

The Impact of TQM Implementation on the Development of Intellectual Capital among Employees in Jordanian Insurance Companies

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Abstract: - The purpose of this research is to explore the influence of the implementation of total quality management on the development of intellectual capital among workers in Jordanian insurance companies. The method that was used was both descriptive and analytical. All of the workers in the group of insurance companies in Jordan were included in the study's population, which amounted to (214) individuals, and the comprehensive survey method was used. Overall, 192 questionnaires were retrieved for analysis, and the study used SPSS statistical analysis software to analyze the data, and the results of the study showed that the level of application of total quality management dimensions in developing intellectual capital for workers in Jordanian insurance companies came to a moderate degree, and the results of the study indicated that there is a moderate degree of application of the dimensions of total quality management in developing intellectual capital for workers in Jordanian insurance companies.

Key-Words: - TQM, Intellectual Capital Development, Insurance Companies, Quantitative, SPSS, Jordan.

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1 Introduction

Global and local organizations are encountering a myriad of transformations and obstacles, with the heightened intensity of competition at both local and international levels being paramount. This shift is accompanied by a more discerning consumer behavior, reflecting an increased awareness. These challenges introduce novel concepts pertaining to the quality of products or services offered to customers. In response, organizations aiming to secure their survival and continuity in a competitive landscape are compelled to revise their traditional management systems, which are ill-suited to address the current challenges. Consequently, there is a movement towards embracing contemporary management paradigms that empower organizations to navigate and surmount these challenges, ultimately striving for enhanced efficiency and effectiveness, [1].

The cultivation of knowledge assets is a fundamental component in the prosperity of organizations and the realization of their future objectives. The human resources function serves as a fundamental cornerstone of any organization, significantly contributing to the enhancement of its capabilities and providing a competitive edge in an evolving labor market and amidst shifting economic challenges, [2]. The development of intellectual capital seeks to harmonize the objectives of the organization with the aspirations of its employees, fostering the growth and refinement of their skills and abilities, while cultivating a workplace that promotes innovation and creativity. This approach encompasses a comprehensive array of practices and policies designed to identify suitable employees, facilitate their training and development, assess their performance, and improve their overall job satisfaction and retention, [3]. It takes into account the rapid changes in the business environment and

technology and employs the latest methods and tools to improve the efficiency and effectiveness of administrative processes related to human resources. Thanks to these strategies, overall employee satisfaction is enhanced, organizational performance is enhanced, and a balance is achieved between the organization's short- and long-term goals, [4].

TQM is one of the main strategies for insurance companies in Jordan, through which they seek to achieve their goals by working to develop all administrative processes in the organization. It is a system based on continuous improvement of performance at all practical and administrative levels, and in all functional areas of the organization, using the available human and financial resources, as it seeks to reduce the imbalance in the work of modern organizations, and its emphasis on the individual working properly, [2]. TQM is a customer-centric process that focuses on the continuous improvement of business process management. It strives to ensure that all linked employees work towards common goals to improve the quality of the product or service, as well as the procedures used for production. There are a number of guidelines that define TQM, [5]. Hence, this study was conducted to measure the impact of TQM implementation on the development of intellectual capital of employees in Jordanian insurance companies.

1.1 Problem of the Study

Through interviews and surveys conducted by the researcher with managers of insurance companies, it was found that there is a lack of interest in the application of TQM and intellectual capital development practices. Some previous studies indicate the importance of studying TQM and its impact on the performance of organizations. For example, previous studies have recommended the need to analyze the impact of TQM on various aspects of an organization, including the development of intellectual capital. However, studies that comprehensively address this topic and apply it to actual companies are still scarce and do not specifically include Jordanian insurance companies, [6].

1.2 Study Questions

Based on the research question, the researcher formulated the following questions to guide the research:

The first main question: What is the level of application of TQM in Jordanian insurance companies?

RQ2: What is the level of TQM implementation in Jordanian insurance companies? What is the level of application of human resource management in Jordanian insurance companies?

RQ3: What is the impact of TQM with its dimensions (employee participation, continuous improvement, commitment and support of top management, and strategic planning for quality management)? on the development of employees' intellectual capital (recruitment strategy, training and development strategy, performance appraisal strategy, compensation strategy) In Jordanian insurance companies.

