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Technological Innovation as a Means to Enhance the Competitive Advantage of Algerian Insurance Banks

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Abstract:

This study investigates the pivotal role of technological innovation in bolstering the competitive edge of Algerian insurance banks. Employing an analytical approach, the research garners insights from a cohort of managers and department heads to dissect the relationship between technological innovation (the independent variable) and the competitive prowess of these banks (the dependent variable), which is operationalized through three strategic dimensions: cost, differentiation, and focus. A bespoke questionnaire was deployed to gather data from 32 participants, revealing that technological innovation significantly enhances the banks' competitive strategies. The findings advocate for a heightened emphasis on technological innovation, recognizing its essential contribution to not only the subject banks but also to broader institutional competitiveness.

Keywords: Technological Innovation, Competitive Advantage, Cost, Excellence, Focus, Algerian Insurance Banks.

Introduction

In an era marked by rapid scientific and technological evolution, business environments are undergoing profound transformations. These revolutions are reshaping managerial practices and paradigms across economic entities, thrusting them into realms of fierce competition and continuous conflict. Such dynamics compel these entities to tackle emerging challenges and adapt swiftly to ensure their sustainability and progression.

In these highly competitive landscapes, possessing and cultivating competitive advantages becomes critical for enduring market presence. Consequently, institutions are increasingly driven to identify and harness the elements and sources of competitive superiority. This imperative is especially crucial for entities striving to fortify their market stance.

Amidst various sources of competitive advantage, technological innovation has surfaced as a paramount factor. Given the rapid pace of technological advancements, it now stands as a critical and influential element, equally significant as other dynamic factors within the volatile business environment. Institutions that aspire for distinction and leadership, capable of navigating through competitive waters, view technological innovation not merely as an option but as a strategic imperative.

This perspective is reinforced by the insights of the renowned Austrian economist Joseph Schumpeter, who asserted, "Technology is a decisive factor for economic growth and the development of industries."[1] The disparities in management and production systems between developed and developing nations, exacerbated by technological shifts, underscore the competitive leverage afforded by technological advancements.

Such innovations have markedly propelled scientific research and technological refurbishment, both partially and wholly, through bolstered support for national innovation frameworks and the establishment of both national and regional innovation centers. Additionally, there has been an upsurge in allocations for research and development budgets at the institutional level, further underlining the strategic importance of technological innovation in achieving competitive dominance.

In a highly competitive market characterized by rapidly changing environmental variables, service institutions, particularly insurance banks, must strategize effectively to maintain their existence and excel. The adoption of technological innovation serves as a strategic cornerstone for reinforcing their competitive positions. This dynamic forms the crux of our study, leading us to examine the central question: What is the impact of technological innovation adoption by Algerian insurance banks on their competitive advantage?

This central inquiry further delineates into several critical sub-questions:

- What is the effect of technological innovation on the cost strategy of insurance banks?
- How does technological innovation influence the differentiation strategy within these banks?
- To what extent does technological innovation impact the focus strategy of insurance banks?

Study Hypotheses

From the study's central problem, the following hypotheses are posited:

- **Main Hypothesis**: Technological innovation adoption by insurance banks significantly impacts their competitive advantage.
- **Sub-Hypothesis 1**: Technological innovation has a significant effect on the cost strategy of insurance banks.
- **Sub-Hypothesis 2**: Technological innovation substantially influences the differentiation strategy of these banks.
- **Sub-Hypothesis 3**: There is a notable impact of technological innovation on the focus strategy of insurance banks.

Study Objectives

The principal objective of this study is to thoroughly explore the impact of the adoption of technological innovation on the competitive advantage of insurance institutions. Specific aims include:

- Evaluating the effect of technological innovation on the cost strategies of insurance banks.
- Assessing the influence of technological innovation on the differentiation strategies of these banks.
- Investigating the impact of technological innovation on the focus strategies employed by insurance banks.
- Compiling findings and formulating recommendations that will benefit decision-makers in the studied insurance banks and similar financial institutions.

Study Significance:

The relevance of this study is derived from the indispensable role that technological innovation currently occupies in modern business strategies. No longer merely optional, technological innovation has become a foundational requirement for competitive survival due to the swift changes in the technological landscape.

