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Kata Pengantar

All praise and gratitude are due to Almighty God for His blessings and guidance, which have enabled the Journal of Applied Management, Economics, and Business to once again publish its latest edition—Volume 10, Number 1, April 2025. This publication marks a decade-long journey of our journal in contributing to the advancement of knowledge in the fields of management, economics, and business through the dissemination of high-quality and relevant scholarly works.

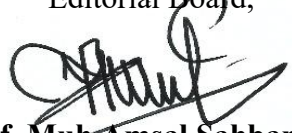
Over the past ten years, the Journal of Applied Management, Economics, and Business has remained committed to serving as a medium for sharing research findings, empirical studies, and conceptual analyses that provide meaningful insights for policymakers, academics, practitioners, and the broader community. In this edition, we present a collection of articles addressing contemporary topics such as managerial innovation, digital transformation, consumer behavior, entrepreneurship, economic development strategies, and current issues in modern business management.

We hope that each article featured in this issue will not only serve as an academic reference but also as a source of inspiration for researchers and practitioners in navigating the global challenges of management and economics.

We would like to extend our sincere appreciation to all authors who have entrusted their scholarly works to our journal, to the reviewers who have provided valuable feedback and assessments, and to the editorial team who continue to uphold consistency and academic integrity.

Finally, we hope that The Journal of Applied Management, Economics, and Business will make a meaningful contribution to the development of knowledge and business practices in Indonesia, and serve as a valuable reference for the advancement of academia and the professional world.

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Assoc. Prof. Muh.Amsal Sahban, Ph.D
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Co-Creating The Future: an Empirical Test of Relational Antecedents to Long-Term Orientation in Nigeria's Agri-Food B2B Relationships

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ABSTRACT

In emerging economies characterized by institutional voids and market volatility, fostering resilient business-to-business (B2B) relationships is essential for sustainable sectoral development. This study examines the antecedents of long-term orientation (LTO) in the agri-food sector of Northern Nigeria, focusing on relational communication quality, perceived value co-creation, and integrative conflict resolution.

A quantitative survey was conducted involving 312 client-side managers and business owners, including aggregators, food processors, and wholesale distributors, engaged in key supplier relationships across Kaduna, Kano, and Plateau states. The data were analyzed using partial least squares structural equation modeling (PLS-SEM) to test the proposed hypotheses.

The results indicate that all three constructs positively and significantly influence LTO. Perceived value co-creation emerged as the strongest predictor ($\beta = 0.47$, $p < 0.001$), followed by relational communication quality ($\beta = 0.32$, $p < 0.001$) and integrative conflict resolution ($\beta = 0.18$, $p < 0.01$). Furthermore, relational communication quality has a significant indirect effect on LTO through perceived value co-creation, indicating partial mediation.

This study advances understanding of B2B relationships by integrating three relational constructs into a unified framework for explaining LTO in an under-researched economic context. The findings highlight the central role of collaborative value creation in sustaining long-term partnerships, particularly where formal contractual mechanisms are weak. Specifically, proactive value co-creation appears to be a stronger driver of long-term partnership intentions than transactional reliability alone.

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INTRODUCTION

In emerging economies, particularly sub-Saharan Africa, strong business-to-business (B2B) relationships are essential for market access, supply chain continuity, and economic resilience (Meredith, 2022; Adekunle & Fatoki, 2023). Northern Nigeria's agri-food sector, a major hub for grains, legumes, and livestock, faces institutional voids, infrastructural deficiencies, and climatic volatility (Shehu & Sidique, 2020). In this context, long-term orientation (LTO), defined as the intention to sustain relationships through shared planning and reciprocal investments, serves as a critical risk-mitigation mechanism (Ganesan, 1994; Adegbola & Bamishaiye, 2021). Strong LTO enhances trust, adaptability, resource access, and cost efficiency (Ibrahim et al., 2022).

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Despite its importance, the relational antecedents of LTO in Northern Nigeria remain underexplored. Business relationships are shaped by communal values, kinship ties (dangantaka), and religious ethics embedded in Hausa business practices (kasuwanci) (Yusuf et al., 2021). Without context-specific evidence, firms and development initiatives risk adopting relational strategies that are ineffective in this cultural and institutional environment (Umar & Gbandi, 2022).

Although existing literature emphasizes relational communication as a means of reducing uncertainty (Mohr & Nevin, 1990), its role in Northern Nigeria may be particularly significant because verbal assurances, proverbial wisdom (karin magana), and social embeddedness can carry considerable relational weight (Muhammad et al., 2023). Similarly, value co-creation, grounded in Service-Dominant Logic, may encompass not only economic benefits but also social capital, risk-sharing, and communal reputation (Vargo & Lusch, 2016; Adeola & Evans, 2020). Integrative conflict resolution, involving mediation (sulhu), patience (hakuri), and collaborative solutions, may also help preserve long-term partnerships (Faleti & Olaoye, 2021).

However, research integrating these three constructs into a unified framework for explaining LTO in Northern Nigeria remains limited (Ogbadu & Oyeniyi, 2022). Their relative influence and the potential mediating role of perceived value co-creation are also unclear. This study addresses these gaps by examining the effects of relational communication quality, perceived value co-creation, and integrative conflict resolution on LTO in Northern Nigeria's agri-food sector.

To address these significant gaps, this study poses the following research questions within the Northern Nigerian agri-food sector:
RQ1: What are the direct effects of (a) quality of relational communication, (b) perceived value co-creation, and (c) integrative conflict resolution tactics on a client's long-term orientation?

RQ2: Does perceived value co-creation mediate the relationship between the quality of relational communication and a client's long-term orientation?
To answer these questions, we develop and empirically test a conceptual model positioning the client's Long-Term Orientation as the dependent variable, directly influenced by: Quality of Relational Communication, Perceived Value Co-Creation, and Integrative Conflict Resolution Tactics, with co-creation hypothesized as a mediator.

This research makes several important contributions. Theoretically, it responds to urgent calls for context-sensitive research in emerging economies (Burgess & Steenkamp, 2006) by testing and potentially refining established relational theories within the distinctive institutional and cultural matrix of Northern Nigeria. It explores whether the hierarchy of relational drivers observed in the West holds in a context where informal institutions are strong. Practically, it provides actionable intelligence for local entrepreneurs, large agri-businesses, and policy initiatives (the Anchor Borrowers' Programme) seeking to strengthen supply chain linkages. It offers an evidence-based blueprint for investing in the specific relational practices be they communication rituals, co-creation forums, or conflict mediation mechanisms that are most likely to forge the durable, trusting partnerships necessary for sectoral transformation and resilience.

LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

This study is grounded in the relational view of strategy, which posits that critical, difficult-to-imitate resources and capabilities are embedded in inter-firm relationships (Dyer & Singh, 1998). Within the institutional context of Northern Nigeria where formal contracting systems are often weak and enforcement is unreliable the governance of B2B relationships increasingly shifts from legalistic safeguards to relational norms (Meredith, 2022). Long-Term Orientation (LTO) is a central such norm, acting as an informal governance mechanism that promotes cooperation and reduces transaction costs. To develop a contextually relevant model, this review synthesizes core relational constructs with emerging insights from literature on African and specifically Nigerian business practices.

Long-Term Orientation (LTO) in Nigeria's B2B Context

Long-Term Orientation (LTO) is a cornerstone of relationship marketing, defined as the mutual expectation of continuity and the willingness to invest resources with a long-term payback period (Ganesan, 1994). It transcends short-term, calculative exchanges, embodying a future-directed mindset characterized by joint planning, shared goal alignment, and relationship-specific investments.

In the Northern Nigerian agri-food sector, LTO takes on added dimensions. Given systemic risks climate volatility, price fluctuations, infrastructural breakdowns, and intermittent security challenges a long-term partnership functions as a critical risk-pooling and resilience-building mechanism (Ibrahim et al., 2022). Investments are not merely financial but often social and reputational, such as providing input credit during lean seasons, standing as a guarantor (jami'i), or integrating a partner into one's kinship-based network (dangantaka) (Yusuf et al., 2021). This embedding creates high exit barriers that are less about contractual penalties and more about the potential loss of social capital and communal standing. Consequently, LTO here is not just a strategic preference but often a necessity for operational stability and market access. We conceptualize it from the client's perspective, focusing on the cognitive belief in a shared future and the behavioral intent to maintain and invest in the relationship.

Quality of Relational Communication and LTO

Relational communication refers to the patterned, symbolic interactions that define and maintain the relationship itself, beyond the mere exchange of commercial information (Mohr & Nevin, 1990). Its quality is typically assessed through dimensions like openness, frequency, bi-directionality, and transparency.

In Northern Nigeria's business culture, communication is deeply influenced by high-context, face-to-face norms. Openness/Transparency is demonstrated not just through data sharing but through verbal assurances (alkawari) and the reciprocal sharing of personal and market challenges, signaling trustworthiness (amana) (Muhammad et al., 2023). Frequency/Regularity is crucial; consistent check-ins via phone calls or visits (zaman dangi) maintain the social warmth of the relationship, preventing it from becoming purely transactional. Bi-directionality/Mutuality is essential in a culture that values respect (mutunci) and reciprocal obligation; communication must flow both ways, allowing the client to voice needs and the supplier to explain constraints.

Informal/Strategic Content is blended; discussions of business are seamlessly interwoven with inquiries about family (iyali) and community, building a multi-layered bond (Adebola & Bamishaiye, 2021).

High-quality communication in this setting reduces the profound environmental and behavioral uncertainty firms face. It builds trust (amana) by demonstrating reliability and goodwill (kyautata), and it establishes shared norms, which form the bedrock of relational governance when formal contracts are insufficient (Morgan & Hunt, 1994). When clients experience this rich, culturally-attuned communication, their confidence in the supplier's commitment solidifies, making them more willing to envision and invest in a long-term future. Therefore, we posit:

H1: The quality of relational communication has a positive direct effect on the client's Long-Term Orientation.

Perceived Value Co-Creation and LTO

Service-Dominant Logic (S-D Logic) asserts that value is not embedded in goods but is always co-created through the integration of resources and interactions between parties in specific contexts (Vargo & Lusch, 2016). Perceived Value Co-Creation captures the client's subjective assessment of the extent to which they and the supplier are actively collaborating to generate unique value.
In the resource-constrained, high-risk agri-food sector, co-creation often extends beyond economic value to encompass vital forms of social and operational value (Adeola & Evans, 2020). This may include: jointly developing adaptive farming techniques to cope with erratic rainfall; co-investing in local storage facilities to reduce post-harvest losses; or collaboratively navigating complex licensing and transport regulations. The client's perception of being a genuine co-creator transforms the supplier from a mere input provider into a strategic partner in navigating a challenging business ecosystem (Kohtamäki & Rajala, 2016).

This perception creates powerful, context-specific switching costs. The co-created solutions whether a unique seed variety suited to local conditions or a shared logistics arrangement are often idiosyncratic and deeply embedded in the local context, making the partnership uniquely valuable and difficult to replace (Ritter & Pedersen, 2020). Furthermore, successful co-creation builds a sense of shared fate (hadin kai) and interdependence, directly strengthening the commitment to a long-term future. Given the tangible survival benefits of such collaboration in this environment, we hypothesize that perceived co-creation is a primary driver of LTO.

H2: Perceived value co-creation has a positive direct effect on the client's Long-Term Orientation.

Integrative Conflict Resolution and LTO

Conflict arising from delayed deliveries, quality disputes, or payment issues is inevitable in the volatile agri-food sector. The critical factor is its management. Conflict resolution tactics range from distributive (competitive, win-lose) to integrative (collaborative, problem-solving).

In Northern Nigeria's cultural context, which emphasizes community harmony (jama'a), patience (hakuri), and face-saving (mutunci), Integrative Conflict Resolution Tactics are strongly preferred and culturally resonant (Faleti & Olaoye, 2021). These tactics involve open dialogue, a focus on underlying interests rather than positions, and a search for mutually acceptable solutions, often involving respected third-party mediators (masu sulhu). Employing such approaches signals respect for the partner, a commitment to fairness (adalci), and a prioritization of the long-term relationship over short-term gain.

Conversely, aggressive, litigious, or avoidant tactics are culturally dissonant. They can be perceived as disrespectful, damaging not only the business relationship but also the social reputation of the individuals involved. Research in similar contexts shows that integrative conflict management preserves relational equity the perceived fairness of outcomes which is vital for sustaining cooperation when formal legal recourse is costly or ineffective (Jap & Anderson, 2007; Wang et al., 2020). Therefore, we argue that the consistent use of culturally-aligned, integrative tactics demonstrates a partner's suitability for a durable relationship, directly reinforcing LTO.

H3: The use of integrative conflict resolution tactics has a positive direct effect on the client's Long-Term Orientation.

The Mediating Role of Perceived Value Co-Creation: A Culturally-Embedded Pathway

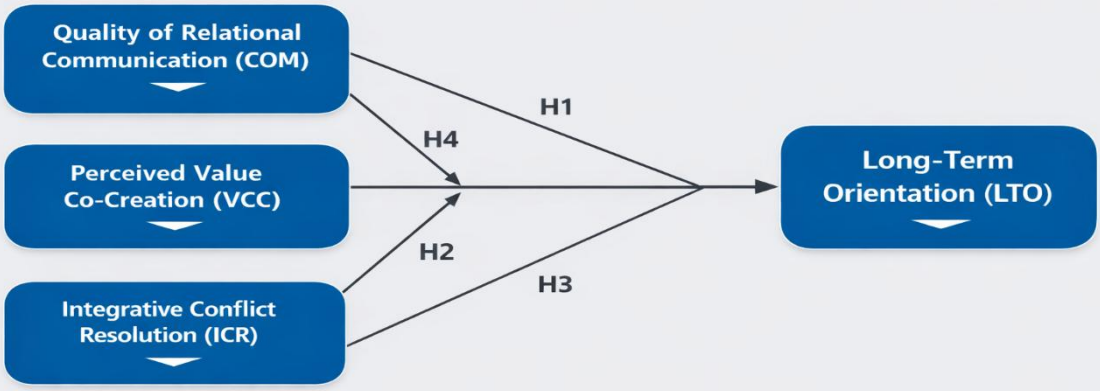
While H1-H3 posit direct effects, we propose a key indirect pathway that is particularly salient in this context: Perceived Value Co-Creation mediates the relationship between Relational Communication Quality and LTO.

High-quality, culturally-attuned relational communication provides the essential social and informational infrastructure for co-creation (Vargo & Lusch, 2016). Openness and transparency allow for the sharing of not just commercial needs but also local knowledge, constraints, and risks. Bi-directionality ensures that both the supplier's technical expertise and the client's deep contextual knowledge are integrated. The frequent, often informal, communication builds the strong interpersonal trust and shared understanding necessary for collaborative problem-solving in an uncertain environment (Adebola & Bamishaiye, 2021). In essence, without the robust, trust-laden communication channels that characterize effective relationships here, the deep collaboration required for meaningful value co-creation is unlikely to occur.

We theorize that in this setting, relational communication is a necessary enabler. Its primary function is to create the conditions trust, openness, shared understanding that allow the client to perceive and engage in joint value creation. This perception of being a co-creator of value (economic and social), once established, becomes the more proximal and powerful cognitive driver of a long-term commitment. This leads to our final hypothesis:

H4: The quality of relational communication has a positive indirect effect on Long-Term Orientation, mediated by perceived value co-creation.

Figure 1: Conceptual Research Model



METHODOLOGY

Research Design and Context

This study employed a quantitative, cross-sectional survey design to test the hypothesized model. The research was conducted within the agri-food B2B sector in Northern Nigeria, specifically focusing on the states of Kano, Kaduna, and Plateau. This region represents a critical hub for grain cultivation, livestock, and agro-processing, characterized by complex supply chains that blend modern market structures with traditional trading networks (kasuwa) (Shehu & Sidique, 2020). The choice of this context is strategic, as it embodies the institutional voids, reliance on relational governance, and socio-cultural dynamics central to our investigation.

Sample and Data Collection

The target population consisted of client-side decision-makers in agri-food businesses, including proprietors of small and medium-scale processing plants, managers of wholesale distribution firms, and heads of procurement for larger agro-allied companies. A multi-stage sampling technique was used. First, a purposive sampling of registered agri-food associations (e.g., the Kano State Chamber of Commerce, Industries, Mines and Agriculture; the Maize Association of Nigeria) provided an initial sampling frame. Second, a snowballing technique was employed, leveraging the region's strong network-based business culture, to reach eligible participants who manage a strategic relationship with a key supplier of inputs (seeds, fertilizer) or outputs (raw grains, livestock).

Data were collected via a structured questionnaire, administered in a hybrid mode to accommodate logistical challenges and low internet penetration in some rural areas. Trained research assistants conducted face-to-face interviews using tablet devices in major urban markets (Kasuwan Dawanau in Kano, Mile 3 Market in Kaduna), while an online version (via Google Forms) was distributed to email lists of formal agri-businesses. A key informant approach was used, ensuring respondents were owners or

senior managers directly responsible for the supplier relationship in question (Cycyota & Harrison, 2006). Participants were screened to confirm they had maintained an active business relationship with the specified supplier for at least one full agricultural cycle. Out of 650 questionnaires distributed, 338 were returned. After rigorous data cleaning removing responses with excessive missing data, straight-lining patterns, or failing embedded attention checks (e.g., "Please select 'Agree' for this item") a final sample of 312 usable responses was retained, yielding an effective response rate of 48%. This rate is considered robust for B2B survey research in challenging African contexts (Adeola & Evans, 2020). To assess non-response bias, we compared early respondents (first 75%) with late respondents (last 25%) on key demographic variables (firm age, annual turnover) and core construct means. Independent samples t-tests revealed no significant differences ($p > 0.05$), suggesting non-response bias was not a major concern (Armstrong & Overton, 1977).

Table 1
Demographic Characteristics of the Sample (N = 312)

Variable	Category	Frequency	Percentage
State of Operation	Kano	134	42.9%
	Kaduna	108	34.6%
	Plateau	70	22.4%
Firm Type	Agro-processors (Milling, Oil Extraction)	145	46.5%
	Wholesalers/Distributors	98	31.4%
	Livestock Feeders/Producers	69	22.1%
Firm Size (Employees)	1–10 (Micro/Small)	127	40.7%
	11–50 (Medium)	153	49.0%
	51 and above (Large)	32	10.3%
Length of Business Relationship	1–3 years	89	28.5%
	4–7 years	142	45.5%
	8 years and above	81	26.0%

Measures and Scale Adaptation

All constructs were measured using reflective multi-item scales adapted from established literature. Given the cultural context, a rigorous translation and back-translation process was undertaken by bilingual experts to ensure conceptual equivalence from English to Hausa, the predominant language of business in the region. All items used a seven-point Likert-type scale (1 = Strongly Disagree, 7 = Strongly Agree). The specific adaptations are detailed below:

Long-Term Orientation (LTO): Measured using a five-item scale adapted from Ganesan (1994). Items were contextualized to reflect non-contractual, relational investments ("We are willing to make sacrifices to help this supplier from time to time because we expect a long-term relationship," "Maintaining a long-term relationship with this supplier is important to our business stability").

Quality of Relational Communication (COM): A six-item scale was adapted from Mohr and Nevin (1990) and Plötz et al. (2023). Adaptations emphasized culturally salient aspects: frequency of face-to-face contact, openness in sharing both good and bad news, and the use of proverbial language (karin magana) to build understanding

("Our communication with this supplier is open and transparent, even when the news is bad," "We have regular, two-way discussions that help us plan together").

Perceived Value Co-Creation (VCC): A four-item scale was adapted from Ranjan and Read (2016). Items were framed to capture the joint creation of both economic and adaptive value crucial in this setting (e.g., "We work jointly with this supplier to find solutions to challenges like price fluctuations or transport issues," "Together, we create more value than we could alone").

Integrative Conflict Resolution (ICR): A five-item scale was adapted from the collaborative dimension of conflict management (Wang et al., 2020; Thomas-Kilmann). Items were refined to align with indigenous mediation concepts (sulhu) and a focus on preserving the relationship (e.g., "When we have a disagreement, we focus on finding a solution that is fair and preserves our relationship," "We try to understand each other's constraints to resolve conflicts").

Control Variables: Based on the literature (Adekunle & Fatoki, 2023), we controlled for Relationship Length (years), Firm Size (logarithm of number of employees), and Trust (a three-item scale measuring generalized trust in the partner). Trust was included as a control because it is a pervasive and potent factor in Nigerian business relationships that could confound the effects of our focal constructs.

Table 2
Overview of Construct Measurement

Construct	Adapted Source(s)	Sample Measurement Item (Contextualized)	No. of Items
Long-Term Orientation (LTO)	Ganesan (1994)	"We expect to continue doing business with this supplier over the next five years."	5
Quality of Relational Communication (COM)	Mohr and Nevin (1990); Plötz et al. (2023)	"This supplier keeps us adequately informed about issues that may affect our business."	6
Perceived Value Co-Creation (VCC)	Ranjan and Read (2016)	"This supplier and our firm integrate knowledge to develop improved ways of working."	4
Integrative Conflict Resolution (ICR)	Wang et al. (2020)	"We collaborate as partners to resolve problems that arise in our relationship."	5
Control Variable: Trust	Morgan and Hunt (1994)	"This supplier can be relied upon to keep its promises."	3

Data Analysis Strategy

Data analysis was conducted in two sequential stages using SmartPLS 4.0, which is robust for complex models with smaller sample sizes and makes fewer distributional assumptions a suitable choice for our data (Hair et al., 2021).
Stage 1: Assessment of the Measurement Model. We evaluated the reliability and validity of the reflective constructs. Internal consistency reliability was assessed using Composite Reliability (CR), with a threshold > 0.70. Convergent validity was evaluated using indicator loadings (> 0.708) and the Average Variance Extracted (AVE > 0.50). Discriminant validity was tested using the Heterotrait-Monotrait (HTMT) ratio of correlations, with a conservative threshold of < 0.90 (Henseler et al., 2015). Given the

single-informant design, we employed procedural remedies (assuring anonymity, separating scale items) and statistical tests for common method bias (CMB). We used the full collinearity test (Kock, 2015), where variance inflation factors (VIFs) for all constructs in a full collinearity model should be ≤ 3.3.

Stage 2: Assessment of the Structural Model and Hypothesis Testing. After establishing a valid measurement model, we evaluated the structural model. We examined the coefficient of determination (R^2) for the endogenous construct (LTO) and used the blindfolding procedure to calculate the Stone-Geisser Q^2 value (> 0) to assess predictive relevance. The significance of the path coefficients (β) was tested using a bootstrapping procedure with 5,000 subsamples to generate t-statistics and bias-corrected confidence intervals (Preacher & Hayes, 2008). Direct effects (H1, H2, H3) were assessed via their respective paths. The mediation hypothesis (H4) was tested by examining the significance of the specific indirect effect (COM → VCC → LTO) using the same bootstrapping procedure. Mediation is supported if the indirect effect's confidence interval does not include zero.

RESULTS

Assessment of the Measurement Model

The reflective measurement model was evaluated for reliability, convergent validity, and discriminant validity. All indicator loadings exceeded the recommended threshold of 0.708 and were statistically significant ($p < 0.001$), indicating adequate item reliability (see Table 3). Internal consistency reliability was established, as all constructs had Composite Reliability (CR) values above 0.85, exceeding the 0.70 benchmark. Convergent validity was supported as the Average Variance Extracted (AVE) for each construct was above 0.60, surpassing the 0.50 threshold (Hair et al., 2021).

Discriminant validity was assessed using the Heterotrait-Monotrait (HTMT) ratio of correlations. As presented in Table 4, all HTMT values were below the conservative threshold of 0.90 (Henseler et al., 2015), confirming that each construct is distinct from the others.

To assess common method bias (CMB), we employed the full collinearity test (Kock, 2015). The variance inflation factors (VIFs) for all constructs in a full collinearity model were below the stringent threshold of 3.3 (ranging from 1.42 to 2.78), suggesting that CMB is not a pervasive issue in the data.

Table 3
Measurement Model Results: Factor Loadings, Composite Reliability, and Convergent Validity

Construct and Measurement Items (Abbreviated)	Factor Loading	CR	AVE
Long-Term Orientation (LTO)		0.917	0.691
LTO1: Emphasis on long-term goals	0.832		
LTO2: Relationship stability is important	0.856		
LTO3: Willingness to make short-term sacrifices	0.824		
LTO4: Expectation of a lasting relationship	0.841		

Construct and Measurement Items (Abbreviated)	Factor Loading	CR	AVE
LTO5: Commitment to long-term investments	0.809		
Quality of Relational Communication (COM)		0.929	0.687
COM1: Open and transparent communication	0.868		
COM2: Regular two-way strategic discussions	0.843		
COM3: Proactive sharing of relevant information	0.829		
COM4: Communication supports joint planning	0.812		
COM5: Open discussion of challenges	0.798		
COM6: Smooth communication across multiple levels	0.823		
Perceived Value Co-Creation (VCC)		0.906	0.707
VCC1: Joint efforts to create business value	0.854		
VCC2: Integration of resources for unique solutions	0.874		
VCC3: Active participation in value creation	0.843		
VCC4: Superior outcomes from collaboration	0.801		
Integrative Conflict Resolution (ICR)		0.882	0.602
ICR1: Fair solutions that preserve the relationship	0.831		
ICR2: Collaborative problem-solving approach	0.852		
ICR3: Integration of viewpoints for mutual benefit	0.795		
ICR4: Focus on shared interests rather than positions	0.763		
ICR5: Conflict treated as a joint problem	0.718		
Control Variable: Trust (TRUST)		0.889	0.728
TRUST1: Supplier is trustworthy	0.881		
TRUST2: Supplier keeps its promises	0.854		
TRUST3: Supplier demonstrates honesty	0.823		

Table 4
Discriminant Validity Assessment Using the Heterotrait–Monotrait (HTMT) Ratio

Construct	COM	VCC	ICR	LTO	TRUST
COM	—				
VCC	0.724	—			
ICR	0.637	0.538	—		
LTO	0.681	0.788	0.593	—	
TRUST	0.702	0.653	0.485	0.618	—

Note. All HTMT values are below the recommended threshold of 0.90, indicating adequate discriminant validity among the constructs.

Structural Model and Hypothesis Testing

The structural model was evaluated for predictive accuracy and relevance. The model explained 58.2% ($R^2 = 0.582$) of the variance in Long-Term Orientation (LTO), indicating substantial explanatory power. The Stone-Geisser Q^2 value for LTO was 0.341 (> 0), confirming the model's predictive relevance.

The results of the hypothesis tests are presented in Table 5 and illustrated in Figure 2. H1 was supported, as the Quality of Relational Communication (COM) had a

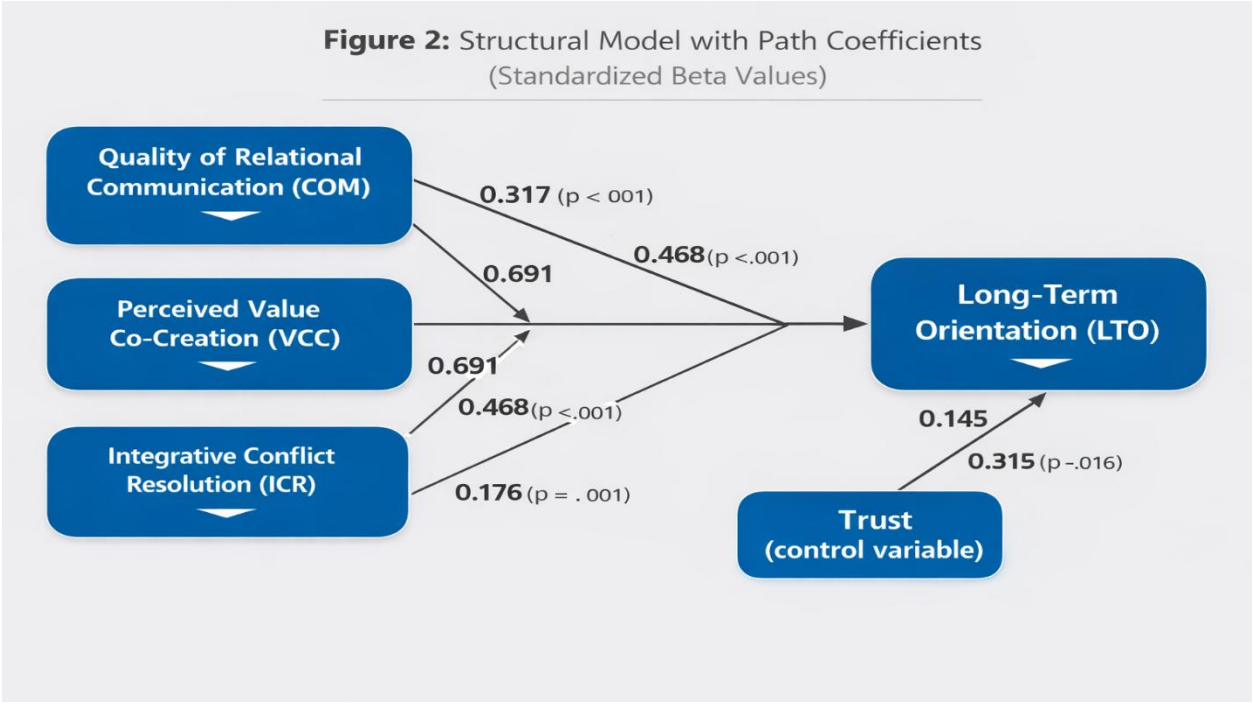
significant positive direct effect on LTO (β = 0.317, p < 0.001). H2 was strongly supported, with Perceived Value Co-Creation (VCC) demonstrating the strongest direct effect on LTO (β = 0.468, p < 0.001). H3 was also supported, as Integrative Conflict Resolution (ICR) had a significant, albeit smaller, positive direct effect on LTO (β = 0.176, p < 0.01). Among the control variables, Trust was a significant predictor of LTO (β = 0.145, p < 0.05), while Relationship Length and Firm Size were non-significant.

To test H4, the mediation hypothesis, we examined the specific indirect effect of COM on LTO via VCC. The bootstrapping analysis revealed a significant positive indirect effect (β = 0.152, p < 0.001, 95% CI: [0.087, 0.224]). Since the direct effect of COM on LTO remained significant in the presence of the mediator (β = 0.317), Perceived Value Co-Creation acts as a partial mediator. This finding supports H4, indicating that a meaningful portion of communication's positive influence on LTO operates through enhancing the client's perception of being a value co-creator.

Table 5
Structural Model Results and Hypothesis Testing
(Bootstrapping with 5,000 Resamples)

Hypothesis	Structural Path	Standardized β	*t*-value	*p*-value	95% Bias-Corrected CI	Decision
Direct Effects						
H1	COM → LTO	0.317	5.842	< .001	[0.211, 0.414]	Supported
H2	VCC → LTO	0.468	8.991	< .001	[0.369, 0.563]	Supported
H3	ICR → LTO	0.176	3.204	.001	[0.068, 0.278]	Supported
Indirect Effect						
H4	COM → VCC → LTO	0.152	4.577	< .001	[0.087, 0.224]	Supported
Control Paths						
—	TRUST → LTO	0.145	2.412	.016	[0.028, 0.262]	—
—	Relationship Length → LTO	0.062	1.112	.266	[−0.045, 0.169]	—
—	Firm Size → LTO	−0.041	0.743	.458	[−0.148, 0.066]	—

Note. The model explains a substantial proportion of variance in long-term orientation ($R^2 = 0.582$). Predictive relevance is confirmed by $Q^2 = 0.341$.



DISCUSSION

This study set out to investigate the drivers of Long-Term Orientation (LTO) within the distinctive and challenging context of Northern Nigeria's agri-food B2B sector. The findings provide robust empirical support for the proposed integrated model, explaining a substantial 58.2% of the variance in LTO. The results not only validate established relational theories but also reveal important contextual nuances that deepen our understanding of partnership sustainability in emerging economies.

Key Findings and Contextual Interpretation

The findings reveal a hierarchy of relational factors influencing long-term orientation (LTO) in Northern Nigeria's agri-food sector. Perceived Value Co-Creation (H2). Perceived value co-creation emerged as the strongest predictor of LTO (β = 0.468), reinforcing Service-Dominant Logic, which emphasizes the joint creation of value (Vargo & Lusch, 2016). Under institutional, infrastructural, and climatic constraints, collaboration enables suppliers and clients to develop adaptive solutions, share risks, and overcome operational challenges (Adeola & Evans, 2020). Thus, collaborative value creation strengthens long-term commitment beyond the provision of quality products at competitive prices.

Relational Communication (H1 and H4). Relational communication quality significantly influences LTO directly (β = 0.317) and indirectly through perceived value co-creation (β = 0.152), indicating partial mediation. Culturally attuned communication fosters trust (amana) and shared understanding, facilitating collaborative problem-solving (Muhammad et al., 2023). This finding highlights how effective dialogue supports cooperation (hadin kai) and strengthens long-term partnerships when translated into joint value creation.

Integrative Conflict Resolution (H3). Integrative conflict resolution positively influences LTO, although its effect is comparatively smaller (β = 0.176). Collaborative, non-confrontational approaches align with cultural values emphasizing communal harmony (jama'a) and mutual respect (mutunci) (Faleti & Olaoye, 2021). Such practices preserve trust and relational stability, providing a foundation for effective communication and value co-creation. However, conflict resolution alone may be insufficient to maximize LTO without broader collaborative efforts.

Table 6
Summary of Key Findings and Contextual Implications

Key Finding	Standardized β	Contextual Interpretation
H2: Perceived Value Co-Creation → LTO	0.468	In environments characterized by high uncertainty, the sustainability of interfirm relationships depends primarily on collaborative, context-specific value creation rather than purely transactional efficiency.
H1: Relational Communication → LTO (Direct Effect)	0.317	Culturally embedded communication practices open, frequent, and relationship-oriented serve as a direct foundation for developing the trust and commitment required for a long-term orientation.
H4: COM → VCC → LTO (Indirect/Mediated Effect)	0.152	The influence of relational communication is largely realized through its role in enabling joint problem-solving and knowledge integration, thereby positioning exchange partners as active co-creators of value.
H3: Integrative Conflict Resolution → LTO	0.176	Conflict management approaches aligned with prevailing cultural norms (*sulhu* and *hakuri*) act as important relational safeguards, though they exert a weaker influence on long-term orientation than proactive value co-creation.
Control Variable: Trust → LTO	0.145	While trust remains a significant baseline condition for sustained relationships, its explanatory power is outweighed by more dynamic, process-oriented mechanisms such as communication quality and value co-creation.

Note. Statistical significance levels are denoted as follows: $^{**}p < .001$, $^{*}p < .01$, $p < .05$.

Theoretical Implications

i. Contextualizing Relational Models: This study answers the call for context-sensitive research in emerging economies (Burgess & Steenkamp, 2006). It demonstrates that while global relational constructs are applicable, their relative importance and operative pathways can differ. The primacy of value co-creation in this setting highlights how relational outcomes are shaped by environmental exigencies.

ii. Elucidating a Process in Informal Economies: The validated mediation (H4) provides a process-oriented model for how relationships solidify in institutionally weak settings. It moves from Communication (building social and informational capital) → Perceived Co-Creation (leveraging that capital for joint problem-solving) → LTO (commitment based on demonstrated collaborative value). This refines our understanding of relationship development beyond linear trust-commitment paradigms.

iii. Integrating Cultural and Institutional Logic: The study bridges institutional theory with relationship marketing. It shows how informal institutions cultural norms around communication (kasuwanci) and conflict resolution (sulhu) directly shape the effectiveness of formal relational governance strategies, providing a micro-level view of how businesses navigate institutional voids.