1.3 Objectives of the Study

The researcher developed the main objectives of the study based on the research question. The objectives can be formulated as follows:

- Evaluate the extent of application of TQM requirements in Jordanian insurance companies. Determine the level of adherence to these requirements.
- Evaluate the extent of the application of intellectual capital development in Jordanian insurance companies. Determine the level of commitment to these strategies.
- Explain the impact of the application of TQM in its dimensions on the development of intellectual capital in its dimensions in Jordanian insurance companies and determine the mutual relationship between them.

1.4 Important of the Study

This study derives its importance from two main aspects:

Firstly: Theoretical relevance: The theoretical significance of the study lies in the fact that the study provides a comprehensive theoretical framework linking TQM and intellectual capital development. This theoretical framework is essential in understanding the interactions and potential relationships between these two important approaches to managing organizations. The study enhances our understanding of how TQM and intellectual capital development strategies complement each other and can make a significant contribution to the current research field and fill the current knowledge gap. Finally, the study provides important directions for future research.

Secondly: Applied relevance: The study provides practical guidance for decision-making. The study's findings and recommendations based on

applicable data may provide valuable information for insurance company managers in making informed decisions. These guidelines may be used to aid with the following tasks: developing human resource strategies that adhere to total quality management (TQM) and efficiently allocating and distributing resources. The study's findings imply that conclusive data about the impact of implementing Total Quality Management (TQM) on the development of intellectual capital may become accessible soon. These businesses are hence more able to embrace positive developments and concentrate on creating innovative practices. The study may enhance the competitiveness of the group and enable it to achieve strategic superiority in its field. By understanding the relationship between TQM and the development of intellectual capital, insurance companies can integrate preferences and innovative practices into their daily activities and continuously improve their performance. The study may contribute to the development of a culture of continuous learning and continuous improvement within insurance companies, promoting sustainability and successful growth in the organization.

2 Literature Review

2.1 Hypotheses of the Study

In accordance with the aims of the research and grounded in the inquiries posed by the study, the subsequent hypotheses have been articulated:

The primary hypothesis (H01): The application of TQM and its dimensions does not yield a statistically significant effect at the significance level ($\alpha \leq 0.05$) (employee participation, continuous improvement, commitment and support of top management, strategic planning for quality management) on intellectual capital development strategies (human capital, structural capital, and relational capital) in Jordanian insurance companies.

The study models.

Figure 1 shows the study model that measures the impact of TQM implementation on the development of intellectual capital in all its dimensions in Jordanian insurance companies, which expresses the essence and philosophy of the study in line with its objectives and hypotheses, as it included the presence of two variables, as follows:

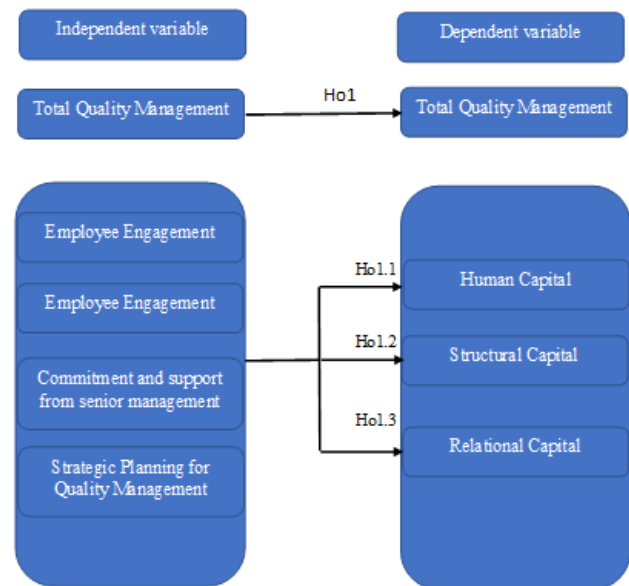


Fig. 1: The Study Model

Source: Prepared by the researcher in light of previous references and studies

2.2 Procedural Definitions

The following definitions of the study variables and their dimensions as stated in the study questions, which were measured by the questionnaire:

TQM: It is "an approach to improve competitiveness and effectiveness, as it is a basic way of planning and organizing and a means of absorbing employees for all activities and at all levels of management" [7] and will be measured through the following dimensions:

- Employee Engagement: It is procedurally defined as The level to which senior management in insurance companies involve employees in decision-making, policy development, and implementation within the organization. This process aims to involve employees in making decisions related to their work and improve the overall performance of the organization. It was measured through the questionnaire's paragraphs (1-5).
- Continuous Improvement: It is defined as a continuous and systematic process of improving Jordanian insurance companies by continuously and repeatedly improving internal processes and operations, with the aim of increasing efficiency and effectiveness, achieving the highest levels of quality, and better meeting the needs of customers, and was measured through questionnaire items (6-10).
- Top management commitment and support: It is procedurally defined as the top management's recognition of the importance of implementing TQM and making it a business strategy for Jordanian insurance companies and was

measured through the questionnaire items (11-16).

- Strategic Planning for Quality Management: It is procedurally defined as The plans prepared by the senior leadership in Jordanian insurance companies that include identifying the main objectives and strategies for improving product quality, and identifying the specific steps and responsibilities associated with the implementation of these strategies. Through which the current state of quality is assessed, important criteria and indicators for measuring quality are identified, data is analyzed, strengths and weaknesses are identified, and plans and programs are developed to achieve continuous improvement in the quality of products or services, as measured by the questionnaire items (17-21).

Intellectual capital development: It is procedurally defined as The set of strategies set by insurance companies to work on the development of intellectual and technical human resources capabilities in accordance with the vision and strategy of Jordanian insurance companies, and will be measured through the following dimensions:

- Human Capital: It is procedurally defined as the group of workers in Jordanian insurance companies of technicians, workers, managers, and employees with different specializations and skills, who collectively constitute the human capital trained and qualified to work efficiently and effectively and was asked in paragraphs (22-26).
- Structural capital: It is procedurally defined as the set of systems, procedures, technology, and databases that insurance companies in Jordan have, which they use to accomplish their work and remain at work and do not return home with the employee, unlike human capital, which moves to return home in the evening. It was measured through the questionnaire paragraphs (27-31).
- Relational capital: It is procedurally defined as the set of relationships between employees in Jordanian insurance companies and is similar to social relationships and refers to the relationships of trust between them on the one hand and between the owners on the other hand as well as new discovered relationships that generate knowledge and benefit the organization to carry out work procedures. It was measured through the questionnaire paragraphs (32-36).

2.3 Theoretical Framework

2.3.1 Total Quality Management

TQM is an integrated concept as a modern management philosophy based on a number of innovative efforts and modern management methods, as many organizations have applied this concept to upgrade and improve services, gain customer satisfaction and help meet the challenges, among the definitions that addressed the concept of TQM are the following:

[8], defined it as a management method based on all the work of the organization through which the desires of customers and society can be met and achieve the expectations and objectives of organizations at the lowest cost. It is also defined as "performing the work correctly and the first time, it includes systems and activities that seek to achieve and satisfy the needs of customers", and it is defined as the common management practices and cultural revolution followed by management in order to improve quality, it helps management to focus on processes and achieve the best results.

TQM is a holistic approach aimed at enhancing the organization's competitiveness, efficacy, and adaptability through meticulous planning, organization, and comprehension of all activities, alongside the engagement of every individual. It embodies a leadership paradigm that fosters an organizational ethos conducive to attaining the highest possible quality of goods and services. The effectiveness of this leadership approach hinges on the commitment of organizational members to its principles, which genuinely enhance quality and value. Furthermore, TQM principles have consistently demonstrated success by relentlessly pursuing both internal and external customer satisfaction through the integration of tools, training, and techniques that yield products and services of superior quality.

2.3.2 Dimensions of TQM

TQM practices include leadership, strategic planning, customer focus, collaboration, process management, analysis, information, and other activities, [9]. The aspects of Total Quality Management (TQM) are described in a variety of ways, with some of them describing the practices in general and without identification of any particular classification.

The practices are broken down into the following categories: leadership, customer relations, supplier relations, workforce management, and strategic planning. These categories are in addition to the fundamental practices that include process

management, information, analysis, Six Sigma, an emphasis on quantitative measurement, and the structure of Six Sigma. They were referred to as "soft practices" and "hard practices" respectively by certain people, [10].