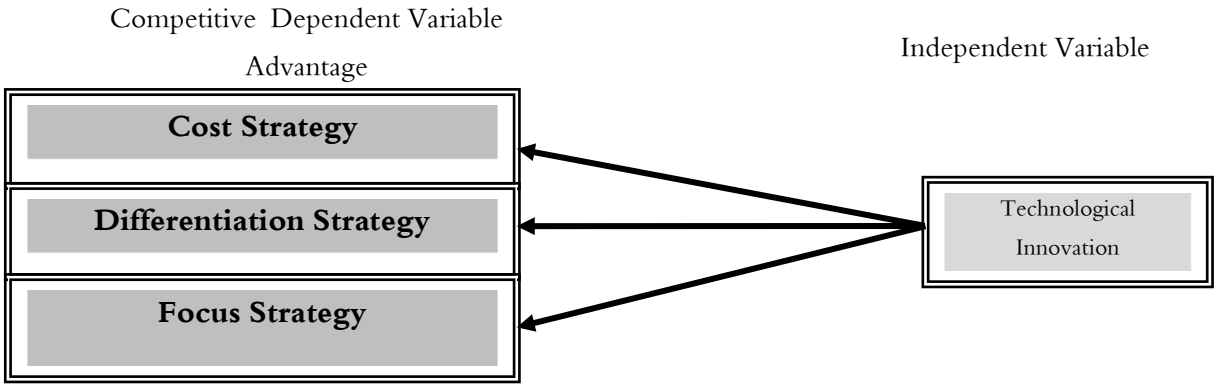
This critical understanding has prompted the United Nations Industrial Development Organization (UNIDO) to focus its 2002/2003 report on "Competition through Innovation and Learning."[2] This study further elucidates that for institutions to ensure their longevity and relevance, mere competence is insufficient.

Rather, their strategies must be visionary, anticipating future challenges and readying for adaptive transformations to secure a distinguished competitive position. This entails a commitment to improving service quality, enhancing performance efficiency, and broadening strategic goals. Institutions must embed creativity and innovation at the core of their operational ethos to truly excel and differentiate themselves in the market.

Hypothetical Framework of the Study

To verify the proposed hypotheses and fulfill the objectives of this study, Simple Regression Analysis will be employed, utilizing Pooled Data. The model of the study is depicted below:

Figure (1): Hypothetical Framework of the Study



Source: Developed by the researchers.

The regression model and hypothetical framework illustrate that the independent variable, Technological Innovation, is presumed to play a direct role in influencing each strategy within the dependent variable of Competitive Advantage, as represented by directional arrows in the model.

Methodology

Study Methodology:

In order to answer the posed question and test the validity of the hypotheses, and after reviewing prior studies, the descriptive analytical approach was adopted. This methodology is one of the forms of organized scientific description and analysis used to describe and quantitatively depict the researched variable, and analyze it.

To derive conclusions, a survey method was employed through querying the opinions of managers and department heads in the Algerian insurance institutions under study about the impact of technological innovation on their competitive advantage; this helped in obtaining data and information for deriving results and making suggestions and recommendations.

The researchers used and developed a questionnaire model to determine the impact of the adopted technological innovation elements by the insurance banks in enhancing their competitive advantage, and to respond to the study's questions and test its hypotheses using appropriate statistical tools (mean and standard deviation,...), utilizing the Statistical Package for the Social Sciences (SPSS).

The reliability of the study tool (questionnaire) was measured based on the Cronbach's Alpha test, which showed high reliability for all study variables. The following table shows the Cronbach's Alpha internal consistency coefficient for different parts of the tool and the tool as a whole.

Study Community and Sample:

To achieve the objectives of the study, Algerian insurance banks were selected as a case study. The study community consisted of branch managers and department heads of the Algerian insurance banks under study. From this community, a random sample of 35 individuals was selected, out of which 35 questionnaires were distributed and 32 were retrieved, resulting in a response rate of 91%. Therefore, the study sample consisted of 32 individuals.

Study Tool:

The study tool was developed through an examination of the theoretical side and previous studies related to the topic of the study. The researchers will use and develop a questionnaire model to identify the impact of elements of technological innovation adopted by insurance banks in enhancing their competitive advantage, and to answer the study's questions and test its hypotheses using suitable statistical tools (mean and standard deviation,...), using the Statistical Package for the Social Sciences (SPSS).

The reliability of the study tool (questionnaire) was assessed using the Cronbach's Alpha test, which demonstrated high reliability for all study variables. Table Number (1) shows the Cronbach's Alpha internal consistency coefficient for different parts of the tool and the tool as a whole.

