

Leadership, innovation, and profitability as key strategies to enhance digital marketing: real estate sector, Ecuador

Liderazgo, innovación y rentabilidad como estrategias clave para potenciar el marketing digital: sector bienes raíces, Ecuador

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Abstract

This study follows a mixed, explanatory, sequential design. Quantitative data were collected through surveys ($n = 45$) and qualitative data through semi-structured interviews, processed using inferential and inductive content analysis. The quantitative results revealed significant associations between leadership and profitability ($p = .35$, $p = .019$), as well as between digital marketing and economic performance ($r_s = .45$, $p = .002$). Leadership showed consistent effects in quantile regression with $\beta = 1.00$ ($p < .001$) in quantile q25 and $\beta = 0.667$ ($p < .05$) in q50. In contrast, technological innovation did not show statistical significance ($\beta = -0.03$, $p = .581$), although its effect was marginal in the lower profitability ranges. From a qualitative perspective, participants described a digital transition environment, where inspirational leadership drives the use of platforms. It is concluded that limitations in training and automation persist.

Key words: Transformational leadership, digital marketing, technological innovation, real estate.

Resumen

El presente responde a un diseño mixto, tipo explicativo secuencial, se recolectaron datos cuantitativos mediante encuestas ($n = 45$) y datos cualitativos a través de entrevistas semiestructuradas, procesados bajo análisis inferencial y de contenido inductivo. Los resultados cuantitativos revelaron asociaciones significativas entre liderazgo y rentabilidad ($p = .35$, $p = .019$), así como entre marketing digital y desempeño económico ($r_s = .45$, $p = .002$). El liderazgo mostró efectos consistentes en la regresión cuantílica, con $\beta = 1.00$ ($p < .001$) en el cuantil q25 y $\beta = 0.667$ ($p < .05$) en q50. En contraste, la innovación tecnológica no evidenció significancia estadística ($\beta = -0.03$, $p = .581$), aunque su efecto fue marginal en los tramos inferiores de rentabilidad. Desde el enfoque cualitativo, los participantes describieron un entorno de transición digital, donde el liderazgo inspirador impulsa el uso de plataformas. Se concluye que persisten limitaciones en capacitación y automatización.

Palabras clave: Liderazgo transformacional, marketing digital, innovación tecnológica, bienes raíces.

INTRODUCTION

In the context of marketing in the digital age, technological innovation and transformational leadership have established themselves as strategic pillars for organizational competitiveness, acting as a compass and engine that guides and drives the interconnected elements of the enterprise (Morales Pulido, 2025). These elements not only redefine the way businesses interact with their customers, but also have a direct impact on their profitability and sustainability (Chaffey & Ellis-Chadwick, 2019; Kotler & Keller, 2012).

Digitization has been shown to improve the outreach, customer loyalty, and operational efficiency in real estate (Laguyás *et al.*, 2022; Zaikauskas *et al.*, 2022). This digital transformation is no longer an option but a reality, especially in organizations that need to adapt to dynamic markets. Tools such as artificial intelligence, blockchain, CRM, big data, and virtual reality are transforming the consumer experience and strategic decision-making (Hernández Pérez & Müller Pérez, 2024; Pleyers & Poncin, 2020; Saari *et al.*, 2025; Yan *et al.*, 2024). It is crucial to emphasize that implementation is not just about integrating technology, but also about moving toward a profound transformation of the organizational culture in fundamental areas such as restructuring internal processes and eliminating processes that lack value or do not promote a proactive attitude towards change. As a result, digital transformation not only promotes improvements in operations, but also acts as a catalyst for innovation, particularly in enterprises in a developing country.

Various studies provide scientific evidence supporting the claim that strategic leadership and technological innovation are catalysts for change in the business models of the raw materials industry. For example, Wang *et al.* (2024) analyzed the case of Lianjia (Beike), demonstrating how process digitization, artificial intelligence, and data management enabled a traditional real estate company to transform itself into a highly attractive digital platform.

For his part, Carota (2025) analyzed China Vanke Co. Ltd., the impact of technological innovation on traditional design, and the company's adaptation to new demands in the Chinese market. These innovations were key to remaining competitive

and were part of a broader strategy. Likewise, Morales Pulido's (2025) research explored how digital transformation could function as a strategic innovation tool for SMEs, given that digital transformation, traditionally used by large corporations, found an unexplored opportunity in this sector.

Digitization also presents structural, regulatory, and equity challenges that must be addressed from a perspective of ethical and transformational leadership (Laguyás *et al.*, 2022; Nuñez Cudriz & Miranda Corrales, 2020; Ramón Ramón *et al.*, 2023). Likewise, studies such as that by Pulido-Martos *et al.* (2023) highlight how transformational leadership fosters innovation, employee engagement, and organizational productivity. In summary, the importance of this topic lies in reinforcing the idea that there is a connection between competitiveness in the real estate sector, which is the result of synergy among leadership, technology adoption, and the institutional environment. All of this is reinforced by ethical management based on values such as integrity, fairness, and technical training, which promotes organizational cohesion and has a positive effect on human teams (Kim & Kim, 2017; Ramón Ramón *et al.*, 2023). Furthermore, although literature on digital marketing, technological innovation, leadership, and profitability has widely reported the benefits of these constructs in the real estate sector, most of these studies focus on developed markets or large cities (Mohammad *et al.*, 2021; Shaheen, 2025), resulting in a less dominant trend in contexts such as Latin America, SMEs, and intermediate cities such as Machala, where structural, cultural, and technological barriers are different (Zambrano Farías *et al.*, 2023). Furthermore, few studies have explored the synergistic interaction of leadership, technology, and marketing as a driver of profitability or the synergistic result of these factors acting in unison.

On the basis of this identified gap, the following research questions are raised:

- How does transformational leadership influence the implementation of digital marketing strategies and the profitability of real estate companies in Machala?
- What impact do emerging technologies, such as virtual reality and big data analysis, have on the promotion, marketing, and profitability of the real estate sector in Machala?

- What are the main digital consumption trends in the real estate sector in Machala, and how do they influence the adoption of innovative marketing strategies and profitability?
- Which digital marketing strategies based on leadership and innovation are most effective in improving customer experience, increasing sales, and optimizing profitability in the real estate sector in Machala?

This research is part of a line of studies on digital transformation, organizational leadership, and technological innovation applied to business development in emerging markets (OECD/Eurostat, 2018; Schumpeter, 1934). On the other hand, the study seeks to address a well-defined geographical niche, namely intermediate cities and SMEs in a developing country. The fundamental purpose of this research was to determine the influence of transformational leadership and technological innovation on digital marketing strategies to increase the effectiveness of operations and profitability in the real estate sector in Machala.

A comprehensive conceptual model called the “Strategic Triad for Real Estate Transformation” is proposed, which articulates three key areas: Transformational Leadership, Innovation (virtual reality, big data, CRM), and Ethical Organizational Management. This triad acts synergistically to enhance operational efficiency, customer acquisition, and profitability in the real estate sector. It is expected that real estate companies that adopt transformational leadership will demonstrate greater technological innovation and more effective implementation of digital marketing strategies (Carota, 2025; Wang et al., 2024).

Figure 1.

