. Men constitute 55% of the total, while women represent 45%. Despite gender diversity, women play a crucial role in the socio-economic progress of the country, as well as in customer loyalty at the level of organizations.

Figure N°2 : Distributions by gender



Source : Ourselves

Furthermore, from this diagram, it is evident that most of the managers who took part in our study have a fundamental or professional degree, representing 55% of the total. However, the

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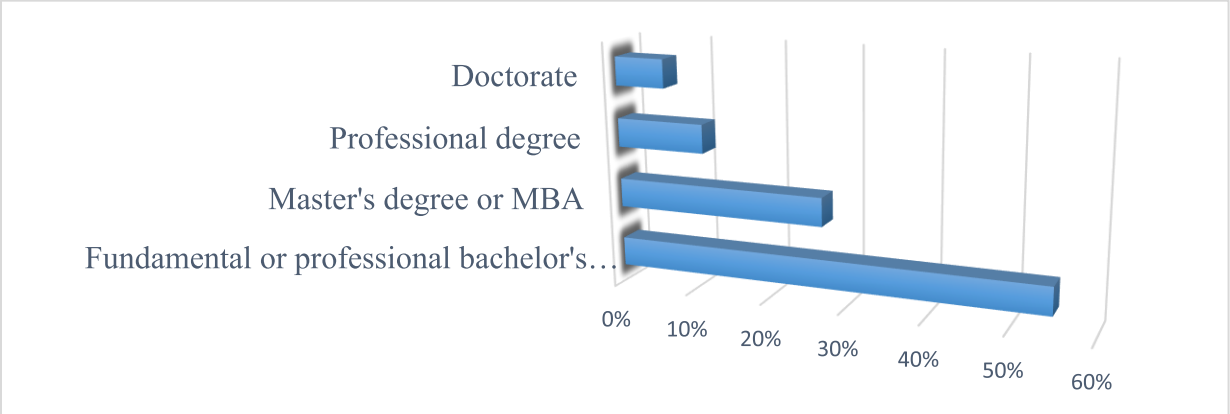
proportion of participants with a master's or MBA degree is 27%, while those with a professional degree and a doctorate have 11.5% and 6.5% respectively.

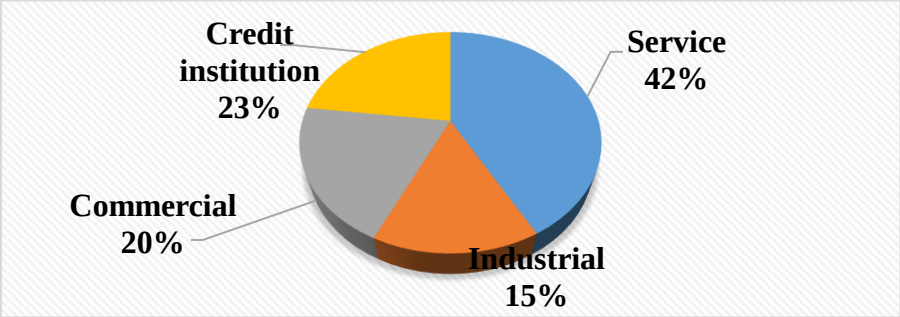
Figure N°3 : Distribution of interviewees according to their level of education



Source : Ourselves

The statistics reveal a marked predominance of service activities (42%) compared to other sectors of activity. Industry (15%) and commerce (20%) follow closely, after credit institutions (23%). It is deduced that these sectors require an efficient strategy in order to attract customers and satisfy them.

Figure N°4 : Distribution of SMEs according to their sectors of activity



Source : Ourselves

3.2. Correlation test

After having started the phase of the presentation of the descriptive statistics, it is appropriate to present the correlation tests between our variables in order to evaluate our hypotheses.

Reading this table allows us to conclude that our model justifies a considerable part (64.4%) of the variance of the dependent variable, highlighting a significant correlation between the independent variables and the result. The adjusted R^2 (0.467) is slightly lower, but remains adequate to understand a good adaptation after considering the number of predictive variables. The standard error is acceptable (Durbin-Watson of 1.594), the model was able to satisfactorily explain the impact of AI on our three variables.

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Table N°1 : Coefficient of determination R-squared and the Durbin Watson test

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	,773[a]	,644	,467	,518	1,594

a. Predictors: (Constant), AI has an impact on privacy, social domain and customer loyalty?

b. Dependent Variable : Ensure confidentiality, take into account the social domain, build customer loyalty

Source : SPSS 26

The ANOVA table mentioned below allows us to ensure the relevance of our regression model to justify the dependent variable. The coefficient F (6.074) shows significance with a p-value of 0.001, which confirms that the model is statistically acceptable.

Table N°2 : Ficher test

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	3,184	3	1,061	6,074	,001[b]
	Residual	8,036	46	,175		
	Total	11,220	49			

a. Dependent Variable : AI Impacts Privacy, Social, and Customer Loyalty?

b. Predictors: (Constant), Ensure confidentiality, take into account the social domain, build customer loyalty

Source : SPSS 26

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Table N°3 : Ficher test

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	3,184	3	1,061	6,074	,001[b]
	Residual	8,036	46	,175		
	Total	11,220	49			

a. Dependent Variable : AI Impacts Privacy, Social, and Customer Loyalty?

b. Predictors: (Constant), Ensure confidentiality, take into account the social domain, build customer loyalty

Source : SPSS 26

In order to test the effect of artificial intelligence on our previously mentioned variables, we resorted to performing the regression test presented in the following table. The results obtained, in particular the p-values, are almost 0.001 for all relationships. So, the relationship is significant and positive between artificial intelligence and our three variables.