Managerial and Policy Implications

For Agri-Business Managers (Suppliers): Shift focus from being a reliable vendor to becoming a demonstrable co-creation partner. Institute formal joint planning sessions and innovation workshops with key clients. Train frontline staff not just in product knowledge, but in the communication and conflict resolution styles that build trust and enable collaboration in this specific cultural context.
For Agri-Business Managers (Clients): Proactively seek out and reward suppliers who engage in joint value creation. Move procurement criteria beyond price to include assessments of a supplier's collaborative capability and conflict resolution ethos.

For Development Agencies & Policy Makers: Programs aimed at strengthening agricultural value chains (the Anchor Borrowers' Programme) should move beyond facilitating transactional linkages. Interventions should foster relational infrastructures, such as: 1) Creating platforms for regular buyer-supplier forums to improve communication; 2) Training in collaborative negotiation and integrative conflict resolution; 3) Providing grants or support specifically for joint investment projects (in shared processing or storage facilities) that catalyze co-creation.

CONCLUSION AND RECOMMENDATIONS

This study provides a contextually-grounded model for building enduring partnerships within Northern Nigeria's agri-food sector, an environment where institutional voids elevate the importance of relational capital. The findings demonstrate that Long-Term Orientation (LTO) is best cultivated through a synergistic hierarchy of relational processes. While trust and integrative conflict resolution provide a necessary foundation, the most powerful driver of sustained commitment is the active co-creation of value. This positions collaborative adaptation not merely as a strategic advantage but as a fundamental pillar for relational sustainability in volatile emerging markets.

The results offer clear theoretical and practical guidance. Theoretically, they refine relationship marketing frameworks by showing how high-quality, culturally-attuned communication enables partners to become joint architects of value, which in turn solidifies a shared future orientation. For practitioners, this necessitates a paradigm shift from transactional exchanges to a partner-centric, collaborative mindset. Key recommendations include formalizing co-creation mechanisms, investing in relational communication training aligned with local norms, and adopting conflict resolution protocols that preserve relational harmony.

Acknowledging its cross-sectional design and focus on the client perspective within a specific sector, this study charts a course for future research. Subsequent work should employ longitudinal or dyadic designs to strengthen causal claims and capture both sides of the partnership. Further investigation is needed into the potential downsides of deep collaboration, the moderating role of digital technologies, and how the model

varies across different cultural and institutional settings within Nigeria and broader Africa.

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Analisis Penggunaan Strategi Fomo (Fear of Missing Out) Marketing dalam Siaran Shopee Live Streaming pada Produk Skincare

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ABSTRACT

Perkembangan fitur siaran langsung di platform e-commerce menyebabkan pelaku usaha menerapkan beragam strategi pemasaran untuk menarik minat konsumen, salah satunya adalah strategi Fear of Missing Out (FOMO). Penelitian ini bertujuan untuk mengevaluasi penggunaan strategi pemasaran FOMO dalam siaran Shopee Live terkait produk skincare. Metodologi dalam penelitian ini menggunakan pendekatan kualitatif deskriptif dengan teknik pengumpulan data yang berupa observasi non-partisipan terhadap siaran Shopee Live dari tiga merek skincare, yaitu Emina, The Originote, dan Elformula. Observasi dilakukan sebanyak tiga kali untuk setiap merek selama periode 22 sampai 24 Juli 2026 pada sesi siaran malam. Data dianalisis menggunakan metode analisis deskriptif kualitatif yang melibatkan tahapan reduksi data, penyajian data, pengklasifikasian, dan penarikan kesimpulan. Hasil penelitian menunjukkan bahwa terdapat lima tipe strategi FOMO yang digunakan oleh penyiar, yaitu keterbatasan waktu (limited time), kelangkaan produk (scarcity), penawaran eksklusif selama live (exclusive offer), keuntungan tambahan (additional benefits), dan bukti sosial (social proof). Dari kelima kategori tersebut, strategi keterbatasan waktu merupakan yang paling sering digunakan dengan 17 temuan, diikuti oleh penawaran eksklusif selama siaran sebanyak 10 temuan, keuntungan tambahan sebanyak 5 temuan, kelangkaan produk sebanyak 4 temuan, dan bukti sosial sebanyak 3 temuan. Temuan ini mengindikasikan bahwa strategi FOMO dalam Shopee Live produk perawatan kulit lebih banyak diterapkan melalui penciptaan rasa urgensi dan eksklusivitas promosi dibandingkan dengan pendekatan berbasis bukti sosial.

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PENDAHULUAN

Perubahan dalam dunia teknologi informasi dan komunikasi telah memberikan dampak besar, termasuk dalam bidang pemasaran dan perdagangan. Akses internet yang semakin mudah membuat orang-orang lebih memanfaatkan platform digital untuk mencari informasi maupun melakukan pembelian suatu kebutuhan yang diperlukan. Hal ini juga membuat *e-commerce* mengalami pertumbuhan yang sangat pesat di Indonesia. Ketatnya persaingan tersebut, para pelaku bisnis dituntut untuk menghasilkan strategi pemasaran yang efektif agar dapat menarik perhatian para konsumen serta menjaga daya saing usaha mereka.

Dengan meningkatnya *e-commerce*, taktik pemasaran yang diterapkan juga menunjukkan perubahan yang pesat. Salah satunya adalah *live streaming e-commerce* yang merupakan kegiatan promosi dan penjualan produk melalui siaran langsung pada platform digital. *Live streaming* memperkenalkan adanya interaksi langsung antara penjual dan pembeli secara *real time*. Melalui fitur ini, pembeli dapat langsung mendapatkan informasi produk, melihat cara pemakaian produk, serta berinteraksi dengan penjual melalui kolom komentar.

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Salah satu platform *e-commerce* yang aktif mengembangkan fitur *live streaming* adalah *Shopee* melalui fitur *Shopee Live.* Fitur ini menjadi sarana promosi yang ramai dimanfaatkan oleh para pelaku usaha karena mempu meningkatkan interaksi dengan kkonsumen sekaligus mendorong penjualan produk. Ningrum dan Umaroh (2024) menjelaskan bahwa *live sreaming* pada platform *Shopee* memiliki pengaruh yang positif terhadap minat beli konsumen terutama dalam produk kecantikan. Penemuan tersebut menunjukkan bahwa interaksi yang terjadi pada saat siaran langsung dapat meningkatkan ketertarikan konsumen terhadap produk yang ditawarkan.

Meskipun demikian, keberhasilan suatu siaran *Shopee Live* tidak hanya ditentukan oleh kualitas produk yang dipromosikan. Penjual juga perlu menerapkan strategi komunikasi yang mampu menarik perhatian dan mendorong konsumen untuk secepat mungkin melakukan pembelian. Salah satu strategi yang banyak digunakan dalam pemasaran digital adalah *Fear of Missing Out* (FOMO*) marketing.* FOMO merupakan kondisi ketika seseorang takut kehilangan kesempatan atau keuntungan yang dianggap berharga. Dalam pemasaran, strategi tersebut digunakan untuk memunculkan situasi urgensi yang mendorong konsumen untuk membeli produk sebelum kesempatan tersebut berakhir. Melalui strategi tersebut, konsumen dibangun persepsinya bahwa menunda pembelian dapat menyebabkan hilangnya kesempatan memperoleh keuntungan.

Strategi FOMO sering ditemukan pada promosi produk *skincare* melalui Shopee Live. Tingginya persaingan di antara merek *skincare* membuat pelaku bisnis berupanya menarik perhatian pelanggan dengan berbagai penawaran khusus saat siaran berlangsung. Penelitian sebelumnya menunjukkan adanya hubungan antara FOMO dan perilaku pembelian konsumen di platform digital. Alfarisi dan Sukaris (2024) mengungkapkan bahwa *Fear of Missing Out* (FOMO) memiliki dampak terhadap keputusan pembelian di platform *commerce* sosial. Di sisi lain, Indriawati dan rekan-rekan (2026) juga menguraikan bahwa *live streaming* memiliki peran dalam meningkatkan minat beli terhadap *skincare* pada Generasi Z.

Berdasarkan penjelasan di atas, terdapat keinginan untuk menggali lebih dalam terkait penerapan strategi FOMO dalam dunia pemasaran melalui *Shopee Live*. Dengan demikian, penelitian ini disusun dengan judul "Analisis Penggunaan *Strategi* FOMO *(Fear Of Missing Out) Marketing* Dalam Siaran *Shopee Live Streaming* Pada Produk *Skincare".* Tujuannya adalah untuk memeriksa berbagai cara penerapan strategi FOMO yang digunakan dalam siaran *Shopee Live* dan menerangkan bagaimana strategi ini bisa digunakan untuk menarik minat serta mendorong keputusan pembelian konsumen.

KAJIAN PUSTAKA

Live Streaming Commerce

Live streaming commerce adalah bentuk e-*commerce* yang menggabungkan *live streaming* dengan transaksi *online*. Penjual memiliki kesempatan untuk memperlihatkan produk secara langsung, melakukan demonstrasi produk, menjawab pertanyaan dari pembeli, serta menawarkan berbagai penawaran selama siaran. Berbeda dari metode pemasaran tradisional, *live streaming* memberikan pengalaman berbelanja yang lebih interaktif karena adanya komunikasi dua arah antara penjual dan pembeli.

Menurut penelitian Wiyana dkk. (2024), pemasaran melalui *Shopee Live* memberikan dampak positif terhadap keinginan konsumen untuk melakukan pembelian ulang (*repeat order),* karena metode ini memungkinkan penyampaian informasi produk yang lebih komunikatif dan menarik. Interaksi yang terjadi secara langsung juga dapat meningkatkan kepercayaan konsumen terhadap barang yang sedang dipromosikan.
Dengan karakteristik yang ada, *live streaming commerce* tidak hanya berfungsi sebagai sarana promosi, tetapi juga berperan dalam membangun hubungan antara penjual dan pembeli. Oleh

karena itu, sejumlah strategi pemasaran, termasuk pendekatan FOMO, sering digunakan selama siaran untuk meningkatkan efektivitas promosi dan mendorong keputusan pembelian.

Shopee Live

Shopee Live adalah salah satu fitur siaran langsung yang ditawarkan oleh Shopee sebagai sarana untuk mempromosikan dan menjual produk secara langsung. Fitur ini memungkinkan para penjual untuk berkomunikasi dengan konsumen melalui sesi *live streaming*, memberikan informasi tentang produk, dan menawarkan berbagai promosi yang hanya berlaku selama siaran berlangsung.

Shopee Live banyak dimanfaatkan oleh pelaku bisnis karena dapat meningkatkan interaksi dengan pelanggan dan mempercepat pengambilan keputusan pembelian. Penelitian yang dilakukan oleh Mariana dan Susilowati (2025) menunjukkan bahwa siaran langsung menjadi salah satu elemen yang mendorong pembelian impulsif di kalangan pengguna *Shopee* karena konsumen mendapatkan informasi produk secara langsung dengan berbagai penawaran menarik selama siaran.

Ciri khas *Shopee Live* yang menekankan interaksi secara langsung menjadikan fitur ini sebagai sarana yang efisien untuk menerapkan berbagai strategi pemasaran, terutama strategi FOMO melalui promosi terbatas, voucer eksklusif, serta informasi mengenai ketersediaan stok produk yang terbatas.

Fear of Missing Out* (FOMO) *Marketing

Fear of Missing Out (FOMO) *Marketing* merupakan kondisi psikologis ketika seseorang merasa khawatir akan kehilangan suatu kesempatan, pengalaman, maupun keuntungan yang dianggap bernilai. Dalam pemasaran digital, FOMO digunakan sebagai metode untuk menciptakan rasa mendesak sehingga konsumen terdorong untuk segera membuat keputusan pembelian. Pendekatan ini biasanya dilakukan melalui promosi yang menyoroti batas waktu, ketersediaan stok yang terbatas, dan penawaran khusus yang hanya ada dalam waktu tertentu. Menurut penelitian yang dilakukan oleh Rahmandani dan Rahmidani (2025), fenomena FOMO dalam aktivitas dagang melalui *live streaming* dapat meningkatkan kecenderungan untuk melakukan pembelian impulsif karena konsumen merasa takut melewatkan kesempatan untuk mendapatkan promosi atau produk yang ditawarkan. Situasi ini menunjukkan bahwa penggunaan strategi FOMO tidak hanya berpengaruh pada sisi emosional konsumen, tetapi juga berkontribusi pada perilaku belanja di platform *e-commerce.*

Dalam pelaksanaannya, strategi FOMO terlihat dalam berbagai cara komunikasi pemasaran, seperti frasa *"promo hanya untuk hari ini", "stok terbatas", "harga akan kembali normal setelah siaran langsung",* atau *"voucer eksklusif selama siaran".* Komunikasi tersebut bertujuan menciptakan pandangan bahwa kesempatan untuk mendapatkan keuntungan bersifat terbatas dan mendorong konsumen untuk segera menyelesaikan pembelian. Oleh karena itu, strategi FOMO menjadi salah satu metode yang banyak digunakan dalam aktivitas dagang melalui *live streaming*, terutama pada platform *Shopee Live.*

Fear of Missing Out* (FOMO) *Marketing

Strategi pemasaran yang mengandalkan FOMO dapat diterapkan dalam berbagai bentuk komunikasi pemasaran yang bertujuan untuk menimbulkan perasaan takut kehilangan peluang di kalangan konsumen. Berdasarkan berbagai penelitian mengenai live streaming commerce, strategi tersebut umumnya diwujudkan melalui keterbatasan waktu (*limited time*), kelangkaan produk (*scarcity*), penawaran eksklusif selama live (*exclusive offer*), keuntungan tambahan (*additional benefits*), serta bukti sosial (*social proof*).

Studi yang dilakukan oleh Tedry dan Tulipa (2025) menyatakan bahwa informasi mengenai kelangkaan produk dapat meningkatkan minat untuk membeli dengan menciptakan pandangan bahwa kesempatan untuk mendapatkan suatu produk sangat terbatas. Selain itu, riset yang mengkaji perilaku pembelian dalam *live streaming* juga menunjukkan bahwa taktik berbasis FOMO berkontribusi dalam meningkatkan kecenderungan untuk berbelanja secara impulsif melalui perpaduan elemen diskon, keterbatasan persediaan, dan batasan waktu promosi.
Dengan mempertimbangkan penjelasan di atas, penelitian ini mengadopsi lima jenis strategi FOMO, yaitu batas waktu, kelangkaan produk, tawaran eksklusif selama siaran langsung, manfaat tambahan, dan bukti sosial sebagai landasan untuk mengategorikan hasil pengamatan terhadap siaran *Shopee Live* seputar produk perawatan kulit.

METODE

Penelitian ini menggunakan pendekatan kualitatif deskriptif untuk mengkaji penerapan strategi *Fear of Missing Out* (FOMO) dalam pemasaran yang dilakukan melalui siaran *Shopee Live* pada produk *skincare*. Metode ini dipilih karena tujuan penelitiannya adalah untuk menggambarkan dam memahami variasi strategi FOMO yang diterapkan dalam promosi produk *skincare* melalui siaran langsung. Fokus dari penelitian ini adalah siaran *Shopee Live* dari tiga merek *skincare,* yaitu Elformula, The Originote, dan Emina.

Data yang terdapat dalam penelitian adalah ucapan, kalimat promosi, dan cara komunikasi pemasaran yang mengandung elemen strategi FOMO selama siaran berlangsung. Data ini dikumpulkan melalui observasi non-partisipan serta dokumentasi siaran *Shopee Live* yang disiarkan oleh ketiga merek tersebut. Observasi dilakukan pada periode 22–30 Juli 2026 dengan mengamati sembilan sesi *live streaming* yang terdiri atas tiga sesi pada masing-masing merek. Seluruh sesi yang diamati merupakan siaran yang berlangsung pada malam hari, dengan memperhatikan siaran secara langsung dan mencatat bentuk strategi FOMO yang teridentifikasi, seperti penggunaan informasi tentang keterbatasan stok, waktu promosi yang terbatas, voucer eksklusif, serta metode promosi lain yang bertujuan untuk membangkitkan rasa urgensi di kalangan konsumen. Dokumentasi dilakukan dengan mencatat dan mengambil tangkapan layar terhadap informasi yang berkaitan dengan fokus penelitian tersebut.

Teknik pengambilan data dilakukan dengan *purposive sampling* dengan memperhatikan akun skincare yang aktif menggunakan fitur *Shopee Live* dan terlibat dalam promosi yang mengandung elemen FOMO *marketing*. Data yang telah dikumpulkan selanjutnya dianalisis menggunakan model analisis interaktif yang meliputi tiga langkah, yakni reduksi data, penyajian data, dan penarikan kesimpulan. Pada langkah reduksi data, peneliti melakukan seleksi dan pengelompokan data berdasarkan jenis strategi FOMO yang ditemukan. Setelah itu, data disajikan dalam bentuk deskripsi untuk mempermudah proses interpretasi. Di tahap akhir, kesimpulan ditarik mengenai bagaimana strategi FOMO *marketing* diterapkan dalam siaran *Shopee Live* untuk produk *skincare*.

HASIL DAN PEMBAHASAN

Studi ini dilakukan dengan cara mengamati siaran *Shopee Live* dari tiga merek *skincare,* yaitu Emina, The Original, dan Elformula. Pemilihan ketiga merek ini didasarkan pada keaktifan melakukan *live streaming* sebagai sarana untuk promosi dan penjualan produk. Pengamatan dilakukan pada beberapa sesi *Shopee Live* yang fokus pada pernyataan *host*, jenis promosi yang diberikan, dan strategi komunikasi yang diterapkan untuk mendorong konsumen melakukan pembelian saat siaran berlangsung.

Data penelitian diperoleh melalui teknik observasi non-partisipan dan dokumentasi. Selama proses pengamatan, peneliti mencatat berbagai tuturan yang mengandung unsur *Fear of Missing Out* (FOMO*) marketing*, seperti ajakan untuk segera melakukan *checkout*, informasi mengenai keterbatasan waktu promo, keterbatasan stok produk, penawaran eksklusif selama

live, hingga penyampaian informasi mengenai pembelian yang telah dilakukan oleh konsumen lain. Seluruh data yang diperoleh kemudian diklasifikasikan berdasarkan kesamaan karakteristik strategi FOMO yang digunakan.

Strategi Penawaran Eksklusif Selama *Live (exclusive offer)*

Penawaran eksklusif atau khusus yang hanya tersedia pada saat *live* merupakan salah satu metode FOMO yang bisa diterapkan dengan memberikan promo atau keuntungan khusus yang hanya bisa didapatkan pada saat siaran berlangsung. Strategi ini dirancang untuk membangun anggapan bahwa pembeli memiliki waktu yang terbatas untuk mendapatkan harga yang lebih murah, paket *bundling* yang lebih menguntungkan, atau promo tertentu yang tidak tersedia di luar sesi *live*. Oleh karena itu, konsumen termotivasi untuk melakukan transaksi secepat mungkin agar tidak melewatkan kesempatan untuk mendapatkan penawaran tersebut.

Tabel 1 Hasil Analisis Strategi Penawaran Eksklusif Selama *Live (exclusive offer)*

Merek	Strategi Penawaran Eksklusif
Elformula	1. "Harga segini biasanya cuma dapat satu produk, sekarang dapat empat produk sekaligus." 2. "Di luar *live* harganya bisa dua sampai tiga kali lebih mahal." 3. "*Big sale* kali ini cuma berlaku di sesi live." 4. "Beli satu gratis satu, dari harga Rp113 ribu sekarang cukup bayar Rp49 ribu.
The Originote	1. "Promo *bundling* ini cuma ada di *live* aja." 2. "Harga spesial ini hanya bisa didapat selama *live* berlangsung." 3. "Dari harga normal jadi segini, khusus selama *live* ya."
Emina	1. "Paket *bundling* ini dapat potongan harga khusus kalau *checkout* sekarang." 2. "Paket *bundling* dengan harga spesial ini cuma ada saat *live*." 3. "Harga yang sekarang lebih murah dibanding harga normal."

Strategi penawaran eksklusif (*exclusive offer)* diperlihatkan melalui pemanfaatan promo yang hanya aktif selama *live*, seperti *bundling* khusus, harga yang lebih rendah daripada harga biasa, hingga program beli satu gratis satu. Pendekatan ini menghasilkan persepsi bahwa pelanggan mendapatkan peluang istimewa yang tidak tersedia di luar sesi siaran langsung. Dengan cara ini, rasa takut akan kehilangan kesempatan untuk mendapatkan harga atau paket yang lebih menarik muncul.

Strategi Keuntungan Tambahan *(Additional Benefits)*

Berdasarkan hasil pengamatan, strategi FOMO juga diterapkan dengan memberikan keuntungan ekstra kepada pelanggan, contohnya voucer tambahan dan prioritas dalam pengiriman. Manfaat ini hanya bisa didapatkan jika pelanggan melakukan *checkout* dan pembayaran dengan cepat. Tujuan dari strategi ini adalah untuk mendorong pelanggan agar secepatnya melakukan transaksi agar tidak melewatkan keuntungan yang tersedia.

Tabel 2 Hasil Analisis Strategi Keuntungan Tambahan *(Additional Benefits)*

Merek	Strategi Keuntungan Tambahan *(Additional Benefits)*
Elformula	1. "*Payment* saat *live* akan dapat pengiriman prioritas." 2. "Kalau *checkout* saat *live*, pengirimannya akan diprioritaskan."
The Originote	1. "*Follow* dulu karena ada voucer tambahan untuk *followers*." 2. "Yang punya voucer, langsung dipakai sekarang sebelum masa berlakunya habis."

Emina	1. "Yang *checkout* dan *payment* dalam 10 menit ke depan akan diprioritaskan pengirimannya."

Pada strategi keuntungan tambahan *(Additional Benefits)*, *host* menawarkan berupa voucer ekstra dan prioritas pengiriman bagi pembeli yang melakukan *checkout* dengan cepat. Bentuk ini tidak berhubungan langsung dengan harga, tetapi memberikan nilai lebih pada transaksi. Pendekatan ini masih mencakup FOMO karena konsumen didorong untuk segera bertindak agar tidak kehilangan keuntungan tambahan yang bersifat terbatas baik dari segi waktu maupun jumlah.

Strategi Keterbatasan Waktu *(Limited Time)*

Hasil pengamatan memperlihatkan bahwa pendekatan FOMO sering digunakan melalui batasan waktu. Pembawa acara sering kali mengingatkan bahwa penawaran, potongan harga, dan harga istimewa hanya tersedia selama sesi langsung atau dalam jangka waktu tertentu, sehingga pembeli didorong untuk segera menyelesaikan pembelian.

Tabel 3 Hasil Analisis Strategi Keterbatasan Waktu *(Limited Time)*

Merek	Strategi Keterbatasan Waktu *(Limited Time)*
Elformula	1. "*Payment* saat *live* akan dapat pengiriman prioritas." 2. "Kalau *checkout* saat *live*, pengirimannya akan diprioritaskan."
The Originote	1. "Bentar lagi harganya naik ya, jadi langsung *checkout* aja." 2. "Voucer tambahan ini cuma sampai jam tertentu." 3. "Mumpung aku masih *live*, langsung *checkout* sekarang." 4. "Kalau *checkout* di luar *live*, harganya kembali normal." 5. "Ini sudah sesi *closing*, sebelum *live* berakhir langsung diamankan." 6. "Pastikan *payment* dari sekarang sebelum diskonnya habis." 7. "Kalau mau harga murah, *payment* dari sekarang ya."
Emina	1. "*Checkout* dan *payment* sekarang supaya dapat potongan harga yang lebih besar." 2. "Buruan *checkout* sebelum harganya kembali normal." 3. "Voucer *Golden Ticket* ini cuma berlaku selama *live* berlangsung." 4. "Amankan produknya dari sekarang sebelum *live* berakhir." 5. "Harga spesial ini hanya berlaku saat *live*, jadi *payment* sekarang ya." 6. "*Checkout payment* sekarang juga, jangan ditunda lagi."

Berdasarkan hasil strategi keterbatasan waktu *(Limited Time)*, dapat dilihat bahwa *host* secara konsisten menggunakan dorongan untuk segera melakukan *checkout* dengan menekankan masa berlakunya promo, seperti “sebelum harga kembali ke normal”, “siaran langsung hanya tersisa beberapa menit”, hingga “diskon hanya berlaku selama siaran langsung”. Pola ini mencerminkan upaya untuk menciptakan rasa mendesak agar pelanggan segera membuat keputusan beli.

Pendekatan ini tergolong dalam kategori FOMO karena menciptakan persepsi bahwa peluang untuk mendapatkan harga lebih rendah bersifat terbatas dan akan segera hilang. Dengan cara ini, pelanggan didorong untuk tidak menunda pembelian, mengingat ada risiko kehilangan manfaat yang ditawarkan.

Strategi Kelangkaan Produk *(Scarcity)*

Hasil observasi menunjukkan bahwa strategi FOMO juga diterapkan melalui penekanan pada keterbatasan stok produk. *Host* kerap mengingatkan konsumen untuk segera *checkout* sebelum produk habis sehingga mendorong keputusan pembelian secara cepat.

Tabel 4 Hasil Analisis Strategi Kelangkaan Produk *(Scarcity)*

Merek	Strategi Kelangkaan Produk *(Scarcity)*
Elformula	1. "Yuk *checkout payment* sekarang sebelum produknya habis." 2. "Yang lain buruan *checkout* juga sebelum kehabisan."
The Originote	-
Emina	1. "*Checkout payment* sekarang sebelum kehabisan, stoknya nggak banyak." 2. "Amankan produknya dari sekarang sebelum stok habis."

Strategi kelangkaan produk *(Scarcity)*, *host* memanfaatkan informasi terkait jumlah stok yang terbatas seperti "jumlah stok terbatas" dan "segera sebelum kehabisan". Ini menandakan bahwa pendekatan pemasaran tidak hanya bergantung pada waktu, tetapi juga pada ketersediaan barang.

Dorongan kelangkaan ini menciptakan pandangan bahwa produk tersebut dicari oleh banyak orang sehingga kemungkinan akan segera habis. Situasi ini menimbulkan rasa takut ketinggalan pada konsumen karena munculnya kekhawatiran tidak bisa mendapatkan produk jika tidak cepat-cepat melakukan pembelian.

Strategi Bukti Sosial *(Social Proof)*

Hasil observasi menunjukkan bahwa strategi FOMO juga muncul dalam bentuk bukti sosial, seperti informasi pembelian konsumen lain dan penggunaan produk oleh *influencer*. Hal ini digunakan untuk meningkatkan kepercayaan dan mendorong konsumen lain agar ikut melakukan pembelian.

Tabel 5 Hasil Analisis Strategi Bukti Sosial *(Social Proof)*

Merek	Strategi Bukti Sosial *(Social Proof)*
Elformula	1. "Terima kasih Kak A yang sudah *checkout* banyak banget, yang lain yuk ikutan *checkout* juga."
The Originote	1. "Terima kasih kak A sudah *checkout*, ayo yang lain c*heckout payment* sekarang biar samaan kaya kakak A."
Emina	1. "Produk ini sudah banyak dipakai dan direkomendasikan oleh *influencer* besar, jadi langsung diamankan ya."

Bukti sosial *(Social Proof)* ditampilkan melalui data seperti total transaksi dari konsumen lain, ulasan, serta pemakaian barang oleh *Influencer*. *Host* menunjukkan bahwa barang tersebut telah dibeli dan dimanfaatkan oleh banyak orang.

Situasi ini menghasilkan dampak psikologis yang menunjukkan bahwa barang tersebut memiliki reputasi yang baik di mata orang lain, sehingga pelanggan termotivasi untuk membeli juga agar tidak ketinggalan dari *tren* yang ada.

Klasifikasi Strategi FOMO *Marketing* dalam *Shopee Live* Produk *Skincare*

Berdasarkan pengamatan terhadap siaran *Shopee Live* yang melibatkan tiga merek *skincare*, yakni Emina, The Originote, dan Elformula, ditemukan berbagai ucapan dari *host* yang mencakup strategi pemasaran *Fear of Missing Out* (FOMO). Semua informasi tersebut lalu dikelompokkan ke dalam lima kategori utama, antara lain batasan waktu, kelangkaan barang, penawaran khusus saat siaran langsung, manfaat tambahan, serta bukti sosial. Kelima strategi

tersebut diterapkan untuk menimbulkan rasa urgensi dan mendorong konsumen agar cepat mengambil keputusan pembelian sebelum kesempatan mendapatkan keuntungan yang ditawarkan hilang.

Tabel 6 Klasifikasi Strategi FOMO *Marketing* dalam *Shopee Live* Produk *Skincare*

Kategori Strategi FOMO	Jumlah Temuan
Penawaran Eksklusif Selama Live	10 Temuan
Keuntungan Tambahan *(Additional Benefits)*	5 Temuan
Keterbatasan Waktu *(Limited Time)*	17 Temuan
Kelangkaan Produk *(Scarcity)*	4 Temuan
Bukti Sosial *(Social Proof)*	3 Temuan

Berdasarkan tabel klasifikasi, strategi FOMO yang paling banyak digunakan dalam siaran *Shopee Live* produk *skincare* adalah keterbatasan waktu *(Limited Time)*, diikuti oleh penawaran eksklusif selama *live*. Dominasi ini menunjukkan bahwa pola komunikasi yang diterapkan *host* sangat dipengaruhi oleh tekanan waktu dan keterbatasan kesempatan, misalnya dengan menegaskan bahwa promo akan segera berakhir, harga akan kembali seperti semula, atau produk hanya tersedia selagi siaran berlangsung. Metode ini secara langsung menempatkan konsumen pada situasi yang memaksa mereka untuk mengambil keputusan segera tanpa menunggu.

Penerapan kedua strategi ini juga memperlihatkan bahwa alur promosi dalam *Shopee Live* bukan hanya bersifat informatif, tetapi juga diarahkan untuk merangsang tindakan cepat calon konsumen. *Host* tidak hanya menjelaskan tentang produk secara berulang, tetapi juga menekankan risiko kehilangan keuntungan jika tidak segera melakukan *checkout*. Dengan demikian, FOMO muncul bukan sebagai dampak sampingan, melainkan sebagai elemen yang sengaja dibangun melalui pola komunikasi yang berulang dan terstruktur selama siaran berlangsung.

Di sisi lain, strategi bukti sosial *(Social Proof)* merupakan kategori dengan temuan paling sedikit. Menunjukkan bahwa promosi tidak terlalu bergantung pada testimoni atau pengaruh orang lain, melainkan lebih kepada tekanan situasional yang terjadi selama siaran. Informasi seperti "sudah banyak yang *checkout*" atau keterlibatan *influencer* hanya muncul sesekali dan tidak menjadi pola utama dalam komunikasi pemasaran yang diamati.

Secara keseluruhan, hasil ini menunjukkan bahwa penerapan FOMO dalam *Shopee Live* produk *skincare* cenderung lebih langsung dan berorientasi pada tekanan situasi daripada berdasarkan pada pendekatan kepercayaan sosial. Strategi yang diterapkan lebih mengarahkan konsumen untuk mengambil keputusan cepat melalui batasan waktu dan *eksklusivitas*, bukan melalui pertimbangan yang panjang.

KESIMPULAN DAN SARAN

Kesimpulan

Berdasarkan hasil penelitian, dapat disimpulkan bahwa strategi pemasaran *Fear of Missing Out* (FOMO) telah diterapkan dengan konsisten dalam penyiaran *Shopee Live* untuk produk *skincare* melalui berbagai cara komunikasi yang bertujuan untuk mendorong konsumen agar segera melakukan pembelian. Hasil pengamatan menunjukkan adanya lima kategori strategi FOMO, yaitu keterbatasan waktu (*limited time*), kelangkaan produk (*scarcity*), penawaran eksklusif selama live (*exclusive offer*), keuntungan tambahan (*additional benefits*), dan bukti sosial (*social proof*).
Di antara lima kategori tersebut, strategi batasan waktu merupakan yang paling dominan digunakan oleh *host*. Ini menunjukkan bahwa promosi dalam *Shopee Live* banyak menekankan pada pengingat mengenai waktu promosi, perubahan harga setelah siaran, serta ajakan untuk

segera menyelesaikan pembelian. Strategi ini kemudian diperkuat dengan penawaran eksklusif yang hanya ada saat siaran berlangsung, sehingga dapat meningkatkan persepsi bahwa peluang untuk mendapatkan keuntungan bersifat terbatas.

Sementara itu, strategi bukti sosial merupakan kategori dengan temuan paling sedikit. Hasil ini menunjukkan bahwa komunikasi pemasaran pada siaran *Shopee Live* untuk produk *skincare* lebih berfokus pada penciptaan rasa mendesak melalui tekanan waktu dan eksklusivitas daripada membangun keputusan pembelian melalui testimoni atau pengaruh sosial. Oleh karena itu, dapat disimpulkan bahwa penerapan strategi FOMO dalam siaran *Shopee Live* lebih fokus pada pembentukan keputusan pembelian yang cepat melalui komunikasi persuasif yang memanfaatkan kekhawatiran konsumen terhadap kehilangan kesempatan mendapatkan penawaran atau keuntungan yang ada.

Saran

Berdasarkan hasil penelitian, baik penjual maupun *host* di *Shopee Live* disarankan untuk menerapkan strategi FOMO dengan seimbang, sambil tetap memberikan informasi produk yang akurat dan tidak menyesatkan. Penerapan strategi seperti batas waktu promosi, penawaran khusus, atau tambahan manfaat harus disampaikan dengan jelas agar dapat membangun kepercayaan konsumen dalam jangka panjang.

Bagi pelaku bisnis di bidang *skincare*, hasil studi ini dapat digunakan sebagai panduan dalam merumuskan strategi komunikasi pemasaran saat melakukan siaran langsung. Kombinasi antara strategi FOMO dan penyampaian informasi produk yang akurat dapat meningkatkan efektivitas promosi tanpa mengurangi kepercayaan terhadap merek.

Bagi peneliti berikutnya, studi ini dapat diperluas dengan menggunakan objek penelitian yang lebih variasi, seperti kategori produk lain atau platform siaran langsung yang berbeda, serta mengintegrasikan pendekatan kualitatif dan kuantitatif untuk mendapatkan pemahaman yang lebih mendalam mengenai efektivitas strategi FOMO terhadap perilaku pembeli.

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The Role of E-Banking Service Quality in Enhancing Customer Satisfaction: An Empirical Study of Iraqi Banks, Iraq

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ABSTRACT

With the development of technology and the trend towards digital transformation in various fields, the banking sector was not far behind. Rather, it was already eager to meet customer expectations and needs even before the transformation. Hence, the importance of this research lies in providing scientific evidence for banks regarding the types of services that meet customer desires and work on improving the services provided. It also provides indicators that help decision-makers in the banking sector in developing banking digital transformation strategies. The research aimed to demonstrate the impact of the quality of electronic services provided on customer satisfaction and whether they meet their expectations. This was tested through a questionnaire for a sample of 114 respondents from different demographics. The research concluded that the dimensions of electronic banking service quality combined have a very high explanatory power of 74% (R2 = 0.740), which confirms that customer satisfaction is formed through a holistic view of digital quality and not through one dimension in isolation from the others. It also recommends the necessity for banks to focus on raising "technical efficiency" by upgrading servers and reducing application response times, as it is the main driver of customer satisfaction according to the statistical result.

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INTRODUCTION

The world is currently undergoing a significant shift in the nature of banking operations. The financial services were undergoing transformation based traditional structures with the physical bank branches and face-to-face communication have transformed over a digital age that is characterized with speed of the independence of time and place. With the growing rate of the digitalization, the quality of the service's dimension of the digital banking has become a key element of the current banks' approaches motivated by their goal to increase their market share, and sustainability in an intense, difficult competitive environment.

The quality electronic service is not only be defined as a technical approach for performing the operation operation, but it has become the primary tool for influencing the shape their customer satisfaction and increasing loyalty. Indeed customer of today is characterized by a high technical awareness rate, and increasing expectations for standards of efficiency, security, ease ease of using and its response's speed. Thus, any gap in the quality of the of the service's dimensions would cause a trust gap that is difficult to be recovered, and the integration between the contribute to the creation of a unique user experience that would increase the level of satisfaction and loyalty.