Conceptual Model: Strategic Triad for Real Estate Transformation



The proposed model represents how the interaction of transformational leadership, ethical management, and innovation can strengthen customer loyalty and generate profitability in Internet service companies in Machala. In this context, innovation acts as a central axis, driven by organizational values and translated into effective digital marketing strategies. These strategies, by incorporating appropriate incentives, foster customer loyalty and strengthen the perceived value of the brand, enabling the building of sustainable relationships in a highly competitive market.

Hypothesis development

On the basis of the proposed conceptual model, four hypotheses have been formulated to analyze how transformational leadership, ethical management, and innovation influence the implementation of digital marketing strategies and the profitability of the real estate sector in Machala. These hypotheses offer a comprehensive perspective on the impact of these strategic factors on customer experience, operational efficiency, and business competitiveness in an environment marked by digital transformation and the need for differentiation.

- H1: Transformational leadership facilitates the effective implementation of digital marketing strategies, increasing profitability in real estate companies in Machala.
- H2: The implementation of emerging technologies, such as virtual reality and big data analysis, improves operational efficiency and profitability in the real estate sector in Machala.
- H3: Digital consumption trends in the Machala real estate market are driving the adoption of innovative marketing strategies, increasing the profitability of the sector.
- H4: Digital marketing strategies based on leadership and innovation significantly improve customer experience, sales, and profitability in the Machala real estate sector.

METHODOLOGY

The research uses a combined method, which is suitable for addressing complex topics that have been little studied. The approach will be carried out through a combination of quantitative and qualitative data processing (Creswell & Creswell, 2018, p. 213). In the initial stage, a sequential explanatory design was used, which is suitable for merging numerical and narrative perspectives in order to obtain a more comprehensive view of the topic under study (Creswell & Plano Clark, 2018). In the second stage, a parallel convergent design was used, as both quantitative and qualitative data were collected, examined, and interpreted completely independently, to be incorporated in the final stage in a discussion. This approach to the data facilitated the comparison and complementation of various data sources, thereby reinforcing the interpretative validity of the findings (Creswell & Plano Clark, 2018).

Population and sample: The general population of the study consists of all real estate agents residing in the city of Machala, both active and inactive. According to the records of the El Oro Association of Real Estate Brokers, the population consists of 423 registered agents: 256 women and 167 men. The sample consisted of 45 real estate agents (Laguyás *et al.*, 2022).

Data collection instrument: For the quantitative phase, a survey form with 12 closed questions was used, employing a Likert scale (1-5). For the qualitative phase, information was collected through semi-structured interviews based on thematic guidelines related to the subject of study.

Data Analysis Techniques: For the quantitative analysis, descriptive statistics (frequencies, measures of central tendency, and dispersion) and inferential statistics (Spearman's correlation, Mann-Whitney U test, and quantile regression) were used. The analysis was performed using the software SPSS version .27. In the treatment of qualitative data, the inductive content analysis was applied using the software ATLAS.ti version .24. In addition to the techniques listed above, the Spearman's correlation, the Mann-Whitney U test, and the quantitative regression were also used.

Validity: To ensure internal validity, the Cronbach's alpha coefficient was used, accepting a cutoff point ≥ 0.70 (Cronbach, 1951). In this regard, Quero Virla (2010) points out that Cronbach's alpha is useful for identifying elements that could be affecting the coherence of the whole, which is vital in empirical validation processes. Added to this is methodological triangulation (Creswell & Creswell, 2018) in order to support its validity. Finally, to strengthen external validity, interviews will be conducted with managers, directors, and advisors in the real estate sector in Machala. With a review of the literature and the quantitative and qualitative results obtained, the findings will be generalized to similar contexts.

RESULTS

Quantitative results

Tabla 1. Matriz de correlación y estadísticos descriptivos de las variables

	X11	X12	X13	X14	X17	X18	X19	X20	X21	X22
X11	1									
X12	0,30	1								
X13	0,57	0,57	1							
X14	0,30	0,16	0,37	1						
X17	0,51	0,17	0,19	-0,02	1					

X18	0,55	0,41	0,42	0,24	0,61	1				
X19	0,27	0,35	0,51	0,39	0,25	0,51	1			
X20	0,24	0,30	0,46	0,24	0,27	0,48	0,30	1		
X21	0,23	0,26	0,29	0,09	0,36	0,23	0,11	0,37	1	
X22	0,60	0,39	0,51	0,13	0,27	0,23	0,15	0,53	0,44	1

Table 1, in the Leadership indicators (X11, X12, X13), shows moderate correlations [0.30 - 0.57]. This indicates that employees who perceive that leaders encourage innovation and the use of digital tools (X11) also believe that leadership inspires the use of technology to improve processes (X12) and promotes a culture of continuous learning about digital marketing (X13). These values obtained in this construct show consistency in the measurement of the leadership construct. In the case of the Innovation indicator (X14), moderate correlations are observed with Leadership and digital tools [0.30] and Personalization of digital content [0.39], and low, almost nil, and negative correlations [X17 social media to attract customers=-0.02], which reinforces the theory of this construct as independent. Regarding

the marketing indicators (X17, X18, X19), the correlation values range from moderate to high [0.30-0.51], which reinforces the literature review those aspects such as the effectiveness of social media (X17), alignment with current market trends (X18), and the personalization of digital content (X19) are part of the same construct. Finally, the profitability indicators (X20, X21, X22) show better correlations than the previous construct [0.37-0.53], demonstrating that the items: Investment in digital marketing has increased sales or transaction closures, Companies that do not adopt innovative technologies lose competitiveness in the market, and The combination of transformational leadership and technological innovation is key to the sector's profitability, respond to the same dimension.

Figure 2.
Correlation matrix.