Table N°4 : Regression testing

Coefficients[a]

Model		Unstandardized Coefficients B	Std. Error	Standardized Coefficients Beta	t	Sig.
1	(Constant)	,714	,278		2,566	,001
	Ensure confidentiality	,010	,095	,032	,103	,000
	Taking into account the social domain	,094	,057	,216	1,651	,001
	Building customer loyalty	,135	,101	,416	1,343	,001

a. Dependent Variable : AI Impacts Privacy, Social, and Customer Loyalty?

Source : SPSS 26

3.3. Discussion of results and recommendations

3.3.1. Discussion of résults

According to the interpretation of the results obtained, the coefficient B is (0.010), thus, for each increase of one unit of AI, the confidentiality of customer information also increases. In addition, the p-value of 0.000 means that the link is positive between AI and data

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confidentiality. Hence, our first hypothesis is validated. This statement confirms the work of (Bpifrance, 2023) and (IBM, 2023).

Furthermore, the indicator B (0.094) means that the AI unit increases with a percentage of 9.4% with the customer behavior unit. Moreover, the p-value of 0.001 shows that the relationship is highly significant. Thus our second hypothesis is validated. This confirmed the studies conducted by (Rahman et al., 2025) and (Haque et al., 2025).

Furthermore, the p-value of 0.001 means that AI is closely and significantly related to customer loyalty. The increase in AI units and customer loyalty increase simultaneously with a 13.5% according to the coefficient of B (0.135). Thus, our third hypothesis is also validated. Which confirms the theory mobilized from our study of (Meier, 2025) and (Richards, 2025).

3.3.2. Recommendations and perspectives

Artificial Intelligence (AI) is essential to strengthen customer loyalty by protecting their data and taking into account their behavior. Thanks to the automation of identity verification and data analysis, AI makes the KYC process faster while improving security and compliance with regulatory standards. In addition, AI is considered an effective tool for companies wishing to improve their interaction with their customers. Thus, a series of recommendations can be concluded from our study. These suggestions are primarily intended for entrepreneurs :

- Invest in customized AI solutions : It is essential to identify and assess internal infrastructures and skills to ensure effective integration;
- Comply with regulatory standards : It is wise to opt for careful administration to ensure the integrity of AI, security and compliance with regulations (ISO 27001, etc.). Its application must comply with legal standards in terms of secrecy and transparency;
- Provide continuous training adapted to the needs of staff : It is interesting to train employees in the use of AI and to make them understand its benefits in order to avoid any resistance to change and facilitate the successful integration of AI.

In other words, a series of suggestions are presented for policy makers:

- Establish a clear and adaptable regulatory framework : It is essential that policy makers put in place adequate regulation to deal with the excessive evolution of artificial intelligence (AI). It is essential to opt for a strategy that is adaptable to technological progress;
- Intensify national and international collaboration and partnerships : The issues related to loyalty and AI are experiencing a boom in constant change. It is essential to standardize

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regulations at the global level. Thus, the Moroccan government must encourage discussion among stakeholders in order to establish common standards ;

- Encourage innovation and investment in AI : It is crucial to encourage research and development in artificial intelligence. This can be thanks to tax advantages granted to companies and subsidies intended for research centers such as universities.

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Conclusion

The theoretical development of our paper allowed us to formulate the hypotheses mentioned above. For this we adopted a hypothetical deductive reasoning, and the collected data were processed by the SPSS 26 software. The correlation tests showed the validation of our hypotheses. Thus, AI is an effective and essential tool that improves customer loyalty and the protection of their information by taking into account their behaviors.

From this perspective, artificial intelligence plays an essential and constantly evolving role in customer loyalty. Thanks to technologies such as machine learning and chatbots, it can analyze customer data to better understand their preferences and behaviors, and thus anticipate their needs. What's more, AI can monitor customer satisfaction signals, enabling the company to adjust and position itself optimally in the market.

Artificial intelligence (AI) is revolutionizing the fields of customer knowledge management and loyalty. From a managerial perspective, it offers companies the opportunity to optimize complex identity verification processes while minimizing fraud risks. This digital transition is not limited to improving operational efficiency, it also improves the customer experience, an element that has become essential in a successful loyalty strategy.

However, the study will be more in-depth if we expand the sample size and target other sectors of activity. In addition, we can adopt a mixed method to identify all possible variables and integrate the most important ones into our research. We can also add other tests and methods such as structural equations to have a more precise vision of our models, the measurements of our variables and more robust and reliable results.

List of abbreviations

AI	:	Artificial intelligence
ANOVA	:	Analysis of variance
KYC	:	Know your customer
MBA	:	Master of Business Administration
SME	:	Small and medium-sized enterprises
SPSS	:	Statistical Package for Social Sciences
UNESCO	:	United Nations Educational, Scientific and Cultural Organization

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