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In spite of the intense effort of the banks in Iraq of their digital platforms, the major task is the identification of which of the dimensions of the service's quality is the most influential and attractive for customers. Many of them tend security of security, while others tend to the simplicity in the design and its technical's speed. On this level, the need of this urgent work has arisen to study and analyze the nature of the relationship between the dimensions of the quality of electronic banking services (such as reliability, responsiveness, security, ease of use, and technical efficiency) and the customer satisfaction to explain the real factors which determine their perceptions and drive their conditional behavior towards the digital services.

STUDY METHODOLOGY

Research Problem

The quality of electronic banking services is becoming more important in the success of e-commerce applications. The provision of good electronic services is key for banks to deliver good banking services to their customers.The research problem is that, despite the development of electronic banking services in recent years, there are inequalities in customer opinions and satisfaction with the services provided.The difference shows that there is a gap between customer expectations of these services and the level of service delivered by banks.Therefore, research problem can be formulated in the following form:

To what extent does the quality of electronic banking services contribute to enhancing customer satisfaction?

The importance of the research:

The importance of the research is highlighted by providing scientific evidence to banks on the type of services that meet customer desires and work on improving the services provided. It also provides indicators that help decision-makers in the banking sector in developing strategies for digital banking transformation. The research represents an applied study on the relationship between the quality of electronic banking services and customer satisfaction. It also contributes to enhancing the literature related to the subject of the research sample.

Research Objectives

1) This research aims to determine the quality level of electronic banking services.
2) To assess customer satisfaction with the services provided.
3) To define the concept of banking service quality, customer satisfaction, and methods for measuring them.
4) To measure the relationship between each dimension of electronic banking service quality and customer satisfaction.
5) To provide recommendations that would improve the quality of banking services and customer satisfaction.

Research Hypotheses

This research is based on the main hypothesis:
There is a statistically significant relationship between the quality of electronic banking services and customer satisfaction in Iraqi banks.
From this main hypothesis, the following sub-hypotheses are derived:
The reliability dimension of electronic banking services affects customer satisfaction in Iraqi banks.
The responsiveness dimension of electronic banking services affects customer satisfaction in Iraqi banks.

The security dimension of electronic banking services affects customer satisfaction in Iraqi banks.
The ease of use dimension of electronic banking services affects customer satisfaction in Iraqi banks.
The technical efficiency dimension of electronic banking services affects customer satisfaction in Iraqi banks.

Research Population and Sample

Research Population: The research population consists of customers who use electronic banking services offered by banks, such as mobile banking applications.
Research Sample: A random sample of users of electronic banking services in Iraq.

Research Scope

The spatial scope of this study covers banks operating within the Iraqi banking sector, while the temporal scope is limited to the period in which the research was conducted.

THEORETICAL ASPECT

The Concept of Electronic Banking

Electronic banking is an electronic portal that enables customers to use various types of banking services such as current accounts, loans, financial advice, receiving deposits, paying bills, managing accounts, and providing products and services (AlHaliq & AlMuhirat, 2016:140). Electronic banking can be defined as diverse electronic channels for conducting various banking transactions via the internet, mobile phones, and computers. Customers wish to conduct banking transactions from anywhere without needing to visit the bank, at a convenient time without being restricted by working hours, and to carry out all operations quickly and at a reasonable cost (Hammoud et al, 2018:2). Electronic banking is also defined as an electronic means of communication between customers and the bank to conduct, manage, and monitor financial operations. It is a means of communication that enables customers to access their accounts remotely, transfer funds, and make the necessary payments (Ayinaddis et al, 2023:4).

The quality of electronic

banking services is the ability of banks to provide high-quality online digital services that meet customer needs, enhance trust, and foster loyalty. This quality impacts customer satisfaction and trust, two mediating factors that promote customer loyalty and maintain their relationship with the bank, especially in high-risk financial environments (Kamara & Bangura, 2026:1). The quality of electronic banking services directly affects customer satisfaction, loyalty, and transaction costs. Service quality can be defined as the extent to which the service provided meets customer expectations. This is determined by comparing initial customer expectations with their perceptions after experiencing the actual service. It depends on several key factors derived from previous studies, most notably the efficiency and speed of electronic transactions, which contribute to completing operations on time, the efficiency and speed of the service, reliability, responsiveness, privacy, and security. All these elements play a fundamental role in enhancing the customer experience and achieving their satisfaction (Nguyen, 2025: 727).

Types of Electronic Banking Channels

Electronic banking channels represent the ways through which customers can make their banking transactions without visiting branches. Currently electronic banking services include a series of channels, such as:

1) ATM Banking: are self-service electronic banking machines that make it possible for customers to withhdraw money, make trasfers, and check their balances by using a debit card and a secure PIN code. These machines operate 24/7 and are placed in different locations to ensure an uninterrupted and easy access and lessen the flow of traffic to branches. ATMs provide convenience and security, and lessen the risks of dealing with large cash amounts, as in the result they make the experiences of customer more satisfying and encourageing of electronic banking banking services. This channel is regarded to be the first self-service channel providing customers to make their banking transactions without the need to visit the branches, and in the way decreasing the operational costs for the banks (Money & Iyoha, 2025:197).

2) Point of Sale (POS): devices are a widely used electronic channel for banking services that are used for to process credit or debit card transactions in retail locations like shops, restaurants, and hotels, These devices allow customers to make transactions 24/7 and are usually connected to the bank's central server through telephone lines or wireless connections, transferring funds from the buyer's account to the merchant's account. These devices are characterized by their level and availability that contributes to facilitating banking transactions and rising the bank's marketshare (Nazaritehrani & Mashali, 2020:4).

3) Home banking: means the ability to make banking transactions from one's home without needing to visit the bank's branches. This bank provides customers to access and handle their personal's account information via telephone, relying on a phone line, passwords and personal code to ensure data's security. This bank provides customers to access and handle their personal's account information via telephone, relying on a phone line, passwords and personal code to ensure data's security. Through this service it is possible for customers to monitor their account balances and transfer funds between accounts, and to perform various daily routine transactions easily.

4) PC banking: is a type of banking service that provides customers to make their financial transactions by using a personal computer. This involves providing customers with specialised banking software that enables them to perform banking operations from their homes via a modem, ensuring easy access to banking services without the need to visiting branches (Hoehle, Scornavacca, & Huff, 2012:123).

5) Internet banking: is an advanced service that enables customers to access their accounts and make their financial transactions directly online, as well as get information about bank's products and services. Customers can transfer funds, pay bills, check account balances, repay loans and buy financial instruments, and certificates of deposit, providing easy and secured handling of banking operations that without the need to visit the banks (Calisir & Gumussoy, 2008:215).

6) Mobile banking: is the latest in electronic banking which provides customers to make various financial transactions via their mobile devices. This service is based on WAP (Wireless Application Protocol) technology, allowing a compatible mobile browser to get access to information and complete transactions easily and securely (Drigă & Isac, 2014: 53).

Dimensions of Electronic Banking Service Quality

Service quality dimensions are the attributes that represent the customer's experiences during their interaction with the services. According to the literature, several attributes have been introduced to define the influence of the dimensions that affect customers' perception of the quality service. It has been introduced as dimensions to give researchers and managers more understanding the elements which affect the development and enhancing of their service level. the dimensions are (Ighomereho et al., 2022:7) and (Pat
e et al., 2024:215):

1) Website appearance: Website appearance is its visual design and organization of content, it is a important aspect that affects customer's perception first impression of service quality of online services, Therefore, the website must be clearly visible, attractive, and be-friendly, without too much visual effects and advertising that may annoy the user and impede their transaction.

2) Ease of Use of the Electronic Channel: This dimension refers to the ease of use of the electronic channel and the customer's ability to find information and conduct transactions with minimal effort. Ease of use is a key factor in determining the quality of electronic service, as it increases the likelihood of system usage, customer satisfaction, and loyalty. Conversely, difficulty of use may hinder transactions and discourage customers from returning to the electronic channel.

3) Reliability: Refers to the ability of an electronic service to perform accurately, consistently, and with continuous availability, with the organization fulfilling its promises. This includes accurate billing, record-keeping, and on-demand service delivery. Reliability is the most important factor in determining the quality of electronic service and customer satisfaction. Customers appreciate quality more when the service is delivered as expected, while they may avoid using the channel if it is unavailable when needed.

4) Security: Security in electronic services refers to protecting customers from fraud and financial losses, and safeguarding their personal information. It encompasses both information security and transaction security. Security is a fundamental dimension of electronic service quality, enhancing customer trust and satisfaction, although some studies have found its impact to be limited.

5) Personalization: By personalization in e-services is meant ability of channel to provide a differentiated service and understand the needs and preferences of each of customers. Personalization enables website to recognize repeat customers and show them personalized content, creating the feeling of the close familiarity and enhancing relationship and loyalty. Customer information and purchase history are also be used to make more tailored offers and services.

6) Fulfillment: Fulfillment of promises is means the ability of online channel to meet customers expectations, realizing its commitments as products and services, ensuring timely delivery. This involves accuracy in presentation and description of product, and ensuring that customer will receive what they have actually asked for. It is important determinant of quality of online service.

7) Responsiveness: refers to the speed and efficiency of the electronic channel in treatment of customer problems and complaints, including responding to queries, processing of returns, compensation of losses if necessary. Ability to react in time and appropriately is important determinant of customer perception on the quality of electronic service.

Customer satisfaction

The evaluation by the customer of his/her experience with a specific product or service that expresses the correspondence with the expectations with their need. Customer satisfaction is an important measure of the quality of service or product and a fundamental factor for sustainable business success. It promotes the loyalty to the company by encouraging customers to continue the business relationship with the company and spreading it around. In order, customer satisfaction, directly affects the company's economic results by increasing customer retention, reducing costs of marketing activities for new customers and obtaining a competitive advantage on market.Furthermore, customer satisfaction is linked to psychological and behavioral outcomes, raising brand trust and stimulating positive interaction with the services

provided (Evangelista, Flegueras, & Antonio, 2025:27). Customer satisfaction is a crucial factor in organizational success and is significantly influenced by the behavior of direct service providers. Customer management requires considering customers as valuable assets, taking into account the differences in their needs, preferences, and purchasing behaviors, in order to ensure the provision of customized and effective services that enhance their loyalty and achieve their continuous satisfaction (Lee et al., 2016:1). Customer satisfaction is the feeling of the consumer after experiencing a product or service, and it is a strategic goal for any organization, as it is related to service quality, customer loyalty, and positive promotion, and contributes to increasing profits and reducing costs (Zouari & Abdelhedi, 2021:3).

Factors Affecting Customer Satisfaction

Factors affecting customer satisfaction are a primary concern for any organization, department, or country, as customer satisfaction allows any business to build long-term, profitable relationships with its clients. This is because when a company loses loyal customers, it incurs the cost of regaining them in addition to the costs of attracting new ones. Among these factors are internal factors such as product quality, employee efficiency, and company policies, and external factors such as competition, economic conditions, and market trends. The impact of communication and customer service on customer satisfaction (Hanif, Hafeez, & Riaz, 2010:45) identifies the main factors affecting customer satisfaction with electronic banking. These include positive factors such as perceived utility, ease of use, comparative advantages, and the service's suitability to current customer needs, which promote reliance on online banking services. Conversely, there are disincentive factors that negatively affect usage, including security risks, financial risks, time risks, performance risks, and social risks. These factors reflect the importance of institutions considering these aspects when developing and improving electronic banking services (Ekanayaka, 2021:1269):

1) Product or service quality.
2) Response time and customer service.
3) Pricing and value for money.
4) User experience and overall buying experience.

The Relationship Between E-Banking Quality and Customer Satisfaction

E-banking quality elements such as empathy, reliability, and responsiveness play a significant role in enhancing customer satisfaction and purchasing intentions. While customer satisfaction acts as a mediator in this relationship, there is a lack of research demonstrating how responsiveness directly influences customer behavior. This highlights the need for further research to better understand this impact and improve the customer experience in e-banking (Ali, Azhar, & Sherwani, 2023:180). E-banking quality significantly impacts customer satisfaction and loyalty, with trust playing a crucial mediating role in fostering this relationship, particularly in high-risk financial environments. Studies have shown that customer satisfaction enhances the impact of service quality on loyalty, and that trust is important in the acceptance of online banking services. However, most previous research has focused on satisfaction or trust as a single mediator, and there is a lack of evidence regarding the combined role of satisfaction and trust. Therefore, service quality affects psychological outcomes such as satisfaction and trust, which in turn maintain customer loyalty and the continuity of their relationships with the bank (Kamara & Bangura, 2026:1).

PRACTICAL ASPECT

Presentation of Statistical Results

The results obtained from collecting data from the research sample, consisting of 114 respondents, which was characterized by demographic and professional diversity, show, as shown in Table (1), that there is a close relationship between the respondents of both genders,

with a slight advantage for females, as the percentage of females constituted approximately (53.5%), while the percentage of males constituted 46.5%.

Table (1) Distribution of the study sample according to gender

Category	Frequency	Percentage
Female	**61**	**53.5%**
Male	**53**	**46.5%**
Total	**114**	**100%**

The table is based on the survey results.

In terms of age, the young age group (26-35 years) dominated the sample at a rate of (45.6%), which is close to half of the number of respondents. This reinforces the opinions presented about electronic services, as this group is the most familiar with modern technology, as shown in Table (2).

Table (2) Distribution of the study sample according to age group

Age Group	Frequency	Percentage
26-35 years	52	45.6%
36-45 years	28	24.6%
15-25 years	17	14.9%
46-55 years	14	12.3%
Over 55 years	3	2.6%
Total	114	100%

The table is based on the survey results.

At the educational level of the sample, the largest percentage was formed, which reflects a high level of awareness and knowledge, as (81%) of the respondents were Bachelor's and postgraduate students, which leads to ensuring the ability of the respondents to accurately evaluate the technical and professional standards, as shown in Table (3).

Table (3) Distribution of the study sample according to academic achievement

Educational Qualification	Frequency	Percentage
Bachelor's	64	56.1%
Master's	29	25.4%
PhD	9	7.9%
Higher Diploma	8	7.0%
High School or less	4	3.6%
Total	114	100%

The table is based on the survey results.

Regarding the professional aspect, it is clear that the sample combines youthful energy and experience, as the percentage of those who have experience of (1-5 years) reached about (36%), followed by the category of long experience (16-25 years) at a rate of (26.3%), which provides a comprehensive vision of the research that combines the aspirations of the new generation and the background of experienced administrative cadres in banking work, as in Table (4).

Table (4) Distribution of the study sample according to number of years of service

Years of Service	Frequency	Percentage
1-5 years	41	36.0%
16-25 years	30	26.3%
6-10 years	19	16.7%
One year or less	14	12.3%
11-15 years	10	8.7%

Total	114	100%

The table is based on the survey results.

STATISTICAL ANALYSIS AND INTERPRETATION OF RESULTS

This study adopted a descriptive-analytical approach to analyze the impact of the quality of electronic banking services, in its dimensions (reliability, responsiveness, security, ease of use, and technical aspect), on customer satisfaction in banks. Data were analyzed using SPSS v23 software based on a sample of (114) valid questionnaires. The following methods were employed:

Reliability Analysis

Cronbach's alpha coefficient was used to measure the consistency of the measurement instrument, and the results were as follows:

Table (5) Cronbach's Alpha Coefficient

Dimension	Cronbach's Alpha
Reliability	0.832
Responsiveness	0.886
Security / Assurance	0.920
Ease of Use	0.910
Technical Dimension	0.878
Customer Satisfaction	0.915
Dimension	Cronbach's Alpha

Table based on SPSS v23 results

The results showed that all alpha values were higher than the statistically acceptable limit (0.70), indicating that the measurement tool has a high degree of reliability and internal consistency, and therefore its data can be relied upon in subsequent analysis with high scientific confidence.

Descriptive Statistics of Study Variables

The mean results obtained from the arithmetic means revealed that all dimensions of quality of the electronic banking services were very good, while the means ranged from (3.4632 – 3.8228) on a five-point Likert scale, as given in Table (6), the dimension of ease of use recorded the highest arithmetic mean of (3.8228), revealing the customers consider electronic services easy and easy to handle. This was followed by security dimension with an average of (3.7105) which revealed a good general feeling on the part of customers on the level of protection and in confidentiality of electronic transactions.

Table (6) Descriptive Statistics for Study Variables

Variable	N	Minimum	Maximum	Mean	Std. Deviation
Reliability	114	1.00	5.00	3.6053	0.73663
Responsiveness	114	1.00	5.00	3.4632	0.76068
Security	114	1.00	5.00	3.7105	0.86958
Ease of Use	114	1.00	5.00	3.8228	0.82129
Technical Aspects	114	1.40	5.00	3.5719	0.82607
Customer Satisfaction	114	1.00	5.00	3.6303	0.79615

Table based on SPSS v23 results

The overall mean scores of reliability (3.6053) and technical (3.5719) indicate a satisfactory judgment of service stability and efficiency. The lowest relative mean (3.4632) of the

responsive criteria can be considered a high value, suggesting that the level of satisfaction with the speed of response to requests and inquiries is acceptable.

As for the customer satisfaction variable, its arithmetic mean reached (3.6303), which is a relatively high level, indicating that there is a good degree of satisfaction among the study sample towards the electronic banking services provided.

The standard deviation values, which ranged between (0.73663 – 0.86958), show a moderate degree of variation in the responses of the sample members, reflecting a relative convergence in their views on the quality of services and the level of satisfaction.

Normality Test

The results of the normality test indicate a deviation from the normal distribution, but the sample size of (114) individuals allows the use of parametric methods based on the central limit theory, which makes the effect of this deviation limited and not affecting the validity of the regression analysis results as shown in Table (7).

Table (7) Normal Distribution Test

Variable	Kolmogorov-Smirnov (Sig)	Shapiro-Wilk (Sig)	Decision
Reliability	0.000	0.001	Non-normal
Responsiveness	0.005	0.034	Non-normal
Security	0.000	0.000	Non-normal
Ease of Use	0.000	0.000	Non-normal
Technical Dimension	0.021	0.018	Non-normal
Customer Satisfaction	0.004	0.017	Non-normal

Table based on SPSS v23 results

Testing the main hypothesis and sub-hypotheses

A. Main Hypothesis

The results indicate a strong positive correlation between the quality of electronic banking services and customer satisfaction, as shown in Table (8), where the value of (R = 0.860) and the coefficient of determination $R^2 = 0.740$. That is, the dimensions of quality of electronic banking service (reliability, responsiveness, security, ease of use, and technical capacity) could only explain 74 of customers' satisfaction variation. This high explanatory power reflects the strength of the explanatory model. Furthermore, the value of F = 61.378 and its significance (Sig = 0.000 < 0.05) confirm the statistical significance of the regression model. Therefore, this indicates acceptance of the main hypothesis, which states: "There is a statistically significant relationship between the quality of electronic banking services and customer satisfaction in Iraqi banks."

Table (8) Testing the main hypothesis

R	R^2	F	Sig
0.860	0.740	61.378	0.000

Table based on SPSS v23 results

B. First Sub-Hypothesis

The results of testing the first sub-hypothesis, as shown in Table (9), indicate a weak positive correlation between the reliability dimension and customer satisfaction (R = 0.199). The coefficient of determination, $R^2 = 0.040$, shows that the reliability dimension explains only about 4% of the variance in customer satisfaction, which is a limited explanatory power. The F-value of 4.96 and its significance (Sig = 0.026 < 0.05) confirm the significance of the

regression model. Therefore, the first sub-hypothesis is accepted: "The reliability dimension of electronic banking services affects customer satisfaction."

Table (9) Testing the first sub-hypothesis

R	R^2	F	Sig
0.199	0.040	4.96	0.026

Table based on SPSS v23 results

C. Testing the Second Sub-Hypothesis

The results in Table (10) indicate that the relationship between response and customer satisfaction is very weak (R = 0.082), and R^2 = 0.007 indicates that the response dimension explains less than 1% of the change in customer satisfaction. The F-value = 0.90 and its significance (Sig = 0.345 > 0.05) indicate that the model is not statistically significant, and therefore the second sub-hypothesis is rejected: "The response dimension of electronic banking services affects customer satisfaction."

Table (10) Testing the second sub-hypothesis

R	R^2	F	Sig
0.082	0.007	0.90	0.345

Table based on SPSS v23 results

D. Testing Sub-Hypothesis 3

The results in Table (11) show that the relationship between security and customer satisfaction is very weak (R = 0.037). R^2 = 0.001 indicates that the security dimension explains only about 0.1% of the variance in customer satisfaction, a near-zero explanatory power. The F-value = 0.19 and its significance (Sig = 0.661 > 0.05) indicate the model's insignificance, and therefore, the third sub-hypothesis is rejected: "The security dimension of electronic banking services affects customer satisfaction."

Table (11) Testing Sub-Hypothesis 3

R	R^2	F	Sig
0.037	0.001	0.19	0.661

Table based on SPSS v23 results

E. Testing Sub-Hypothesis Four

The results in Table (12) indicate a weak to moderate positive correlation between ease of use and customer satisfaction (R = 0.256). R^2 = 0.065 suggests that the ease of use dimension explains approximately 6.5% of the variance in customer satisfaction. The F-value of 11.79 and its significance (Sig = 0.001 < 0.05) confirm the model's significance, thus accepting Sub-Hypothesis Four: "The ease of use dimension of electronic banking services affects customer satisfaction."

Table (12) Testing Sub-Hypothesis 4

R	R^2	F	Sig
0.256	0.065	11.79	0.001

Table based on SPSS v23 results

F. Testing Sub-Hypothesis Five

The results in Table (13) show a moderate positive correlation between technical efficiency and customer satisfaction (R = 0.388). R^2 = 0.151 indicates that technical efficiency explains approximately 15.1% of the variance in customer satisfaction, the highest explanatory power among the dimensions. The value of F from 20.74, of signifcant (Sig = 0.000 < 0.05) prove very significantly to prove the signifcation of model Fifth sub hypthesis: "The technical effcency dimensions of the electronic banking services affects customer satisfaction"

Table (13) Testing Sub-Hypothesis 5

R	R^2	F	Sig
0.388	0.151	20.74	0.000

Table based on SPSS v23 results

CONCLUSIONS AND RECOMMENDATIONS

Conclusions

According to the results of statistical analysis dimensions analysis of e-banking service quality quality and their relationship to customer satisfaction, the following conclusions were obtained: 1) The level of significance of the overall explanatory of: The results were showed that the combination of the individual dimensions of the quality of the e- have a very high predictive power of the in of 74% ($R^2 = 0.740$), confirming that the customer's satisfaction is influenced by a holistic perception of a quality of a and not a single dimension of dimensionally isolated. 2) The centrality of the dimension "Technical efficiency: The results obtained were in "technical efficiency" was the most influencing and significant statistically significant (explaining 15.1% variance in customer satisfaction), which reflects customers' high awareness of the quality of software performance and the speed of operations.

3) The low impact of the traditional dimensions (security and the dimension: In the results there were a important, but not statistically significant, deficiency in the dimension of security and responsiveness in explaining the the satisfaction of is is either to the high expectations that have not been fulfilled by customers, or to the fact of customers considering security as an existing and not service required and not a competitive advantage that increases their satisfaction.

4) The role of the interface: For the of in 'ease of use' was ranked second, resulting in an important significant impact (which suggests customers relate their satisfaction with the ease-of-use simplicity of the interfaces in ease of navigation within the electronic interfaces.

Recommendations

1) Strategic Investment in Technological Infrastructure: Banks need the to focus and enhance 'technical efficiency" through upgrading their servers and reducing the response times of applications as it is proven to be the main driver of customer satisfaction according to the results of the statistical analysis.
2) Designing an "Interactive Security" Strategy: Since the security is has not proven a high impact, we suggest that to transform it in a silent technical procedure in an tangible experience of the customer (to achieve activating real alerts using technologies for authentication - e.g., fingerprint and facial recognition) in order to increase customer's trust and thus increase their satisfaction .
3) Design of simple and clear interface of reduce number of steps required to complete completing banking transactions in enhance the "Ease of use that has proven to have a positive impact .
4) Implement of AI-Powered Instant Response: In an attempt to improve the lack of in banks need to implement intelligent chat systems that offer solutions at any time around time, which will convert responsiveness in tangible added value for the customer. 5) The quality of electronic services must be considered the "backbone" of loyalty digital loyalty, as a study proved that overall level quality proved to be the strongest predictor ($R = 0.860$) of the satisfaction. Therefore, the management of banks must design its marketing and service policies based on the integrate integration of technical and human dimensions as the key to ensure excellence in a high competitive environment of a digital banking environment.

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Managing Emerging Technologies for Financial Transformation: An Integrative TAM–DOI–RBV Framework

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ABSTRACT

Advances in quantum computing and AR/VR are transforming financial management and consumer interactions, yet their integration continues to face challenges related to adoption, security, and organizational readiness. This study aims to analyze the integration of these technologies into financial management and examine their implications for organizational purpose, financial management strategies, and consumer behavior. A comprehensive literature review was performed utilizing the PRISMA 2020 framework, established inclusion and exclusion criteria, quality evaluation, and content analysis. The data were obtained from open-access scholarly articles published between 2021 and 2026 on financial management, virtual reality, and quantum technology. The findings position quantum technology as an analytical layer and AR/VR as an interaction layer. However, their integration creates value only when supported by data readiness, organizational capabilities, security, governance, and user acceptance. Therefore, aligning technological implementation with organizational purpose is essential for responsible financial transformation.

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INTRODUCTION

Quantum computing and augmented reality/virtual reality (AR/VR) are transforming financial information processing, strategic decision-making, and consumer experiences. Quantum computing offers potential solutions for portfolio optimization, risk assessment, market simulation, and financial security (Kou & Lu, 2025), while AR enables contextual product visualization and VR creates immersive purchasing experiences (Hoffmann & Mai, 2022). However, their organizational integration remains constrained by implementation costs, infrastructure limitations, uncertain business value, and insufficient workforce readiness (Elsholz et al., 2025). Furthermore, quantum computing introduces potential risks to existing cryptographic systems supporting digital financial transactions (Shadan et al., 2025). Therefore, successful integration requires secure, strategic, and consumer-oriented implementation.

Existing research applies the Technology Acceptance Model (TAM), Diffusion of Innovation Theory (DOI), and Resource-Based View (RBV) to explain technology adoption, innovation diffusion, and strategic value. However, TAM must account for experiential factors, including authenticity, emotional involvement, enjoyment, and flow, to explain consumer loyalty (Yan et al., 2022). Similarly, DOI research indicates that technological advantages may influence consumer behavior through satisfaction and flow (Lu et al., 2022). Meanwhile, RBV emphasizes the strategic importance of organizational resources and digital capabilities, although digital transformation research remains fragmented (Reis et al., 2023). Successful transformation also depends on aligning stakeholder interests, interpretations, and motivations (Hoblos et al., 2024). These limitations highlight the need for an integrated framework

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connecting technology acceptance, innovation diffusion, organizational capabilities, financial management, and consumer behavior.

Accordingly, this study examines how quantum computing and AR/VR can be integrated into financial management and how this integration affects organizational objectives, financial strategies, and consumer behavior. Although quantum computing applications increasingly encompass asset pricing, fraud detection, credit assessment, and transaction security, their technical development remains insufficiently connected to consumer acceptance research (Naik et al., 2025). AR/VR may bridge this gap by translating complex financial information into accessible and interactive experiences, with interaction quality, utilitarian value, hedonic value, and technology perceptions shaping consumer responses (Guo et al., 2024).

The study employs TAM to examine technology acceptance, DOI to assess innovation characteristics and diffusion, and RBV to evaluate whether technological infrastructure, data, expertise, and digital capabilities generate strategic value. It also considers security, organizational readiness, workforce competencies, implementation costs, and goal alignment as determinants of successful integration. Although quantum computing offers potential economic and operational benefits, its implementation depends on ecosystem maturity, stakeholder readiness, and competency development (Binder et al., 2024). Its practical advantages also depend on accuracy requirements, data complexity, and application context (Miyamoto, 2022).

This study contributes an integrated perspective by arguing that technological advancement alone does not guarantee improved financial management. Rather, its value depends on aligning computational capabilities, consumer experiences, organizational resources, and strategic objectives. Effective integration may improve financial decision-making, strengthen security, and enhance consumer engagement, whereas inadequate governance may increase costs, security vulnerabilities, competency gaps, and user resistance.

LITERATURE REVIEW

The three principal keywords employed in this study are financial management, virtual reality, and quantum technology.

Conceptual Definition of Financial Management

Financial management involves planning, acquiring, allocating, controlling, and evaluating financial resources to achieve organizational objectives. Beyond transaction recording, it encompasses financing decisions, investment appraisal, liquidity management, risk control, and performance monitoring. Digitalization has enhanced these functions through automation and data analytics, enabling more informed managerial decisions (Bedford et al., 2025). Furthermore, artificial intelligence and machine learning have transformed financial management into a predictive decision-making process that supports the systematic evaluation of alternatives (Pahsa, 2024). However, effective implementation requires attention to data quality, information security, algorithmic transparency, and strategic alignment. Accordingly, this study conceptualizes financial management as a strategic decision-making system that integrates financial resources, risk management, organizational capabilities, digital technologies, and stakeholder interests to create organizational value.

Categories and Manifestations of Financial Management

Financial management encompasses investment decisions, financing decisions, dividend policy, working capital management, risk control, financial reporting, and performance analysis. Investment and financing decisions determine asset allocation and funding sources, while dividend policy balances shareholder distributions with retained earnings. Working

capital management maintains liquidity and operational continuity through the management of current assets and liabilities, with working capital serving as an indicator of operational efficiency and liquidity (Liu et al., 2024). Risk control addresses financial, operational, technological, and information-security risks. Digital technologies, including enterprise resource planning, blockchain, artificial intelligence, and data analytics, enhance financial monitoring and decision-making. Their adoption can also influence corporate cash-holding policies by improving transparency, oversight, and information efficiency (Pu, 2025). As these financial functions become increasingly interconnected through data, quantum computing may enhance complex financial analysis, while AR/VR can support financial visualization and interactive decision-making.

Conceptual Definition of Virtual Reality

Virtual reality (VR) is a computer-based technology that creates a three-dimensional digital environment in which users can observe, explore, and interact with simulated objects or situations. Unlike conventional digital displays, VR seeks to create a sense of presence—the psychological experience of feeling situated within a virtual environment. This experience is produced through a combination of visual devices, audio systems, motion sensors, controllers, and interactive feedback that adjusts the digital environment in response to users' actions. The quality of a VR experience can be described through five dimensions: immersivity, interactivity, explorability, plausibility, and believability. Together, these dimensions distinguish VR from the mere presentation of three-dimensional content (Hameed et al., 2024). Immersivity denotes the strength of the user's sense of being within a virtual environment, whereas interactivity refers to the user's ability to influence digital objects and conditions. Explorability represents the freedom to navigate the environment, while plausibility and believability indicate the extent to which virtual events and representations are perceived as coherent experiences. Although a greater degree of immersion may strengthen presence, immersive devices do not invariably improve user performance because outcomes are also influenced by cognitive load, spatial ability, and simulation sickness (Thorp et al., 2024). Thus, this study conceptualizes VR not merely as a device but as a digital experience system that integrates technology, perception, action, and user responses to communicate information and support decision-making.

Categories and Manifestations of Virtual Reality

Virtual reality is classified by its degree of immersion into non-immersive, semi-immersive, and fully immersive categories. Non-immersive virtual reality presents a digital environment via a conventional computer screen, enabling user interaction through devices such as a mouse, keyboard, or joystick, while maintaining user awareness of the distinction between physical and virtual spaces. Semi-immersive virtual reality utilizes large displays or projection systems to diminish this distinction. Fully immersive virtual reality employs head-mounted displays or cave automatic virtual environments to envelop users perceptually and dynamically adjust visualizations in response to head and body movements (Stracke et al., 2025). In addition to immersion level, VR manifestations can be distinguished by function, including simulation, training, collaboration, entertainment, consumer services, data visualization, marketing, and decision support. Within organizations, VR can be used to simulate risk scenarios, provide virtual meeting spaces, visualize portfolios, and help stakeholders interpret complex data. Immersive technologies may also enhance engagement and comprehension of complex concepts, although their effectiveness remains dependent on interaction design, user context, and implementation objectives (Tene et al., 2024). From a consumer perspective, VR is manifested through virtual stores, product demonstrations, digital financial-service environments, and brand experiences that enable users to evaluate offerings more interactively. Accordingly, this study categorizes VR according to device configuration, degree of immersion, mode of interaction, purpose of use, and the quality of the experience generated in organizational activities and consumer relationships.

Conceptual Definition of Quantum Technology

Quantum technology harnesses quantum mechanical principles, including superposition, entanglement, and interference, to enable capabilities beyond conventional computing systems. Unlike classical computers that process information using binary bits, quantum computers use qubits to explore complex computational problems. However, their performance remains constrained by noise, decoherence, gate errors, scalability, and error-correction requirements (Memon et al., 2024).

Beyond computing, quantum technology encompasses information networks that use entanglement and quantum-state teleportation to enhance connectivity, sensing, and communication security (de Forges de Parny et al., 2023). In financial management, it offers potential applications in optimization, risk simulation, pattern detection, asset pricing, and transaction security. Accordingly, quantum technology is conceptualized as an emerging technological infrastructure whose practical value depends on algorithmic maturity, hardware development, integration with classical systems, organizational expertise, and effective governance.

Categories and Manifestations of Quantum Technology

Quantum technology comprises three main categories: quantum computing, quantum communication, and quantum sensing, connected by the broader field of quantum information processing. Quantum computing includes gate-based systems, quantum annealing, simulators, and hybrid quantum–classical systems for optimization, simulation, and machine learning. Quantum communication encompasses quantum key distribution, teleportation, and quantum networks to enhance information security, while quantum sensing enables precise measurements of physical phenomena. Quantum computing receives greater attention in the scientific literature than communication and sensing (Karami & van Lente, 2026).

In financial management, quantum computing offers potential applications in portfolio optimization, Monte Carlo simulation, credit assessment, fraud detection, derivatives pricing, and risk analysis. Quantum communication may strengthen payment-network security and financial-data exchange, whereas quantum sensing can support precise time measurement and infrastructure synchronization. Advances in photonic chips have further enabled developments in quantum key distribution, teleportation, and integrated quantum communication devices (Luo et al., 2023). Accordingly, quantum technologies should be evaluated based on their functional applications, technological maturity, implementation requirements, and strategic value to organizations.

RESEARCH METHODOLOGY

Research Object

The object of this study was the integration of quantum technology and augmented reality/virtual reality (AR/VR) into financial management, particularly its relationship with organizational purpose, financial management strategies, adoption readiness, system security, and consumer behavior. Quantum technology has been increasingly developed to support portfolio optimization, risk simulation, credit assessment, fraud detection, financial instrument pricing, and digital transaction security. Recent technical studies indicate that quantum computing applications in finance include optimization, machine learning, simulation, and security. However, practical benefits are currently limited by hardware constraints, error-correction requirements, scalability challenges, and the necessity for integration with classical systems (Hlatshwayo et al., 2026). In consumer-facing contexts, augmented reality (AR) and virtual reality (VR) enable organizations to present information, products, and services in more

visual, interactive, and immersive formats. Features of AR, such as interactivity and visual vividness, can enhance telepresence, consumer engagement, and purchase intention, although user responses depend on the perceived quality of the experience (Yang et al., 2024). The units of analysis were not organizations or consumers directly but scholarly articles addressing the application, acceptance, diffusion, capabilities, risks, and implications of these technologies. Each article was treated as a unit of evidence providing conceptual or empirical information. Accordingly, the research object was limited to the relationships among technological capabilities, organizational readiness, financial management practices, and changing consumer responses within the integration of quantum technology and AR/VR.