Although researchers appear to have differed in their definitions of the dimensions of Total Quality Management (TQM) due to their practical backgrounds, academic disciplines, or the nature of the environment in which their studies were applied at the applied level, they were in agreement that the application of TQM dimensions brings multiple benefits to the organization. Notable among these advantages are the enhancement of profitability, the expansion of market share, and the attainment of customer satisfaction. Some of the researchers referred to them as dimensions, while others referred to them as components of total quality, and still others regarded them to be prerequisites for the adoption of total quality management (TQM). There was also a variance in the terminology that was employed by the researchers, [11]. However, the researcher is of the view that these needs are requirements, and the requirements are detailed in further depth below.

2.3.2.1 Employee Engagement

Employee engagement and empowerment enhance both individual and corporate performance. Engagement denotes employee involvement in decision-making and problem-solving, along with more autonomy in work processes. Consequently, workers are anticipated to exhibit greater motivation, commitment, productivity, and job satisfaction, [12]. The primary characteristics of engagement are employee engagement—both individual and team—and empowerment. Employee engagement is a management approach that involves providing workers the chance to address work-related concerns and influence management decisions, but management maintains the authority to make final judgments, [13].

Employee engagement is promoted due to the increasing necessity for organizations to address business challenges and secure the complete commitment and loyalty of their workforce, enabling them to leverage their skills, knowledge, abilities, and expertise to foster a competitive advantage and navigate the fierce competition among companies, ensuring that innovative enterprises do not hinder critical decisions impacting their employees. Consequently, workers at every level participate in the decision-making process, [14].

Participation in the continuous improvement structure is the main means of employee participation in TQM, and despite the similarity with quality circles, the difference between them lies in comprehensiveness and integration, as continuous improvement includes all levels of the organization, and is based on the integration of its activities and the role of employees in it is more important than their role in quality circles, [15]. TQM allows the organization to adopt an institutional concept of solving issues through what is called continuous improvement opportunities, and all employees at all levels participate in its implementation by fully understanding the work, its issues, and all information that represents the basis for decision-making, [16].

2.3.2.2 Continuous Improvement

Some continuous improvement programs emerged in the 19th century, where management encouraged employees to make improvements in the production process, and in the early 20th century, scientific quality management emerged, including the development of methods to help managers analyze and solve production issues using scientific methods. Continuous improvement methodologies continued to evolve, and manufacturing companies also began to optimize their processes. Production systems have evolved from the era of artisanal manufacturing, in which all products were made by hand, to the era of mass manufacturing, in which manufacturing systems are produced electronically, [17].

Continuous improvement is the primary mechanism for attaining optimal performance via sustained efforts to enhance process and product quality. Continuous improvement posits that organizational elements—such as personnel, procedures, and tools—can be perpetually enhanced by mitigating and eradicating operational faults. Conversely, continual improvement pertains not only to enhancing outcomes but also to augmenting the capacity to generate future results, [18].

The obligation for continual growth and development lies with all individuals within businesses, regardless of their hierarchical position [19] and modern management interprets the culture of service excellence by ensuring that service recipients receive reliable and accurate information about the service, and is always based on continuous improvement, [20].

The development of novel quality management techniques is underscored by scientific and technological progress, namely via ongoing enhancement of current methods in response to the

evolution of digital technologies [21] and it is necessary to consider philosophies or practices that focus on continuous improvement, especially in production, design, auxiliary processes, control, and all vital aspects, working continuously in improvement starting from the production elements, and the goal is to develop improved production procedures and processes oriented towards continuous improvement, [22].

2.3.2.3 Commitment of Top Management Support

Effective quality management is a crucial determinant of corporate performance, since the commitment of senior management to Total Quality Management (TQM) methods directly influences outcomes. Leaders serve as primary advocates and sponsors of quality enhancement and must develop proficiency in executing TQM, [23].

Top management support is characterized as a commitment by individuals to pursue specific goals, with the involvement of senior management being crucial for fostering employee trust, thereby generating significant interest in quality initiatives throughout various phases of design, implementation, and control and this means that managers must aim to develop the skills and abilities of individuals, by involving workers in many types of training programs, which enhance the culture of quality, [24].