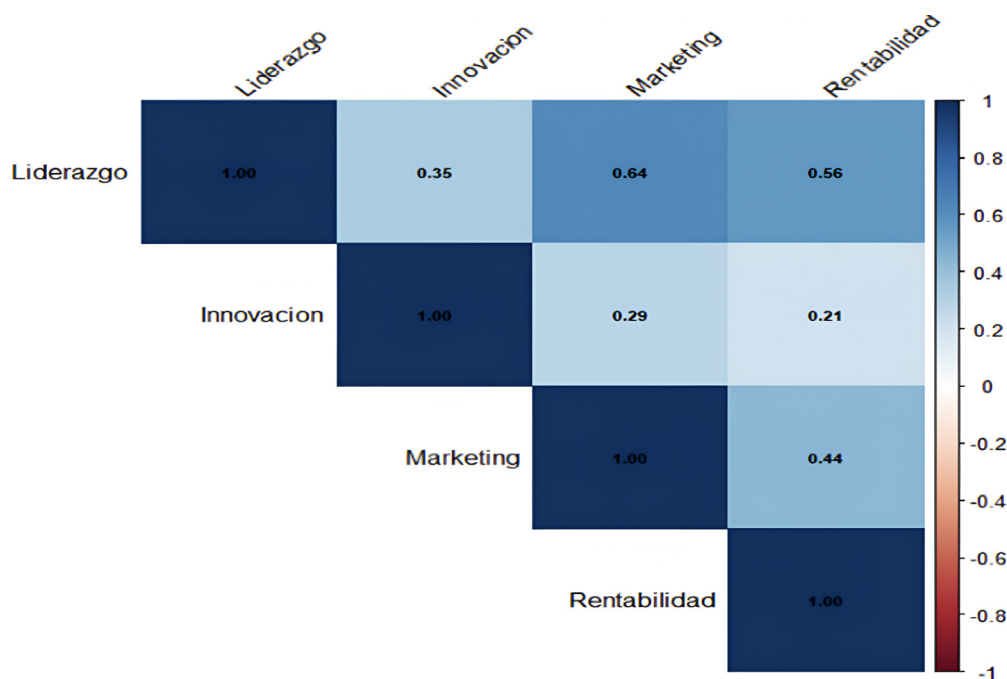


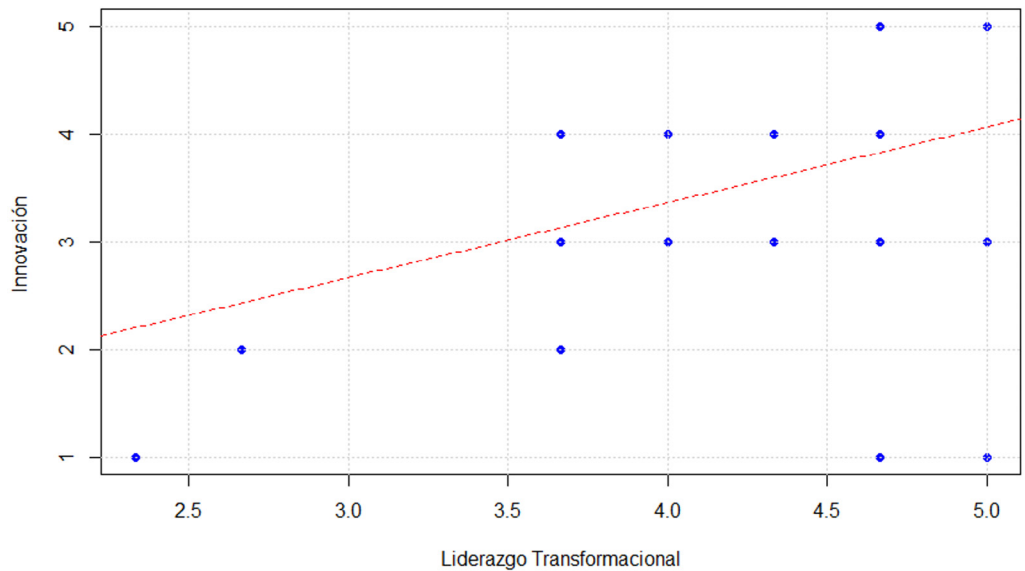
Figure 2 shows a strong positive association between Leadership and Marketing, with a value of $r = 0.64$, and the second association between Leadership and Profitability, which showed a strong positive value of $r = 0.56$. On the other hand, there was a moderate correlation between the Marketing construct and Profitability, with a value of $r = 0.44$. However, when looking at the values of the Innovation construct, it was noted that its relationships with the other dimensions were comparatively lower. For example, its relationship with the Leadership construct had a coefficient of $r = 0.35$, which was repeated with

the Marketing construct, where the relationship dropped to $r = 0.29$. In other words, Innovation associations remained in moderate ranges and never reached high levels of correlation in any other construct. Regarding the relationship between Innovation and Profitability, the lowest coefficient in the entire matrix was reported, with a value of $r = 0.21$. This distribution of values allows us to observe how empirical associations were grouped around different degrees of intensity, without the need to make additional inferences in this section.

Table 2. Hypothesis testing H1. Spearman’s correlation

Hypothesis	Route		Standardized Coefficient	Common error	Z- value	p	Inferior	Superior	Decision
H1	Leadership	→ Innovation	0,35	0,19	1,9	0,019*	-0,01	0,63	✓

Figure 3.
Relationship between Transformational Leadership and Innovation

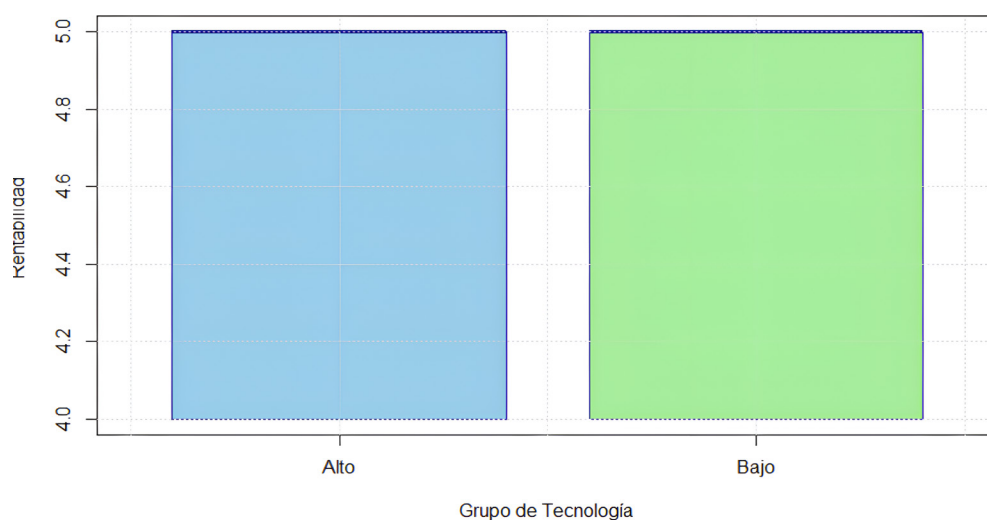


Hypothesis H1 proposed that transformational leadership facilitates the effective implementation of digital marketing strategies, increasing profitability in real estate companies in Machala. In this regard, and given that the data distribution did not meet the normality assumption (Shapiro–Wilk, $p = .019$), this relationship was tested using Spearman’s correlation. The results

showed a moderate positive correlation ($r_s = .35$, $p = .019^*$), indicating that as higher levels of transformational leadership are reported, there is also a proportional increase in the adoption of innovative tools for promoting real estate services through digital media. The analysis was conducted with a sample of $n=45$ real estate agents from the Machala Canton.

Table 3. Hypothesis test H2. Mann-Whitney U						
Technology Group	Mean	Median	Standard Deviation	N	p-value	Decision
High	4,58	5,00	0,50	26,00	0,71	x
Low	4,67	5,00	0,52	6,00	0,71	x