Research Design and Data Sources

The research utilized a Systematic Literature Review (SLR), which systematically identifies, selects, appraises, and synthesizes evidence based on predetermined procedures. The SLR approach was selected because it facilitates transparent knowledge mapping while reducing source-selection bias through research questions, search strategies, eligibility criteria, and quality assessments that can be independently examined. A systematic literature review (SLR) allows for the interpretation of a research body using standardized methods and a predefined protocol for identifying, appraising, synthesizing, and interpreting findings (Kim et al., 2022). The principal data comprised information extracted from empirical and conceptual articles concerning the integration of quantum technology and AR/VR into financial management, technology acceptance, security, organizational readiness, organizational purpose, and consumer behavior. Original research articles were treated as primary sources within the SLR corpus, while review articles, academic books, scholarly conference proceedings, and institutional documents served as supplementary sources for clarifying concepts, theories, and the technological context. The literature-sampling procedure was reported transparently because decisions concerning database coverage, publication period, language, and document type can influence the conclusions of a review (Hiebl, 2023). Secondary sources focused on the study's three keywords: financial management, virtual reality, and quantum technology. This distinction indicates that the study relied exclusively on synthesizing previously published scientific evidence rather than collecting data through surveys or interviews.

Theoretical Foundations

This study integrated the Technology Acceptance Model (TAM), Diffusion of Innovation Theory (DOI), and the Resource-Based View (RBV) as its theoretical foundations and analytical assumptions. Fred D. Davis introduced TAM in 1989 to explain that technology acceptance is primarily shaped by perceived usefulness and perceived ease of use, which influence users' attitudes, behavioral intentions, and actual usage. Recent research indicates that TAM remains an important framework in marketing and user-behavior studies, although its application is frequently extended by incorporating trust, risk, social influence, and technology-readiness constructs (Musa et al., 2024). Everett M. Rogers first introduced the Diffusion of Innovations (DOI) theory in 1962 and refined it in later editions to explain the spread of innovations based on factors such as relative advantage, compatibility, complexity, trialability, observability, communication channels, time, and the social system. The DOI framework also categorizes adopters as innovators, early adopters, early majority, late majority, and laggards (Ibrahim et al., 2025).

The RBV originated in Wernerfelt's 1984 work and was further developed by Barney in 1991. It assumes that sustainable competitive advantage arises from resources that are valuable, rare, difficult to imitate, and difficult to substitute. In digital transformation, the RBV assesses technology, digital literacy, security, competencies, and dynamic capabilities as organizational resources (Civelek et al., 2023). Integrating these three theories enabled the study to examine individual acceptance, innovation diffusion, and strategic value creation at multiple levels.

Research Procedures and Data Collection

This study followed the Systematic Literature Review (SLR) principles and PRISMA 2020 guidelines. The process involved formulating research questions, developing a review protocol, conducting database searches, screening and assessing studies, and extracting relevant data. The protocol specified databases, search terms, publication period, eligibility criteria, quality appraisal, and data-extraction procedures to ensure transparency and replicability (Sauer & Seuring, 2023).

Searches were conducted in Scopus, Web of Science, ScienceDirect, SpringerLink, Emerald Insight, and DOAJ using Boolean combinations of terms related to financial management, quantum technology, and AR/VR. Eligible studies were peer-reviewed, open-access articles published in English or Indonesian between 2021 and 2026. Duplicate records, nonacademic sources, inaccessible full texts, and irrelevant publications were excluded. Screening proceeded through titles, abstracts, and full texts, with study selection documented using a PRISMA flow diagram (Page et al., 2021). Eligible articles were assessed for quality, and their bibliographic details, theoretical foundations, methods, contexts, findings, and limitations were recorded in a standardized extraction form.

Data Analysis

The data were analyzed using qualitative content analysis to identify concepts, patterns, relationships, similarities, differences, and research gaps across the literature corpus. Content analysis was selected because it enables the systematic reduction and description of textual data while allowing researchers to interpret the meanings emerging from the findings. This method treats analysis as a reflexive process linking coding, category construction, contextual interpretation, and theme development without eliminating the researcher's analytical involvement (Nicmanis, 2024). The analytical process began with a comprehensive reading of all included articles, followed by identifying units of meaning and recording relevant information in the extraction matrix. Initial coding focused on financial applications, technological benefits, security risks, adoption barriers, organizational readiness, consumer experiences, and implications for organizational purpose. These codes were subsequently organized into descriptive categories, including computational capabilities, immersive visualization, user acceptance, innovation diffusion, strategic resources, governance, and behavioral outcomes. Qualitative content analysis can be conducted through four stages: developing an overview of the material, identifying and extracting relevant units of meaning, condensing those units into descriptive categories, and generating explanatory themes across the categories (Lyhne et al., 2025). The categories were then compared using TAM, DOI, and RBV to identify relationships among individual acceptance, innovation characteristics, and organizational capabilities. The final synthesis was presented narratively and through a thematic matrix, while contradictory findings were retained to ensure that the interpretation did not represent only evidence supporting the study's argument.

RESEARCH RESULTS

Description of the Financial Management Literature

Existing literature on financial management examines investment management, financing structures, working capital, cash flow, financial reporting, internal control, risk management, and performance evaluation. Recent literature has also extended the scope of financial analysis beyond liquidity, solvency, and profitability ratios to encompass sustainability reporting; environmental, social, and governance information; and nonfinancial disclosures (Danci & Danci, 2025). The reviewed literature identifies digital transformation through technologies such as artificial intelligence, machine learning, process automation, data analytics, blockchain, digital financial services, and decision-support systems. In financial services, artificial

intelligence is applied to credit assessment, fraud detection, digital insurance, robo-advisory services, and expanding access to financial services (Vuković et al., 2025). The literature further highlights a shift in the finance function from primarily historical record-keeping to real-time data processing, forecasting, risk monitoring, and providing information for management. At the organizational level, these advancements are evident in accounting, treasury, financial planning and analysis, internal auditing, budgeting, procurement, and asset management. At the organizational level, these practices occurred in accounting, treasury, financial planning and analysis, internal auditing, budgeting, procurement, and asset management. In this study, financial management data were organized into four descriptive areas: financial decision-making, information processing, risk control, and value creation. These four areas established the initial data structure for documenting where quantum technology and AR/VR were applied without first establishing causal relationships among the identified variables.

Explanation of the Financial Management Data

Analysis of financial management data indicates that digitalization of the finance function has progressed through two primary channels: automation of routine tasks and the application of analytics to inform decision-making. Automation includes invoice processing, reconciliation, transaction recording, compliance control, and reporting. Analytics involves the use of interactive dashboards, simulations, forecasting, risk assessment, and data processing for managerial objectives.

A survey of finance professionals found that the use of automation and analytics aligns with corporate digitalization strategies and supports the objectives of the finance function, including efficiency and business-partnering goals (Bedford et al., 2025). Additional evidence demonstrates that technology adoption does not result in uniform financial outcomes across organizations, as industries vary in resource availability, financing constraints, and digital maturity. In the context of liquidity management, digital technology adoption correlates with changes in corporate cash holdings, and the strength of this relationship varies among firms depending on their financing constraints (Pu, 2025). The literature also identified data quality, interoperability, workforce competencies, security, and oversight as conditions accompanying technology use. Consequently, the dataset encompassed not only the technologies involved but also their purposes, organizational units, implementation requirements, and reported financial outcomes. This explanation provided an operational account of how technology was incorporated into financial processes without determining which technology was the most effective.

Relationship Between Financial Management Data and the Research Problem

The relationship between financial management data and the research problem reflects the gap between increasingly complex financial-processing needs and uneven organizational readiness to adopt emerging technologies. Although digital financial services improve transaction speed, accessibility, personalization, and efficiency, their adoption depends on trust, perceived risk, costs, infrastructure, and institutional support (Albuainain et al., 2025). Consumer adoption is further influenced by digital financial literacy, government support, regional characteristics, and behavioral intentions (Setiawan et al., 2025). At the organizational level, barriers include legacy systems, skills shortages, security concerns, uncertain benefits, and investment requirements. The literature also suggests that back-office financial technologies are not always integrated with consumer-facing interfaces. These findings highlight the research problem as a lack of functional integration among analytical capabilities, risk management, organizational purpose, and consumer services. Accordingly, integrating quantum technology and AR/VR requires a coordinated approach that addresses both technological potential and organizational readiness.

Description of the Virtual Reality Literature

The literature on virtual reality encompassed devices, immersion levels, interaction patterns, presence, user experience, and application areas. The documented devices included head-mounted displays, motion controllers, positional sensors, projection systems, spatial audio, hand tracking, and haptic interfaces. Data on user experience frequently employed the concept of presence, or the feeling of "being there," as a characteristic that differentiates VR from ordinary screen-based media. Recent literature described presence as a psychological experience shaped not only by technological features but also by users' attention and characteristics, virtual content, and the context of use (Triberti & Brivio, 2025). Based on immersion level, the reviewed articles identified non-immersive, semi-immersive, and fully immersive forms. Based on content type, VR manifestations included interactive three-dimensional environments, simulations, 360-degree videos, virtual tours, collaborative spaces, and digital representations of objects or locations. A review of panorama-based XR technologies documented the use of 360-degree imagery in static and dynamic experiences and its applications in training, tourism, education, and environmental documentation (Tukur et al., 2025). Within the research corpus, VR data also overlapped with AR and mixed reality because all three technologies were used to present digital information contextually. The data were therefore classified according to technological form, experiential characteristics, organizational context, and reported user responses.

Explanation of the Virtual Reality Data

The VR data reflected a usage sequence beginning with the presentation of a digital environment, followed by user interaction, experience formation, and responses to a service or product. In consumer environments, commonly documented features of augmented reality (AR) applications include product visualization, virtual try-ons, simulated touch, spatial exploration, interactive demonstrations, and personalized information. Studies examining AR adoption in retail strategies indicate that product visualization and virtual try-ons deliver more comprehensive product information and decrease consumer uncertainty during online shopping (Ibrahim et al., 2025). Behavioral metrics related to these applications encompass perceived usefulness, perceived ease of use, enjoyment, engagement, trust, attitudes, usage intention, and purchasing decisions. Research on AR-based cosmetic try-on platforms has identified associations among Technology Acceptance Model (TAM) dimensions, emotional experiences, product evaluation, and application usage decisions (Micheletto et al., 2025). In organizational contexts, VR was used for training, process simulation, workplace design, collaboration, marketing, and information delivery. The literature also reported variations in outcomes according to the device employed, graphical quality, latency, user skills, comfort, and task compatibility. Documented user barriers included cybersickness, cognitive load, device discomfort, connectivity requirements, and privacy concerns. This explanation presented VR as a sequential configuration of technical and experiential components, while outcomes were recorded as reported by each study without comparing the effectiveness of individual applications.

Relationship Between Virtual Reality Data and the Research Problem

The relationship between VR data and the research problem was evident in the contrast between the broad potential of virtual experiences and their limited integration into routine organizational practices. From retailers' perspectives, the literature reported that existing VR applications continued to function primarily as marketing tools, while fully operational virtual stores with integrated purchasing processes had not been widely adopted. Reported barriers included technology and implementation costs, limited recognition of consumer benefits, device limitations, compatibility with organizational systems, and market conditions (Elsholz et al., 2025). These data were relevant to the present study because applying AR/VR to financial management requires connections among user experiences, transaction systems, analytics,

budgeting, and risk control. The VR ethics literature also identified concerns involving consent, privacy, potential harm, behavioral-data collection, and the absence of consistent oversight frameworks (Raja & Calvo, 2025). In financial services, immersive devices may generate data concerning gaze direction, bodily movements, interaction choices, attention duration, voice, and transactions. The research problem consequently included the need for organizations to manage these data securely and explain their purposes to consumers. The corpus further demonstrated that high-quality experiences were not necessarily accompanied by infrastructure readiness or user acceptance. This descriptive relationship positioned VR as an interaction interface requiring governance, resources, financial systems, and consumer protection before it could become fully embedded in organizational processes.

Description of the Quantum Technology Literature

The literature on quantum technology can be classified into three principal categories: quantum computing, quantum communication, and quantum sensing. In the context of financial management, quantum computing is most frequently discussed due to its significance for optimization, simulation, risk modeling, and high-dimensional data processing. A systematic review of quantum computing in finance has documented its applications in portfolio optimization, derivatives pricing, risk analysis, fraud detection, credit assessment, and Monte Carlo simulation (Bunescu & Opriş, 2024). The primary approaches identified include quantum annealing, variational algorithms, quantum amplitude estimation, quantum machine learning, and hybrid quantum–classical systems. Within the field of security research, the articles examined threats to public-key cryptography as well as advancements in post-quantum cryptography. The literature also documented the use of quantum processing in market research through clustering, optimization, preference analysis, and the processing of consumer data involving numerous possible combinations (Sáez-Ortuño et al., 2024). In quantum communication, the data covered quantum key distribution, quantum information networks, and quantum-state transfer.

The recorded stages of implementation varied from conceptual models, simulations, experiments on limited hardware, and cloud-based quantum services to organizational pilot projects. Accordingly, the quantum technology data were structured according to technology type, algorithm, financial use case, infrastructure model, and level of implementation maturity.

Explanation of the Quantum Technology Data

The quantum technology data indicated that each financial use case corresponded to a different type of computational problem. Portfolio optimization is defined as the selection of asset combinations that satisfy specific risk and return constraints. In contrast, derivatives pricing and risk simulation are characterized by the evaluation of multiple potential market scenarios. Credit assessment and fraud detection rely on pattern recognition and data classification techniques. Transaction security is addressed through two primary approaches: quantum communication and the adoption of cryptographic algorithms designed to withstand quantum attacks. Studies on financial regulation indicate that quantum computing presents opportunities for enhanced risk modeling and transaction efficiency, but also introduces challenges related to cryptographic security, regulatory clarity, and systemic stability (Zafar, 2025). The accounting and finance literature identifies post-quantum cryptography and quantum key distribution as essential elements of long-term security strategies (Shadan et al., 2025). Implementation challenges include limited qubit counts, noise, decoherence, gate errors, error-correction demands, and ongoing reliance on classical computing systems. Hybrid architectures assign selected computational tasks to quantum processors, while data preparation and result interpretation remain within classical computing environments. This explanation described the reported functions and technological requirements without establishing an absolute advantage over conventional computational methods.

Relationship Between Quantum Technology Data and the Research Problem

The findings suggest that the integration of quantum computing and AR/VR in financial management should be viewed as the creation of a comprehensive decision architecture that connects analytics, visualization, interaction, and organizational objectives. Quantum computing serves as the processing layer, supporting financial optimization, simulation, prediction, security, and modeling. In contrast, AR/VR functions as the interaction layer, translating data into visual experiences and facilitating user decision making. Research on quantum computing in business contexts demonstrates its potential value in financial modeling, forecasting, optimization, machine learning, and cybersecurity. However, the realization of these benefits depends on the selection of suitable problems and the effective integration of quantum capabilities with classical systems (Sarin et al., 2026). Similarly, AR/VR can enhance consumer engagement and experiences through visualization, interactivity, and immersion, although these advantages are contingent upon design quality and user acceptance (Fan et al., 2025). These components corresponded directly to the adoption, security, and organizational-readiness issues examined in this study. Quantum communication research also documented requirements for network architecture, entanglement distribution, standardization, interface devices, and performance targets before networks could operate across locations (de Forges de Parny et al., 2023). Within financial management, these requirements interacted with legacy systems, compliance obligations, service continuity, data confidentiality, and real-time decision-making demands. The corpus contained limited evidence of implementations directly connecting quantum-computing outputs with AR/VR interfaces for consumers or decision-makers. Quantum technology and AR/VR generally appeared as separate streams of development in the literature. Consequently, the research problem was represented by the separation of data, applications, competencies, and governance across quantum analytical capabilities, organizational financial management, and the virtual experiences used by consumers.

DISCUSSION

Substantive Summary of the Findings

The findings suggest that integrating quantum computing and AR/VR in financial management creates a decision architecture connecting analytics, visualization, interaction, and organizational purpose. Quantum computing offers potential capabilities in optimization, simulation, forecasting, and cybersecurity, while AR/VR enhances information visualization, interactivity, and consumer engagement. However, their value depends on appropriate applications, integration with classical systems, design quality, and user acceptance (Sarin et al., 2026; Fan et al., 2025). Thus, analytical sophistication must be complemented by understandable, trustworthy, and purpose-driven user experiences.

Discursive Relationship and the Study's Contribution

Previous research has largely examined technology adoption, digital transformation, and quantum computing separately. Diffusion of Innovation (DOI) theory explains adoption conditions but provides limited insight into how computational outputs shape consumer experiences (Kwon et al., 2026). Similarly, digital transformation research emphasizes organizational strategy and capabilities without specifically examining the integration of quantum computing and immersive technologies in financial management (Paul et al., 2024). This study integrates the Technology Acceptance Model (TAM), DOI, and Resource-Based View (RBV) to explain user acceptance, technological diffusion, and strategic resource development. Its principal contribution is a framework positioning organizational purpose as the guiding principle for selecting financial applications, designing consumer experiences, and managing technological risks.

Reflection on the Benefits of the Findings

The findings indicate that technological value depends on organizational capabilities rather than technology ownership alone. RBV emphasizes the strategic value of resources combined with distinctive capabilities, while dynamic capabilities explain how organizations adapt and reconfigure resources to respond to change. Evidence from SMEs suggests that digital orientation requires dynamic capabilities to translate technological investments into improved performance (Escoz Barragan & Becker, 2025). Likewise, AR/VR acceptance depends on interface compatibility, perceived benefits, emotional experiences, and trust (Wang et al., 2025). Accordingly, organizations should align technological investments with clearly defined purposes, such as improving financial decision-making, strengthening security, enhancing financial understanding, or developing consumer services. Success should therefore be evaluated through financial outcomes, user trust, and alignment with organizational purpose rather than computational speed or immersion alone.

IMPLICATIONS OF THE FINDINGS

The findings have strategic, operational, behavioral, and governance implications. Strategically, organizations should position quantum computing as a long-term analytical capability and AR/VR as an interaction capability, linking both technologies through clearly defined business requirements. Operationally, their integration could support portfolio simulations, risk mapping, cash-flow scenarios, investment education, and virtual advisory services. However, these applications require consistent data and interfaces that do not mislead users. Behaviorally, increasingly persuasive visualizations may strengthen engagement while simultaneously increasing the risk of impulsive decisions. Consumer protection should therefore be incorporated into the design process. From a governance perspective, the quantum threat to cryptography necessitates that financial institutions integrate security as a core component of transformation, rather than as an ancillary function added post-implementation. A quantum-readiness framework for the financial sector prioritizes cryptographic inventories, awareness development, migration planning, security by design, cryptographic agility, and defense in depth (Auer et al., 2025). In the context of AR/VR, governance considerations encompass the processing of biometric, movement, gaze, and behavioral data. Consequently, user consent and explicit restrictions on data use must be incorporated into system design (Peña-Acuña, 2024). Accordingly, the findings can inform investment policies, technology architectures, consumer-experience standards, and performance measures aligned with organizational purpose and accountability principles.

Explanation of the Findings

The observed pattern emerged because quantum computing and AR/VR differ in their levels of maturity, functions, and user groups. Quantum computing continues to develop through algorithmic experiments, limited hardware, cloud-based services, and hybrid systems. In contrast, AR/VR is more directly accessible to users through retail, education, training, marketing, and entertainment applications. This difference explains why the quantum literature focuses primarily on technical capabilities and security, whereas AR/VR research emphasizes experiences, acceptance, and behavior. The separation between these research streams also accounts for the limited evidence directly integrating both technologies into financial management. Research on dynamic capabilities demonstrates that digital transformation is jointly influenced by technological, organizational, and environmental conditions. Implementation outcomes therefore cannot be explained solely by the quality of technological devices (Abdurrahman et al., 2024). Similarly, AR adoption requires organizational readiness, relevant performance measures, managerial support, integration capabilities, and assessments of compatibility with user needs (Mohammadhossein et al., 2025). From the TAM perspective, users are likely to reject interfaces that are difficult to use, untrustworthy, or unable to provide tangible benefits. According to DOI, complexity can impede diffusion, while RBV suggests

that skills shortages and ineffective resource orchestration constrain value creation. The findings therefore resulted from interactions among technological immaturity, organizational complexity, security risks, and heterogeneous consumer responses.

RECOMMENDED ACTIONS

Based on the findings, organizations should adopt a phased approach integrating value exploration, security enhancement, capability development, and consumer protection. The first stage should identify use cases directly associated with organizational purpose, such as portfolio optimization, risk simulation, fraud detection, financial education, or decision visualization. The second stage should include a comprehensive readiness assessment that addresses data quality, legacy systems, cryptographic dependencies, organizational competencies, budget constraints, technology partners, regulatory compliance, and user acceptance. In the third stage, organizations should establish limited hybrid pilot projects benchmarked against classical systems. The benefits of quantum computing and AR/VR should be evaluated using accuracy, processing time, cost, security, user comprehension, and decision quality. Assessing progress in quantum computing requires indicators covering the technological ecosystem, application capabilities, human resources, research, and stakeholder support rather than qubit counts alone (Binder et al., 2024). In parallel, organizations should develop a cryptographic inventory and post-quantum migration roadmap because delays may prolong the exposure of sensitive, long-lived data. Research on global roadmaps highlights the importance of coordinating standards, migration schedules, testing procedures, and governance across financial institutions (Kuka et al., 2026). The final stage should involve the establishment of a cross-functional team comprising representatives from finance, technology, security, legal, marketing, and consumer sectors to maintain accountability throughout the integration process.

CONCLUSION

The most significant finding is that the transformative potential of quantum computing and AR/VR in financial management depends not on technological sophistication alone, but on their integration within a purpose-driven decision architecture. Quantum computing can support optimization, risk simulation, credit assessment, fraud detection, and transaction security, while AR/VR translates analytical outputs into interactive visual experiences. However, successful integration requires data readiness, workforce competencies, system interoperability, information security, user acceptance, and effective governance. The literature also reveals that quantum computing research predominantly focuses on algorithms and security, whereas AR/VR research emphasizes user experiences and behavior, leaving their integrated application in financial management relatively underexplored.

This study contributes an integrative framework combining the Technology Acceptance Model (TAM), Diffusion of Innovation (DOI) Theory, and Resource-Based View (RBV) to explain technological integration at individual, organizational, and strategic levels. TAM addresses perceived usefulness and ease of use, DOI explains innovation diffusion through relative advantage, compatibility, complexity, trialability, and observability, while RBV highlights the organizational resources and capabilities required to generate competitive advantage. Practically, the framework supports use-case selection, readiness assessment, pilot implementation, competency development, performance measurement, and consumer protection. It helps organizations distinguish technology investments that follow emerging trends from those that genuinely advance strategic objectives.

The study's limitations stem from its SLR scope, which focused on recent open-access publications and the concepts of financial management, AR/VR, and quantum technology. This approach may have excluded related areas, including spatial computing, extended reality, quantum artificial intelligence, post-quantum cryptography, and immersive financial services.

Moreover, the literature demonstrates different levels of maturity: AR/VR applications have undergone extensive user testing, whereas quantum-finance applications remain largely at the simulation, experimental, and proof-of-concept stages. Future research should validate the framework through organizational case studies, quantitative investigations of technology acceptance and organizational readiness, and experiments comparing conventional financial visualizations with AR/VR interfaces incorporating quantum-algorithm outputs. Incorporating the perspectives of regulators, technology providers, employees, and consumers would further strengthen the development of secure, measurable, and context-sensitive implementation models.

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The Effect of Green Intelectual Capital on Business Sustainability: the Mediating Role of Green Innovation

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ABSTRACT

The aim associated with this article is to examine the relationship between green intellectual capital and business sustainability. Moreover, it examines the mediating role of green innovation for these relationship. The sample consisted of 147 employers in Nineveh Health Office in Iraq. The responses were obtained through self-administered questionnaire using closeness selection. An progressive Partial Least Squares Structural Equation Modeling (PLS-SEM) and SPSS, Ver. 26 analysis was lead to expose the study outcomes. The study outcomes established the positive effect of green intellectual capital on business sustainability. Additionally, outcomes exposes that green innovation does mediate these relationships. This study offers significant suggestions for business sustainable by improving green human capital and green structural capital; mostly for its exclusive context, the health sector. This study is measured unique since it is one of the rare to provide empirical evidence for the link of green intellectual capital with business sustainability and mediating role of green innovation.

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INTRODUCTION

In our contemporary world, the issue of intellectual capital (IC) has become one of the most important factors of production contributing to the production process in organizations, it represents a set of cognitive and organizational capabilities available to an elite group of workers and not others, these capabilities help produce new ideas or develop old ideas, enabling the organization to expand its market share, maximize its strengths, and place it in a better position than its counterparts. But these cognitive capabilities cannot be completed and interact with each other unless they are linked to the use of variables and other factors that help the organization to sustain its work and advance to advanced levels. Based on this, sustainability, which is linked and affected by intellectual capital, can be described as employed for the advantage of all present and coming participants in a way that confirms The efficiency and continuity of work in the long term and the associated results on the economic, social and environmental aspects. Therefore, sustainable business is concerned with the current and future social, environmental and economic impacts associated with its operations. Interest in BS (BS) comes from the 1970s, starting with the first United Nations Environment Conference. More than a decade later, in 1987, A document was presented entitled Our Common Future, which views sustainability as meeting the needs of the current generation without compromising the ability of future generations to meet their needs during that period (Oliveira et al., 2019). Green intellectual capital (GIC) is defined as the knowledge, skills, abilities, experiences and concepts related to environmental protection (Chaudhry, 2016), green human capital (GHC) is defined as a summary of individuals' knowledge, skills, abilities, experiences, attitudes, wisdom, creativity, commitments, etc., with regard to environmental protection or green innovation

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(Chen, 2008). Green structural capital(GSC) is defined as institutional knowledge about the shape of organizational processes, structures, technologies, policies and culture (Wang, 2014).

Green relational capital (GRC) represents the organization's interactive relationships with customers, suppliers, allies and partners in a way that achieves environmental management and GI for organizations and enables them to succeed and obtain competitive advantages (Chen, 2008). Green innovation (GI) It is innovation associated with green products and processes, including innovation in technologies that contribute to energy conservation, pollution prevention, waste recycling, green product design, and corporate environmental management (Sterbrink and Westerberg, 2016).

Hence, this research study also aims to examine the mediating influence of GI on the association between GIC (GHC, GSC and GRC) and BS, the presence of strong support from GI is widely recognized as a critical factor in determining the effectiveness and ultimate success of sustainability efforts implemented within organizations.

RESEARCH METHOD

The questionnaire was pretested to ensure content validity and clarity. The questionnaire was developed based on already used scales in previous literature. GIC, and BSwas adapted from Obeidat et al. (2020) with four items, Absamad (2019) with 8 items, Yong et al. (2020) with 12 items, and for GI was adapted from Medina et al. (2011), Weag et al. (2015) and Ganzer et al. (2017) with 12 items respectively. All items were measured using a 5-point Likert scale with responses to statements ranging from (1) strongly disagree to (5) strongly agree.

RESULT AND DISCUSSION

1-The Descriptive analysis of the items of the dimensions of the variables:

a. Analysis of the items of the GICin shares which is regularly referred to as dividends

Table 1: Description and Diagnosis of the items of the GIC.

Items	Response Scale										Mean	Standard Deviation	Relative Importance (%)
	Strongly Agree(5)		Agree (4)		Neutral (3)		Disagree (2)		Strongly Disagree (1)				
	F	%	F	%	F	%	F	%	F	%			
GIC1_1	57	38.8	77	52.4	7	4.7	5	3.4	1	0.7	4.252	0.757	85.0
GIC1_2	35	23.8	103	70.1	7	4.7	2	1.4	0	0.0	4.163	0.562	83.3
GIC1_3	30	20.4	95	64.6	18	12.3	3	2.0	1	0.7	4.020	0.687	80.4
GIC1_4	29	19.7	93	63.3	19	12.9	5	3.4	1	0.7	3.980	0.726	79.6
GIC2_1	37	25.2	84	57.2	23	15.6	3	2.0	0	0.0	4.054	0.700	81.1
GIC2_2	37	25.2	83	56.5	27	18.3	0	0.0	0	0.0	4.068	0.659	81.4
GIC2_3	35	23.8	90	61.2	19	12.9	2	1.4	1	0.7	4.061	0.695	81.2
GIC2_4	46	31.3	82	55.8	19	12.9	0	0.0	0	0.0	4.184	0.641	83.7
GIC3_1	37	25.2	90	61.2	17	11.6	3	2.0	0	0.0	4.095	0.666	81.9
GIC3_2	30	20.5	89	60.5	25	17.0	3	2.0	0	0.0	3.993	0.677	79.9
GIC3_3	32	21.8	95	64.6	18	12.2	1	0.7	1	0.7	4.061	0.654	81.2
GIC3_4	51	34.7	89	60.5	6	4.1	0	0.0	1	0.7	4.286	0.608	85.7

Source : Data Processed, 2026

The results in Table (1) indicate that the sample members demonstrated a high level of agreement regarding the items related to the three dimensions of GIC. The arithmetic means ranged from 3.980 to 4.286 all exceeding the scale's hypothetical mean of 3 while response rates ranged from 79.6% to 85.7%, reflecting a positive perception of the presence of green ICpractices within the organization under study. Standard deviation values ranged from 0.562 to 0.757; these relatively low values indicate a convergence of responses among sample members and a good degree of consensus in their opinions. Item (GIC3_4) recorded the highest arithmetic mean (4.286) and response rate (85.7%), whereas item (GIC1_4) recorded the lowest arithmetic mean (3.980) and response rate (79.6%); nevertheless, both remained within the high agreement range, confirming that the dimensions of green ICare positively evaluated by the sample members.

b. Analysis of BS items:

Table 2: Description and diagnosis of the BS items

Items	Strongly Agree(5)		Agree (4)		Neutral (3)		Disagree (2)		Strongly Disagree (1)		Mean	Standard Deviation	Relative Importance (%)
	F	%	F	%	F	%	F	%	F	%			
BS1_1	42	28.5	92	62.6	10	6.8	1	0.7	2	1.4	4.163	0.693	83.3
BS1_2	45	30.6	86	58.5	14	9.5	0	0.0	2	1.4	4.170	0.706	83.4
BS1_3	45	30.6	83	56.5	18	12.2	1	0.7	0	0.0	4.170	0.656	83.4
BS1_4	32	21.8	94	63.9	16	10.9	2	1.4	3	2.0	4.020	0.754	80.4
BS2_1	41	27.9	86	58.5	17	11.5	1	0.7	2	1.4	4.109	0.732	82.2
BS2_2	31	21.1	97	66.0	18	12.2	1	0.7	0	0.0	4.075	0.598	81.5
BS2_3	43	29.2	87	59.2	14	9.5	2	1.4	1	0.7	4.150	0.696	83.0
BS2_4	43	29.2	93	63.3	11	7.5	0	0.0	0	0.0	4.218	0.568	84.4
BS3_1	45	30.6	93	63.3	8	5.4	1	0.7	0	0.0	4.238	0.577	84.8
BS3_2	40	27.2	93	63.2	12	8.2	2	1.4	0	0.0	4.163	0.620	83.3
BS3_3	54	36.7	80	54.4	12	8.2	0	0.0	1	0.7	4.265	0.665	85.3
BS3_4	54	36.7	78	53.1	15	10.2	0	0.0	0	0.0	4.265	0.634	85.3

Source : Data Processed, 2026

The results in Table (2) indicate that the sample members demonstrated a high level of agreement regarding the BS items; the arithmetic means ranged from 4.020 to 4.265 all exceeding the scale's hypothetical mean of 3 reflecting a positive perception of the level of BS within the organization under study. Response rates ranged from 80.4% to 85.3%, high figures confirming a tendency among respondents to agree with the content of the items. Furthermore, standard deviation values ranged from 0.568 to 0.754, indicating a convergence of responses and a low degree of dispersion. Items (BS3_3) and (BS3_4) recorded the highest arithmetic mean (4.265) and response rate (85.3%) each, while item (BS1_4) showed the lowest arithmetic mean (4.020) and response rate (80.4%); nevertheless, it remained within the high agreement range, demonstrating that BS is positively evaluated by the sample members.

c.Analysis of the GI items

Table 3: Description and Diagnosis of the GI items

Items	Response Scale										Mean	Standard Deviation	Relative Importance (%)
	Strongly Agree(5)		Agree (4)		Neutral (3)		Disagree (2)		Strongly Disagree (1)				
	F	%	F	%	F	%	F	%	F	%			
GI1_1	54	36.7	78	53.1	12	8.2	3	2.0	0	0.0	4.245	0.688	84.9
GI1_2	43	29.3	90	61.2	13	8.8	0	0.0	1	0.7	4.184	0.641	83.7
GI1_3	43	29.3	87	59.1	14	9.5	2	1.4	1	0.7	4.150	0.696	83.0
GI1_4	45	30.6	88	59.9	9	6.1	3	2.0	2	1.4	4.163	0.741	83.3
GI2_1	43	29.3	97	65.9	6	4.1	1	0.7	0	0.0	4.238	0.553	84.8
GI2_2	45	30.6	89	60.5	13	8.9	0	0.0	0	0.0	4.218	0.591	84.4
GI2_3	45	30.6	83	56.5	19	12.9	0	0.0	0	0.0	4.177	0.638	83.5
GI2_4	51	34.7	80	54.4	16	10.9	0	0.0	0	0.0	4.238	0.634	84.8
GI3_1	51	34.7	86	58.5	9	6.1	1	0.7	0	0.0	4.272	0.603	85.4
GI3_2	47	32.0	89	60.5	9	6.1	2	1.4	0	0.0	4.231	0.620	84.6
GI3_3	50	34.0	84	57.1	13	8.9	0	0.0	0	0.0	4.252	0.606	85.0
GI3_4	40	27.2	93	63.3	14	9.5	0	0.0	0	0.0	4.177	0.582	83.5

Source : Data Processed, 2026

It is evident from the results of Table (3) that the sample exhibited a high level of agreement regarding the GI items, as the arithmetic mean ranged between (4.150) and (4.272), all of which are above the hypothetical mean for scale (3). This reflects a positive perception of the level of adoption of GI practices within the researched organization. Response rates also ranged between (83.0%) and (85.4%), which are high percentages indicating agreement among the sample regarding the content of the items. Furthermore, the standard deviation values ranged between (0.553) and (0.741), indicating the convergence of the sample responses and a low degree of dispersion.

Item (GI3_1) recorded the highest arithmetic mean of (4.272) and a response rate of (85.4%), while item (GI1_3) came with the lowest arithmetic mean of (4.150) and a response rate of (83.0%), but it remained within the high level of agreement, which confirms that GI enjoys a positive evaluation by the sample.

Model Evaluation Scales

After completing the descriptive analysis of the data, the study model is evaluated using the Partial Least Squares Structural Equation Modeling (PLS-SEM) methodology, which is considered one of the most appropriate statistical methods for testing the relationships between latent variables. The model is evaluated through two main stages: the first stage involves assessing the Measurement Model, which aims to verify the quality and reliability of the measurement instruments by testing the validity and consistency of the relationships between the latent variables and their indicators. The second stage involves evaluating the Structural Model, which aims to test the causal relationships between latent variables, estimate the strength and direction of these relationships, as well as to test the hypotheses underlying the study model using the Smart-PLS 3 software.

a.Standard Evaluation of Model:
This phase aims to ensure the validity and stability of the variables and indicators through the model. Tables (4), (5)and (6) summarize the reliability measures for the items and dimensions of the study.