Table (1): Reliability Coefficient Values for Internal Consistency of Study Variables

Variable Name	Cronbach's Alpha Coefficient
Technological Innovation	0.82
Competitive Advantage	0.79
Questionnaire as a Whole	0.86

The table demonstrates that the reliability coefficients for all study variables are notably robust, exceeding the acceptable threshold of 0.60. With the overall questionnaire reliability coefficient achieving 0.86, this level of stability provides a dependable basis for the field application of the study.

Theoretical Framework

Firstly - Technological Change as a Response to Environmental Analysis and a Source of Technological Innovation:

The current institutional environment is distinguished by a myriad of formidable challenges, spurred by intense competition, diversity, rapid transitions, and technological advancements. These dynamics mandate that institutions maintain a heightened state of vigilance and perpetual readiness to secure their continuity and success.

An essential strategy in this context involves a meticulous analysis of the institutional environment to identify potential opportunities and mitigate risks. A key insight from such environmental analyses is the constant flux and evolution of the environment, which continually introduces new complexities and potential pitfalls. Institutions that fail to adapt to this dynamic milieu are at significant risk of obsolescence.[3]

This rigorous analysis of the institutional environment crucially shapes the development of an institution's innovative technological strategies. Innovations are realized by harnessing the available resources within the environment and optimizing their utilization to foster technological advancements.

The environment itself comprises a mix of tangible and intangible elements, both dynamic and static, that can exert either positive or negative influences on the system and are likewise affected by it. From an economic standpoint, various types of environments are recognized, with the technological environment playing a pivotal role for innovators. [4]

Ambabi (1998) characterizes the technological environment as "a repository of experiences that accumulate and enhance the community's assets, accessible through inventions and innovations." [5]This environment encapsulates influential forces such as technology, societal dynamics, individual competencies, social and commodity markets, production necessities, competition structures (including both horizontal and vertical integrations), industrial investments, immigration and labor policies, energy sources, natural resources, and the political landscape[6]. These forces require periodic analysis due to their continual evolution.

Change represents a significant factor impacting both the general environment and the institutions operating within it, particularly as they function according to the open system theory within a dynamic, interactive environment. According to Griffin (1999), [7]technological change within an institution is observable through efforts to upgrade outdated machinery and equipment with newer alternatives, necessitating the adoption of novel methods and processes. This adaptive response to environmental pressures underscores the vital role of technological innovation as a survival and growth strategy in today's fast-paced institutional landscapes.

Robbins (2001[8]) characterizes technological change as developments concerning hardware, equipment, methodologies, or automation. Jones (1999)[9] interprets it as the transformative process that propels an institution from its current state to a novel, more effective future state. Thus, an institution's proactive response to technological change is essential for adapting to and capitalizing on the demands of the technological environment. The dynamic interplay of competition and innovation in any industry often necessitates changes that introduce new equipment and methods.

Reflecting on the constructs of "environment," "change," and "innovation," we discern a systemic relationship among these terms. From this perspective, innovation emerges as the outcome of change processes, primarily fueled by the analysis of the technological environment.

Secondly - The Concept of Technological Innovation:

The term "innovation" typically signifies anything new and unique, including novel ideas, enlightening insights, and groundbreaking artistic expressions. Standard language dictionaries describe innovation as the invention of something previously non-existent, marked by exceptional characteristics. In the realms of art and literature, creativity is manifested through the introduction of new styles that replace old or conventional ones. [10]

The Austrian economist J. Schumpeter encapsulates innovation as "the use of existing resources in new ways, aimed at introducing new products,[11]" pinpointing the economic facet of innovation which emphasizes the improved utilization of resources for new product development. This interpretation, however, narrows the broader scope of innovation.

Hetger (2001)[12] expands this view by defining innovation as "the process through which something significantly valuable is introduced to an individual, group, institution, or society." This broader definition underscores innovation's pursuit of novelty and value, highlighting that true innovation should offer benefits; otherwise, it risks being merely an invention with potential drawbacks.

Robbins et al. (2004) [13]further refine this concept, describing innovation as "the process of transforming ideas into usable and beneficial products." This definition is notable for its precision in linking innovation directly to the creation of beneficial products, although it somewhat limits the scope to product innovation alone.

Technology and Technological Innovation: Technology comprises a body of knowledge, skills, technical practices, and the interrelationships among work subsystems. [14]Its application is crucial for meeting both existing and anticipated economic and social needs. The concept of technology is often associated with mechanization, which pertains to the production of goods and services utilizing machinery.