Figure 4.
Profitability by Technology Group



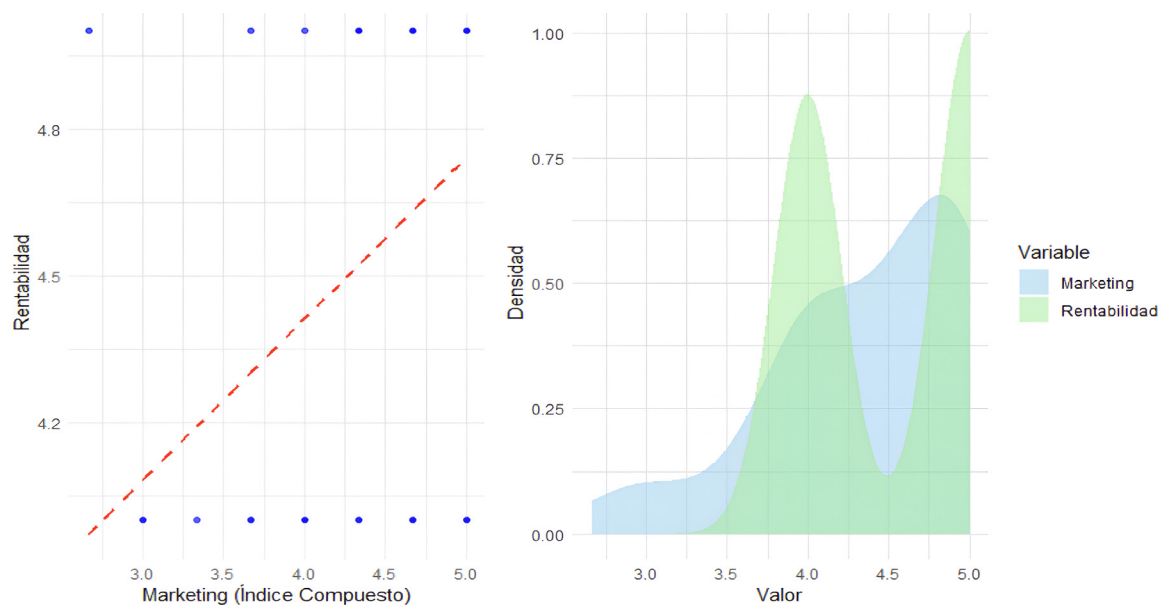
In hypothesis H2, the impact of emerging technologies on the real estate sector was examined, particularly through the technological innovation variable represented by item X14. In order to establish possible differences in levels of technological adoption, the nonparametric Mann–Whitney U test was used, since the assumption of normality was not met in the observed distribution.

The results of the Mann–Whitney U test used to compare profitability levels between two groups categorized by technology use: high level [4–5] and low level [1–2], did not show statistically

significant differences between the two groups, $U = 68.0$, $z = -0.48$, $p = 0.655$. The group with greater technological integration had a mean of 4.58 (SD = 0.50), while the group with less technology had a mean of 4.67 (SD = 0.52), both with a median of 5.00. The low effect size ($r = 0.085$) suggests that the differences observed in profitability scores did not reach a statistically significant level. Therefore, no differential impact attributable to the level of technology used in this comparison was evident, and the alternative hypothesis in this hypothesis is accepted.

Table 4. Hypothesis test H3. Sperman's correlation									
Hypothesis	Route		Standardized Coefficient	Common error	Z-value	p	Inferior	Superior	Decision
H3	Digital marketing	→ Sales	0,45	0,19	2,52	0,002**	0,11	0,7	✓

Figure 5.
Relación entre Marketing y Rentabilidad y Distribución



For hypothesis H3, this study examined whether digital marketing strategies were related to profitability levels in the Machala real estate market. The analysis was based on a composite index constructed from items X17, X18, and X19, contrasted with item X20 on commercial performance. As the data did not conform to the assumption of normality, the Spearman correlation test was applied. The results indicated a moderate positive and significant association ($r_s = 0.45$, $p = 0.002^{**}$), with a Z value = 2.52 and a confidence interval between 0.11 and 0.70. The analysis was carried out on a total sample of $n = 45$ participants, corresponding to real estate agents in the canton of Machala.

In addition, Figure 5 presents a graphical illustration of the behavior that has been observed. The scatter plot on the left establishes

a direct relationship between the marketing index and the profitability indices. Although the scatter plot is not compact, there is an upward trend in line with the sign of the coefficient ($r_s = +0.45$). The graph on the right shows the density curves corresponding to the variables: Marketing and Profitability. These curves are different in shape. The distribution of the marketing index (light blue) is skewed toward high values, which means that this is where most of the values are concentrated. For its part, the distribution of the profitability index (light green) is bimodal, with an initial rise towards the center, followed by a decline and then a second rise that does not go unnoticed, leading us to conclude that there is not a single concentration, but rather two distinct areas of concentration. This figure supports the interpretation of the data carried out so far.

Table 5. Hypothesis test H4. Ordinary least squares linear regression

Hypothesis	Route		Standardized Coefficient	Common error	Z-value	p	Inferior	Superior	Decision	
a H4	Leadership	→	Profitability	0.44	0.151	2.92	0.006**	0.136	0.745	✓
b H4	Innovation	→	Profitability	-0.084	0.151	-0.56	0.581	-0.388	0.221	✗

Note: Standardized coefficients obtained with normalized variables. Significance level: $p < .01$ (**).

Within the framework of hypothesis H4, it was analyzed how digital marketing strategies based on leadership and innovation significantly improve customer experience, sales, and profitability in the real estate sector in Machala. Table 5 shows the results of applying the traditional standardized linear regression model using the ordinary least squares (OLS) method to a sample of 45 real estate agents in the Machala canton. The results showed that

leadership had a positive and significant effect on profitability ($\beta = 0.44$, $p = 0.006$), with a Z value = 2.92 and a 95% confidence interval between 0.136 and 0.745, which supports H4a and rejects the alternative hypothesis. In contrast, for H4b, the innovation predictor did not reach statistical significance ($\beta = -0.084$, $p = 0.581$), since its confidence interval included the value zero $[-0.388$ to $0.221]$, which supports the decision not to accept the hypothesis.

Table 6. Hypothesis test H4. Quantile regression and OLS regression

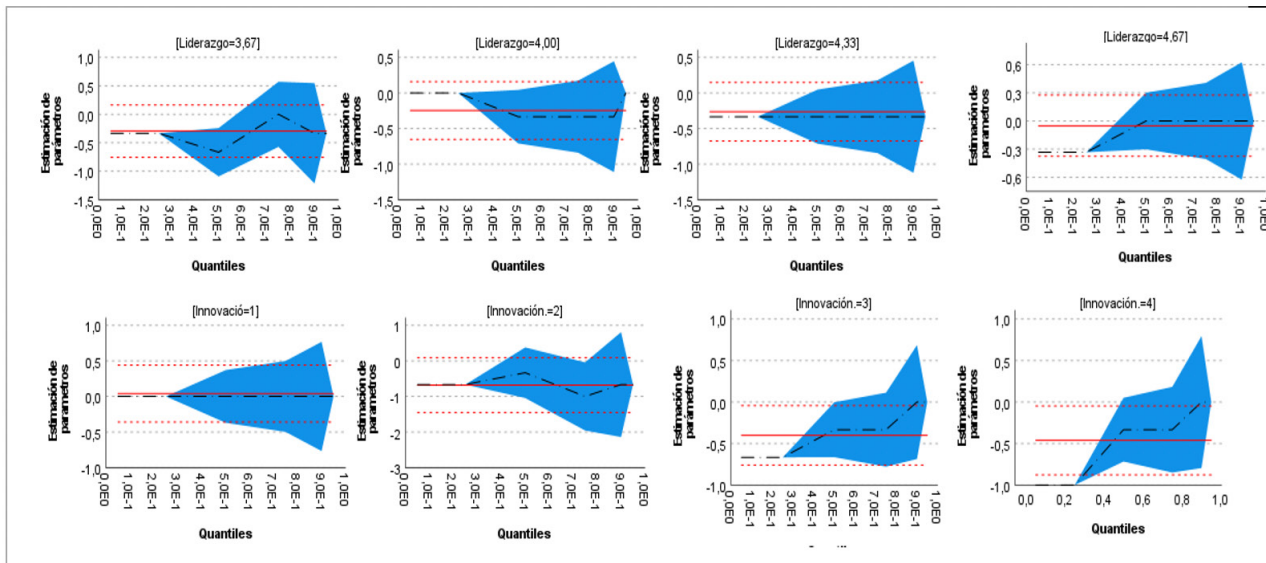
	q05	q10	q25	q50	q75	q90	q95	MCO
Pseudo_R2	0,659	0,617	0,587	0,531	0,453	0,281	0,234	
MAE	0,2296	0,2296	0,2296	0,1704	0,1704	0,2815	0,363	
Intercept	-0.095	0.533	0	1.667	3.75***	5***	5***	3.339***
	(1.442)	(1.36)	(1.31)	(1.222)	(0.944)	(0.495)	(0.388)	(0.418)
Leadership	0.714**	0.6*	1***	0.667*	0.25	0	0	0.301**
	(0.228)	(0.258)	(0.276)	(0.278)	(0.213)	(0.11)	(0.102)	(0.103)
Innovation	0.286 +	0.267	0	0	0	0	0	-0.03
	(0.178)	(0.147)	(0.142)	(0.086)	(0.059)	(0.031)	(0.045)	(0.054)