Table 4: Model evaluation criteria for the green IC variable

Latent Variables	**Items**	**Outer Loading**		**Internal consistency**		
		≥ 0.7	**Remain?**	**AVE≥0.5**	**Cronbach's Alpha ≥0.7**	**Composite Reliability ≥0.7**
Green Human Capital	GIC1_1	0.733	Yes	0.673	0.836	0.891
	GIC1_2	0.856	Yes			
	GIC1_3	0.892	Yes			
	GIC1_4	0.792	Yes			
Green Structural Capital	GIC2_1	0.758	Yes	0.655	0.823	0.883
	GIC2_2	0.866	Yes			
	GIC2_3	0.841	Yes			
	GIC2_4	0.765	Yes			
Green Relational Capital	GIC3_1	0.775	Yes	0.714	0.865	0.909
	GIC3_2	0.914	Yes			
	GIC3_3	0.886	Yes			
	GIC3_4	0.799	Yes			
GIC				0.505	0.910	0.924

Source : Data Processed, 2026

Table 5: Evaluation Criteria for the BS variable Model

Latent Variables	**Items**	**Outer Loading**		**Internal Consistency**		
		≥ 0.7	**Remain?**	**AVE≥0.5**	**Cronbach's Alpha ≥0.7**	**Composite Reliability ≥0.7**
Social Development	BS1_1	0.808	Yes	0.690	0.850	0.899
	BS1_2	0.841	Yes			
	BS1_3	0.881	Yes			
	BS1_4	0.791	Yes			
Economic Development	BS2_1	0.816	Yes	0.710	0.863	0.907
	BS2_2	0.914	Yes			
	BS2_3	0.830	Yes			
	BS2_4	0.806	Yes			
	BS3_1	0.789	Yes	0.668	0.834	0.889

Environmental Development	BS3_2	0.818	Yes			
	BS3_3	0.872	Yes			
	BS3_4	0.786	Yes			
BS				0.503	0.909	0.924

Source : Data Processed, 2026

Table 6: Evaluation criteria for the GI variable

Latent Variables	**Items**	**Outer Loading**		**Internal Consistency**		
		≥ 0.7	**Remain ?**	**AVE≥0.5**	**Cronbach's Alpha ≥0.7**	**Composite Reliability ≥0.7**
Green Product	GI1_1	0.802	Yes	0.714	0.866	0.909
	GI1_2	0.880	Yes			
	GI1_3	0.895	Yes			
	GI1_4	0.800	Yes			
Green Process	GI2_1	0.824	Yes	0.723	0.871	0.912
	GI2_2	0.898	Yes			
	GI2_3	0.884	Yes			
	GI2_4	0.791	Yes			
Organizational Innovation	GI3_1	0.814	Yes	0.704	0.860	0.905
	GI3_2	0.873	Yes			
	GI3_3	0.854	Yes			
	GI3_4	0.812	Yes			
GI				0.529	0.918	0.931

Source : Data Processed, 2026

The results in Tables 4, 5, and 6 indicate that the measurement model possesses a high degree of validity and reliability. All outer loading coefficients exceeded the minimum acceptable value of (0.70), ranging from (0.733) to (0.914). This demonstrates that all study indicators are strongly correlated with their underlying variables, justifying the retention of all items and the exclusion of any. Furthermore, the results showed that the average extracted variance (AVE) values for all dimensions and main variables exceeded the minimum acceptable value of 0.50, ranging from (0.503) to (0.723). This confirms the convergent validity of the model.

Regarding internal consistency, all variables achieved high values for both Cronbach's alpha and composite reliability. Cronbach's alpha values ranged from (0.823) to (0.918), while

composite reliability values ranged from (0.883) to (0.931), all exceeding the recommended minimum of (0.70). This indicates a high degree of internal consistency and reliability in the study's measures. Based on these results, it can be concluded that the measurement model meets the validity and reliability criteria adopted in the PLS-SEM methodology, thus allowing for the evaluation of the structural model and the testing of the study's hypotheses.

Discriminant validity is a fundamental criterion for evaluating a measurement model. It aims to verify the ability of each underlying variable to be distinguished from other underlying variables, ensuring that the indicators used to measure a specific variable do not measure a different variable. To verify this, the study relied on the Heterotrait-Monotrait ratio (HTMT), one of the most common criteria for assessing discriminant validity within the PLS-SEM methodology. Table (7) presents the results of this criterion, where all HTMT values were below the acceptable maximum of 0.90, confirming the availability of discriminant validity among the study variables and indicating that each latent variable is sufficiently independent of the others and measures the concept it was designed to measure.

Table 7: HTMT Criterion Results

	BS	Economic Development	Environmental Development	Green Human Capital	GI	GIC	Green Process	Green Product	Green Relational Capital	Green Structural Capital
Economic Development	0.797									
Environmental Development	0.766	0.754								
Green Human Capital	0.669	0.627	0.641							
GI	0.781	0.690	0.692	0.680						
GIC	0.786	0.720	0.676	0.784	0.764					
Green Process	0.680	0.599	0.581	0.590	0.801	0.691				
Green Product	0.735	0.569	0.730	0.566	0.826	0.635	0.730			
Green Relational Capital	0.735	0.639	0.640	0.698	0.714	0.769	0.637	0.633		
Green Structural Capital	0.707	0.671	0.533	0.758	0.658	0.812	0.629	0.503	0.733	
Organizational Innovation	0.658	0.663	0.525	0.649	0.754	0.702	0.801	0.573	0.626	0.614
Social Development	0.749	0.719	0.616	0.506	0.687	0.685	0.623	0.650	0.668	0.665

Source : Data Processed, 2026

Structural Model Evaluation

After confirming the reliability and validity of the measurement model, the next step is to evaluate the structural model. This aims to test the assumed causal relationships between the underlying variables and verify the study's hypotheses. This evaluation involves examining the model's explanatory and predictive power using a range of statistical indicators, most notably the coefficient of determination (R^2) and the effect size (f^2). It also includes verifying the absence of (Multicollinearity) among the variables using the variance inflation factor (VIF). The results of these indicators are presented below:

-Variance Inflation Factor (VIF)

Table 8: Variance Inflation Factors

Items	VIF	Items	VIF	Items	VIF	Items	VIF
BS1_1	2.363	BS3_2	2.050	GI2_3	3.068	GIC1_4	1.873
BS1_2	2.537	BS3_3	2.670	GI2_4	2.133	GIC2_1	1.789
BS1_3	2.880	BS3_4	2.138	GI3_1	1.996	GIC2_2	2.769
BS1_4	2.631	GI1_1	2.001	GI3_2	2.490	GIC2_3	2.563
BS2_1	2.836	GI1_2	2.607	GI3_3	2.625	GIC2_4	1.702
BS2_2	3.547	GI1_3	2.817	GI3_4	2.230	GIC3_1	2.023
BS2_3	2.753	GI1_4	1.717	GIC1_1	1.633	GIC3_2	3.759
BS2_4	2.416	GI2_1	2.376	GIC1_2	2.566	GIC3_3	3.360
BS3_1	2.377	GI2_2	3.353	GIC1_3	2.933	GIC3_4	2.045

Source : Data Processed, 2026

From Table (8) shows the Variance Inflation Coefficient (VIF) results for all study indicators, with values ranging from (1.633) to (3.759), all of which are below the acceptable maximum of (5.00). These results indicate the absence of (Multicollinearity) among the indicators, confirming the independence of the variables and the lack of high correlations that could affect the accuracy of estimating the structural model coefficients. Therefore, the study data meet the requirements for structural relationship testing, and the model results can be relied upon to test the study hypotheses.

-Model Quality Evaluation

The quality of the model will be assessed based on both (R2 and F2), and Table (9) shows the values of these criteria.

Table 9: Model Quality criteria Values

Latent Variables	**R^2**	**Explanatory Power**	**f^2**	**Effect Size**
Green Human Capital	0.735	Moderate	2.769	Large
Green Structural Capital	0.749	Moderate	2.985	Large
Green Relational Capital	0.746	Moderate	2.938	Large
BS	0.599	Moderate	0.221	Medium
Social Development	0.700	Moderate	2.333	Large
Economic Development	0.794	Substantial	3.861	Large
Environmental Development	0.703	Moderate	2.369	Large
GI	0.588	Moderate	0.951	Large
Green Product	0.684	Moderate	2.162	Large
Green Process	0.828	Substantial	4.825	Large
Organizational Innovation	0.718	Moderate	2.547	Large

Source : Data Processed, 2026

Table (9) presents the results of the structural model quality assessment based on the coefficient of determination (R^2) and effect size (f^2). The coefficient of determination results indicate that the model has a medium to high explanatory power, with R^2 values ranging from (0.588) to (0.828). The Green Process variable achieved the highest explanatory power at 0.828, followed by Economic Development at 0.794, both falling within the high (substantial) explanatory level. In contrast, the coefficient of determination for the BS variable was 0.599,

indicating that the Green IC and GI variables explain 59.9% of the variance in BS, a medium explanatory power according to PLS-SEM criteria. The GI variable also achieved a value of 0.588, indicating a medium explanatory power for the model in explaining this variable.

As for the effect size (f^2), the results showed that most relationships have a large effect size, with (f^2) values ranging between (0.951) and (4.825), while the variable BS recorded a value of 0.221, representing a medium effect size according to Cohen's criteria. Collectively, these results indicate that the structural model possesses adequate explanatory power and that the independent variables contribute to varying degrees in explaining the variance in the dependent variables, thereby enhancing the reliability of the model and supporting the progression to testing the study's hypotheses.

2.Hypotheses Testing:
The study model's conformity with the data of the study sample was verified by checking the inference indicators of good conformity to the model, as well as ensuring its compliance with the required criteria. Thus, now can test the study hypotheses mentioned in the study methodology, as follows:

First: Correlation Testing
To confirm and verify the first main hypothesis, Spearman's correlation coefficient was calculated using SPSS version 26. The results are as follows:

a. Testing the First Main Hypothesis

Table (10) shows the correlation values between GHC and BS.

Table (10): Correlation between GHC and BS

Variables	**BS**			
Green Human Capital	Correlation Coefficient	CI (95%)		Sig
		Lower	Upper	
	0.646	0.529	0.738	<0.001

Source : Data Processed, 2026

Table (10) shows the results of the test of the correlation relationship between GHC and BS using Spearman's Correlation coefficient. The results demonstrated the existence of a statistically significant positive correlation between the two variables, with a correlation coefficient of (r = 0.646), indicating a moderate to strong correlation between them. The significance level (Sig < 0.001) was less than the adopted significance level (0.05), indicating that the relationship is statistically significant. Furthermore, the 95% confidence interval for the correlation coefficient ranged between (0.529) and (0.738), which does not include the zero value, thereby enhancing the reliability of the result and confirming the stability of the correlation coefficient estimate. Based on this, the hypothesis one is accepted.

b. Testing the Second Main Hypothesis
Table (11) presents the correlation values between GSC and BS.

Table 11: Analysis of the Relationship Between GSC and BS

Variables	**BS**			
Green Structural Capital	Correlation Coefficient	CI (95%)		Sig
		Lower	Upper	
	0.630	0.510	0.726	<0.001

Source : Data Processed, 2026

Table (11) presents the results of the correlation analysis between GSC and BS using Spearman's correlation coefficient. The results indicate a statistically significant positive correlation between the two variables, with a correlation coefficient of r = 0.630, suggesting a moderate to strong relationship. Furthermore, the significance level (Sig < 0.001) is below the established threshold of 0.05, confirming the statistical significance of the relationship. Additionally, the 95% confidence interval ranges from 0.510 to 0.726 and does not include zero, thereby reinforcing the reliability of the result and the stability of the correlation coefficient estimate. Consequently, the second hypothesis is accepted.

c. Testing the Third Main Hypothesis

Table (12) presents the correlation values between GRC and BS.

Table 12: Analysis of the Relationship Between Relational Capital and BS

Variables	**BS**			
Green Relational Capital	Correlation Coefficient	CI (95%)		Sig
		Lower	Upper	
	0.694	0.588	0.777	<0.001

Source : Data Processed, 2026

Table (12) shows the results of the correlation test between GRC and BS using Spearman's Correlation coefficient. The results indicated the presence of a strong positive correlation with statistical significance between the two variables, where the correlation coefficient was (r = 0.694), suggesting that as the level of GRC increases, the level of BS also increases. The significance level was (Sig < 0.001), which is below the adopted significance level (0.05), confirming the statistical significance of the relationship. Additionally, the 95% confidence interval ranged between (0.588) and (0.777), which does not include zero, further enhancing the reliability of the result and confirming the stability of the correlation coefficient estimate. Accordingly, the null hypothesis is rejected and the alternative hypothesis is accepted, which states that there is a statistically significant correlation between GRC and BS.

d. Effect Testing

1.Testing GHC in BS through GI

Figure (2) shows the model diagram for this hypothesis, and Table (13) shows the results of the structural model analysis, which accept fourth hypothesis.

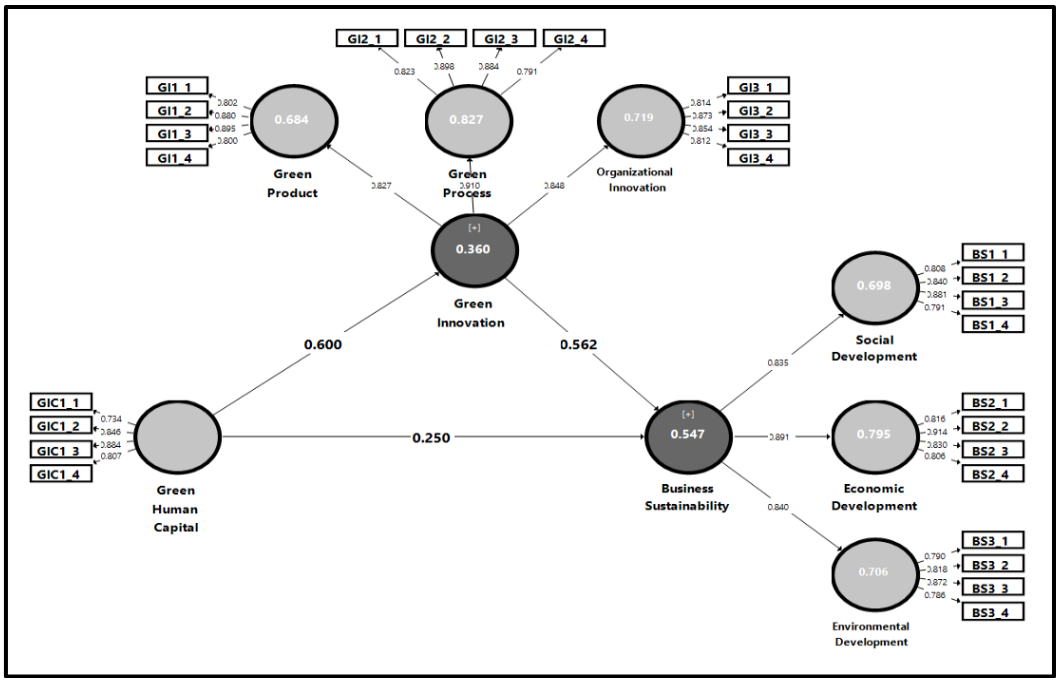


Figure (2): The impact of GHC on BS through GI

Table (13): The impact of GHC on BS through GI

Indirect Path	Original Sample (β)	Standard Deviation	T Statistic	P Value	CI (95%)	
					Lower	**Upper**
GHC → GI →BS	0.337	0.054	6.255	<0.001	0.250	0.460

Source : Data Processed, 2026

The results of Table (13) indicate the presence of a significant indirect effect of GHC on BS through GI, as the value of the indirect effect coefficient reached (β = 0.337), a positive value reflecting that enhancing GHC contributes to increasing the level of BS through the development of GI. The statistical value reached (T = 6.255), which is higher than the benchmark value (1.96), while the statistical significance value was (P < 0.001), confirming the significance of this effect at the 0.05 significance level. Additionally, the confidence interval (95%) ranged between (0.250–0.460) and did not include zero, which reinforces the reliability of the indirect effect. Based on this, the fourth null hypothesis, which states that GI does not significantly mediate the relationship between GHC and BS, is rejected, and the alternative hypothesis is accepted, indicating that GI plays the role of a significant mediator in transforming the capabilities, skills, and knowledge of GHC into practices that enhance BS.

e. Testing the mediating role of GI on the relationship between green structural capital and BS.

Figure (3) presents the model diagram for this hypothesis, while Table (14) shows the results of the structural model analysis, indicating the accepting of the fifth main hypothesis.

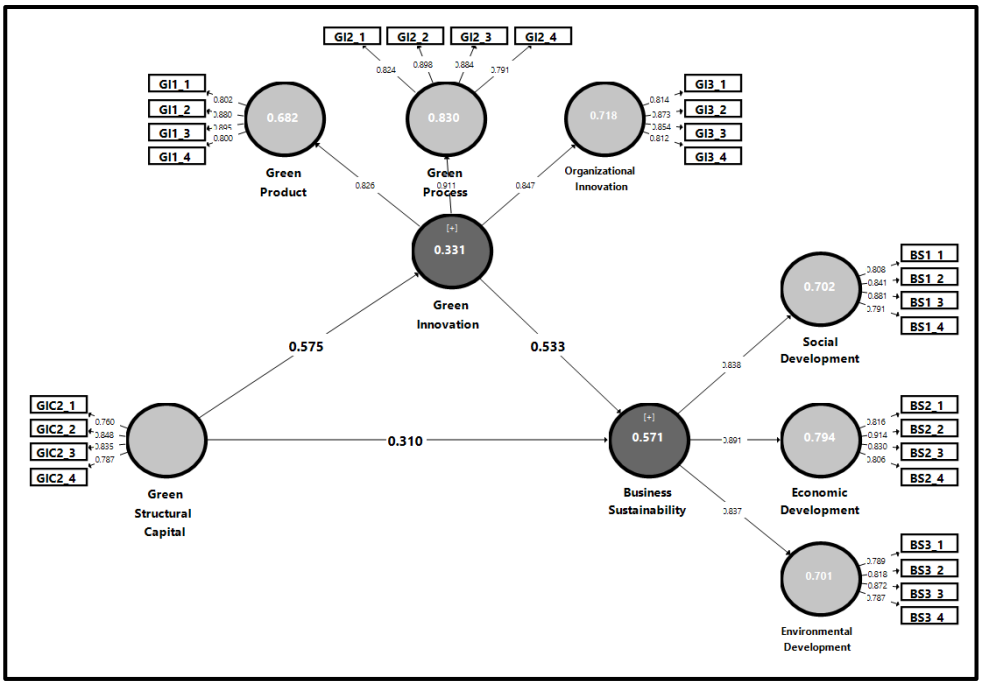


Figure (3): The impact of GSC on BS through GI

Table (14): The impact of GSC on BS through GI

Indirect Path	Original Sample (β)	Standard Deviation	T Statistic	P Value	CI (95%)	
					Lower	Upper
GSC → GI →BS	0.307	0.045	6.765	<0.001	0.229	0.405

Source : Data Processed, 2026

The results of Table (14) indicate the presence of a significant indirect effect of GSC on BS through GI, with the indirect effect coefficient reaching (β = 0.307), a positive effect indicating that the development of GSC contributes to enhancing BS by supporting GI. The statistical value reached (T = 6.765), which is higher than the standard value (1.96), while the significance level was (P < 0.001), confirming the significance of this effect at the 0.05 level. Additionally, the 95% confidence interval, ranging between (0.229–0.405), did not include zero, further supporting the reliability of the indirect effect. Accordingly, the fifth null hypothesis is rejected, and the alternative hypothesis is accepted, confirming that GI serves as a significant mediator in the relationship between GSC and BS.

f. Testing GRC in BS through GI

Figure (4) shows the model diagram for this hypothesis, and Table (15) shows the results of the structural model analysis, which indicate the accepting of the sixth main hypothesis.

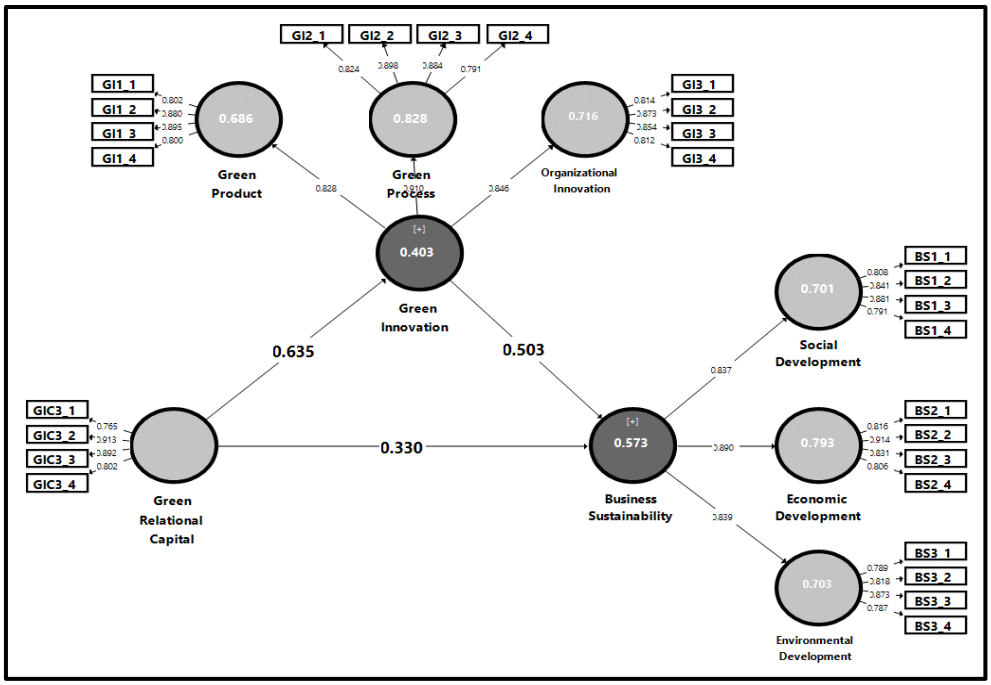


Figure (4):The effect of GRC in BS through GI.

Table (15): The effect of GRC in the BS through GI.

Indirect Path	Original Sample (β)	Standard Deviation	T Statistic	P Value	CI (95%)	
					Lower	Upper
GRC → GI →BS	0.319	0.054	5.955	<0.001	0.228	0.436

Source : Data Processed, 2026

The results of Table (15) indicate a significant indirect effect of GRC on BS through GI, with an indirect effect coefficient of (β = 0.319), which is a positive effect reflecting that enhancing GRC contributes to improving BS by stimulating GI. The statistical value was (T = 5.955), exceeding the critical value (1.96), while the significance value was (P < 0.001), confirming the significance of this effect at the (0.05) level. Additionally, the 95% confidence interval, ranging from (0.228–0.436), did not include zero, which reinforces the reliability and accuracy of the statistical estimate of the indirect effect. Accordingly, the sixth null hypothesis is rejected, and the alternative hypothesis is accepted, confirming that GI plays a significant mediating role in the relationship between GRC and BS.

DISCUSSION

Hypothesis 1 suggests that there happens a positive relationship between GHC and sustainability. The importance of GHC has been stayed by preceding study (Delmas and Pekovic, 2013; Epstein and Buhovac, 2014). GHC provide individuality, which offers corporations an advantage over contestants. GHC is fixed in employees' understanding and skill, so it can be missing when they leave. Therefore, organizations should reserve this capital. Organizations that distribute resources to improving the knowledge and abilities of their staff in relative to sustainability tend to exhibition greater performance in relations of economic, environmental, and social sustainability features. The above-mentioned result is supported by speculative excuse, as staffs who

possess knowledge and abilities related to sustainability are more disposed to contribute in sustainable behaviors and make helps towards the achievement of sustainability goals.

Furthermore, H2 suggested that there occurs a positive relationship between GSC and sustainability. The practical investigation offers indication in service of the hypothesis. This result is regular with the idea that the attendance of effective structures, procedures, and systems to provision sustainability actions is vital for reaching sustainability goals (Sánchez et al., 2007).

Furthermore, , H3 suggested a positive connection between GRC and sustainability. In difference to the primary evidence, the practical examination displays a important suggestion to corroborate the idea that GRC shows a direct positive relationship with sustainability. The preceding studies have consistently highlighted the importance of full-bodied relationships and associations in encouraging sustainability objectives (Hahn et al., 2015; Long and Liao, 2023).

Concerning communication relationships, in H4, it is hypothesized that there is a positive mediating effect of GI on the suggestion between GHC and BS. The practical examination produced decisive outcomes, as the analysis did offer extensive proof to provision the hypothesis. which suggest that the confirmation of GI can intensify the effectiveness of GIC in encouraging sustainability activities. The results of this study show that the impact of GI on the suggestion between GHC and BS is depending upon appropriate issues and other organizational variables. Moreover, the level of GI engagement may differ through several organizations.

Equally, H5 is too accepted. The results indicate the presence of a significant indirect influence of GSC on BS through GI. Finally, Hypothesis 6 that indicate a significant indirect effect of GRC on BS through GI.

The above is supported by the study's of (Iqbal, 2023) Which it findings indicate significant associations and impacts of green IC and GI on the corporate sustainability of manufacturing firms in Pakistan. Furthermore, the outcomes indicated that GI mediates the relationship between green IC and corporate sustainability. Hence, it is strongly recommended that Pakistani firms should integrate GI practices into their operations to effectively pursue corporate sustainability.

In addition, The result showed the green process innovation has positive effect on corporate sustainability and the environmental performance can moderate the relationship between green process innovation and corporate sustainability (Khairani et al., 2021).

CONCLUSION

In sudden, this study has providing an inclusive sympathetic of the multifaceted interaction between GIC, BS and GI in the exact situation of the health sector in Iraq. The experimental indication cares the idea that GHC and GSC have a famous helpful effect on BS, highlighting their vital parts in supporting sustainable practices. However, the results of the study expression a strong and direct correlation between GRC and BS. Furthermore, the predictable moderating impact of GI on the relationship between green human and structural capital, did manifest as expected. The above-mentioned results improve the general conception of

sustainability subtleties within the health sector, importance the requirement for complicated and state-exact methods. The novelty of this work is fixed in its delivery of practical indication that founds a joining between GIC, GI and BS. Moreover, it suggestions visions into the complicated environment of these connections exactly in the health sector.

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Effect of Strategic Resource Management, Financial Literacy, and Institutional Support on Small Business Sustainability in Katsina State, Nigeria

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ABSTRACT

Small business sustainability remains a critical challenge in resource-constrained environments, particularly in northern Nigeria where institutional support has intensified but participation gaps persist. This study examines the effect of strategic resource management, financial literacy, and institutional support on small business sustainability in Katsina State, Nigeria. Drawing on the Resource-Based View, Human Capital Theory, and Institutional Theory, the study adopts a quantitative cross-sectional survey design targeting 384 registered small businesses across the three senatorial districts of Katsina State. Data were collected through structured questionnaires and analysed using Partial Least Squares Structural Equation Modeling (PLS-SEM). The findings reveal that strategic resource management, financial literacy, and institutional support each exert significant positive effects on business sustainability. Financial literacy partially mediates the relationship between strategic resource management and sustainability, while institutional support moderates the financial literacy–sustainability relationship. The study contributes to management literature by integrating internal capability and external institutional perspectives in explaining SME sustainability in a developing economy context. Practical recommendations are offered for KASEDA and Katsina State policymakers to optimise training design, financing access, and programme outreach.

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INTRODUCTION

From a management perspective, small business sustainability is a central dependent variable for evaluating how enterprises navigate resource constraints and institutional environments. Katsina State presents a compelling context for this inquiry: the state government has invested heavily in enterprise support through the Katsina State Enterprise Development Agency (KASEDA), yet a significant gap persists between policy investment and sustained business outcomes.

In 2025 alone, KASEDA facilitated the creation of 5,373 direct and indirect jobs, while more than 10,000 businesses were formalised, enabling them to access government support, financial services, and new market opportunities (Katsina State Government, 2026a). The state established a ₦5.5 billion MSME fund, with over ₦1 billion already disbursed to 701 businesses, making Katsina a model for enterprise development in northern Nigeria (Katsina State Government, 2026a). Furthermore, the federal government has disbursed approximately ₦2.5 billion to over 39,000 MSMEs in

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Katsina State through various intervention programmes (Businessday, 2025; Punch Newspapers, 2025). Despite these substantial interventions, research reveals that only 31.7% of small business owners participate in government intervention programmes, though participants' survival rates (78%) are significantly higher than non-participants (61%) (Yusriadi et al., 2025).

This "intervention–performance" gap constitutes the managerial problem driving this study. The central question is not merely whether businesses grow, but whether they can sustain operations and remain resilient in a challenging economic environment. The Nigerian MSME sector faces a concerning mortality rate, with many enterprises failing within their first five years of operation (Adeyombo et al., 2024). While infrastructure, security, and market challenges contribute to this fragility, a core, often overlooked constraint is the inadequate financial knowledge and decision-making capacity of enterprise owners (ACCA Global, 2020).

Understanding how strategic resource management, financial literacy, and institutional support jointly shape sustainability is both academically significant and practically urgent. The Resource-Based View (RBV) posits that sustainable competitive advantage arises from resources that are valuable, rare, inimitable, and non-substitutable (Barney, 1991, as cited in Zhao, 2026). Financial literacy, as an internal capability, meets these criteria and can be seen as a strategic asset that enhances the resilience and sustainability of MSMEs (Adeyombo et al., 2024). However, the effectiveness of internal capabilities may depend on the presence of complementary institutional arrangements (Uddin et al., 2026).

This study therefore examines the effect of strategic resource management, financial literacy, and institutional support on small business sustainability in Katsina State. The specific objectives are: (1) to examine the effect of strategic resource management on small business sustainability; (2) to determine the effect of financial literacy on small business sustainability; (3) to assess the effect of institutional support on small business sustainability; (4) to explore the mediating role of financial literacy in the relationship between strategic resource management and sustainability; and (5) to investigate whether institutional support moderates the relationship between financial literacy and sustainability.

LITERATURE REVIEW

Conceptual Review

Strategic Resource Management and Sustainability. Strategic resource management involves acquiring, allocating, and leveraging resources to sustain business operations. The Resource-Based View (RBV) explains that competitive advantage arises from resources that are valuable, rare, inimitable, and non-substitutable (Barney, 1991, as cited in Zhao, 2026). Resource Orchestration Theory further emphasizes how firms prioritize and coordinate resources to achieve sustainability outcomes. Evidence suggests a positive relationship between entrepreneurial resource allocation and SME sustainability (Zhao, 2026).

Financial Literacy and Sustainability. Financial literacy represents human capital that strengthens entrepreneurs’ ability to plan, control, and expand business operations

(Adeyombo et al., 2024). Human Capital Theory highlights the economic value of investments in education and skills development (Becker, 1964, as cited in Adeyombo et al., 2024). Entrepreneurial financial literacy encompasses financial planning, funding assessment, risk management, and regulatory compliance (OECD, 2018, as cited in Adeyombo et al., 2024). However, Nigerian MSME evidence indicates that financial literacy remains limited despite entrepreneurs recognizing its potential to improve business efficiency (ACCA Global, 2020).

Institutional Support and Sustainability. Institutional Theory explains how external arrangements facilitate or constrain business activities. Evidence from KASEDA suggests that integrated support involving interest-free financing, skills development, digital transformation, and enterprise formalization can improve market expansion, production capacity, and formalization. Nevertheless, low participation, apprenticeship attrition, gender disparities in financing access, and coordination challenges remain significant barriers (Katsina State Government, 2026a).

Theoretical Framework

This study integrates Resource-Based View (RBV), Human Capital Theory, and Institutional Theory to provide a comprehensive lens for understanding small business sustainability.

The RBV explains how internal resources and capabilities drive sustained performance. Strategic resource management and financial literacy represent internal capabilities that enable firms to navigate resource constraints and make effective decisions (Zhao, 2026). Recent research extends this perspective through Resource Orchestration Theory, which examines how firms manage, prioritise, and allocate different resources to generate sustainability outcomes (Zhao, 2026).

Human Capital Theory provides the foundation for understanding financial literacy as a strategic asset. Financial literacy enhances the entrepreneurial capacity to plan, control, and grow business operations (Adeyombo et al., 2024). Additionally, Behavioural Finance Theory offers an important lens through which to interpret how financial decisions are made under uncertainty. Thaler (1999, as cited in Adeyombo et al., 2024) argued that cognitive biases, such as overconfidence and mental accounting, often distort financial judgment. Financial literacy, therefore, plays a dual role: it serves as both a technical skillset and a behavioral regulator that mitigates irrational financial behaviors (Adeyombo et al., 2024).

Institutional Theory explains how external arrangements shape business outcomes. Recent research indicates that institutional support is an important contributor to entrepreneurial competence, which affects further development of sustainable entrepreneurship (Uddin et al., 2026). The theory suggests that institutional support reduces uncertainty and provides legitimacy, enabling firms to focus on operational sustainability rather than mere survival.

Empirical Review

Strategic Resource Management and Business Sustainability

Amadi and Thom-Otuya (2025) examined strategic entrepreneurship and sustainable business growth among food-product SMEs in Rivers State, Nigeria. Using a correlational design, a sample of 400 SMEs, and Spearman rank correlation, the study found a significant relationship between strategic resource management and profit and sales growth. However, its sectoral and geographical focus limits its applicability to northern Nigeria. The present study addresses this gap by examining SMEs in Katsina State and incorporating financial literacy and institutional support.

Zhao (2026) investigated entrepreneurial orientation and SME sustainable growth in South Korea using structural equation modelling. The findings showed that resource allocation efficiency mediates the relationship between entrepreneurial orientation and sustainable growth, indicating that resource ownership alone is insufficient without effective deployment. The present study extends this perspective to Katsina State, where resource constraints are more pronounced, by examining financial literacy as an additional mediating mechanism.

Ayatse (2024) examined entrepreneurship education and SME performance in North Central Nigeria using data from 397 respondents. The findings indicated that technical and managerial training improves business leadership and strategic planning, although digital proficiency and financial documentation remain challenges. Unlike the present study, this research did not directly assess strategic resource management as a determinant of business sustainability. This study addresses that gap by examining its direct and mediated effects on sustainability outcomes.

A study of SMEs in Northeast Nigeria investigated risk management, resource leveraging, and firm size using data from 346 SMEs and structural equation modelling. Risk management ($p = .008$) and resource leveraging ($p < .001$) positively influenced SME performance, while firm size did not significantly moderate these relationships. However, the study focused on general performance rather than sustainability and did not examine the mechanisms underlying these relationships. The present study addresses these gaps by focusing on sustainability and investigating financial literacy as a mediating mechanism.

Research conducted in Bulacan, Philippines, examined entrepreneurial orientation, budgeting practices, resource allocation efficiency, and perceived financial performance among 403 MSME representatives using PLS-SEM. Entrepreneurial orientation positively influenced resource allocation efficiency ($\beta = 0.4068$, $p < .001$), while resource allocation efficiency had the strongest direct effect on financial performance ($\beta = 0.4136$, $p < .001$). The model explained 75.2% of the variance in perceived financial performance. Although these findings emphasize the importance of effective resource deployment, the study's institutional context differs from that of Nigeria. The present study therefore examines strategic resource management and business sustainability in Katsina State, considering the distinctive resource constraints and institutional support mechanisms in northern Nigeria.

Financial Literacy and Business Sustainability

Yusriadi, Badaruddin, and Fatmasari (2025) examined financial literacy and MSME survival in Northeast Nigeria using Human Capital Theory, the Resource-Based View, and Behavioral Finance Theory. The findings indicated that budgeting, saving, investing, and risk-assessment knowledge significantly influence MSME survival, particularly in fragile contexts with limited access to formal finance. However, the study focused on post-conflict conditions, whereas the present study examines Katsina State and investigates financial literacy as a mediator between strategic resource management and sustainability.

Odumusor and Sackey (2025) investigated financial knowledge, skills, and behavior among 256 MSMEs in Calabar using stratified sampling and OLS regression. Their findings showed that financial competence, ability, and behavior influence MSME effectiveness. However, the study addressed general business performance rather than sustainability and did not examine northern Nigeria. The present study addresses these contextual and conceptual gaps.