Luthans defines technology not merely as a progression in tools, equipment, and machinery, as is commonly perceived, but as an inclusive set of mechanical methods and applied knowledge that individuals leverage to achieve organizational objectives.[15] This definition broadens the conventional understanding of technology, integrating technical knowledge as an essential element, thereby expanding our perspective on technological advancements and their implications for organizational success.

According to J. Bernard (1998), technological innovation is "the process related to positive novelties, which concern both products and production methods." This definition clearly delineates the forms of technological innovation, dividing it into the introduction of new products and the implementation of new production methods.

D. Manceau (2005) describes it as "the formation and embodiment of new technology, which, however, does not change consumer habits." This implies that while technological innovation applies modern technologies to products, it does not overlook the element of risk associated with the level of innovation and its adoption by consumers.

Based on the foregoing, technological innovation is the process through which an organization can coordinate between three departments—production, marketing, and research and development—to adopt and implement new ideas and methods and translate them into new products, whether they are new goods or services, or improvements to existing products or production processes, to meet customer requirements and position the organization favorably in a competitive market.

Third - The Concept of Competitive Advantage:

Competitive advantage is a critical strategic element that provides substantial opportunities for organizations. The concept and interest in competitive advantage trace back to Chamberlin (1939), but it was further developed by Selznick (1959), who linked advantage to capability. Later, Hofer and Schendel described competitive advantage as "the unique position developed by an organization in relation to its competitors through patterns of resource deployment."

This definition suggests that competitive advantage is achieved through capabilities, viewed as something that can be utilized within an organization’s strategy, with capabilities and competitive advantage as independent variables and performance as the dependent variable.[16]

Porter (1985) and Day (1984) subsequently developed the next generation of conceptual formulations for competitive advantage, considering it the goal of strategy and a dependent variable, not merely something used within the strategy.[17] They argued that superior performance is inherently linked to competitive advantage, as achieving it inherently and automatically results in higher performance.[18]

Porter also noted that "competitive advantage arises as soon as an organization discovers more effective ways compared to those used by competitors, i.e., as soon as an organization initiates the process of innovation, which is the essence of competitive advantage."

Furthermore, competitive advantage is "the sum of skills, technologies, resources, and capabilities that management can coordinate and exploit to produce values and benefits for customers that exceed those offered by competitors, affirming a state of distinction and difference between the organization and its competitors."

Thus, competitive advantage is a source that enhances an organization's market position and leads to economic profits through differentiation from competitors. An organization can distinguish itself through various factors such as price leadership, production, market share, and resource differentiation, as well as by adding value, resource rarity, and inimitability. Additionally, it can excel by performing its functions through the introduction and development of new services.

Competitive advantage is one of the current study variables; therefore, it is necessary to identify elements related to competitive advantage to measure the relationship and impact among the study's main variables. Through literature review, the elements contributing to achieving competitive advantage are identified in the following table:

Table (2): Models for Achieving Competitive Advantage

Models	**Cost**	**Differentiation**	**Focus**	**Reliability**	**Flexibility**	**Price**	**Alliances**	**Cost Capacity**	**Relative Competitive Forces**
Porter 1979	*	*	*						
Hyays, Weel 1984 Wright	*	*			*				
Schuler 1987	*	*							
Wiseman 1989	*	*					*	*	
Hicks 1993	*	*	*						
Williamr 1998	*	*			*				
Mintzberg 1998	*	*	*						
Lunch 2000		*		*		*		*	*
Total	7	8	3	1	2	2	1	2	1
Percentage	87.5%	100%	37.5%	12.5%	25%	25%	12.5%	25%	12.5%

Source: Bilal Khalaf Al-Skarna, op.cit p. 92.

The results in the table show that the three elements with the highest agreement among authors are Differentiation (100%), Cost (87.5%), followed by Focus (37.5%). These three elements will be the focus of the current study.

Sixth - The Role of Technological Innovation in Enhancing Competitive Advantage Strategies of an Organization:

Technological innovation impacts the sources of competitive advantage, which include:[19]

1. **Role of Technological Innovation in Enhancing Cost Leadership Strategy:**

This strategy aims to achieve lower costs compared to competitors, requiring a flexible demand for pricing while maintaining quality[20]. Lower costs serve as a competitive weapon to confront and resist competitors, as many competitively distinguished organizations aim to be leaders in reducing cost elements compared to their peers in the same field. An organization achieves this advantage through having better technology, cheaper sources of raw materials, effective production and maintenance systems, and efficient marketing operations, all contributing to increased returns.[21]

Successful technological innovation has the potential to revolutionize the competitive structure, as evidenced by its ability to reduce fixed production costs, thereby lowering market entry barriers and enabling new enterprises to enter and compete, regardless of their size.