t-statistics in parentheses + $p < 0.10$; * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

The results of Table 6 are presented below. Hypothesis test H4. - Regression quantifies and OLS, the difference between the previous contrasts in Table 5. Hypothesis test H4 – Linear regression by ordinary least squares is based on classic bivariate correlations, while quantile regression allowed us to estimate the differential impact of predictors on different levels of profitability, from the lowest to the highest quantiles [q05;q10;q25;q50;q75;q90;q95;OLS]. The last column of Table 6 presents the results using the ordinary least squares (OLS) method as a reference for the average estimate.

Table 6 shows that the variable Leadership had positive effects on Profitability in several sections. Specifically, significant coefficients were recorded in the q25 ($\beta = 1.00$, $p < .001$) and q50 ($\beta = 0.667$, $p < .05$) quantiles. From there, the intensity of the effect began to decline until it reached 0. The innovation predictor behaved differently, showing positive values only in q05 ($\beta = 0.286$, $p < .10$) and q10 ($\beta = 0.267$), but without statistical significance. From q25 onwards, the effect disappeared (values of 0).

Figure 6.
Quantile Regression: Profitability ~ Leadership + Innovation by intervals



These differences can be seen in Figure 6. In the top row, which symbolizes leadership, the coefficients tend to increase in the intermediate quantiles, especially between q25 and q50, following an upward trend. Furthermore, in that region, the confidence intervals are reduced, indicating greater accuracy in the estimation. However, when the highest stages of the distribution are reached, this effect diminishes. The curve loses its direction, and the values approach zero.

On the other hand, the lowest row—related to innovation—shows a considerably flatter trajectory. Throughout most of the journey, the coefficients remain close to zero. In addition, the error bands show greater extension and dispersion, indicating low consistency in the estimate. In conclusion, although leadership appears to play a different role depending on the level of profitability, innovation fails to establish itself as a predictor with an evident impact on the model.

Figure 7.
Profitability according to Leadership and Innovation

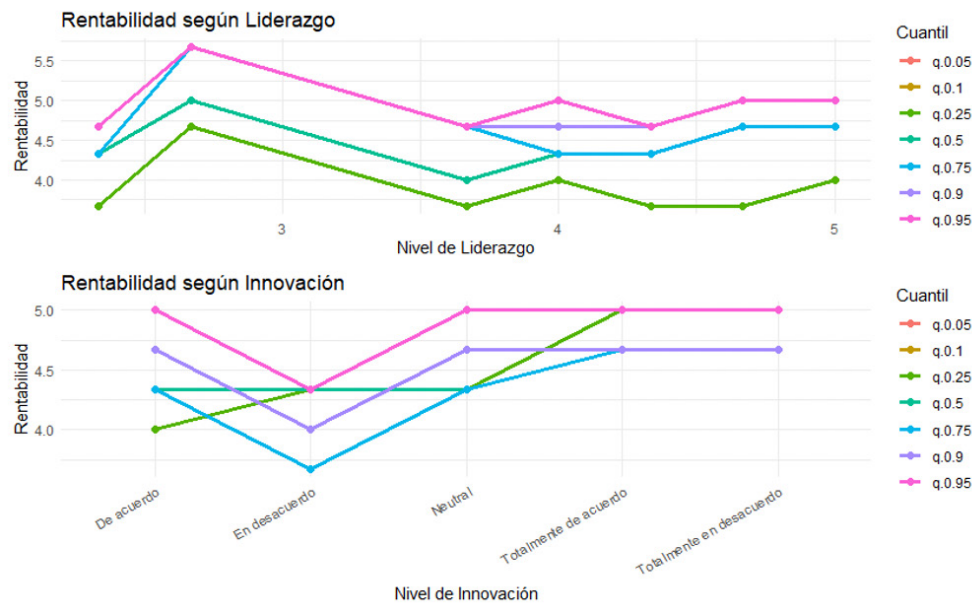


Figure 7 shows how projected profitability fluctuates across different levels of leadership (top graph) and innovation (bottom graph), according to delivery quantiles. In the top section, the lines indicate a clear trend: in the higher quantiles—primarily q0.75 and q0.95—profitability increases as perceived leadership levels rise. The figure presents lines that are not perfectly linear, but they do maintain a consistent pattern. Despite some fluctuations, the slope remains positive at intermediate and high leadership levels, indicating a more constant relationship.

On the other hand, the figure below represents a different pattern: the relationship between technological innovation and profitability is not governed by a clear model. Some curves stop at the beginning and then recover, others rise, and still others rise and cross over, and there are even sections where the values drop abruptly. Especially in the lower quantiles (q0.10 and q0.25), the behavior is more erratic. Although at certain levels—such as “Neutral” or “Strongly agree”—a slight recovery is achieved, the overall trajectory is unstable. This indicates that the impact of innovation, at least as measured in this study, does not behave uniformly nor offer a clear effect, which reinforces the findings obtained so far.

To conclude this section, the two graphs together reinforce the idea that transformational leadership has a stronger and more predictable link to profitability. In contrast, innovation appears to respond to other factors that were not directly captured in the proposed model.

Qualitative results

This section compiles the results obtained from the qualitative analysis, based on five semi-structured interviews conducted with key protagonists in the real estate sector in the town of Machala. The voices collected were not used as individual statements, but as resources linked to the actual conditions of the environment under analysis. The procedure proposed by (Elo & Kyngäs, 2008) and the comparative perspective of Vaismoradi et al. (2013) were used for the content analysis. This mix of methodologies not only enabled the identification of emerging categories, but also the preservation of the relationship between the discursive fragments and the structures that surround them. The new

categories were not established in advance; they emerged from direct interaction with the data through an iterative process of reading and coding, resulting in: organizational adaptability, strategic alliances, data analysis, process automation, payment capacity, continuous training, crime, digital inequality, and user experience.

Emerging categories in qualitative analysis

Digitization as a barrier and opportunity

Verbatim: “In recent years in real estate... if you don’t exist digitally, you simply don’t exist. We are in a stage of automation where a bot is responsible for responding to and pre-selecting our customers.” (Guide 2)

Interpretation: This citation reflects the perception of digitization as a mandatory condition for operating in today’s market and, above all, the ubiquitous presence of technology in business. Likewise, it was coded as “digital automation” and shows both the possibilities and limitations that teams face when integrating technology. The topic of technology presents both limitations and opportunities.