Top management plays a key role in generating innovations by providing the right environment and making decisions that promote knowledge creation and its successful implementation. Ideal top management shows a deep awareness of workers' needs and provides incentives that encourage and motivate them to innovate and solve issues. In addition, top management contributes to meeting workers' needs and enabling them to advance their careers, [25].

2.3.2.4 Strategic Planning for Quality Management

Organizations develop a long-term and comprehensive plan for the organization that contains at least the following elements: vision, mission, goals, objectives, activities to be undertaken in order to achieve the desired goals, and the strategic plan for TQOs, which is designed to give organizations a permanent competitive advantage in the market, as the competitive advantages of TQOs focus on achieving a leadership position in quality and continuous improvement, [26].

From the above, the researcher believes that the principles of TQM are not limited to one aspect only, but surround several aspects that complement each other as an integrated system, to achieve the desired goal of continuous improvement to obtain integration, focus, employee participation, and integration, however, employee participation may be new, knowing that it is considered one of the highly skilled sectors, but people in organizations are used to individual work and lack of effective participation.

2.3.2.5 Intellectual Capital

Many studies refer to several definitions of the concept of intellectual capital as a set of skills available in companies and organizations that have extensive knowledge that makes them able to make these companies global by responding to customer requirements and the opportunities offered by technology to workers who possess skills and mental abilities that are elements of knowledge, skill, and experience that can be invested in increasing intellectual contributions to improve the performance of the company's operations and develop its innovation space in a way that achieves sustainability and growth, [27].

2.4 Relevant Previous Studies

2.4.1 Studies Related to Human Resource Development

[28], the research sought to ascertain the influence of human resources strategy, including recruiting, appointment, training, incentives, security, and safety, on the attainment of sustainable development at the Qualitative Centre for Training on Petroleum Industries in Zawiya. To fulfill the study's objectives and evaluate its hypotheses, the analytical descriptive method was employed. A specialized questionnaire was created and disseminated to a simple random sample of 60 individuals employed at the Qualitative Centre under investigation. The study yielded several findings, the most significant of which are: A statistically significant correlation exists between human resources strategies and their various dimensions (recruitment, appointment, training, incentives, security, and safety) in facilitating sustainable development at the qualitative center for training in oil industries in Zawiya. The study advocates for the enhancement of the human resources strategy and its dimensions (recruitment, appointment, training, incentives, security, and safety) to promote sustainable development at this center.

[29], the study sought to ascertain the degree of influence that human resource management strategies exert on job performance, specifically within the context of Al-Sharqiya University in the Sultanate of Oman. Employing a descriptive and analytical methodology, a questionnaire was crafted and disseminated among the study population. The findings indicated a statistically significant relationship between human resource management strategies and job performance. The study advocates for heightened focus on human resource management strategies and job performance within the university.

A study by [30], the study aimed to demonstrate that automated human resources strategies transform paper-based and traditional human resources tasks into effective and responsive activities that enable companies to anticipate environmental transformations and benefit from them to create a much-needed competitive advantage. The study adopted the descriptive analytical approach and Relying on a survey list to collect primary data using the sample, which included (215) employees from the General Presidency of the National Guard in the State of Kuwait. The results of the study showed that the reality of electronic human resources management is average at the overall level and with respect to each of its dimensions. It was found that the level of digitization was Average on the overall level and for each of its dimensions, and there are no differences between the respondents' perception of the level of electronic human resources management according to different demographic characteristics, and there are no differences between the respondents' perception of the level of digitization according to different demographic characteristics. The study recommends paying attention to human resources strategies and transforming resource tasks. Transforming paper and traditional humanity into effective and responsive activities.

[31], this study sought to assess the influence of human resource management strategies on organizational performance within the University of Maryland (UMB) programs in Kenya. To fulfill this objective, the researchers employed a descriptive analytical methodology, selecting a sample through a comprehensive survey of 120 employees at the University of Maryland, to whom they distributed a questionnaire developed by the researchers. The study found that (88.7%) of the respondents agreed that e-recruitment has been used in the university to a great extent, (83.5%) of the respondents are aware that e-compensation has been used in the university to a great extent, (84.1%) of the respondents are

aware that e-recruitment has been used in the university, and that there is a statistically significant impact of each of (recruitment, training, compensation, and performance) on organizational flexibility, organizational effectiveness, workforce velocity, and organizational productivity at the University of Maryland, and the study recommends applying human resource management strategies in universities.