This necessitates a focus on research and development efforts to improve production methods and develop more competitive products to reduce costs, rather than concentrating these efforts on creating high-cost products which may not guarantee success. In this context, the real and actual dimension of technological innovation is the reduction of costs in general and unit costs in particular.

The impact of technological innovation on final costs becomes apparent when new technologies are introduced into the production process. Their primary effect is on production quantity, as these technologies increase the number of units produced and expedite the production process by processing a larger quantity of inputs within a specific time period.

This increase in production typically leads to a reduction in production costs in general and unit cost in particular, ensuring better returns for the organization. Thus, the true dimension of technological innovation is represented in cost reduction through the rationalization of the production process and the optimal use of production factors.

Moreover, technological innovation can enhance an organization's competitiveness by making it a leader in manufacturing process development, where these development efforts provide a competitive edge. The cost advantages gained through technological innovation can help establish market entry barriers, thereby reinforcing the competitive position and sustaining market presence in a highly competitive environment. It is worth noting that organizations that lead in cost control (i.e., those that manage their costs effectively) can compete strongly in the following scenarios:[22]

- If organizations in the same sector offer similar prices for their products, the cost leader will continue to realize higher profits due to its cost advantages.
- In price competitions (where competition intensity within the sector increases), the organization with the lowest costs (i.e., those that control their costs) can withstand competitive pressures better than its counterparts.

- If substitute products enter the market, the organization with lower costs can reduce its prices to outcompete others, maintaining market share and ensuring continuity and survival.
- Continuous and consistent improvements to its products, although not significant changes, have long-term cumulative effects that reduce costs and give the organization a competitive advantage over its rivals.[23]

2. **Role of Technological Innovation in Enhancing Differentiation Strategy:**

An organization achieves differentiation from its competitors when it can offer a unique feature desired by customers and excels in it. Differentiation methods may vary from one sector to another and take several dimensions such as distinctive product design, unique technology, and special product features (specific attributes, quality).[24] Technological innovation affects the production process by improving product quality and value and reducing defects that may occur during manufacturing.

The relationship between technological innovation and the differentiation strategy strengthens especially when competitors are unable to follow the innovative strategy adopted by the organization; this signifies that it possesses technological skills and efficiency aspects that competitors cannot easily imitate or depend on to exploit opportunities to move and create a kind of distinction in their products before their competitors, sometimes known as a first-mover advantage.[25]

Thus, technological innovation distinguishes products in two scenarios:

2.1 Creating New Products Introduced for the First Time in the Market:

These products are new both to the organization and the market, resulting from technological innovation. They stand out with fresh designs and perform new functions. Moreover, they offer a market precedence over competitors, fulfilling latent needs and desires of various consumers.

2.2 - Development of Existing Products:

The creative organization continuously develops its products to satisfy its customers. These improvements are made by making adjustments in the following areas:

- **Quality:** Quality serves as a benchmark for the precision of product design and execution according to customer needs and interests.
- **Ease and Safety of Use:** Innovation and improvements in products ensure ease of use and safety during consumption or operation.
- **Changes and Enhancements in After-sales Services:** These lead to better and longer-lasting services that distinguish the product and the organization's offerings compared to its competitors.

Therefore, for an organization to adopt a differentiation strategy, it must develop distinctive competencies, especially in research and development, through its creativity in producing a wide range of products that serve more market segments. The creative characteristics, designs, and new technical methods become a source for product differentiation, producing high-quality goods and providing unique and fast services that differ from what competitors offer. These factors justify customers paying premium prices for these goods or services, covering the costs incurred by the organization.

3 - The Role of Technological Innovation in Enhancing Focus Strategy:

The focus strategy involves the organization choosing specific areas and boundaries for its activities that provide it with a better competitive advantage. This strategy differs from the previous two as it relies on serving a part of the market, not the entire market, based on either lower cost or differentiation.[26]

Organizations generally resort to this strategy when their resources and capabilities do not allow them to cover the entire market or compete against stronger competitors, which leads them to focus on continuous (albeit simple) improvements to their products that meet the needs of the targeted customer segment. Thus, technological innovation supports the focus strategy and strongly drives its success, starting from the premise that this strategy depends on customers with changing and relatively acceptable needs and tastes.