Transformational leadership in practice

Verbatim: “My manager motivates us a lot to sell, trains us, and challenges us to achieve our goals. He also combines transactional management in a very efficient way.” (Guide 5)

Interpretation: This testimony demonstrates the implementation of mixed leadership, where transformational elements (motivation and innovation) and transactional elements (bonuses, goals) coexist, which is a common practice in the real estate sector.

Resistance to change and induced rotation

Verbatim: “Resistance to change... some agents have left or switched to the competition, but it’s not as if they’ve done very well either.” (Guide 3)

Interpretation: The statement reveals internal tension regarding the adoption of technology by competitors, which has resulted in employee turnover, as some salespeople have left, causing disruptions in the organizational culture. This category was interpreted as “cultural resistance to innovation.”

Market expansion through technology

Verbatim: “I sold a house to someone in Italy, first over the phone, then with pictures, and finally via Zoom.” (Guide 5)

Interpretation: This quotation illustrates the ability of digital marketing to break down physical

barriers, expanding the reach of the business and moving from the local to the international arena. This emerging category was coded as ‘digital market expansion’. The literature review has presented abundant evidence to support this finding and reinforces the strategic value of this category for business growth.

Figure 8.
Percentage distribution of thematic codes. Heat map of co-occurrences.

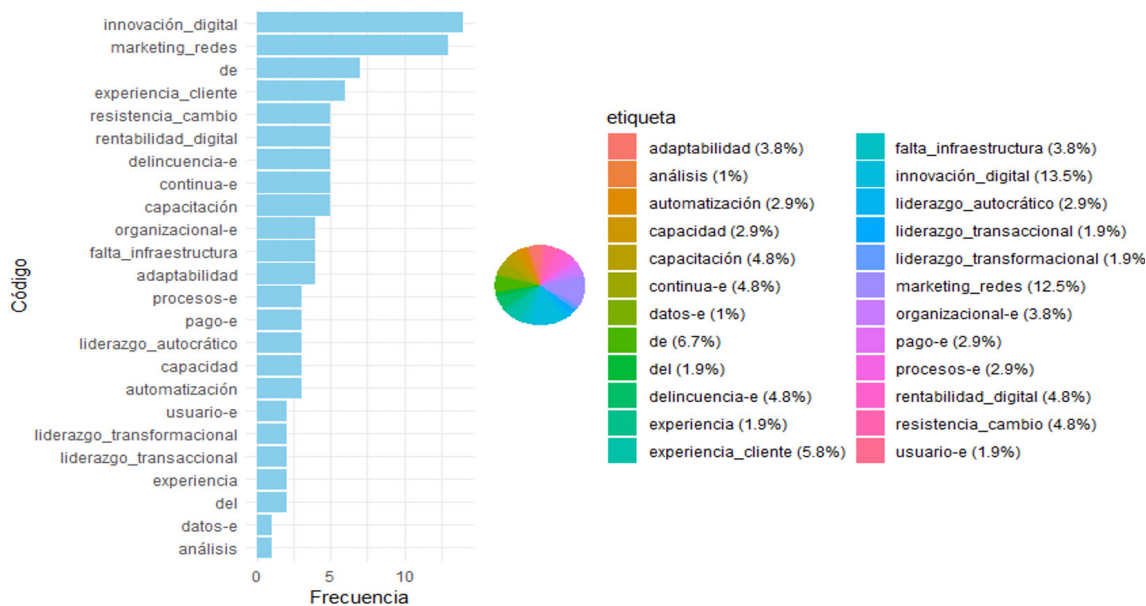


Figure 9.
Heat map of co-occurrences

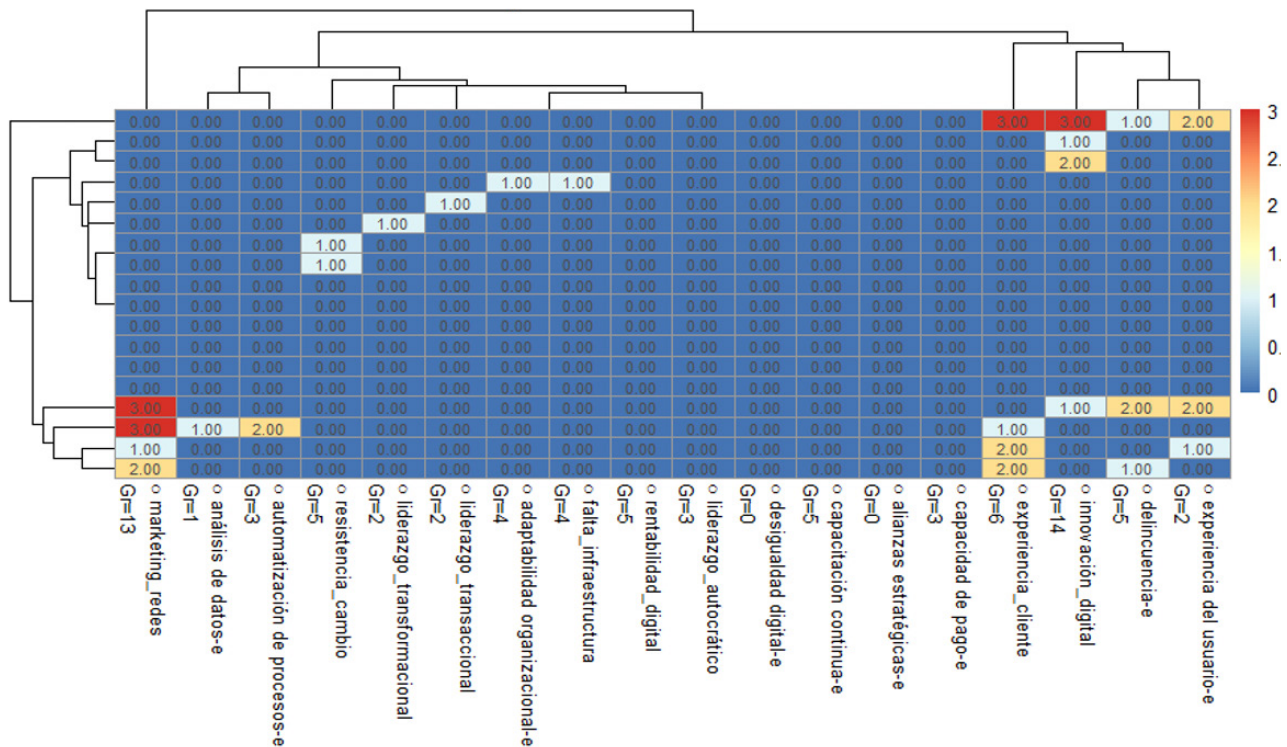


Figure 9 shows the emerging categories from the qualitative inductive analysis of the five interviews conducted, organized by conceptual proximity. In several interviews, the same idea was repeated using different words: digital change in companies does not happen on its own; someone has to push it forward. According to the participants, that person is the leader. The co-occurrence between transformational leadership (Gr=2) and network marketing (Gr=13)—value 2.0—was not coincidental. It appeared every time there was talk of “bosses who allow experimentation” or “managers who understand digitization.” In one case, it was mentioned that “when the manager is supportive, it shows, because more is invested in advertising and in doing different things” (Guide 3). It was not unanimous, but it was repeated: without leadership willing to change, there is no sustained digital strategy. Some experiences showed enthusiasm; others, stagnation. The difference was not in resources, but in the mindset of the decision-maker.