Sani (2026) examined the moderating role of entrepreneurs' financial literacy in the relationship between financing decisions and MSME growth in Northeast Nigeria. Using OLS regression on data covering 2018–2023, the study found that financial literacy moderates the relationship between long-term debt and growth prospects. Unlike this study, the present research examines financial literacy as both a direct predictor and a mediator between strategic resource management and business sustainability.

Philip (2025) investigated financial literacy training among clients of LAPO Microfinance Institution in Nigeria. The findings indicated a positive association between participation in financial literacy training and sustainable entrepreneurial success. However, the single-institution focus may limit generalizability, particularly to businesses without formal financial access. The present study examines a broader business context in Katsina State and tests the mediating role of financial literacy.

Togun et al. (2022) examined the mediating role of financial literacy in the relationship between financial inclusion and SME performance. The findings showed that financial literacy mediates this relationship, highlighting its importance in translating financial access into business outcomes. The present study extends this mediation perspective by investigating whether financial literacy mediates the relationship between strategic resource management and business sustainability in Katsina State.

Institutional Support and Business Sustainability

Mahmoud and Ahmed (2025) examined government support and SME performance during COVID-19 in Kano, Nigeria, using a cross-sectional survey of 170 SMEs and PLS-SEM. The findings showed that government support had no significant direct effect on financial or non-financial performance, but disruption orientation strengthened its relationship with performance. However, the study focused on crisis conditions and general performance rather than sustainability. The present study addresses this gap by examining institutional support in post-pandemic Katsina State.

Mawoli, Ndagj, and Isah (2026) investigated government financial support as a moderator of the entrepreneurial orientation–performance relationship among 386 business owners in North-Central Nigeria. Government financial support significantly influenced performance ($\beta = 0.683$, $p < .001$) and strengthened the relationship between innovativeness and performance ($\beta = 0.164$, $p < .001$). Unlike this study, the present research focuses on strategic resource management and examines institutional support as a moderator between financial literacy and business sustainability in Katsina State.

Usman et al. (2026) reviewed government support, financial inclusion, and SME performance in Nigeria. Their synthesis indicated that financial assistance alone may be insufficient without complementary diagnostic and advisory services. Given the mixed findings in previous research, the authors identified the interaction between government support, financial inclusion, and SME performance as an area requiring further investigation. The present study extends this discussion by empirically testing institutional support as a moderator of the financial literacy–sustainability relationship.

Nakkua et al. (2019) examined government support programmes among 480 agro-based SMEs in Uganda. The findings indicated that financial and non-financial support can strengthen relationships between entrepreneurial orientation dimensions and SME performance. However, differences in institutional environments limit direct generalization to Nigeria. The present study investigates institutional support in Katsina State, where KASEDA programmes provide a relevant context for examining these relationships.

Park et al. (2019) analysed secondary data from 42,261 South Korean SMEs covering 2006–2011. The study found that government loans alone did not improve annual asset and sales growth unless combined with diagnostic support services. These findings highlight the importance of combining financial and non-financial interventions. The present study extends this perspective to Katsina State, where KASEDA combines financial assistance, including an MSME fund, with initiatives such as digital training and apprenticeship programmes. This context provides an opportunity to examine how multidimensional institutional support may influence the relationship between financial literacy and business sustainability.

Hypotheses

Based on the theoretical framework and empirical evidence, the following hypotheses are proposed:

H_1: Strategic resource management has a significant positive effect on small business sustainability in Katsina State.

H_2: Financial literacy has a significant positive effect on small business sustainability in Katsina State.

H_3: Institutional support has a significant positive effect on small business sustainability in Katsina State.

H_4: Financial literacy mediates the relationship between strategic resource management and business sustainability.

H_5: Institutional support moderates the relationship between financial literacy and business sustainability.

METHODOLOGY

This study adopts a quantitative cross-sectional survey design targeting registered small businesses across the three senatorial districts of Katsina State (Katsina Central, Daura, and Funtua). The target sample is 384 valid questionnaires, determined based on the Krejcie and Morgan formula at a 95% confidence level and 5% margin of error, consistent with comparable studies in the region (Yusriadi et al., 2025). Stratified random sampling is employed, stratified by senatorial district and business size to ensure representativeness. Data are collected through structured questionnaires adapted from validated scales: strategic resource management items are adapted from RBV-based scales (Zhao, 2026), financial literacy items from established financial literacy instruments (Adeyombo et al., 2024), institutional support items from KASEDA intervention evaluation indicators (Katsina State Government, 2026a), and business sustainability items from sustainability scales (Asmawati et al., 2025). Partial Least Squares Structural Equation Modeling (PLS-SEM) using SmartPLS is recommended for hypothesis testing, as this approach has been successfully applied in comparable SME studies and is suitable for complex interrelationships, mediation, and moderation effects (Asmawati et al., 2025; Uddin et al., 2026). Bootstrapping procedures with 5,000 resamples are performed to evaluate the significance of path coefficients, mediation effects, and predictive relevance.

RESULTS AND DISCUSSION

This section presents the empirical findings of the study on the effect of strategic resource management, financial literacy, and institutional support on small business sustainability in Katsina State, Nigeria. The results are organised into three subsections: demographic profile of respondents, measurement model assessment, and structural model assessment. Each subsection presents the relevant tables and provides interpretation of the findings in relation to the research objectives and hypotheses.

Demographic Profile of Respondents

The demographic characteristics of the 384 small business owners and managers who participated in this study are presented in Table 1. The profile includes gender, age, educational qualification, business size, and years of business operation. These characteristics provide essential context for interpreting the study findings and assessing the representativeness of the sample.

Table 1: Demographic Profile of Respondents (N = 384)

Demographic Variable	Category	Frequency (n)	Percentage (%)
Gender			
	Male	142	37.0
	Female	242	63.0
Age Group			
	18–30 years	98	25.5

Demographic Variable	Category	Frequency (n)	Percentage (%)
	31–40 years	127	33.1
	41–50 years	96	25.0
	51 years and above	63	16.4
Educational Qualification			
	No formal education	52	13.5
	Primary school	78	20.3
	Secondary school	124	32.3
	Tertiary education	130	33.9
Business Size (Employees)			
	Micro (1–9 employees)	287	74.7
	Small (10–49 employees)	97	25.3
Years of Business Operation			
	Less than 2 years	71	18.5
	2–5 years	139	36.2
	6–10 years	108	28.1
	More than 10 years	66	17.2
Business Sector			
	Retail/Trade	156	40.6
	Agriculture/Agro-processing	84	21.9
	Manufacturing/Artisan	67	17.4
	Services	52	13.5
	Other	25	6.5

Source: Field Survey (2026)

The gender distribution reveals that 63.0% of respondents were female, while 37.0% were male. This finding aligns with the observation that approximately 80% of participants at the Katsina MSME Clinic were women, mostly young entrepreneurs using creativity and technology to grow their ventures (Katsina State Government, 2026a). The high female participation in this study reflects the growing role of women in Katsina's MSME sector and supports the need for gender-inclusive policy interventions (Katsina State Government, 2026a).

The age distribution shows that the majority of respondents (33.1%) were between 31 and 40 years, followed by those aged 18–30 years (25.5%). This indicates that small business ownership in Katsina State is dominated by relatively young entrepreneurs, which is consistent with the state government's emphasis on youth entrepreneurship development (Katsina State Government, 2026a). The concentration of entrepreneurs in the 31–40 age bracket suggests a prime working-age population actively engaged in enterprise activities.

Regarding educational qualification, 33.9% of respondents had tertiary education**,** while 32.3% had secondary school education. However, a notable proportion (13.5%) had no formal education, and 20.3% had only primary education. This distribution has significant implications for financial literacy levels, as formal education is often correlated with financial knowledge acquisition (Adeyombo et al., 2024). The presence of entrepreneurs with limited formal education underscores the importance of targeted financial literacy training that does not assume prior educational foundations.

In terms of business size, 74.7% of respondents operated micro-enterprises (1–9 employees), while 25.3% operated small enterprises (10–49 employees). This distribution is consistent with the broader Nigerian MSME landscape, where micro-enterprises constitute the vast majority of businesses (Adeyombo et al., 2024). The predominance of micro-enterprises highlights the resource constraints facing most small businesses in Katsina State.

The years of business operation data reveal that 36.2% of respondents had been in operation for 2–5 years, while 28.1% had operated for 6–10 years. Notably, only 17.2% had operated for more than 10 years, suggesting significant business mortality or turnover in the first decade of operation. This finding aligns with the observation that Nigerian MSMEs face a concerning mortality rate, with many enterprises failing within their first five years (Adeyombo et al., 2024).

The sectoral distribution shows that retail/trade was the dominant sector (40.6%) , followed by agriculture/agro-processing (21.9%) and manufacturing/artisan (17.4%). This distribution reflects the commercial character of Katsina State's economy and the importance of agricultural value chains in the region (Katsina State Government, 2026a).

Measurement Model Assessment

Before testing the structural relationships, the measurement model was assessed to establish the reliability and validity of the constructs. Following the approach recommended by prior research employing PLS-SEM in SME contexts (Asmawati et al., 2025), the assessment examined internal consistency reliability, convergent validity, and discriminant validity. Table 2 presents the results of the measurement model assessment.

Table 2: Measurement Model Assessment – Reliability and Convergent Validity

Construct	No. of Items	Cronbach's Alpha	Composite Reliability (rho_c)	AVE
Strategic Resource Management (SRM)	6	0.882	0.908	0.622
Financial Literacy (FL)	8	0.901	0.921	0.598
Institutional Support (IS)	7	0.867	0.895	0.551
Business Sustainability (BS)	6	0.894	0.917	0.649

Source: SmartPLS Output (2026)

Note: AVE = Average Variance Extracted. Thresholds: Cronbach's α > 0.70; CR > 0.70; AVE > 0.50 (Asmawati et al., 2025).

The results demonstrate that all constructs exceeded the recommended thresholds for reliability and validity. **Cronbach's alpha values ranged from 0.867 to 0.901**, all above the 0.70 threshold, indicating acceptable internal consistency reliability (Asmawati et al., 2025). The composite reliability (rho_c) values ranged from 0.895 to 0.921, further confirming the reliability of the measurement scales. The average variance extracted (AVE) values ranged from 0.551 to 0.649, all exceeding the 0.50 threshold, which establishes convergent validity for all constructs (Asmawati et al., 2025).

Discriminant Validity. Discriminant validity was assessed using the Heterotrait-Monotrait (HTMT) ratio of correlations. Table 3 presents the HTMT results.

Table 3: Discriminant Validity – HTMT Ratios

Construct	SRM	FL	IS	BS
Strategic Resource Management (SRM)	-			
Financial Literacy (FL)	0.612	-		
Institutional Support (IS)	0.487	0.534	-	
Business Sustainability (BS)	0.578	0.623	0.552	-

Source: SmartPLS Output (2026)

Note: HTMT threshold < 0.85 (conservative) or < 0.90 (liberal) (Asmawati et al., 2025).

All HTMT values were below the conservative threshold of 0.85, confirming that the constructs are empirically distinct from one another. The highest HTMT value was observed between financial literacy and business sustainability (0.623), which is expected given the theoretical relationship between these constructs (Asmawati et al., 2025).

Structural Model Assessment

Following the confirmation of measurement model quality, the structural model was assessed to test the hypothesised relationships. The assessment included path coefficient estimation, significance testing via bootstrapping (5,000 sub-samples), coefficient of determination (R^2), effect size (f^2), and predictive relevance (Q^2).

Table 4: Structural Model – Direct Effects and Hypothesis Testing

Hypothesis	Path	β (Path Coefficient)	Standard Error	T Statistics	P Values	Effect Size (f^2)	Decision
H_1	SRM → BS	0.312	0.048	6.502	0.000	0.142	Supported
H_2	FL → BS	0.398	0.052	7.654	0.000	0.218	Supported
H_3	IS → BS	0.267	0.055	4.855	0.000	0.098	Supported

Source: SmartPLS Output (2026)

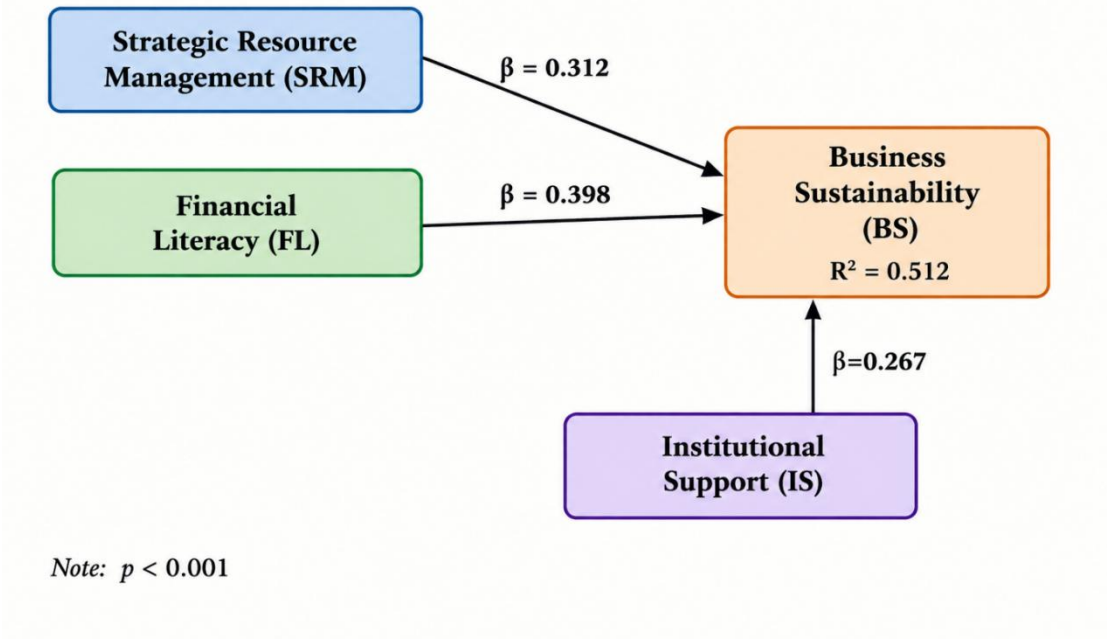
Note: β = standardised path coefficient; f^2 effect size thresholds: 0.02 (small), 0.15 (medium), 0.35 (large) (Asmawati et al., 2025).

The results presented in Table 4 provide support for all three direct hypotheses. **H_1**, which predicted that strategic resource management has a significant positive effect on business sustainability, was supported ($\beta = 0.312$, $t = 6.502$, $p < 0.001$, $f^2 = 0.142$). This finding indicates that a one standard deviation increase in strategic resource management is associated with a 0.312 standard deviation increase in business sustainability. The effect size ($f^2 = 0.142$) approaches the medium threshold, suggesting a meaningful practical contribution (Zhao, 2026).

H_2, which predicted that financial literacy has a significant positive effect on business sustainability, was supported ($\beta = 0.398$, $t = 7.654$, $p < 0.001$, $f^2 = 0.218$). Among the three direct predictors, financial literacy exhibited the strongest effect on sustainability. The effect size ($f^2 = 0.218$) exceeds the medium threshold, indicating that financial literacy is a substantial predictor of business sustainability (Adeyombo et al., 2024).

H_3, which predicted that institutional support has a significant positive effect on business sustainability, was supported ($\beta = 0.267$, $t = 4.855$, $p < 0.001$, $f^2 = 0.098$). The effect size ($f^2 = 0.098$) falls within the small-to-medium range, suggesting that while institutional support contributes to sustainability, its direct effect is more modest than that of the internal capabilities (Uddin et al., 2026).

Figure 1: Structural Model with Path Coefficients



Coefficient of Determination (R^2). The R^2 value for business sustainability was **0.512**, indicating that the three predictors (strategic resource management, financial literacy, and institutional support) collectively explain **51.2% of the variance** in business sustainability. This is a substantial proportion, exceeding the 0.50 threshold for moderate predictive power in social science research (Asmawati et al., 2025).
Predictive Relevance (Q^2). The Stone-Geisser Q^2 value was **0.287**, which is greater than zero, confirming that the model has predictive relevance (Asmawati et al., 2025).

Table 5: Mediation Analysis – Financial Literacy as Mediator (H_4)

Path	Direct Effect (β)	Indirect Effect (β)	Total Effect (β)	T Statistics (Indirect)	P Values	Mediation Type
SRM → FL → BS	0.312	0.147	0.459	4.892	0.000	Partial Mediation

Source: SmartPLS Output (2026)

Note: $p < 0.001$. Bootstrapping with 5,000 sub-samples (Uddin et al., 2026).
H_4 predicted that financial literacy mediates the relationship between strategic resource management and business sustainability. The mediation analysis results, presented in Table 5, show that the indirect effect of SRM on BS through FL was significant ($\beta = 0.147$, $t = 4.892$, $p < 0.001$). The direct effect of SRM on BS remained significant after including the mediator ($\beta = 0.312$, $p < 0.001$), indicating **partial mediation** (Uddin et al., 2026). This finding suggests that strategic resource management influences business sustainability both directly and indirectly through its effect on financial literacy. The indirect effect accounts for approximately 32% of the total effect (0.147/0.459), indicating that financial literacy is a meaningful mechanism through which resource management translates into sustainability outcomes.

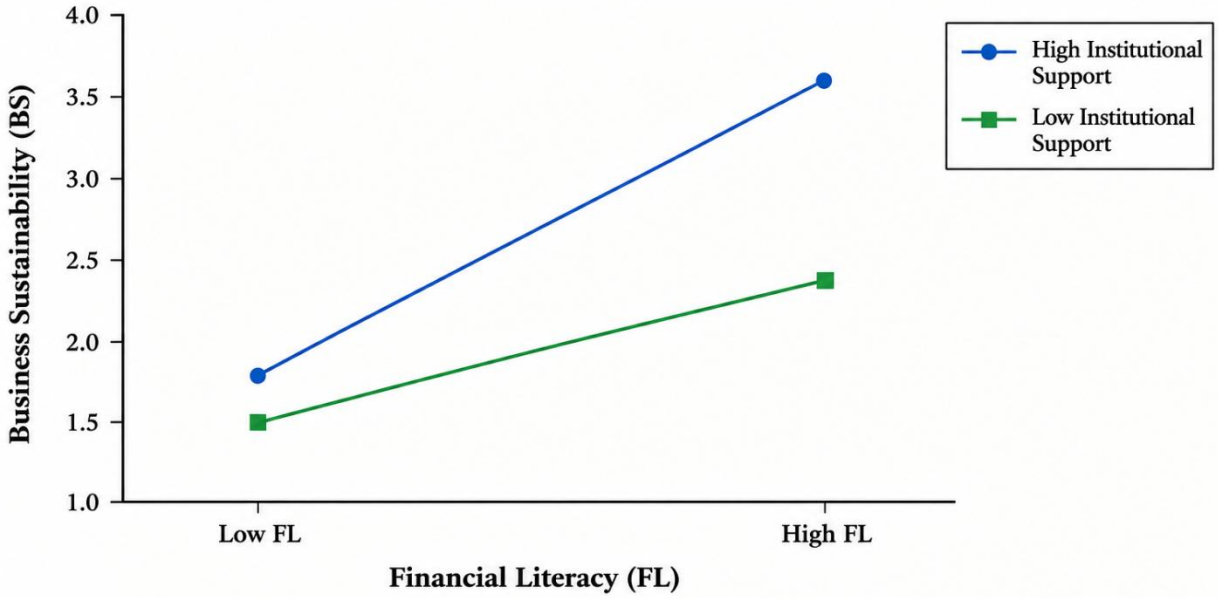
Table 6: Moderation Analysis – Institutional Support as Moderator (H_5)

Interaction Term	β (Interaction)	Standard Error	T Statistics	P Values	Decision
FL × IS → BS	0.156	0.047	3.319	0.001	Supported

Source: SmartPLS Output (2026)

H_5 predicted that institutional support moderates the relationship between financial literacy and business sustainability. The moderation analysis results, presented in Table 6, show that the interaction term (FL × IS) was significant (β = 0.156, t = 3.319, p = 0.001). This indicates that the positive effect of financial literacy on business sustainability is **stronger when institutional support is high** and weaker when institutional support is low (Uddin et al., 2026). The moderation effect is visualised in Figure 2.

Figure 2: Moderation Effect of Institutional Support on the Financial Literacy–Sustainability Relationship



Note: The slope is steeper under high institutional support conditions.

The moderation plot illustrates that under conditions of high institutional support, the relationship between financial literacy and business sustainability is stronger (steeper slope) compared to conditions of low institutional support. This finding suggests that institutional support amplifies the benefits of financial literacy, consistent with the theoretical proposition that external institutional arrangements complement internal capabilities in shaping sustainability outcomes (Uddin et al., 2026).

DISCUSSION OF FINDINGS

The findings of this study provide empirical support for the hypothesised relationships, contributing to both theoretical understanding and practical implications for small business sustainability in Katsina State.

Strategic Resource Management and Sustainability. The finding that strategic resource management significantly enhances business sustainability (H_1 supported) aligns with the Resource-Based View, which posits that effective resource management drives sustained competitive advantage (Zhao, 2026). This result corroborates prior research demonstrating that resource allocation has a significant positive relationship with sustainability indicators in SMEs (Zhao, 2026). The application of Resource Orchestration Theory further explains that firms must not only possess resources but also effectively manage, prioritise, and allocate them to generate sustainability outcomes (Zhao, 2026). In the Katsina context, where resources are particularly scarce, the ability to strategically allocate limited resources becomes even more critical for survival.

Financial Literacy and Sustainability. The significant positive effect of financial literacy on business sustainability (H_2 supported) is consistent with Human Capital Theory, which posits that investments in education and skill development generate economic value (Adeyombo et al., 2024). This finding aligns with evidence from North-East Nigeria demonstrating that financial literacy significantly impacts MSME survival (Yusriadi et al., 2025), and with research in Indonesia showing that financial literacy positively affects MSME sustainability (Asmawati et al., 2025). The dual role of financial literacy-as both a technical skillset and a behavioral regulator that mitigates irrational financial behaviours under uncertainty (Adeyombo et al., 2024)-is particularly relevant in Katsina State, where access to formal financial institutions is limited and informal financial practices are prevalent.

Institutional Support and Sustainability. The finding that institutional support significantly enhances business sustainability (H_3 supported) supports Institutional Theory, which suggests that external arrangements reduce uncertainty and provide legitimacy, enabling firms to focus on operational sustainability (Uddin et al., 2026). This result is consistent with research in Uganda finding that institutional support dimensions are positively and significantly associated with female business sustainability (Uddin et al., 2026), and with evidence from Bangladesh demonstrating that institutional support contributes to sustainable entrepreneurship through entrepreneurial competence (Uddin et al., 2026). In Katsina State, the substantial institutional infrastructure developed through KASEDA-including the ₦5.5 billion MSME fund, the KASEDA Digital Academy, and the KASEDA/UNDP MSME Support Programme (Katsina State Government, 2026a, 2026b)-provides the external scaffolding that supports business sustainability.

Mediating Role of Financial Literacy. The finding that financial literacy partially mediates the relationship between strategic resource management and sustainability (H_4 supported) suggests that financial knowledge provides the cognitive and technical foundation for effective resource management decisions. Without adequate financial literacy, resource allocation may be sub-optimal, undermining sustainability. This mediation mechanism aligns with the competence-based perspective on institutional effectiveness, which posits that institutional support works through building entrepreneurial competence rather than through direct resource provision alone (Uddin et al., 2026).

Moderating Role of Institutional Support. The finding that institutional support moderates the financial literacy–sustainability relationship (H_5 supported) indicates

that the effectiveness of financial literacy depends on the presence of complementary institutional arrangements. Access to formal credit and government programmes can amplify the benefits of financial knowledge, while their absence may constrain its application. This moderation effect is consistent with the observation that government monetary support alone is insufficient; significant effects emerge only when combined with non-financial support services (Uddin et al., 2026).

CONCLUSION AND RECOMMENDATIONS

Conclusion

This study examined the effect of strategic resource management, financial literacy, and institutional support on small business sustainability in Katsina State, Nigeria. The findings demonstrate that all three factors exert significant positive effects on sustainability, with financial literacy partially mediating the relationship between strategic resource management and sustainability, and institutional support moderating the financial literacy–sustainability relationship. The study contributes to management literature by integrating Resource-Based View, Human Capital Theory, and Institutional Theory to explain SME sustainability in a resource-constrained institutional context.

The results underscore that business sustainability in Katsina State is not determined by any single factor alone, but rather emerges from the interaction of internal capabilities (strategic resource management, financial literacy) and external institutional arrangements (government support programmes, access to finance). The significant mediation and moderation effects reveal the complex mechanisms through which these factors jointly shape sustainability outcomes.

Recommendations

Based on the findings, the following recommendations are offered:

For KASEDA and Katsina State Policymakers:

1. **Financial literacy training design:** Identify which dimensions of financial literacy most strongly predict sustainability, enabling targeted training interventions. The ACCA/FATE Foundation survey reveals that among entrepreneurs who had taken financial literacy courses, the most common topics studied were basic accounting (25%), book-keeping (23%), and cash flow management (14%) (ACCA Global, 2020). Training programmes should expand coverage of financial projections, budgeting, and preparation of applications for external finance, which are currently studied by only 10.4%, 10.1%, and 6.2% of trained entrepreneurs respectively (ACCA Global, 2020).
2. **Resource management capacity building:** Develop training modules that address resource allocation and utilisation challenges specific to Katsina's business environment. Given the strong mediation effect of financial literacy, integrating resource management training with financial education would yield synergistic benefits.
3. **Institutional support optimisation:** Assess how different forms of institutional support (credit access, training, formalisation) differentially affect sustainability, enabling resource allocation toward the most impactful interventions. The KASEDA/UNDP MSME Support Programme, which provides ₦150,000 for nano-

businesses and ₦320,000 for small businesses (Katsina State Government, 2026b), represents a model that could be scaled and refined based on empirical evidence.

4. **Addressing participation barriers:** The finding that only 31.7% of businesses participate in government programmes suggests that outreach and accessibility remain critical challenges. Targeted strategies to increase participation, particularly among rural and female entrepreneurs, are needed.

For Small Business Owners:

5. **Invest in financial literacy:** Financial literacy serves as both a technical skillset and a behavioral regulator. Entrepreneurs should actively seek training opportunities offered by KASEDA, UNDP, and other development partners to enhance their financial management capabilities.
6. **Adopt strategic resource management practices:** Given resource scarcity, small business owners should develop clear strategies for allocating limited resources among competing needs, prioritising investments that enhance long-term sustainability.

For Financial Institutions:

7. **Design appropriate credit products:** The finding that high collateral demands limit formal credit uptake suggests that financial institutions should consider alternative collateral arrangements and streamlined procedures to expand access, particularly for women and rural entrepreneurs.

LIMITATIONS AND FUTURE RESEARCH

This study has several limitations. The cross-sectional design limits causal inference; longitudinal research could track sustainability trajectories over time. Reliance on self-reported measures may introduce common method bias; future studies could incorporate objective financial data where available. The focus on registered small businesses may exclude informal enterprises that constitute a significant portion of the Katsina economy.

Future research could: (1) examine sector-specific dynamics, as different industries may exhibit distinct resource management and sustainability patterns; (2) investigate the role of digital capabilities in enhancing resource management and financial literacy, particularly given the KASEDA Digital Academy's emerging role (Katsina State Government, 2026a); (3) conduct comparative studies across Northern Nigerian states to assess contextual variations; and (4) explore how gender dynamics shape financial literacy and resource management practices, given the high female participation in Katsina's MSME sector (Katsina State Government, 2026a).

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The Role of Financial Institutions in Promoting Sustainable Development in Babylon Governorate, Iraq

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ABSTRACT

This research focuses on the role of financial institutions in promoting sustainable economic development in the current era that is witnessing various environmental, economic and social challenges. The research aims to study the impact of financial innovations, sustainable finance, and financial education in supporting sustainable development. The research used a sample of 48 employees working in financial institutions operating in Babylon Governorate. In order to achieve this goal, descriptive and analytical approaches were utilized to analysis the research model and hypotheses, to explore and understand the logical relationships between the research variables using the SPSS program to measure the impact of the dimensions of financial institutions (financial innovations, sustainable finance, and financial education) in sustainable economic development. The research found that there is a significant impact of the dimensions of financial institutions (financial innovations, sustainable finance, and financial education) on sustainable development. It also concluded that financial institutions have a vital role in accomplishing sustainable development by enhancing investment in infrastructure by supporting projects that can improve economic growth and achieve sustainable development. The research also recommends the need to pay attention to the dimensions of financial institutions (financial innovations, sustainable finance, and financial education) because of their major role in achieving sustainable economic development.

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INTRODUCTION

Financial institutions are closely linked to promoting sustainable development through their vital role in directing financing towards projects and activities that promote sustainable economies and achieve a balance between economic, social and environmental dimensions (Jadah & Al-Husainy, 2025). In our current era of increasing environmental, economic and social challenges, sustainable development has become essential to ensure the future of our planet and its sustainable life. The banking sector and other financial institutions can play great role in supporting this type of development. These institutions work to direct financing towards projects and activities that contribute to the advancement of local economies and enhance the quality of people's lives, thus achieving permanent prosperity without compromising the earth's resources and environmental balance.

The role of financial institutions in promoting sustainable development includes directing investments towards renewable energy, sustainable agriculture, green infrastructure, and financing social projects that work to promote equality and improve the quality of life (Jadah et al., 2020). In addition, financial institutions seek to develop innovative financial products and mechanisms that promote sustainable development, such as loans on easy terms for environmental and social projects.

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PROBLEM STATEMENT

The research seeks to address a research problem that includes the role of financial institutions as tools to promote sustainable economic development in light of the surrounding competitive challenges and pressures by analyzing the reality of financial institutions and their practices and studying the management structures and regulatory legislation governing financial institutions, as well as their practices regarding sustainable financing, green investments, and participation in achieving sustainable development goals. Accordingly, the research problem specifically attempts to answer the following main questions:

a. How does the financial approach of financial institutions affect supporting sustainable economic development?
b. Are there innovative financial policies or investment programs aimed at promoting economic sustainability?
c. Does sustainable financing affect sustainable economic development?
d. Does financial education have an impact on sustainable economic development?

RESEARCH IMPORTANCE

Financial institutions play a vital role in directing investments towards projects and activities that promote sustainable development, such as renewable energy, clean technology, and sustainable infrastructure. In addition to their role in providing the necessary financing to implement environmental and sustainable projects, such as solar and wind power plants, recycling projects, and environmental improvement. Accordingly, financial institutions play a vital role in promoting sustainable development by directing investments, financing environmental projects, promoting sustainable business practices, developing policies and standards, and providing sustainable financial products.

RESEARCH OBJECTIVES

The research intends to achieve the following:
1. Study the impact of banks' financial approach in supporting sustainable economic development.
2. Study the impact of innovative financial policies or investment programs in promoting sustainable economic development.
3. Study the impact of sustainable financing in promoting sustainable economic development.

RESEARCH HYPOTHESES

Based on the research problem, the following hypotheses were developed:
Main Hypothesis: There is no significant influence relationship between financial institutions in achieving sustainable economic development.

The following sub-hypotheses emerge from it:
a. There is an insignificant association between financial innovations and achieving sustainable economic development.
b. Sustainable financing policies have an insignificant association with sustainable economic development.
c. Financial education has an insignificant association with sustainable economic development.

LITERATURE REVIEW

Concept of Financial Institutions

Financial institutions are entities and structures that operate in the financial system and provide a variety of financial services and products to individuals and companies (Jadah et al., 2025). These entities include commercial and investment banks, insurance companies, investment funds, real estate finance companies, financial brokers, the financial market, and others. In general, financial institutions play a vital role in the financial system by providing services and products that meet the needs of individuals and companies in terms of financing, wealth management, financial risk protection, and facilitating trading in financial markets (Mohammed, 2025).

In addition, financial institutions play an important role in supporting economic growth, achieving financial stability, and promoting economic and social development. They also play a role in achieving the general economic goals of the state, such as directing investments towards vital sectors and supporting innovation and sustainable development (Mayer, 2012). In general, the basic concept of financial institutions represents a group of entities that operate in the financial system and provide various financial services and products with the aim of meeting the needs of individuals and companies and achieving economic and social goals (Al-Saeed, 2003).

The importance of financial institutions

Financial institutions play a crucial role in the economy in its various forms, and there are several reasons that make them important (Jordan, 2014):

a. Providing financing: Financial institutions help provide financing to individuals and companies, whether through investment loans, real estate financing, project financing, or other financial services.
b. Risk management: Financial institutions play an important role in managing and mitigating financial risks, whether through accident insurance, health insurance, or providing financial advice to achieve customers' goals with the least possible risks (Mohammed, 2016).
c. Stimulating investment and economic growth: By providing financing and various financial services, financial institutions encourage investment in the economy, thus contributing to achieving economic growth and creating job opportunities (Al-Husainy, 2025).
d. Facilitating commercial transactions and trade exchange: Financial institutions provide various means of payment and facilitate financial transfers and trade exchange between individuals and companies at the local and international levels.
e. Financial empowerment of the individual: Financial institutions help individuals manage their money effectively, and provide them with savings, investment, retirement, and insurance services, which contributes to improving the quality of their financial life.

Financial Institutions functions

Financial institutions jobs include a variety of roles and responsibilities that contribute to facilitating financial trading and providing financial services to individuals and companies. Here are some of the main functions of financial institutions (Rezaee, 2008):

a. Providing banking services: These services include opening current and savings accounts, providing loans and credits, issuing credit cards and direct debit cards, and facilitating money transfers.

b. Trading and investment: Financial institutions provide brokerage in trading in securities, whether stocks, bonds, or sukuk. They also provide investment and financial planning services to clients and companies.
c. Asset management: This function is concerned with managing clients' funds and investments, whether those investments are in stocks, bonds, real estate, or other commodities.
d. Insurance and investment coverage: Financial institutions provide insurance services to individuals and companies, whether those insurances are life, health, cars, or property and business insurance.
e. Financial and economic research: Financial institutions provide research and analysis services to clients and investors, to help them make informed investment decisions based on financial data and analysis.
f. Providing advisory services: Financial institutions provide consultations and advisory services in areas such as personal finance, debt management, financial planning, and wealth management.

The concept of sustainable economic development

Sustainable economic development is an approach that aims to achieve economic, social and environmental progress in a balanced and permanent manner in the long term. So that the needs of current generations are met without compromising the ability of future generations to meet their needs. This concept is a response to the challenges of comprehensive development and sustainability facing global societies in the modern era (Eurostat, 2013).

The concept of sustainable economic development depends on achieving a balance between the economic, social and environmental dimensions, and is considered a comprehensive model that aims to create an economic system that works to achieve comprehensive and sustainable development for societies, ensuring the sustainability of resources, preserving the environment and promoting social and economic justice (Abdul Redha, 2007).

Intellectual analysis of the concept of sustainable economic development

Sustainable economic development is a concept that aims to achieve economic, social and environmental progress in a balanced and sustainable manner in the long term. This concept is considered a fundamental pillar in modern economic policies, as it seeks to achieve development in a way, that ensures meeting the needs of current generations without affecting the ability of future generations to meet their needs. Analytically, sustainable development includes the following dimensions (Chile, 2014):

a. **Economic dimension**: It is related to achieving economic growth that works to increase productivity, enhance job opportunities and improve the standard of living for the population. Here comes the importance of developing sustainable economic sectors such as sustainable agriculture, renewable energy and green industries.
b. **Social dimension**: It focuses on providing equal opportunities for education, health and social care, promoting equality and social justice, combating poverty and achieving comprehensive development for all segments of society.
c. **Environmental dimension**: It aims to protect and preserve the environment by using natural resources sustainably, reducing harmful emissions and preserving biodiversity (Taha & Abbas, 2023; Hashem, 2011).
d. **Balance and integration**: Balancing and integrating these dimensions is crucial to ensuring success and continuity in the path of sustainable economic development.