Study [32] sought to investigate the correlation between quality management dimensions and corporate performance, focusing on small and medium-sized manufacturing enterprises. Employing a descriptive and analytical methodology, a questionnaire was disseminated to a sample of 127 small and medium-sized manufacturing companies in India to fulfill the study's objective. The findings indicated a positive relationship between total quality management and manufacturing performance. The study recommended further examination of the impact of total quality management on corporate performance, particularly in comparison to large manufacturing firms, and advocated for the implementation of quality management practices to enhance company performance.

2.4.2 Studies Related to Total Quality Management

[33], the study aimed to identify the impact of the application of Total Quality Management on the human resources strategies at Arar Central Hospital, and for the purpose of this study, Total Quality Management included the following principles: employee participation, continuous improvement, the commitment of senior management to quality and customer focus, Human Resources strategies consisted of the following strategies: Selection, recruitment, training and development, performance evaluation, rewards and incentives the study community included all 948 employees at Arar Central Hospital, the study sample consisted of (127) workers, the study adopted the descriptive analytical approach, the study found that the level of application of all the principles of Total Quality Management at Arar Central Hospital was an average degree and all human resources strategies were influenced by the application of the principles of comprehensive care in hospitals.

The study of [34], aims to investigate the strategies of Human Resources Management Development in Islamic banks throughout the Gaza governorates and their influence on attaining overall excellence. The study employed a descriptive analytical methodology, utilizing a questionnaire as

the research instrument, with the study population comprising employees of Islamic banks in the Gaza governorates (Palestine Islamic Bank, Arab Islamic Bank), totaling 218 employees. The findings indicated a high overall level of human resources development. The implementation level of overall quality was quite high. A statistically significant direct association exists between the various techniques of human resources development in Islamic banks within the Gaza governorates and overall quality; the research advocates for the enhancement of Human Resources Management in these institutions.

2.4.3 What Distinguishes the Current Study from Previous Studies

The primary distinction of the current study from prior research, as shown by past studies about the relevant factors, is as follows:

This study diverges from prior research by assessing the reality of Total Quality Management through its variables—employee participation, continuous improvement, commitment and support from senior management, and strategic planning for Quality Management—and their influence on the enhancement of intellectual capital among employees in Jordanian insurance companies. In contrast, previous studies pursued objectives akin to those of the current study but failed to examine the interrelations among the current study's variables in depth. Moreover, it offers a theoretical foundation for the study's variables.

3 Study Methodology

3.1 Research Design

To attain the study's objectives, the descriptive analytical method was employed to analyze and categorize the data. Consequently, the researcher devised a questionnaire to gather initial data, which was subsequently analyzed using the statistical software program (SPSS) to derive results and recommendations for measurement. The influence of Total Quality Management implementation on the enhancement of intellectual capital among workers of Jordanian insurance firms.

3.2 Data Collection and Sample Study

The study population comprised all employees of insurance companies in Jordan, totaling 214 individuals. A comprehensive survey method was employed to distribute the questionnaire to all employees. After excluding those whose opinions

were previously solicited and discarding invalid responses, the final study sample consisted of 192 individuals (Jordan Insurance Group Annual Report, 2023).

3.3 Reliability and Validity of the Instrument

The content validity of the instrument was used by presenting it to a group of (7) specialized faculty members at Jordanian universities, and Appendix 2 shows this, to express their opinion on the instrument's measurement of what it was designed to measure, and the degree of its suitability in terms of content and proper linguistic content, so that the modifications suggested by the arbitrators were made before distributing it to the members of the sampling unit.

Second: Stability of the study instrument: To ensure the stability of the instrument, the application and re-application method was used. The tool was applied to (10) individuals (pilot study) who work in insurance companies. Then the tool was re-applied to them, and the stability coefficient was extracted, according to Cronbach Alpha for internal consistency in its final formula for the total and for each variable, and the results were as shown in Table 1 (Appendix).