Here, the language changed. There was less inspirational discourse and more practical, nuanced responses. The relationship between digital innovation (Gr=14) and digital profitability (Gr=5), with a co-occurrence of 3.0, was strong. But not always positive. Some people spoke clearly: “We use virtual visits and that filters customer... it saves us time” (Guide 1). Others, however, admitted that they had tools available but that “people still want to see the premises in person.” Digital helps, yes, but it doesn’t solve everything. Furthermore, not all companies implement it in the same way. Some purchased software; others barely use Facebook. What was clear was that when it was used well, it had a noticeable impact on efficiency. Fewer unproductive visits, more focus. It wasn’t spectacular, but it was functional.

A cross-cutting idea emerged in this block: digital marketing is no longer seen solely as advertising, but as part of the customer experience. This is reflected in the co-occurrences between

marketing networks (Gr=13), customer experience (Gr=6), and user experience (Gr=2), all with a value of 2.0. One participant explained that “when someone sees our posts, they already feel something about the company... sometimes they don’t even ask, they already have an idea about who we are” (Guide 5). The design, frequency, and tone of the messages were all mentioned as part of the process. It was even noted that certain customer profiles do not respond to calls, but they do respond to stories on social media. The point was not just to capture attention, but to build trust before the first contact. In several cases, the digital image was the entrance door.

Unlike the previous blocks, no single strong node emerged here. The connections between transformational leadership, digital innovation, and customer experience appeared more dispersed, connected by other elements such as training, network marketing, and digital profitability. This dispersion did not weaken the interpretation. On the contrary, it showed that people do not talk about these issues in isolation. One interviewee put it clearly: “It’s not enough to have technology; if people aren’t prepared, it’s useless. And that depends on the boss” (Guide 2). What we saw was a more integrative logic: where there is supportive leadership and where there is an intention to innovate, the customer experience improves as a result, not because it is mandatory. It was not mentioned as a formal strategy, but rather as practical intuition. A kind of path laid out through what is already being done.

Summary of qualitative findings

The following tables summarize the categories emerging from the qualitative analysis, incorporating representative evidence and its direct link to the specific objectives of the study:

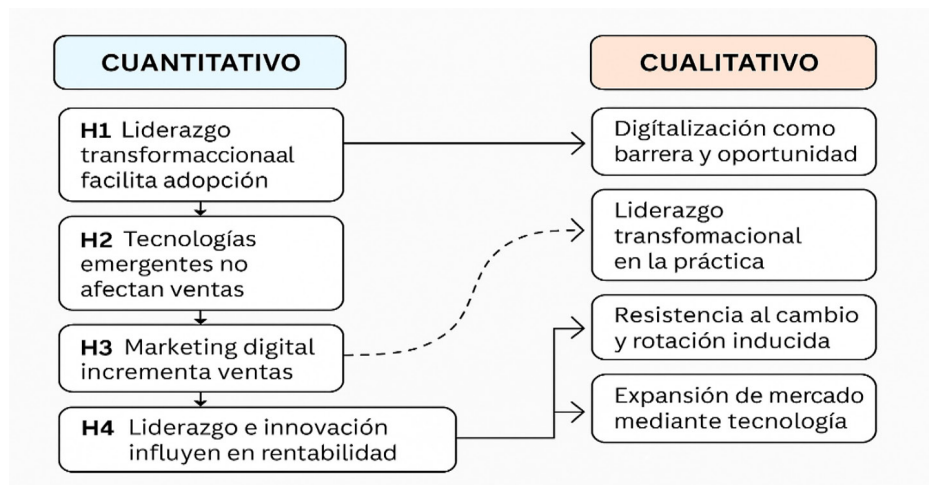
Table 6. Main qualitative findings

Emerging category	Representative verbatim	Relationship with specific goal
Digitization as a barrier and opportunity	"...if you don't exist digitally, you simply don't exist." (Guide 2)	SO1: Analyze the technological challenges facing the real estate sector.
Transformational leadership in practice	"...empowers us and challenges us to achieve our goals." (Guide 5)	SO2: Explore the type of leadership that drives innovation.
Resistance to change and induced rotation	"...agents have left or switched to the competition." (Guide 3)	SO3: Identify factors that hinder the adoption of digital technologies.
Market expansion through technology	"...I sold a house to someone who was in Italy..." (Guide 5)	SO4: Evaluate the impact of digital marketing on business results.

Table 7. Triangulation of results

Hypothesis / Quantitative finding	Qualitative finding	Type of integration
H1 confirmed: Transformational leadership is associated with innovation ($p = .35$, $p = .019$)	"My manager motivates us a lot... he combines transactional leadership efficiently." (Guide 5)	Reinforcement: both techniques point to a positive relationship between leadership and innovation.
H2 not confirmed: Emerging technologies do not show a significant impact on sales ($p = .7123$)	"We've already tested the chatbot... we've also implemented virtual reality..." (Guide 5)	Contrast: participants perceive usefulness, but there is no statistically significant evidence.
H3 confirmed: Digital marketing is associated with higher sales ($p = .45$, $p = .002$)	"I sold a house to someone in Italy, just over the phone..." (Guide 5)	Complementarity: qualitative data illustrates how digitization drives sales.
H4 partially confirmed: Leadership ($\beta = .22$, $p = .000$) predicts profitability; innovation does not.	"Leadership drives... but many colleagues do not want to be trained." (Guide 3)	Mixed exploration: leadership is perceived as a driving force, but innovation faces barriers.

Figure 10.
Triangulation of results



DISCUSSION

Comparative discussion with scientific literature

The findings obtained in this study allow for a robust dialogue between the empirical evidence and the theoretical foundations that guided the research. First, the confirmation of hypothesis H1 reinforces the notion that transformational leadership is a key catalyst for the incorporation of digital strategies in the real estate sector. This type of leadership promotes proactive behaviors in changing organizational environments, which is particularly relevant in a market where competitiveness increasingly depends on technological adoption. Authors such as Nuñez Cudriz & Miranda Corrales (2020) highlight the synergy between visionary leadership and digital tools as a driver of strategic transformation, which is reflected in the empirical link identified between leadership and innovation in marketing.

Regarding hypothesis H2, the results contradict the p-value initially reported, revealing instead a significant difference between groups in terms of technological innovation levels. This finding is consistent with the specialized literature on technology adoption. The theory of innovation diffusion extended to the real estate sector by Sousa-Ferreira et al. (2021) argues that levels of technological penetration tend to differentiate the most adaptive organizations from those that lag behind. In this regard, the results obtained coincide with the approach of Morales Pulido (2025), who emphasizes that innovation is not

uniform, but rather distributed differentially according to internal factors such as leadership or organizational digital culture.

Regarding hypothesis H3, the significant relationship between digital marketing and perceived profitability confirms the proposal by Kotler & Keller (2012), who argue that digital marketing not only optimizes reach but also allows for audience segmentation and more effective conversions. This is consistent with the findings of Bansude & Hittalmani (2021), who identified a direct positive impact of digital marketing on economic performance in the real estate sector. The trend observed in this study, both in the statistical analysis and in the visual representation (Figure 5), supports the idea that the strategic implementation of digital channels—such as social media, web positioning, and automation—in line with the findings of Chaffey & Ellis-Chadwick (2019) translates into more favorable economic results.