The relationship becomes clearer when the organization, through innovation, manages to create new products, thereby creating new needs and meeting existing ones, thus advancing its position and competitive capability in a segment of the market.[27]

An organization following a cost leadership strategy to develop its competitive advantage (lowest cost) must rely on technological innovation in production methods as it ensures more significant cost reductions than product innovation, which requires extensive resources. Conversely, an organization pursuing a differentiation strategy to develop its competitive advantage (differentiation) must depend on technological innovation in the product.

Practical Aspect:

Firstly - Algerian Insurance Banks:

Algerian insurance banks are those that offer two types of financial products simultaneously. They provide traditional banking products primarily in the form of accepting deposits, offering loans, and issuing credit cards, and they also offer insurance services. Customers of these banks can obtain both insurance and banking products from the same counter, a practice known as "bancassurance.[28]"

This French-origin term "BANCASSURANCE" covers a wide range of agreements between banks and insurance institutions which, in all cases, ensure the provision of both banking and insurance products and services from the same source to the same client, as well as efforts by banks to penetrate the insurance market.[29]

Secondly - Results Related to the Respondents' Perceptions of the Study Variables:

The study aimed to explore the impact of the adoption of technological innovation by Algerian insurance banks on their competitive advantage. To test the extent to which the sample members agreed with the survey items, mean averages and standard deviations were calculated. Subsequently, the statements were arranged in ascending order based on the mean average. Table number (2) illustrates the trends in the statistical sample's responses to the study variables.

According to the results, it is evident that there is a degree of agreement among the sample members that the Algerian insurance banks under study are keen on using new technology to improve and offer new services; this is indicated by the mean score (3.67) for technological innovation. The statement that the bank strives to improve the quality of its services to be the best among competitors achieved the highest mean score of (4.16) in agreement, thus ranking first, followed by the statement that innovation is a strategic priority for the bank to be the best in the market.

The results indicate that the sample participants agree that Algerian insurance banks strive for change in both tangible and intangible elements of technological innovation when adopting such innovations. It's noted that the mean score for statements involving tangible elements of technological innovation (production resources, financial

resources, and work methods) trends towards agreement. Similarly, this is the case for the intangible elements of technological innovation (information, knowledge, quality, and competencies).

Regarding the responses from the sample on the statements related to the dependent variable of competitive advantage for Algerian insurance banks, the researchers note that the direction of the sample's responses is towards agreement; this is indicated by the mean score (3.643) for competitive advantage.

The axes of competitive advantage recorded mean scores ranging between [3.75 - 3.57], with a slight difference between the highest and lowest mean score, proving that the researched insurance banks utilize the three strategies of competitive advantage. The differentiation axis achieved the highest mean score of (3.75), indicating that the sample participants agree that the banks under study use a differentiation strategy as a competitive strategy for the bank. This is followed by the cost axis with a mean score (3.61), and focus ranked last with a mean score of (3.57).

Third - Hypothesis Testing Results:

To verify the validity and robustness of the hypotheses, the decision rule will be based on the significance level value and the comparison between the calculated F and the critical F-value.

- **Sub-hypothesis One:** There is an impact of the adoption of technological innovation by Algerian insurance banks on the cost strategy.

Table (03): Analysis of Variance (ANOVA) Results

Model Relationship	Probability Value (Sig)	Correlation Coefficient (R)	Determination Coefficient (R^2)	Degrees of Freedom (df)	Critical F-Value	Calculated F-Value
$\hat{y}_1 = 1.986 + 0.556x$	0.000	0.559	0.313	(30.1)	4.17	13.667

Source: Developed by researchers based on SPSS outputs.

The statistical results in Table Number (04) indicate a statistically significant role at the significance level ($\alpha \leq 0.05$) for the independent variable (technological innovation) on the dependent variable (cost), where the calculated F-value (13.667) is greater than the critical F-value, and the significance level (0.000) is less than the adopted significance level (0.05).

The B value indicates that a unit change in the independent variable (technological innovation) corresponds to a change of 0.556 in the dependent variable (cost), leading to the acceptance of the first sub-hypothesis, confirming a statistical impact of the adoption of technological innovation by the studied insurance banks in reducing production costs (service provision costs).