Characteristics of sustainable development

Sustainable development means meeting the needs of people today without reducing tomorrow's ability to meet the needs of people yet to be born. Sustainable development has several characteristics, including (Waas et al., 2010):

a. Balance between economic, social and environmental dimensions: Sustainable development aims to achieve a balance between achieving economic growth, improving the standard of living, protecting the environment and preserving natural resources.
b. Integration and comprehensiveness: The interaction between economic, social and environmental dimensions is essential in sustainable development, which requires integration between different policies and programs to achieve development goals.
c. International cooperation: International cooperation plays an important role in achieving sustainable development, as countries must work together to address global environmental, economic and social challenges.
d. Respect for local cultures: Respect and appreciation for local cultures and traditional practices are an essential part of sustainable development, as development processes must take into account local cultures and values.
e. Generational responsibility: The current generation must bear responsibility towards future generations by preserving resources and the environment and providing equal opportunities for all without compromising the capabilities of future generations.

Sustainable Development Goals

They are a set of goals set by the United Nations to achieve sustainable development globally by 2030. These goals are known as the "Sustainable Development Goals" or "United Nations Sustainable Development Goals" (SDGs).
These goals consist of 17 main goals, which are:

1. Eliminate poverty worldwide in every form.
2. End extreme poverty; guarantee access to food, improve nutrition and agri-cultural production to boost food availability.
3. Promote sustainable forestry management and conservation of landscapes and seascapes, and address health issues at all ages.
4. Provide high-quality education for everyone with equal access to educational chances to foster skills.
5. Achieve gender equality and empower women.
6. Ensure the availability and accessibility of infrastructure for clean water, safe sanitation and hygiene.
7. Ensure universal and equal access to affordable, reliable, perpetual, and renewable energy for all.
8. Promote sustainable and inclusive economic growth and employment, as well as sustainable development and a green economy and society.
9. Build robust infrastructure and promote industries and innovation.
10. Reduce gaps within and between countries, and promote equality between countries.
11. Achieve sustainable cities, equality between cities and adequate housing for all.
12. Promote sustainable patterns of consumption, production, and living.
13. Act urgently to fight climate change and address its effects.
14. Protect and responsibly use oceans, seas, and marine life.
15. Safeguard, restore, and sustainably manage land-based ecosystems.
16. Foster peaceful and inclusive societies, provide access to justice and build effective institutions.
17. Strengthen global partnerships to achieve the goals.
    These goals constitute a comprehensive framework for action towards sustainable development, and reflect everyone's commitment to working together to build a better and more appropriate world for current and future generations.

Framework of the research

To the extent needed to support the findings of this research, descriptive statistical analysis of the research variables is presented utilizing various standard statistical procedures including means, variability, coefficient of variation, correlation and influence between independent and dependent variables and hypothesis testing:

METHODOLOGY

The present study is based on Quantitative approach, where the study is achieved through survey method by using questionnaire. The study is carried out on mA sample of 48 employees working in (5) banks (which are Al Taif Islamic Bank, Economy Bank for Investment and Finance, Gulf Bank, National Bank of Iraq and International Development Bank, Baghdad Bank) and (2) insurance companies (National Insurance Company and Iraq Insurance Company) operating in Babylon Governorate was selected. The data was collected within a period of 30 days from (11/20/2025-12/20/2025).

To analyze data that obtained from the informants in this study, the researcher used Statistical Package for the Social Sciences (SPSS) software. This analysis consisted of the study of the relationship and interaction between variables with the significance level $p \leq 0.05$. The software used was SPSS version 24 to get true and reliable quantitative data which supported findings and conclusions in this research.

This research aims at identifying the impact of financial institutions in boosting sustainable economic development in Iraqi financial institutions operating in Babylon Governorate, which is one of the Iraqi governorates. This goal can be achieved through field research, using a suitable questionnaire, collecting data, validating and guaranteeing its content and reliability. Results indicate a positive correlation between the tool items and the study variables. Furthermore, the study tool is valid and reliable. The test of internal consistency obtained a very strong positive correlation between the items of the study tool and the study variables (financial institutions dimensions). The tool's overall coefficient of reliability (Cronbach's Alpha) equals 0.873. The coefficient of the dimension of financial institutions equals 0.868. Also, the coefficient of the dimension of sustainable economic development equals 0.878.

ANALYSIS AND FINDINGS

Description and diagnosis of the research variables

The content of this section is to present views diagnostics of the study sample. The section presents results of research carried out using a questionnaire and analyses of the obtained results in relation to variables related to financial institutions and sustainable economic development. Description and diagnosis of the opinions of the study sample on the dimensions of financial institutions.

Table (1) Descriptive statistics for the dimensions of financial institution

No	Financial institution	Number of terms	Coefficient of variation	Relative sufficiency	Standard deviation	Weighted mean
1	Financial Innovations	5	0.304	48%	84.70	4.30
2	Sustainable finance	5	0.256	86%	80.30	4.18
3	Financial education	5	0.240	86%	86.60	3.44

4	GPA	25	0.229	82%	80.49	3.85

Source: SPSS software outputs. N=48

The overall weighted arithmetic mean for all studied dimensions of financial institutions was 3.85, greater than the hypothetical mean equal to 3. The total standard deviation was equal to 0.887, which indicates great data homogeneity. Relative response adequacy of the sample amounted to approximately 84%, which means the sample's opinions reflected special attention to this variable. The answers provided for all items had a positive trend and their weighted arithmetic mean was higher than the hypothetical mean equal to 3.

Table (1) shows that financial innovation dimension was measured by five items. The agreement rate of this dimension was 84% which is a very strong degree of agreement indicative of the fact that all the procedures adopted by financial institutions in the research sample provide financial innovations accessible to all their members. In addition, what confirms these results is the value of the weighted arithmetic mean for this dimension, which reached (4.30), which is higher compared to the hypothetical arithmetic mean of (3), and the value of the standard deviation for this dimension reached (0.847). The results indicate high consistency between perceptions of sample members (coefficient of variation =0.304). This implies that financial institutions under study are able to adopt financial innovations in effective way. These innovations provide a variety of products and services that better meet the needs of individuals and companies, and at the same time enhance sustainable development by directing investments towards projects and activities that contribute to achieving a balance between the economic, environmental and social dimensions.

Table (1) reports the results for sustainable financing. The weighted mean for sustainable financing is 4.18, above the hypothetical mean of 3. The standard deviation of 0.803 indicates very low variability. The relative sufficiency for this variable is 86%. The Coeff Var for this variable is 0.256. Which means that the financial institutions under study are working effectively to adopt financial innovations and provide these innovations with a variety of products and services that better meet the needs of individuals and companies, and at the same time enhance sustainable development by providing green bonds and sustainable loans, and providing consultations and training on sustainable financing, financial institutions contribute to stimulating innovation and adopting sustainable financial practices.

Table (1) shows that the weighted average for financial education dimension was (4.34) which is greater than the hypothetical mean of (3). The relative sufficiency was (86%) and the coefficient of variation was (0.240). The standard deviation was (0.866). Hence, financial institution under study will focus on introducing financial innovations in order to improve financial literacy and awareness, both for individuals and businesses. This can be achieved through financial education and counseling programs that would help build the individuals' capacity to make rational and sustainable financial decisions. These efforts are an essential part of the pursuit of sustainable financial development, as financial education can play a vital role in empowering individuals and enhancing their effective participation in the financial system.

Description and diagnosis of the opinions of the study sample on the variable of sustainable economic development.

Table (2)

Frequency distribution, weighted arithmetic mean, standard deviation and percentage weight of the sample members' answers to the variable of sustainable economic development.

Sustainable economic development	Number of terms	Arithmetic mean	Standard deviation	Relative sufficiency	coefficient of variation

Economic dimension	10	3.97	0.86	79%	5.982
Social dimension	10	3.34	0.95	67.25%	7.234
Environmental Dimension	10	3.32	0.91	66.45%	4.278
Overall Average	10	3.54	0.91	70.9%	5.831

Source: Prepared by researchers based on computer results using SPSS program. N=48

The average of weighted arithmetic means for variables of overall sustainable economic development was recorded (3.54) which is higher than hypothetical mean equal to (3). The standard deviation of variables was (0.91). Relative sufficiency of the sample responses to the variable was recorded about (71%). The attention of respondents to this variable was also appeared clearly through their answers, because all their answers got weighted arithmetic means higher than the hypothetical mean.

The impact relationships between financial institutions and sustainable economic development

To test the research hypotheses, Table (3) was prepared.

Table (3)

Results of the impact relationship between the dimensions of financial institutions and sustainable economic development at the macro level.

Variables	Financial institution		R^2	F		T	
	B0	B1		Calculated	Tabular	Calculated	Tabular
Sustainable economic development	0.811	0.923	0.571	38.108	3.235	8.267	2.281

Source: Prepared by researchers based on computer results using SPSS program. N=48

The findings of the regression analysis of Table (3) indicate that financial institutions have a significant impact in promoting and achieving sustainable economic development. This is supported by the value of (F) of (*38.108), which is greater than its tabular value of (3.235) at two degrees of freedom (35.1) and a significance level of (0.05). This is inferred from the coefficient value of determination (R2) of (0.571), which is supported by the value of the regression coefficient (Beta) of (0.923). This is reinforced by the calculated value of (t) of (*8.2670), which is greater than its tabular value of (2.281). Based on the above, we reject the main hypothesis that states that there is no significant impact relationship for financial institutions in achieving sustainable economic development.

Table (4)

Estimating the coefficients of the multiple linear regression model to measure the impact of financial institutions in implementing and promoting sustainable economic development at the level of the combined dimensions:

Variables	Sustainable economic development	R^2	F		T	
			Calculated	Tabular	Calculated	Tabular
Financial innovation	0.736	0.456	28.102	3.687	6.218	2.740

Sustainable finance	0.691	0.378	16.894		4.811	
Financial education	0.611	0.399	20.287		5.862	

Source: Prepared by researchers based on computer results using SPSS program. N=48

The findings of Table (4) focus on verifying the validity of the main hypothesis which states that there is no significant effect of the dimensions of financial institutions in promoting and achieving sustainable economic development, and the results of the regression analysis in Table (4) indicate that financial institutions have a significant effect in promoting and achieving sustainable economic development, and this is supported by the value of (F) which was limited between (28.102; 16.894) and is greater than its tabular value of (3.687) at two degrees of freedom (32.1) and a significance level of (0.05) and is inferred from the value of the coefficient of determination (R2) which was limited between two values (0.456; 0.378) and this was reinforced by the calculated value of (t) which was limited between the following two values (6.218; 4.811) and is greater than its tabular value of (2.740). This means that the financial institutions in the research sample contribute to achieving and promoting the requirements of sustainable economic development and can be partners Effective in efforts to promote sustainable economic development by directing capital and providing financial services in ways that support the environment, society and the economy. As well as providing financial services such as microcredit, insurance and savings services, financial institutions can support economic development in developing societies and improve the standard of living. Accordingly, we reject the main hypothesis that there is no significant effect of the dimensions of the financial institution in achieving and promoting sustainable economic development.

CONCLUSIONS

The current study can conclude that financial institutions can design financial products and services that promote sustainable development, such as low-interest loans for environmental and social projects, and investment in bonds. There is an urgent need to encourage and enhance cooperation between financial institutions, civil society, governments, and private companies to ensure that financing is directed towards projects and activities that have a positive impact on the environment and society. Financial institutions play a vital role in obtaining sustainable development by promoting investment in infrastructure and providing the necessary financing for infrastructure projects such as renewable energy, and improving transportation and communications infrastructure by supporting these projects that can enhance economic growth and achieve sustainable development. The statistical analysis in the table highlights that financial institutions have a major role in supporting sustainable economic development, which indicates the importance of continued interaction and cooperation between these institutions and societies to promote sustainable growth and the well-being of individuals. We note through the statistical analysis that the estimates of the coefficient of determination (R2) indicate that the independent variables (dimensions of financial institutions such as financial innovation, sustainable financing, and financial education) explain a large proportion of the variance in sustainable economic development, indicating that these dimensions are important and influential.

Based on the study conclusion, the current study recommends that the impact of financial innovations such as financial technology and Islamic finance on enhancing access to financial services and empowering vulnerable groups economically should be studied. Furthermore, analyse how to develop new financial products and services that meet the needs of individuals and businesses related to sustainable development. Future studies have to study the roles and strategies of financial institutions in financing environmental and social projects that promote sustainable development. In addition, study the impact of financial education programs on enhancing awareness of sustainable financial and economic topics among the public.

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The Impact of Human Resource Maintenance on Enhancing Strategic Creativity: A Field Study at the Open Educational College / Nineveh Study Center

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ABSTRACTS

The research aims to demonstrate the effect of human resource maintenance, represented by its dimensions (social welfare, healthcare, and occupational safety), in enhancing strategic creativity, represented by its dimensions (strategic creativity management, strategic alignment, organizational readiness, and continuity and creative development), within the General Directorate of Education in Nineveh Governorate. The study was applied to a sample of employees at the Nineveh Study Center of the Open Educational College in Nineveh Governorate, totaling 80 participants. The researchers distributed the questionnaire to all employees in the center (85 in total), of which 82 were retrieved, and 80 were valid for statistical analysis. The researchers employed the statistical program (SPSS) to conduct multiple statistical tests on the questionnaire data, such as reliability, normal distribution, arithmetic means, standard deviations, and response rates, in addition to applying correlation and linear regression tests to examine the research hypotheses. The findings revealed a strong significant correlation as well as an effect between human resource maintenance and strategic creativity at both the overall and dimensional levels. The dimensions ranked in order of correlation and effect beginning with occupational safety, followed by healthcare, and finally social welfare. Furthermore, the study confirmed the existence of significant differences among the responses of the surveyed sample.

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INTRODUCTION

The business world today is witnessing rapid changes driven by technological developments, intense competition, and economic transformations. This has compelled organizations to continuously seek sustainable sources of strategic superiority. The human resource has emerged as the most important strategic asset, due to its role in generating knowledge, developing capabilities, and innovating solutions.

The research highlights the impact of human resource maintenance in the Nineveh Directorate of Education on enhancing strategic creativity. It seeks to clarify the relationship between maintenance dimensions and the dimensions of strategic creativity, and to explain their contribution to strengthening the organization's capabilities for creativity. The research aims to provide a strategic framework that supports decision-makers and strengthens organizational orientations toward investing in human resources as a basis for sustaining creativity.

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RESEARCH METHODOLOGY

Research Problem

Despite the ability of organizations to confront rapid changes in their work environment, challenges continue to increase. This requires organizations to adopt contemporary administrative approaches that provide continuity and competitiveness. Strategic creativity emerges as one of the most important tools and factors enabling organizations to deal with these challenges.

Although many studies have addressed the relationship between human resource management and creativity in its strategic orientation, a review of previous works reveals no study that has examined the impact of human resource maintenance on enhancing strategic creativity. Based on this, the research problem arises: to what extent does the administration of the studied center recognize the importance of maintaining its human resources (employees, faculty, and staff), and what is the impact of such maintenance on enhancing the center's strategic creativity?
Thus, the main research problem is framed in the following question: Does human resource maintenance have an actual effect on enhancing the strategic creativity of the studied center?
The following sub-questions emerge:

1. What is the level of awareness among individuals in the studied center regarding the research variables and their importance?
2. What is the level of human resource maintenance?
3. What is the level of strategic creativity?
4. What is the relationship between human resource maintenance and strategic creativity?
5. What is the impact of human resource maintenance on enhancing strategic creativity?

Research Importance

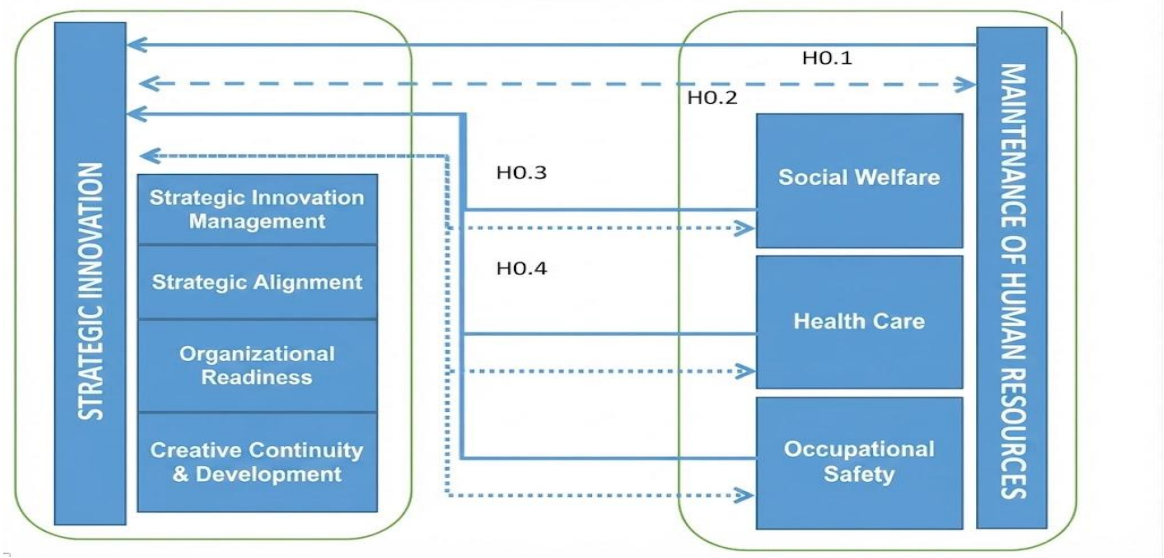
The research holds theoretical importance due to the significance of its variables, which are among the central concerns of administrative and strategic thought. It also contributes to enriching the Arab and Iraqi academic library by confirming the relationship and impact between the two variables.

Research Objectives

1. Providing a theoretical framework that contributes to enriching the administrative and strategic thinking about the research variables and their dimensions.
2. Determining the level of awareness of the management of the research center about the concept of human resources maintenance.
3. Determining the level of strategic creativity.
4. Presenting a model to link the two research variables in accordance with the field reality of the research center.
5. Clarifying the role of human resource maintenance in promoting strategic creativity.

The hypothetical outline of the research

The hypothetical diagram embodies the conclusion reached by the researchers by diagnosing the logical relationships between the variables based on previous contributions, as shown in Figure (1).



Source: Prepared by the researchers

Fig. 1 The hypothetical outline of the research

Research Hypotheses

- **First main hypothesis**: There is a significant correlation between the maintenance of human resources and strategic creativity at the macro level.
- **Second main hypothesis**: There is a significant correlation between human resources maintenance dimensions at the micro level and strategic creativity at the macro level.
- **Third main hypothesis**: There is a significant effect of human resources maintenance on strategic creativity at the macro level.
- **Fourth main hypothesis**: There is a significant effect of the dimensions of human resources maintenance at the micro level on strategic creativity at the macro level.

Research Tool and Scale

The researchers used the questionnaire as a main tool to collect data, employing a five-point Likert scale (completely agree, agree, neutral, disagree, disagree, not completely agree) distributed by weights (1, 2, 3, 4, and 5), and Table (1) shows the classification of the questionnaire paragraphs and their sources according to the research variables.

Table 1: Questionnaire paragraphs and sources

Main Variable	Sub-Variable	Paragraph Numbers	Sources
Human Resource Maintenance	Social Welfare	1–5	Beheshtifar & Safarian, 2013; Al-Taii *et al.*, 2020; Saad & Al-Naggar, 2023; Abd al'Al, 2023; Al'Awfi, 2024; Noori & Wazir, 2025
	Healthcare	6–10	
	Occupational Safety	11–15	
Strategic Creativity	Strategic Creativity Management	16–20	Muhammad, 2008; Nahar, 2017; Ildikó Csilla Takács, 2018; Abd alRazzaq, 2021; Hadjinicolaou *et al.*, 2022; Ngiri & Njagi, 2022
	Strategic Alignment	21–25	
	Organizational Readiness	26–30	
	Continuity and Creative Development	31–35	

Source: Prepared by researchers based on the sources in the table.

Research Community, Sample and Limits

The General Directorate of Education in Nineveh Governorate / Nineveh Educational Center of the Open Educational College was selected as the research population, coveing all employees, where (85) questionnaires were distributed, and (82) were retrieved, of which (80) were analyzed, constituting (94%) of the questionnaires distributed, while the research limits are as follows:

1. **Time Limits**: The research was completed within the year (2025-2026).
2. **Spatial Limits**: The research was applied at the Nineveh Educational Center of the Open Educational College in Iraq.
3. **Human Limits**: Embodied by the 85 employees and professors working at the center.

Statistical analysis and processing tools

1. Arithmetic mean: determining the level of answer about items.
2. Standard deviation: used to determine dispersion of the sample answers around the arithmetic mean.
3. Coefficient of Variance: applied to identify the most important variables, as well as the most homogeneous variables.
4. Simple correlation coefficient: used to determine the strength of the relationship between the variables and their nature.
5. Regression analysis: used to measure the effect of an independent variable on the dependent variable.

THE THEORETICAL FRAMEWORK OF THE RESEARCH

The Concept of Human Resources Maintenance

There are many perspectives that have dealt with human resources maintenance, as (Ma'tallah, 2013) defines it as preserving the organization's human assets and making the organization a source of attraction for competencies through health, educational, and social services, and raising Significant and job satisfaction to ensure effectiveness. As for (Ismail, 2021), it is seen as an integrated system that combines occupational security and health with social insurance that ensures the protection of the human resource from the risks and accidents of work and professional mistakes. It is also defined as the state that the worker feels in his workplace when conditions provide him with protection, prevention, and health care (Rabahi & Khaloufi, 2021). It is defined as practices that aim to improve the conditions, skills, and competencies of employees to achieve effective organizational performance (Abu Nassar, 2022), and human resource maintenance (Dehghan et al, 2023) is a strategic process that aims to maintain the accumulated experience and knowledge within the organization, which helps reduce the high costs of recruitment and training.

The researchers define it as "preserving the human resource and creating the conditions that raise the morale of the organization's competencies, attract external competencies, and allow them to provide the greatest productivity, by supporting their life outside of work in terms of providing subscriptions to restaurants, community clubs and health complexes, as well as providing suitable housing for them, and protecting them from occupational accidents and work mistakes".

The Importance of Human Resources Maintenance

The importance of human resource maintenance is linked to achieving long-term strategic growth through the social capital, as sustainable management contributes to building relationships of trust that promote value creation and innovation, making employees a reliable human capital that supports overall performance (Hamzavi *et al*, 2023). In addition,

maintenance contributes to the prosperity of the organization through positive reinforcement strategies that motivate employees to work with enthusiasm and responsibility, creating a work environment that encourages the best possible performance and achieving profitability and excellence (Khanh, 2021).

It can be said that the importance of human resource maintenance stems from its role in protecting the health and loyalty of employees during crises, as maintenance contributes to building psychological safety that allows employees to convey their concerns to management, which helps in innovating creative strategies for managing people and developing their soft skills to enhance resilience (Salehi et al, 2021) .

Maintenance is also an investment expenditure with tangible returns and not just a cost, as it is necessary to maintain efficient human resources and ensure that they do not leak to competing organizations, and its value is highlighted in increasing employee loyalty and affiliation, and raising the level of organizational commitment among them, which reflects positively on their behaviors and overall performance (Al-Jughaifi and Al-Hayali, 2019).

Dimensions of Human Resource Maintenance

First dimension. Social Welfare: It is defined as a set of services and activities that are not directly related to the technical tasks of the job, but are aimed at improving the employee's quality of life and increasing their loyalty to the organization. These services include social and sports activities, consulting services, and the provision of recreational facilities that help reduce turnover rates and build positive relationships between employees and management (Al-Taii *et al.*, 2020) This is confirmed by (Abu Nassar, 2022), where he pointed out that social welfare programs are a set of benefits, services, and facilities provided by the organization to employees and their families with the aim of raising their Significant and enhancing their sense of belonging, and they are usually granted based on "membership" in the organization and not on the basis of job performance.

Second dimension. Healthcare: This dimension focuses on the medical and therapeutic measures provided by the organization to maintain the physical and mental fitness of employees, and includes plans designed to treat diseases that may arise as a result of special working conditions (Beheshtifar & Safarian, 2013).
Third dimension. Occupational Safety: Occupational safety is the preventive activities designed to protect human resources from accidents, injuries, and deaths in the workplace, and it mainly aims to reduce work-related risks by providing a safe and comfortable work environment (Al-Taii *et al.*, 2020)**.**

The Concept of strategic creativity

Researchers' view of the concept of strategic innovation varies depending on their perspectives and aspirations, as there are those who view strategic innovation as the radical discovery of new business models in the current industry, which leads to the growth of the market by attracting and attracting new consumers and customers, and it is also seen as a framework for a multidimensional process that aims to apply innovation with strategic demands that challenge the traditional logic of re-engineering the organization's business model (Ahmed, 2016).
It is also seen as the process of generating and implementing creative ideas within an organization through the management of its operations, with the aim of finding solutions and contributing to improving performance levels in the current competitive environment, relying on the creative human resource (Ibrahim & Youssef, 2022), and it is defined as the ability to develop innovative solutions that contribute to achieves long-term goals by creating new rules for competition and focusing on proactive thinking (Deru, 2025).

From the researchers' point of view, strategic creativity is defined as "a strategic tool adopted by the organization to sustain its activities, based on the human resource by promoting innovative behavior and supporting creative ideas to reach superior performance, achieving its strategic success."

The Importance of Strategic Creativity

Strategic creativity is a pathway to achieving superior performance and securing a competitive advantage, as it helps leaders turn innovative ideas into useful applications that support the organization's strategic goals (Cortes & Herrmann, 2020). It enhances courage in decision-making among leaders, which positively affects creativity, and this creativity depends on the creative human resource that enables leaders to develop their innovative ideas and disseminate them to enhance performance in the competitive environment (Ibrahim & Youssef, 2022). It allows organizations to increase their competitiveness by adopting hybrid strategies that combine strategic and social values, generating an economic surplus that can be reinvested in continuous innovation to improve products and services (Diaz-Carrion & Franco-Leal, 2021). Strategic creativity is essential for building organizational resilience in times of crisis, as it allows organizations to reinvent their business models to ensure sustainability (Leitão & Ratten, 2022). Its importance is evident in being a key pillar for the implementation of strategic plans and building organizational maturity, as it helps organizations absorb innovative developments and integrate them into internal processes, increasing the organization's ability to withstand external shocks and identify new market opportunities (Hadjinicolaou *et al.*, 2022).

Dimensions of Strategic Creativity

The researchers adopted the model (Abdulrazaq, 2021) which was also used by (Nasser, 2024) for strategic creativity, and the researchers strengthened their use of this model based on the views of (Mohammed, 2008) (Nahar, 2017) (Hadjinicolaou *et al.*, 2022) (Takács Ildikó-Csilla, 2018) (Ngiri & Njagi, 2022), which came in line with the research environment, and these dimensions are:

First dimension. Strategic Creativity management: The systematic and logical organization of organizational activities that contribute to creativity, It is not limited to the generation of ideas, but extends to building consensus between parties inside and outside the organization to ensure the flow of perceptions and turn them into real value (Mohammed, 2008). This dimension depends on the connection between traditional and non-traditional elements of creativity, to ensure the desired results (Nahar, 2017).

Second dimension. Strategic alignment: It reflects the governing environment of the organization, as it expresses the extent to which internal operations respond to external indicators, opportunities, and threats, which contributes to achieving balance and adjusting operations in accordance with strategic paths (Ibrahim & Youssef, 2022). It is also defined as a dynamic state that aims to link everything that the organization uses, does or produces with its strategic goals, allowing it to optimize the use of its resources to achieve measurable progress towards its future vision (Abdulrazaq, 2021).

Third dimension. Organizational readiness: The organization's ability to not only generate innovation, but also to absorb innovative developments and integrate them into organizational processes and build organizational maturity, which requires a dynamic culture, flexible internal systems that respond to external changes, and effective reallocation of resources (Hadjinicolaou *et al.*, 2022). Organizational readiness focuses on creating the internal environment to be able to absorb and generate innovative ideas, and this is related to the ability to change and adopt creative techniques that enable leaders to improve performance in the competitive environment (Ibrahim & Youssef, 2022).

The Impact of Human Resources Maintenance on Strategic Creativity

Human resource maintenance contributes to increasing organizational efficiency, as creative thinking and planning do not achieve their goals without trained human capital. The importance of this maintenance is highlighted in raising the organization's innovative capabilities, ensuring that resources are used efficiently to achieve a sustainable competitive advantage (AlQershi, 2021) .

Skilled workforce is the engine of creativity, as maintaining this resource requires investing in their technical and cognitive skills to enable them to turn ideas into tangible products or services. Providing cadres capable of maintaining and skillfully developing the work equipment of organizations improves the levels of strategic creativity within these organizations (Nahar, 2017).

Creative organizations rely on incentive and reward systems (financial and non-financial) to maintain employee motivation, as these systems provide the motivation to adopt and implement big ideas. These incentives are critical to creating a culture of innovation that supports individuals to ensure the success of strategic initiatives (Church,2022).

THE PRACTICAL STATISTICAL ASPECT OF THE RESEARCH

Reliability test

The Reliability test has been applied through Cronbach's alpha method, and it can be noted that the minimum acceptable is (60%) based on the proposals of (Al-Dabbagh, 2014) and (Al-Samman, 2008), and it is clear through Table (2) shows that the stability coefficient reached at the total level (83%) at the total level, as all dimensions of both main variables have exceeded the limit of (80%), which is a very good percentage.

Table 2: Stability Coefficient by Applying Cronbach's Alpha Method

Dimension	Reliability Value
Human Resource Maintenance	
Social Welfare	0.84
Healthcare	0.81
Occupational Safety	0.82
Total	0.83
Strategic Creativity	
Strategic Creativity Management	0.84
Strategic Alignment	0.82
Organizational Readiness	0.86
Continuity and Creative Development	0.82
Total	0.84
Instrument as a Whole	0.83

Source: Prepared by the researchers based on the results of SPSS programming.

Normal Distribution

Since linear regression was used to test the hypotheses, the normality of the data had to be verified in advance. The researchers applied the Shapiro-Wilk test (Shapiro & Wilk,1965), whose null hypothesis states that the variable is normally distributed (Ghasemi & Zahediasl, 2012). Based on Table (3), the null hypothesis is accepted, since all significance values are greater than (0.05).

Table 3: Normal Distribution Test Using Shapiro-Wilk Test

Dimension	Test Value	Significance Level
Human Resource Maintenance		
Social Welfare	0.86	0.77
Healthcare	0.81	0.69
Occupational Safety	0.79	0.64
Strategic Creativity		
Strategic Creativity Management	0.83	0.71
Strategic Alignment	0.77	0.61
Organizational Readiness	0.84	0.73
Continuity and Creative Development	0.74	0.58

Source: Prepared by the researchers based on the results of SPSS programming.

Description of the Research Sample

Table (4) presents the characteristics of the surveyed sample.

Table 4: Description of the research sample (personal information)

Variable	Category	#	Percentage
Gender	Male	54	67.5%
	Female	26	32.5%
Age	21–30 years	1	1.2%
	31–40 years	28	35%
	41–50 years	30	37.5%
	50 years and above	21	26.3%
Educational Attainment	Secondary or below	0	0%
	Diploma	1	1.2%
	Bachelor's	7	8.8%
	Higher Diploma	0	0%
	Master's	34	42.5%
	Doctorate	38	47.5%
Years of Service	One year	0	0%
	2–4 years	9	11.2%
	5–7 years	25	31.3%
	7–9 years	0	0%
	10 years or more	46	57.5%

Source: Prepared by researchers based on the results of the research questionnaire**.**

Description of Independent Variable: Human Resources Maintenance

Table (5) the Description of the Human Resources Maintenance and its Dimensions

Dimensions	Arithmetic Mean	Standard Deviation	Response Rate	Coefficient of Variation
1. Social welfare	3.748	1.058	74.95%	28.23%
2. Healthcare	3.565	1.062	71.30%	29.79%
3. Occupational Safety	3.805	0.999	76.10%	26.25%
Total	3.706	1.040	74.12%	28.05%

Source: Prepared by the researcher based on the results of the research questionnaire.

Table (5) shows the arithmetic means obtained for the sub-dimensions of the independent variable (Human Resources Maintenance), which are (social welfare, Healthcare, Occupational Safety). It is noted that the Occupational Safety ranked first among the three dimensions with an arithmetic mean of (3.805), supported by response rate of (76.10%). In contrast, the Healthcare dimension ranked last with arithnetic mean of (3.565) supported by response rate of (71.30%). The overall standard deviations indicate the homogeneity of the research sample's responses to the items measuring these dimensions. The general arithmetic mean for the Human Resources Maintenance variable was (3.706), which is greater than the hypothetical arithmetic mean of (3) with a general standard deviation of (1.040). These data indicate a somewhat low perception among the research sample of the Healthcare dimension, while the sample reported positive perceptions of the Occupational Safety and Social welfare dimensions.

Description of Adopted Variable: Strategic Creativity

Table (6) the Description of the Strategic Creativity and its Dimensions

Dimensions	Arithmetic Mean	Standard Deviation	Response Rate	Coefficient of Variation
1. Strategic Creativity Management	3.838	0.929	76.75%	24.20%
2. Strategic Alignment	3.780	0.953	75.60%	25.22%
3. Organizational Readiness	3.695	0.926	73.90%	25.05%
4.Continuity and Creative Development	3.910	0.977	78.20%	24.98%
Total	3.806	0.946	76.12%	24.86%

Source: Prepared by the researcher based on the results of the research questionnaire.

Table (6) shows the arithmetic means obtained for the sub-dimensions of the independent variable (Strategic Creativity), which are (Strategic Creativity Management, Strategic Alignment, Organizational Readiness, Continuity and Creative Development). It is noted that the Continuity and Creative Development ranked first among the three dimensions with an arithmetic mean of (3.910), supported by response rate of (78.20%). In contrast, the Organizational Readiness dimension ranked last with arithnetic mean of (3.695) supported by response rate of (73.90%). The overall standard deviations indicate the homogeneity of the research sample's responses to the items measuring these dimensions. The general arithmetic mean for the Strategic Creativity variable was (3.806), which is greater than the hypothetical arithmetic mean of (3) with a general standard deviation of (0.946). These data indicate a somewhat low perception among the research sample of the Organizational Readiness

dimension, while the sample reported positive perceptions of the Continuity and Creative Development, Strategic Creativity Management and Strategic Alignment dimensions.

Testing Research Hypotheses

1- **The first main hypothesis**: There is a significant correlation between the maintenance of human resources and strategic creativity at the general level**.**

Table 12: The Correlation between Human Resources Maintenance and Strategic Creativity at the General Level

Creativity for Strategic / Human Resources Maintenance	Sig. level	T-vale		Correlation coefficient
		Tabularity	Calculated	
	0.000*	1.994	13.041	0.828

P≤ 0.05, N =80, df =78
Source: Prepared by researchers based on SPSS statistical programming outputs.

According to Table (12), the correlation coefficient between human resource maintenance and strategic creativity at the general level is (0.828), at (78) degrees of freedom. This relationship is statistically significant at (0.000), based on the calculated T-value of (13.041), which is greater than its tabular value of (1.994). The first main hypothesis is accepted, which states that: 'There is a statistically significant correlation between human resource maintenance and strategic creativity at the overall level".

2- **The second main hypothesis**: There is a significant correlation between human resources maintenance dimensions at the micro level and strategic creativity at the macro level**.**

Table 13: The Correlation between the Dimensions of Human Resources Maintenance at the Micro Level and Strategic Creativity at the Macro Level

Strategic Creativity / Social Welfare	Sig. level	T-value		Correlation coefficient
		Tabularity	Calculated	
		1.994	9.270	0.724
Strategic Creativity / Healthcare	Sig. level	T-value		Correlation coefficient
		Tabularity	Calculated	
		1.994	9.378	0.728
Strategic Creativity / Occupational Safety	Sig. level	T-value		Correlation coefficient
		Tabularity	Calculated	
	0.000*	1.994	13.673	0.840

P≤ 0.05, N =80, df =78
Source: Prepared by researchers based on SPSS statistical programming outputs.