Finally, in relation to hypothesis H4, the quantile regression revealed that transformational leadership maintains a constant influence on average profitability levels, while technological innovation shows a limited effect concentrated in the lower quantiles. This difference in behavior is in line with the postulates of Ural et al. (2011), who warn that innovative capacity only translates into profitability when accompanied by adequate internal structural conditions. In the same way, Farhan (2024) highlights that leadership in the real estate sector not only conditions technological adoption but also

determines the effective use of these tools. The fact that innovation does not act as a significant predictor of high levels of profitability suggests the presence of mediating factors not included in the current model, which opens up a line of future research on the interaction between innovation, organizational capabilities, and financial results.

Overall, the empirical results of this study partially validate the proposed theoretical model, confirming the centrality of transformational leadership and digital marketing as drivers of profitability in the real estate sector, while placing technological innovation as a variable with more contextual and nuanced effects.

Triangulated discussion of mixed results

This chapter presents an integrated discussion of the findings obtained through the study's mixed-method approach, connecting the statistical results derived from hypothesis testing with the categories emerging from qualitative content analysis. The triangulation of methods allowed us to establish convergences, contrasts, and complementarities between the numerical evidence and the discourse of actors in the Machala real estate sector.

H1: Transformational leadership and technological innovation

Hypothesis H1 was statistically confirmed using Spearman's correlation (,), suggesting a positive relationship between transformational leadership and the adoption of technological innovation. This finding is reinforced in the qualitative analysis, which highlights: "My manager motivates us a lot... he combines transactional leadership efficiently" (Guide 5). Both data sources suggest that change-oriented leadership is a key facilitating variable for technological transformation processes. Furthermore, Figure 9 shows a co-occurrence between "transformational leadership" and "network marketing" (value: 2.0), which reinforces this relationship based on the interviewees' discourse. This result is in line with the findings of Caudillo Pérez (2024), who highlight that transformational leadership encourages the adoption of digital tools in changing environments.

H2: Emerging technologies and real estate sales

Hypothesis H2 was confirmed with a statistically significant result ($U = 156.0$), indicating that real estate agents with greater technology adoption

show higher levels of applied innovation. This quantitative finding is supported by several qualitative testimonials: "We have already tested the chatbot... we have also implemented virtual reality..." (Guide 5). Figure 9 reinforces this relationship through a high co-occurrence between "digital innovation" and "digital profitability" (value: 3.0), which supports the perception that emerging technologies have a favorable impact on economic performance. This is consistent with the findings of Morales Pulido (2025) and Sousa-Ferreira et al. (2021), who highlighted the strategic usefulness of ICT in real estate.

H3: Digital marketing and sales levels

Hypothesis H3 was supported by a significant correlation (,), indicating that greater presence in digital channels directly favors sales. This relationship was clearly illustrated by the following testimony: "I sold a house to someone who was in Italy..." (Guide 5). The cross-referenced evidence confirms that digitization can expand commercial reach and transform the sales closing model. In Figure 9, a co-occurrence of 2.0 was identified between "user experience" and "social media marketing," which reinforces the role of digital marketing as a generator of positive commercial experiences. This view is theoretically supported by Chaffey & Ellis-Chadwick (2019) and Nuñez Cudriz & Miranda Corrales (2020).

H4: Leadership and innovation as predictors of profitability

In the quantile regression test, leadership showed a significant coefficient (,), while innovation was not a strong predictor. From a qualitative perspective, this is complemented by statements such as: "Leadership drives... but many colleagues do not want to be trained" (Guide 3). In the co-occurrence heat map (Figure 9), a scattered pattern is detected that shows indirect relationships among leadership, innovation, and customer experience, suggesting a more complex strategic narrative in the discourses. This result is in line with that reported by Urgal et al. (2011) and Farhan (2024), who warn that innovation only has a positive impact when there is an organizational structure in place to facilitate it.

Quantitative-qualitative integration table by hypothesis			
Hypothesis	Quantitative finding	Qualitative finding	Type of integration
H1 confirmed	Leadership is associated with innovation ($p = 0.35$, $p = 0.019$)	"My manager motivates us a lot... he combines transactional leadership efficiently." (Guide 5)	Reinforcement
H2 not confirmed	There are no significant differences among groups ($U = 71.0$, $p = 0.7123$).	"We've already tested the chatbot... we've also implemented virtual reality..." (Guide 5)	Contrast
H3 confirmed	Digital marketing is associated with higher sales ($p = 0.45$, $p = 0.002$)	"I sold a house to someone who was in Italy..." (Guide 5)	Reinforcement
H4 partially confirmed	Leadership ($\beta = 0.22$, $p = 0.000$) predicts profitability; innovation is not significant.	"Leadership drives... but many colleagues do not want to be trained." (Guide 3)	Mixed exploration

CONCLUSIONS

The results obtained confirm that transformational leadership is positively associated with the application of technological innovation in digital marketing strategies. This relationship, which is moderate and statistically significant, indicates that real estate agents who perceive a more change-oriented leadership style tend to incorporate digital tools more frequently into their promotional processes, which represents a key component in the modernization of the sector.

Although hypothesis H2 was not statistically confirmed ($U = 71.0$, $p = 0.7123$), the qualitative testimonies collected reveal a positive perception of the use of tools such as virtual reality and chatbots: "We have already tested the chatbot... we have also implemented virtual reality..." (Guide 5). This discrepancy between the quantitative results and the participants' beliefs suggests the existence of a gap between the perception of innovation and its actual economic impact. One possible explanation is that the implementation of these technologies is still in its

preliminary stages or is not being accompanied by monitoring mechanisms that allow for the evaluation of their return. From a qualitative perspective, however, Figure 9 continues to show high co-occurrences between innovation and digital profitability, reinforcing the perceived relevance of these resources in the narrative of the sector's transformation.

Empirical evidence supports a significant relationship between the use of digital marketing strategies and the levels of profitability reported by agents in the sector. The correlation coefficient obtained, together with the upward visual pattern, confirms that the adoption of digital tools for promotion and customer acquisition is linked to better economic performance. This reinforces the relevance of digital marketing as a strategic lever in the contemporary real estate environment.

The results of the quantile regression showed that transformational leadership acts as a strong predictor of profitability, particularly at mid-levels of economic performance. In contrast, technological innovation had a weaker and more

limited effect, concentrated only in the lower quantiles. This disparity suggests that leadership has a more consistent and cross-cutting impact, while innovation depends on specific conditions in the setting or the profile of the agent, which limits its predictive scope.

Limitations and Future Lines of Research

The following limitations of the study are noteworthy: it was conducted in a medium-sized city, Machala (Ecuador); non-probability sampling was used; and, above all, the sample size was $n=45$.

Future research

In this regard, future research could expand this study by replicating it in different cities in Ecuador or in other emerging countries. This would allow the results to be compared in different sociocultural contexts. It would be vitally important to have the support of a national association with a database covering the entire country. This would allow probabilistic sampling by segmentation to be applied.

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Conflicts of interest

The authors declare that there are no conflicts of interest

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