Additionally, the previous table records a moderate positive correlation between the independent variable, technological innovation, and the cost as a dependent variable, where the total correlation value between the variables is 55.9%, a positive value confirming the role of technological innovation in its relationship with cost reduction.

The determination coefficient is equal to 0.313 ($R^2 = 0.313$), indicating that 31.3% of the deviations in the values of the dependent variable, cost reduction, are explained by the regression model (independent variable technological innovation).

- **Sub-hypothesis Two:** There is an impact of the adoption of technological innovation by Algerian insurance banks on the differentiation strategy.

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Table (04): ANOVA Results for the Impact on Differentiation Strategy

Model Relationship	Probability Value (Sig)	Correlation Coefficient (R)	Determination Coefficient (R^2)	Degrees of Freedom (df)	Critical F-Value	Calculated F-Value
$\hat{y}_2 = 1.506 + 0.574x$	0.000	0.703	0.494	(30.1)	4.17	29.294

Source: Developed by researchers based on SPSS outputs.

The statistical results in Table Number (05) indicate a statistically significant role at the significance level ($\alpha \leq 0.05$) for the independent variable (technological innovation) on the dependent variable (differentiation), where the calculated F-value (29.294) is greater than the critical F-value, and the significance level (0.000) is less than the adopted significance level (0.05).

The B value indicates that a unit change in the independent variable (technological innovation) corresponds to a change of 0.574 in the dependent variable (differentiation), leading to the acceptance of the second sub-hypothesis, confirming a statistical impact of the adoption of technological innovation by the studied insurance banks in enhancing their differentiation.

Furthermore, the previous table records a strong positive correlation between the independent variable, technological innovation, and differentiation as a dependent variable, where the total correlation value between the variables is 70.3%, a positive value confirming the role of technological innovation in its relationship with bank differentiation. The determination coefficient is equal to 0.494 ($R^2 = 0.494$), indicating that 49.4% of the deviations in the values of the dependent variable, bank differentiation, are explained by the regression model (independent variable technological innovation).

1. **Third Sub-hypothesis: There is an impact of adopting technological innovation by Algerian insurance banks on the focus strategy.**

Table (05): Analysis of Variance (ANOVA) Results

Model Relationship	Probability Value (Sig)	Correlation Coefficient (R)	Determination Coefficient (R^2)	Degrees of Freedom (df)	Critical F-Value	Calculated F-Value
$\hat{y}_3 = 0.975 + 0.673x$	0.000	0.412	0.494	(30.1)	4.17	20.998

Source: Developed by researchers based on SPSS outputs.

The statistical results from Table Number (06) show a statistically significant role at the significance level ($\alpha \leq 0.05$) for the independent variable (technological innovation) on the dependent variable (focus), where the calculated F-value (20.998) is greater than the critical F-value.

The significance level (0.000Sig) is less than the adopted significance level (0.05), and the B value indicates that a unit change in the independent variable (technological innovation) corresponds to a change of 0.673 in the dependent variable (focus). Thus, the third sub-hypothesis is accepted, confirming a statistical impact of adopting technological innovation by the studied Algerian insurance banks on the focus strategy.

Furthermore, the previous table records a strong positive correlation between the independent variable, technological innovation, and the focus strategy as a dependent variable, with the overall correlation value between the variables

being 64.2%, confirming the role of technological innovation in its relationship with the focus strategy. The determination coefficient ($R^2 = 0.412$) indicates that 41.2% of the deviations in the values of the dependent variable, focus strategy, are explained by the regression model (independent variable, technological innovation).

2. **Main Hypothesis: There is an impact of adopting technological innovation by Algerian insurance banks on their competitive advantage.**

Table (06): Analysis of Variance (ANOVA) Results

Model Relationship	Probability Value (Sig)	Correlation Coefficient (R)	Determination Coefficient (R^2)	Degrees of Freedom (df)	Critical F-Value	Calculated F-Value
$\hat{y} = 0.532 + 0.876x$	0.000	0.777	0.604	(30.1)	4.17	45.822

Source: Developed by researchers based on SPSS outputs.

The statistical results from Table Number (07) indicate a statistically significant role at the significance level ($\alpha \leq 0.05$) for the independent variable (technological innovation) on the dependent variable (competitive advantage), where the calculated F-value (45.882) is greater than the critical F-value.

The significance level (0.000Sig) is lower than the adopted significance level (0.05), and the B value indicates that a unit change in the independent variable (technological innovation) corresponds to a change of 0.876 in the dependent variable (competitive advantage). Thus, the main hypothesis is accepted, confirming a statistical impact of adopting technological innovation by the studied Algerian insurance banks on their competitive advantage.