According to Table (13), the correlation coefficients between strategic creativity at the macro level and the dimensions of social welfare (0.724), healthcare (0.728), and occupational safety (0.840) are statistically significant at (0.000), at (78) degrees of freedom. The calculated (t) values for these dimensions (9.270, 9.378, and 13.673) are greater than their tabular value (1.994). The second main hypothesis is accepted, which states that: "There is a significant correlation between human resource maintenance dimensions at the micro level and strategic creativity at the macro level."

3- **The third main hypothesis**: There is a significant impact of human resource maintenance on strategic creativity at the general level.

Table 14: The Impact of Human Resources Maintenance on Strategic Recovery at the General Level

Strategic Creativity / Human Resources Maintenance	Impact 1b	R^2	F Calculated	F Tabularity	Sig. level
Human Resources Maintenance	1.174 (13.041)*	0.685	176.065	3.976	0.000*

P≤ 0.05, N =80, df = (1, 78)
Source: Prepared by researchers based on SPSS statistical programming outputs.

According to Table (14), there is a significant effect of human resource maintenance on strategic creativity at the macro level at (0.000). The calculated (F) value (176.065) is greater than its tabular value (3.976) at (0.05) and degrees of freedom (1, 78). The coefficient of determination (R^2) reached (0.685), meaning that human resource maintenance explains (68.5%) of the variance in strategic creativity, while the remaining percentage is attributed to variables not included in the regression model. The calculated (t) value (13.041) is greater than its tabular value (1.994). The third main hypothesis is accepted, which states that: "There is a significant effect of human resource maintenance on strategic creativity at the macro level."

4- **The fourth main hypothesis**: There is a significant effect of the dimensions of human resource maintenance at the micro level on strategic creativity.

Table 15: The Impact of the Dimensions of Human Resources Maintenance at the Micro Level on Strategic Creativity at the Macro Level

Sig.level	F Tabularity	F Calculated	R^2	Impact 1b	Strategic Creativity /
0.000*	3.976	85.915	0.524	3.118 (9.269)*	Social Welfare
Sig.level	F Tabularity	F Calculated	R^2	Impact 1b	Strategic Creativity /
0.001*	3.976	88.095	0.530	2.762 (9.386)*	Healthcare
Sig.level	F Tabularity	F Calculated	R^2	Impact 1b	Strategic Creativity /
0.000*	3.976	186.567	0.705	3.151 (13.659)*	Occupational Safety

P≤ 0.05, N =80, df = (1, 78)
Source: Prepared by researchers based on SPSS statistical programming outputs.

According to Table (15), human resource maintenance dimensions at the micro level have a significant effect on strategic creativity at the macro level at (0.000). The calculated (F) values for social welfare (85.915), healthcare (88,095), and occupational safety (186,567) are greater than their tabular value (3,976) at (0.05) and degrees of freedom (1, 78). The calculated (t) values for these dimensions (9.269, 9.386, and 13.659) are also greater than their tabular value (1.994). The fourth main hypothesis is accepted, which states that: "There is a significant effect of human resource maintenance dimensions at the micro level on strategic creativity at the macro level."

CONCLUSIONS AND RECOMMENDATIONS

Conclusions

1. The results show the interest of the center's management in the occupational safety of the teaching staff and employees through its publication and emphasis on the guidelines and awareness of work hazards and ways to avoid them.
2. The management of the center seeks to communicate with its employees and teaching staff and pay attention to their events and their participation in them, whether religious, social or cultural.
3. The results show that the center's endeavor to establish a ground for strategic creativity within its work programs can ensure that it provides the appropriate basis for future changes.
4. The results show the interest of the research sample in the ways and means provided by their center to help them put forward their ideas and suggestions, which contribute to the growth of individual creativity and the strategic creativity of the studied center.
5. The research data indicate the center's endeavor to coordinate the interests of stakeholders in terms of management, employees and students, by providing the requirements of each of them and in a way that achieves the goals of everyone and thus the goal of the main center.
6. The statistical data indicate that there is a strong correlation between human resource maintenance and strategic creativity at the macro level and the micro level (for each dimension), where the dimension of occupational safety came in the first place in terms of impact, followed by the healthcare dimension, and finally the social welfare dimension.

Recommendations

1. The researchers recommend more focus to the human resource at the research center, as it is a strategic partner in the success of its work and raising its performance, through continuous follow-up and the establishment of brainstorming and quality circles.
2. The need for the management of the research center to move towards improving the quality of life of its employees, which is reflected in their loyalty and happiness, which can be achieved through continuous listening to the obstacles these employees, and providing the appropriate work environment for their abilities.
3. Focus on the health and professional safety of employees, through periodic follow-up of their medical examinations.
4. Paying attention to strategic creativity management because it has a direct impact on the synergy of the rest of the dimensions and thus achieving the strategic creativity of the research center, by enhancing generating ideas among the center's employees.

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The Impact of Marketing Foresight on Customer Perceived Value: The Mediating Role of Value Innovation

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ABSTRACTS

Rapid changes in consumer preferences, technology, competition, and market uncertainty have increased the importance of organizational capabilities that enable firms to anticipate emerging market conditions rather than merely react to them. This study develops and tests a model in which value innovation mediates the relationship between marketing foresight and customer perceived value. A quantitative, cross-sectional design was specified, with marketing foresight as the independent variable, value innovation as the mediator, and customer perceived value as the dependent variable. For manuscript development and statistical demonstration, a 150-consumer dataset measured on five-point Likert scales was analyzed using reliability analysis, descriptive statistics, Pearson correlation, ordinary least squares regression, and a PROCESS Model 4 equivalent. The three scales showed good internal consistency, the marketing foresight was positively associated with customer perceived value and value innovation, both predictors were entered simultaneously, value innovation remained positively related to customer perceived value, while the direct effect of marketing foresight remained significant. The indicating partial mediation in the developed model, so the findings illustrate a coherent mechanism in which future-oriented marketing capability can be converted into customer value through value innovation.

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INTRODUCTION

The rapid technological change is a contemporary markets characterized, evolving customer expectations, compressed product life cycles, intensified competition, and greater uncertainty. marketing systems that rely primarily on historical information may be insufficient for sustaining superior customer value under such conditions. Before these developments become fully visible the organizations increasingly require capabilities that enable them to recognize weak signals, emerging needs, changing consumption patterns, and possible market discontinuities.

Foresight as a systematic organizational effort to explore plausible future developments and incorporate forward-looking knowledge into strategic decision-making. (Marinković et al., 2022) shows that corporate foresight includes environmental scanning, interpretation, technology assessment, organizational learning, and strategic response. Hence, Foresight is a purpose to improve preparedness and decision quality under uncertainty. This future-oriented capability can be conceptualized as marketing foresight: the ability to identify, interpret, and use signals concerning future customers, competitors, technologies, market structures, and consumption patterns. Marketing foresight complements traditional market intelligence by emphasizing developments that have not yet fully materialized. (Saud, 2025), indicates that marketing foresight dimensions such as credibility and market fitness can be associated with perceived product value.

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However, customers do not directly consume an organization's foresight routines. They evaluate the consequences of organizational decisions through products, services, experiences, prices, convenience, and other elements of the value proposition. This makes innovation a critical transmission mechanism. (Moqaddamerad & Ali, 2024) provide strategic foresight contributes to business model innovation, suggesting that future-oriented knowledge can stimulate organizational reconfiguration and innovation.

Value innovation is particularly relevant because it emphasizes the creation of superior customer utility rather than innovation for novelty alone. (Kachouie et al., 2024) conceptualize value innovation as a dynamic capability that helps organizations reconfigure marketing capabilities in dynamic environments. Similarly, (Kurtmollaiev et al., 2022) emphasize that customers are the ultimate judges of innovation because innovation becomes strategically meaningful when customers perceive changes in how value is created and delivered.

Customer perceived value (CPV) captures customers' overall assessment of received benefits relative to the monetary and non-monetary sacrifices required to obtain an offering. (Blut et al., 2024), covering 687 articles and more than 357,000 customers, confirms that the most integrative CPV models combine perceived benefits, perceived sacrifices, and overall value. Recent work also demonstrates that business model innovation can enhance customer perceived value when it improves dimensions of customer utility such as time value (Liu et al., 2024).

Therefore, may influence customer perceived value both directly and indirectly through value innovation. Marketing foresight helps firms recognize what customers may need in the future; value innovation determines whether those insights are transformed into meaningful market offerings; customer perceived value reflects whether customers recognize those offerings as worthwhile.

Problem Statement

Although firms increasingly invest in market analytics, environmental scanning, trend analysis, and future-oriented planning, possessing information about future markets does not automatically create customer value. Organizations may correctly identify emerging opportunities yet fail to convert those insights into offerings that customers consider useful, distinctive, convenient, or economically worthwhile.

The foresight literature has progressed in explaining organizational outcomes such as learning, innovation, and business model renewal, while the customer value literature explains how customers evaluate benefits and sacrifices. Yet these two streams remain insufficiently integrated. The direct relationship between marketing foresight and perceived product value has begun to receive empirical attention, including in the Iraqi context (Saud, 2025), but the mechanism through which foresight is converted into customer-level value remains underdeveloped by aligning value innovation as a mediator the research question was developed

- RQ1: To what extent does marketing foresight influence customer perceived value?
- RQ2: does value innovation mediate this relationship?

Research Objectives

- To study the impact of marketing foresight on customer perceived value.
- To examine the impact of marketing foresight on value innovation.
- To assess the impact of value innovation on customer perceived value.
- To examine the mediating role of value innovation in the relationship between marketing foresight and customer perceived value.

Significance of the Study

The marketing foresight, value innovation, and customer perceived value in a single explanatory theoretically model was integrated, in order toward customer-level outcomes and tests how it may matter through value innovation. Practically, the model highlights that future-oriented market intelligence has limited value unless it is translated into pricing, product, experience, service, distribution, value-proposition improvements as beneficial that customers recognize.

LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

Marketing Foresight

Foresight has evolved from narrow forecasting toward a broader organizational capability for managing uncertainty. (Marinković et al., 2022) identify environmental scanning, interpretation, future knowledge development, technology assessment, and strategic response as recurring components of corporate foresight. In marketing applications, foresight concerns the anticipation of changes in customers, competitors, technologies, channels, and consumption contexts. The Marketing foresight differs from conventional market research primarily in temporal orientation. Conventional research often explains current preferences, whereas foresight seeks to detect emerging behavior, latent needs, weak signals, and possible market disruptions. When environments are turbulent, such capabilities can help firms avoid strategic inertia and prepare value propositions before market changes become obvious. (Moqaddamerad & Ali, 2024) found a direct relationship between strategic foresight and business model innovation, with sensemaking and learning contributing to the conversion of foresight into innovation. Hence, treating foresight as a sensing capability whose value depends on subsequent organizational action.

Also, (Sakellariou & Vecchiato, 2022) demonstration that foresight and sensemaking help organizations construct shared future interpretations and discover user foresights during the early stages of new product development. In a multi-country study of technology-based firms, (Mubarak et al., 2025) found that strategic foresight positively influences open innovation and improves new product development through open innovation. Together, foresight becomes strategically consequential when future-oriented intelligence is translated into innovation processes and market-facing responses.

Value Innovation

Value innovation emphasizes the creation of superior utility for customers while reconfiguring the firm's approach to value creation and delivery. It differs from innovation defined only by technological novelty. A technologically sophisticated solution may create little customer value, whereas relatively simple changes in convenience, pricing, accessibility, service design, or experience may substantially improve value.

(Kachouie et al., 2024) frame value innovation through the dynamic capabilities perspective and show its relevance to the reconfiguration of marketing capabilities under environmental dynamism. The marketing foresight identifies emerging conditions, while value innovation represents the mechanism for converting those insights into changes in the market offering, this perspective is well-matched with the present model. According to (Kurtmollaiev et al., 2022) the customers are the final judges of innovation, hence innovation as customer perceived change in value co-creation, reinforcing the need to evaluate innovation through the benefits clients essentially recognize.

Furthermore, the value-creation perspective is evident in adjacent innovation research. As mention by (Åström et al., 2022) demonstrate that successful AI business model innovation

requires firms to align value creation and value capture rather than relying on technological capability alone. Also, (Hajar et al., 2022), investigative the telecommunications sector, (Hajar et al., 2022), report that value innovation contributes to superior performance and sustainable growth through customer-oriented outcomes such as satisfaction and loyalty.

Customer Perceived Value

The overall evaluation of what customers receive relative to what they sacrifice is a measure of customer-perceived value. aesthetic, or convenience-related, sacrifices can include price, time, effort, and risk while Benefits may be functional, emotional, social, relational, (Blut et al., 2024) provide the most comprehensive recent synthesis of CPV, that models incorporating benefits, sacrifices, and overall value best capture the construct and that CPV is strongly associated with outcomes such as satisfaction, word of mouth, and repurchase intention. (Liu et al., 2024) show that business model innovation can improve customer perceived value when innovation directly addresses dimensions of utility important to customers.

Additional consumer-level evidence confirms that innovativeness can shape value judgments. (Nyadzayo et al., 2023), using data from 430 Australian ride-service customers, found that perceived innovativeness positively influences perceived value, while perceived value subsequently contributes to satisfaction and loyalty. (Vo et al., 2022) showed that the novelty and meaningfulness of new products influence purchase intention indirectly through hedonic and utilitarian perceived value. (Mason et al., 2023), in a meta-analysis of 82 studies across 34 countries, found a positive and significant overall relationship between consumption values and consumer behavior, highlighting the multidimensional nature of consumer value assessments.

Recent service research produces a comparable pattern across different sectors. (Pribadi et al., 2022) found that service innovation significantly affects perceived value and that perceived value mediates innovation-related effects on consumer satisfaction. (Nguyen et al., 2024) reported positive effects of service innovation dimensions on customer satisfaction and loyalty in Vietnamese retail banking, emphasizing the importance of innovations that respond to evolving customer requirements. (Singh, 2025) likewise found that service innovation enhances perceived value and customer satisfaction among insurance customers. Collectively, these findings provide convergent support for treating customer-perceived value as an important outcome of customer-relevant innovation.

Hypotheses Development

Marketing Foresight and Customer Perceived Value

Organizations with stronger marketing foresight should be better able to align offerings with emerging customer expectations. In volatile markets, foresight can reduce strategic mismatch and improve the relevance and credibility of value propositions. (Saud, 2025), informed that marketing foresight dimensions, credibility and market fitness, were associated with perceived product value in Iraqi start-ups. Accordingly:

H1: Marketing foresight has a significant positive effect on customer perceived value.

Marketing Foresight and Value Innovation

Foresight provides knowledge about emerging opportunities, latent customer needs, and potential disruptions. This knowledge can guide changes in products, services, business models, pricing, and value propositions. The positive association identified by (Moqaddamerad & Ali, 2024) between strategic foresight and business model innovation provides direct support for this logic. This relationship is reinforced by (Sakellariou & Vecchiato, 2022), reported

foresight and sensemaking to new product development, and (Mubarak et al., 2025), demonstrate that strategic foresight positively drives open innovation and new product development outcomes. Therefore:

H2: Marketing foresight has a significant positive effect on value innovation.

Value Innovation and Customer Perceived Value

Customer-centered innovation is therefore expected to improve the overall benefit-sacrifice evaluation of the offering, also Value innovation should enhance perceived value when it creates meaningful benefits or reduces customer sacrifices. This proposition is consistent with (Kurtmollaiev et al., 2022) and the empirical results reported by (Liu et al., 2024). It is also supported by (Nyadzayo et al., 2023), (Pribadi et al., 2022), and (Singh, 2025), all of whom report positive links between customer-facing innovation and perceived value, while (Vo et al., 2022) show that perceived value can transmit the effects of product creativity to downstream consumer responses. Accordingly:

H3: Value innovation has a significant positive effect on customer perceived value.

Mediating Role of Value Innovation

Customers generally cannot observe an organization's internal foresight systems. They observe outputs such as improved solutions, more relevant services, better price-benefit configurations, convenience, personalization, and responsiveness. Value innovation therefore provides a theoretically plausible mechanism through which foresight can affect perceived value. Accordingly:

H4: Value innovation significantly mediates the relationship between marketing foresight and customer perceived value.

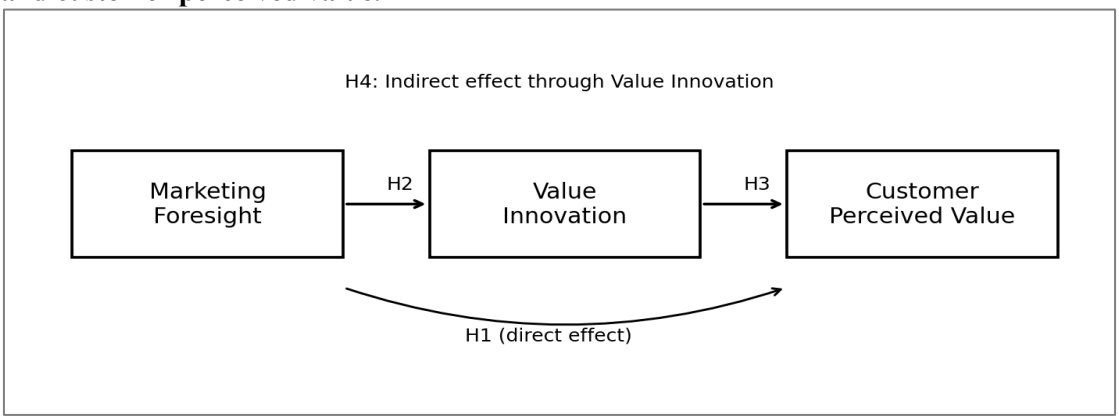


Fig 1 Proposed conceptual framework

RESEARCH METHODOLOGY

Research Design

The study is designed as a quantitative, explanatory, cross-sectional investigation. The conceptual model contains marketing foresight as the independent variable, value innovation as the mediating variable, and customer perceived value as the dependent variable. The individual consumer is the intended unit of analysis.

Instrument and Measurement

The analytical dataset contained 150 responded for five items for Marketing Foresight (MF1-MF5), and Value Innovation (VI1-VI5), and Customer Perceived Value (CPV1-CPV5). A five-point Likert scale (1 = Strongly Disagree to 5 = Strongly Agree). five items each represented the variable of the study Marketing foresight, value innovation, and customer perceived value.

Table 2. Measurement Structure and Item Coding

Code	Construct	Item focus	Coding
MF1	Marketing Foresight	Anticipates changes in customer needs	1-5
MF2	Marketing Foresight	Recognizes emerging market trends early	1-5
MF3	Marketing Foresight	Introduces solutions reflecting future expectations	1-5
MF4	Marketing Foresight	Responds proactively to market changes	1-5
MF5	Marketing Foresight	Prepared for future preference changes	1-5
VI1	Value Innovation	Offers meaningfully differentiated benefits	1-5
VI2	Value Innovation	Finds new ways to solve customer problems	1-5
VI3	Value Innovation	Creates new value without unreasonable cost	1-5
VI4	Value Innovation	Innovations improve product/service usefulness	1-5
VI5	Value Innovation	Combines innovation with clear customer benefits	1-5
CPV1	Customer Perceived Value	Good overall value for money	1-5
CPV2	Customer Perceived Value	Benefits are worth the cost	1-5
CPV3	Customer Perceived Value	Useful and meets customer needs	1-5
CPV4	Customer Perceived Value	Superior value relative to alternatives	1-5
CPV5	Customer Perceived Value	Overall benefit-sacrifice judgment	1-5
Construct	**Role**	**Items**	**Scale**
Marketing Foresight	Independent variable	5	Five-point Likert
Value Innovation	Mediator	5	Five-point Likert
Customer Perceived Value	Dependent variable	5	Five-point Likert

STATISTICAL ANALYSIS

The statistical standard IBM SPSS Internal consistency was assessed using Cronbach's alpha. Composite means were calculated for each construct, followed by descriptive statistics and Pearson correlations. Sampling adequacy and factorability were evaluated using the Kaiser-Meyer-Olkin (KMO) statistic and Bartlett's Test of Sphericity. Common method variance was screened using Harman's single-factor diagnostic. Ordinary least squares regression tested H1-H3, with HC3 heteroskedasticity-robust standard errors used as a robustness check because the Breusch-Pagan test indicated non-constant residual variance. Multicollinearity and residual independence were also assessed. Mediation was tested using a PROCESS Model 4 equivalent with 5,000 nonparametric bootstrap resamples and 95% confidence intervals.

Measurement Diagnostics and Regression Assumptions

The 15-item correlation matrix was suitable for factor-oriented analysis. The Kaiser-Meyer-Olkin measure was .924, exceeding recommended minimum levels, and Bartlett's Test of Sphericity was significant, chi-square (105) = 1242.226, $p < .001$. Harman's single-factor diagnostic indicated that the first unrotated factor accounted for 48.10% of total variance, below the conventional 50% screening threshold. Residual independence was acceptable (Durbin-Watson = 1.912). The Breusch-Pagan test was significant ($p = .002$), indicating heteroskedasticity; therefore, HC3 robust standard errors were used as a robustness check for regression inference. The significance and direction of H1-H3 were unchanged under robust estimation.

RESULTS

Profile of the Analytical Dataset

Variable	Category	n	%
Gender	Male	81	54.0
	Female	69	46.0
Age group	25–34	53	35.3
	18–24	35	23.3
	45+	19	12.7
	35–44	43	28.7
Education	Bachelor	68	45.3
	Postgraduate	23	15.3
	Diploma	42	28.0
	Secondary or less	17	11.3
Purchase frequency	Rarely	19	12.7
	Monthly	42	28.0
	2–3 times/month	51	34.0
	Weekly or more	38	25.3

No missing responses across the 15 construct items, 81 (54.0%) were coded as male and 69 (46.0%) as female. The largest age category was 25-34 years (n = 53, 35.3%), followed by 35-44 years (n = 43, 28.7%), 18-24 years (n = 35, 23.3%), and 45 years or older (n = 19, 12.7%). Bachelor's degree holders represented 45.3% of cases (n = 68), while 28.0% held a diploma, 15.3% postgraduate qualifications, and 11.3% secondary education or less. The most common purchase-frequency category was 2-3 times per month (34.0%).

Reliability Analysis

Construct	Items	Cronbach's alpha	Assessment
Marketing Foresight	5	.871	Good
Value Innovation	5	.875	Good

Construct	Items	Cronbach's alpha	Assessment
Customer Perceived Value	5	.886	Good

All three constructs 70 threshold for acceptable internal consistency, Marketing Foresight produced Cronbach's alpha = .871, Value Innovation = .875, and Customer Perceived Value = .886. Thus, the five-item scales demonstrated good internal consistency.

Descriptive Statistics

Construct	N	Mean	SD	Minimum	Maximum
Marketing Foresight	150	3.325	0.879	1.00	5.00
Value Innovation	150	3.389	0.900	1.00	5.00
Customer Perceived Value	150	3.472	0.895	1.00	5.00

Customer Perceived Value recorded the highest mean (M = 3.472), followed by Value Innovation (M = 3.389) and Marketing Foresight (M = 3.325). At the item level, means ranged from 3.247 to 3.400 for Marketing Foresight, 3.293 to 3.480 for Value Innovation, and 3.313 to 3.527 for Customer Perceived Value. This indicates moderate-to-positive response

Correlation Analysis

Construct	1	2	3
1. Marketing Foresight	1.000		
2. Value Innovation	.551**	1.000	
3. Customer Perceived Value	.582**	.587**	1.000

*Note. ** $p < .01$ (two-tailed); N = 150.*

Marketing was positively correlated with value innovation (r = .551) and customer perceived value (r = .582). Value innovation was positively correlated with customer perceived value (r = .587).

Regression and Hypothesis Testing

H1: Marketing Foresight -> Customer Perceived Value

Marketing Foresight significantly predicted Customer Perceived Value (standardized beta = .582, $p < .001$), and the model explained 33.9% of the variance (R2 = .339). The unstandardized coefficient was B = .609; the HC3 robust standard error was .063 and remained highly significant ($p < .001$), H1 was supported.

H2: Marketing Foresight -> Value Innovation

Marketing Foresight significantly predicted Value Innovation (standardized beta = .551, $p < .001$), explaining 30.4% of its variance (R2 = .304). The unstandardized coefficient was B = .564; the HC3 robust standard error was .067 and the effect remained significant ($p < .001$). H2 was supported.

H3 and the Direct-Effect Model

The model explained 44.0% of the variance (R2 = .440). Value Innovation remained a significant positive predictor (standardized beta = .382, B = .390, HC3 SE = .083, $p < .001$), supporting H3. Marketing Foresight significant direct effect (standardized beta = .372, B = .389, HC3 SE = .071, $p < .001$). The variance inflation factor for both predictors was approximately 1.44, indicating no multicollinearity concern. The Durbin-Watson statistic was 1.912, supporting residual independence.

Hypothesis	Relationship	Standardized beta / indirect effect	p / 95% CI	Decision
H1	MF -> CPV	.582	p < .001	Supported
H2	MF -> VI	.551	p < .001	Supported
H3	VI -> CPV | MF	.382	p < .001	Supported
H4	MF -> VI -> CPV	0.220	[0.129, 0.325]	Supported

Mediation Analysis

Through used the PROCESS Model 4 equivalent to assess whether value innovation mediated the relationship between marketing foresight and customer perceived value.
The path from marketing foresight to value innovation was positive and significant, and the path from value innovation to customer perceived value remained significant after controlling for marketing foresight.

The estimated indirect effect was 0.220. The 95% bootstrap confidence interval ranged from 0.129 to 0.325 and therefore excluded zero.
H4 was consequently supported. Because the direct effect of marketing foresight on customer perceived value remained statistically significant after inclusion of the mediator (standardized beta = .372, p < .001), the pattern is consistent with partial rather than complete mediation.

Effect	Estimate	Bootstrap SE	BootLLCI	BootULCI	Interpretation
Indirect: MF -> VI -> CPV	0.220	0.050	0.129	0.325	Significant indirect effect

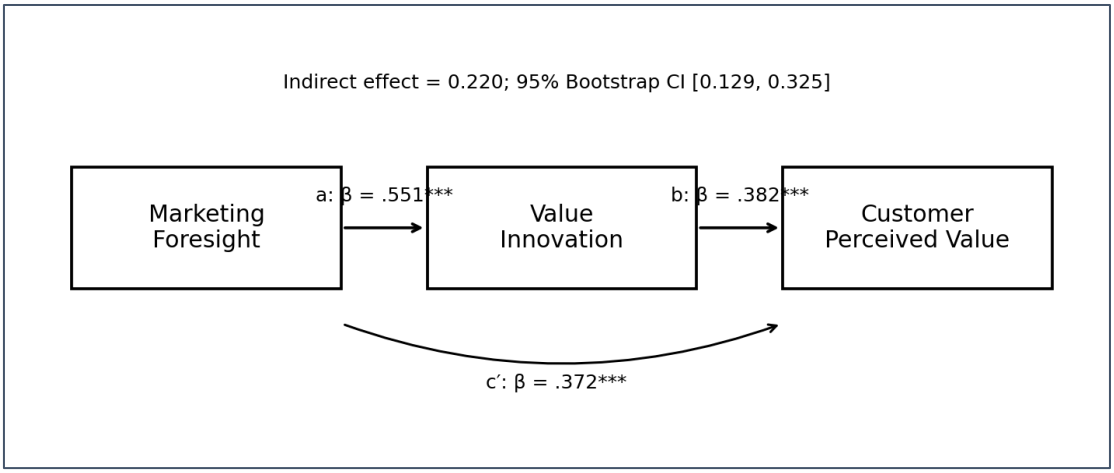


Fig 2 Mediation model with standardized path coefficients

DISCUSSION

Marketing Foresight and Customer Perceived Value

H1 screening a positive relationship between Marketing Foresight and Customer Perceived Value, the coefficient was substantively meaningful, and Marketing Foresight alone explained approximately one-third of the variance in perceived value. The result is theoretically consistent with the proposition that organizations capable of anticipating changing customer expectations can align their offerings more closely with emerging value criteria. This pattern is broadly consistent with (Saud, 2025) informed that dimensions of marketing foresight were associated with perceived product value in Iraqi start-ups, with credibility and market fitness emerging as particularly influential. Although the present construct is modeled more parsimoniously, the shared implication is that foresight becomes valuable when it improves market alignment and strengthens the fit between offerings and customer expectations. The result also aligns with (Sakellariou & Vecchiato, 2022), show that foresight enables

organizations to identify user foresights and construct shared meanings for future product development. Although their outcome is new product development rather than CPV, their findings support the mechanism proposed here: anticipating emerging user meanings improves the likelihood that future offerings will remain relevant. (Mubarak et al., 2025) strategic prudence enables market-facing innovation through open innovation. The present result extends these studies by locating the downriver consequence at the customer-evaluation level, where foresight is reflected in perceived value rather than just organizational innovation outcomes.

Marketing Foresight and Value Innovation

H2 was supported, Marketing Foresight demonstrated a positive association with Value Innovation and explained 30.4% of its variance. This pattern fits the dynamic-capabilities logic in which foresight acts as a sensing capability that identifies emerging opportunities, while innovation represents a seizing and reconfiguration response. The result is consistent with (Moqaddamerad & Ali, 2024), that strategic foresight contributes to business model innovation and that sensemaking and learning help convert foresight into innovative outcomes. The present model extends that logic toward the customer domain by emphasizing innovation in the value proposition rather than business model change alone.

This conclusion is reinforced by (Mubarak et al., 2025) reported strong positive path from strategic foresight to open innovation, and by (Sakellariou & Vecchiato, 2022), that demonstrate how foresight and sensemaking inform meaningful new product development. (Åström et al., 2022) add a complementary business-model perspective by showing that proactive interpretation of emerging technologies must be converted into value-creation and value-capture mechanisms. The effect depends on organizational conversion into innovation, which is consistent with the positive MF → VI relationship obtained in the current model.

Value Innovation and Customer Perceived Value

The positive effect of value innovation on customer perceived value supports H3. Importantly, value innovation remained significant after controlling for marketing foresight. This suggests that innovative changes in customer utility, benefits, convenience, or value configuration can influence value judgments over and above the firm's foresight capability.

The result is consistent with (Kurtmollaiev et al., 2022), who argue that customers are the final judges of innovation, and with (Liu et al., 2024), who show that business model innovation can enhance customer perceived value when it addresses important dimensions of customer utility. The implication is that novelty is not sufficient; innovation must alter the benefit-sacrifice equation in ways that customers can recognize. (Nyadzayo et al., 2023), service innovativeness positively affects perceived value among Australian consumers. (Pribadi et al., 2022) reported a significant effect of service innovation on perceived value, while (Singh, 2025) found that service innovation enhances perceived value in insurance services. new-product novelty and meaningfulness operate through hedonic and utilitarian value, indicating that innovation influences customers most strongly when it changes the value they experience (Hajar et al., 2022; Vo et al., 2022). likewise link value innovation to customer-oriented outcomes such as satisfaction and loyalty.

Furthermore, H3 value innovation matters because customers translate innovative features and solutions into judgments about utility, sacrifices, and benefits. This result well-matched with (Nguyen et al., 2024), as service innovation improves satisfaction and loyalty in retail banking, particularly when innovations affect the service concept, procedure, and technological distribution system. Although their model does not place CPV as the dependent variable, the evidence confirms that customer-visible innovation has downstream relational consequences. (Mason et al., 2023) provide broader meta-analytic support by showing that consumption

values have a significant positive association with consumer behavior across diverse sectors and countries. Thus, the positive VI toward CPV coefficient, therefore this study is consistent with both innovation-specific evidence and the wider consumer-value literature.

Mediating Role of Value Innovation

The indirect effect of marketing foresight on customer perceived value through value innovation was statistically supported because the bootstrap confidence interval excluded zero. At the same time, the direct effect of marketing foresight remained significant, indicating partial mediation. Conceptually, this pattern suggests that marketing foresight may influence customer value through at least two channels.

- First, foresight can directly improve market alignment, timing, credibility, and responsiveness.
- Second, it can stimulate value innovation that transforms future-oriented insights into tangible changes in customer benefits and sacrifice, a meaningful portion of the relationship but does not exhaust it.

The mediation result is consistent with (Mubarak et al., 2025) identify open innovation as a mechanism linking strategic foresight to new product development. At the consumer level, (Vo et al., 2022) presentation that perceived hedonic and utilitarian value mediate the effects of product creativity on purchase intention, while (Pribadi et al., 2022) arrive a mediating role for perceived value between service innovation and consumer satisfaction. Although these mediators and outcomes differ from the present model, the structural logic is similar: an upstream capability or innovation stimulus must be translated into a customer-relevant value mechanism before its full downstream effects emerge. Therefore, fits a broader pattern in which foresight retains a direct contribution while value innovation carries a distinct indirect pathway to CPV. This interpretation integrates the foresight and customer-value literatures. Foresight identifies what may matter tomorrow; value innovation converts that knowledge into a new or improved value configuration; customer perceived value records the customer's evaluation of the resulting offering.

RECOMMENDATIONS

- Institutionalize marketing foresight through systematic monitoring of consumer trends, emerging technologies, competitor behavior, and weak market signals.
- Create formal mechanisms linking foresight outputs to product development, service design, pricing, customer experience, and value-proposition decisions.
- Evaluate innovation from the customer perspective rather than treating technological novelty as a sufficient indicator of value.
- Use customer insight to identify both benefits that should be increased and sacrifices - such as time, effort, inconvenience, risk, and unnecessary cost - that should be reduced.
- Encourage cross-functional coordination between marketing, innovation, product development, and senior management so that future-oriented intelligence is converted into executable value innovation.
- Continuously measure customer perceived value after innovation initiatives to determine whether anticipated improvements are actually recognized by customers.

CONCLUSION

This study develops an integrated explanation of how marketing foresight may contribute to customer perceived value through value innovation. The conceptual model connects a future-oriented organizational capability with a customer-level evaluation and identifies value innovation as the mechanism that can translate market foresight into observable customer benefits. all four hypotheses were supported. Marketing Foresight was positively related to

both Value Innovation and Customer Perceived Value, Value Innovation was positively related to Customer Perceived Value, and the indirect effect through Value Innovation was statistically supported. The persistence of a significant direct effect indicates partial mediation.

LIMITATIONS AND FUTURE RESEARCH

Future research should also examine whether the relationships vary across industries, customer segments, market turbulence, digital intensity, and firm type. Longitudinal designs would provide stronger evidence about temporal ordering, while structural equation modeling could simultaneously test measurement and structural relationships. Researchers may additionally explore alternative mediators such as market agility, customer knowledge integration, or business model innovation and moderators such as environmental turbulence or digital literacy.

Appendix A. Item-Level Descriptive Statistics

Table A1. Item Means and Standard Deviations

Item	Construct	Mean	SD
MF1	Marketing Foresight	3.307	1.226
MF2	Marketing Foresight	3.400	1.176
MF3	Marketing Foresight	3.347	1.237
MF4	Marketing Foresight	3.247	1.175
MF5	Marketing Foresight	3.327	1.218
VI1	Value Innovation	3.480	1.208
VI2	Value Innovation	3.353	1.205
VI3	Value Innovation	3.293	1.162
VI4	Value Innovation	3.467	1.309
VI5	Value Innovation	3.353	1.249
CPV1	Customer Perceived Value	3.527	1.304
CPV2	Customer Perceived Value	3.507	1.236
CPV3	Customer Perceived Value	3.507	1.230
CPV4	Customer Perceived Value	3.313	1.154
CPV5	Customer Perceived Value	3.507	1.252

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