Additionally, the previous table records a strong positive correlation between the independent variable, technological innovation, and competitive advantage as a dependent variable, with the overall correlation value between the variables being 77.7%, confirming the role of technological innovation in its relationship with competitive advantage. The determination coefficient ($R^2 = 0.604$) indicates that 60.4% of the deviations in the values of the dependent variable, competitive advantage, are explained by the regression model (independent variable, technological innovation).

Conclusions and Recommendations

Conclusions:

Through the analysis conducted, several conclusions have been drawn:

- The study results prove that there is a statistical impact of adopting technological innovation by Algerian insurance banks on the cost strategy. Researchers attribute this result to the fact that technological innovation contributes to innovating methods and approaches that lead to reduced service provision costs. The use of information and communication technology by Algerian insurance banks saves effort and time, leading to reduced costs and burdens.

- The results also show that there is an impact of adopting technological innovation by Algerian insurance banks on the differentiation strategy. Researchers attribute this to the fact that technological innovation contributes to ensuring transaction security and avoiding accounting issues, which improves cash flow management and speeds up the response to customer needs, thereby achieving the bank's differentiation.

- Lastly, the results confirm that there is an impact of adopting technological innovation by Algerian insurance banks on the focus strategy. Researchers attribute this to the bank's focus on using creative

features and designs and various work methods that cater to private contractors and public institutions. This focus on technological innovation to meet the needs of the targeted category by the bank has led to the bank's differentiation from other banks.

- The study has demonstrated that technological innovation significantly influences the competitive advantage of Algerian insurance banks. This effect is attributed to technological innovation's role in enhancing production processes, technical changes, uniqueness, initiative, and the capability to create and innovate new distinctive technology for production. This significantly contributes to maximizing the bank's market shares and strengthening its competitive position.
- Technological innovation involves positive developments and features related to scientific and technological characteristics, affecting various products and production methods.
- Technological innovation is a crucial strategic choice for institutions facing potential disturbances in their environment. It is one of the fundamental pillars in building an organization’s competitive advantages.
- In a global economy driven by knowledge, traditional competitive factors like quality and high productivity are no longer sufficient to penetrate markets or maintain market share. Technological innovation intensifies competitive forces in the product market, showcasing its power in spurring market competition through its impact on competitive strength among strong competitors and in the face of market threats by substitute products.

Recommendations and Suggestions:

Based on the findings and considering the discussed aspects, we offer the following recommendations and suggestions on how to manage technological innovation within Algerian insurance banks, which is essential for banks striving for excellence or, more precisely, survival in a highly competitive environment. Here are the key recommendations proposed by the researchers:

- Banks should utilize modern technical methods in service delivery along with employing technological equipment.
- Adequate funding must be allocated for embracing technological innovation along with supporting research and development activities.
- Leverage external expertise to introduce practical methods for improving banking services.
- Pay attention to customer feedback regarding the quality of services provided by the bank.
- Implement quality standards and adhere to international specifications and norms in banking services.
- Emphasize the importance of knowledge in enhancing and developing technological innovation.
- Embody and manage technological innovation within the bank by identifying creative potentials, training them, and providing suitable conditions for leveraging available creative resources.
- Enhance the human element, considering that performance efficiency is decisive among institutions. Despite the diversity of competence sources, the human factor remains crucial, and keeping up with the latest advancements in banking technology requires developing the capabilities and capacities of employees to absorb new developments in banking services.
- Consult international experts and consulting firms to train bank staff in using the latest banking systems.

- Establish objective performance evaluation standards based on fostering trust in employees and encouraging them to initiate, innovate, and renew.
- Implement incentive systems that provide both material and moral rewards for innovators.
- Promote interaction between the institutional entity and its surrounding environment to expand and enhance the institution's creative capabilities and potential, allowing it to attract and benefit from available expertise, capabilities, and resources.
- Shift towards decentralized organizations that allow for a degree of autonomy and flexibility in execution.
- The administrative leadership should exert effort in creating an organizational climate conducive to technological innovation.
- It is crucial to enhance cooperation with academic entities through joint research programs and facilitating the use of available equipment at university laboratories. This cooperation benefits both sides: banks benefit from the outcomes in the form of new products and solutions for production and management system issues, while universities benefit from the practical application side.

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