It can be seen from the Table 1 (Appendix) that the stability coefficients of the study variables were high, as the stability coefficient for all paragraphs of the study tool ($\alpha = 0.899$), which is a high stability rate for the purposes of statistical analysis and scientific research.

3.4 Statistical Methods Used

In order to answer the study questions and test the validity of its hypotheses, the Statistical Package for Social Sciences (SPSS) was used in the analysis, through the use of the following statistical methods:

1. Employ descriptive statistical measures to characterize the study sample, using percentages to address the research questions and order the study dimensions according to their relative significance based on arithmetic means.

2. Conducting Multiple Regression Analysis to evaluate the impact of independent factors on the dependent variable.

3. Conduct a Variance Inflation Factor (VIF) test to assess Tolerance and confirm the absence of significant correlation (Multicollinearity) among the independent variables.

4. Skewness assessments to verify that the data adheres to a normal distribution.

4 Study Results

4.1 Description of the Study Variables

4.1.1 First: Results Related To TQM

Table 2 (Appendix) displays the arithmetic means and standard deviations of the study sample's responses on the TQM dimensions variable. Table 2 (Appendix) indicates that the company's application of Total Quality Management (TQM) is modest, with a mean of 3.55 and a standard deviation of 0.68. The continuous improvement dimension had the highest results, with an arithmetic mean of 3.64 and a standard deviation of 0.80. The subsequent dimension was strategic planning, which had an arithmetic mean of 3.54 and a standard deviation of 0.87. The employee involvement component had the lowest score, with a mean of 3.43 and a standard deviation of 1.01.

4.1.2 Second: Results Related to the Development of Intellectual Capital

Table 3 (Appendix) presents the arithmetic means and standard deviations of the research sample's answers on the intellectual capital development variable. The data presented in Table 3 (Appendix) reveal that the development of intellectual capital in companies is moderate, with an arithmetic mean of 3.37. Furthermore, all dimensions of the variable exhibit a moderate degree, with relational capital attaining the highest score, reflected by an arithmetic mean of 3.55 and a standard deviation of 0.80. The structural capital dimension exhibited an arithmetic mean of 3.38 and a standard deviation of 0.80, while the relational capital dimension recorded the lowest score with an arithmetic mean of 3.16 and a standard deviation of 0.82. The highest score was 55, accompanied by a standard deviation of 0.56.

4.2 Testing the Hypotheses of The Study

The primary hypothesis (H01): There is no statistically significant effect at the significance level ($\alpha \leq 0.05$) of Total Quality Management and its dimensions (employee participation, continuous improvement, top management commitment and support, strategic planning for quality management) on the enhancement of intellectual capital (human capital, structural capital, and relational capital) in Jordanian insurance firms.

The analysis of variance results demonstrate a statistically significant effect ($\alpha \leq 0.05$) of one dimension of TQM (employee participation, continuous improvement, commitment and support of top management, strategic planning of quality

management) on the enhancement of intellectual capital, with a calculated F value of 16.971 and a statistical significance of 0.000 (refer to Table 4 in the Appendix).

Table 5 (Appendix) demonstrates that the multiple regression analysis reveals a statistically significant impact of employee engagement, continuous improvement, top management commitment and support, and strategic quality management planning on the creation of intellectual capital.

The computed t-values were (5.155, 5.094, 5.241, 6.369) with a statistical significance of 0.000. The explanatory value of 0.388 signifies that 38.8% of the variation in intellectual capital development is attributable to TQM aspects.

The primary hypothesis of the investigation is rejected, and the alternate hypothesis is supported. The alternative hypothesis (Ha) posits that, at a significance level of $\alpha \leq 0.05$, Total Quality Management (TQM) and its dimensions—employee participation, continuous improvement, commitment and support from top management, and strategic planning for quality management—exert a statistically significant effect on the advancement of intellectual capital, encompassing human capital, structural capital, and relational capital, within Jordanian insurance companies.

The first sub-hypothesis (H01-1): At the significance level ($\alpha \leq 0.05$), there is no statistically significant effect of Total Quality Management and its dimensions (employee participation, continuous improvement, commitment and support of top management, strategic planning for quality management) on the development of human capital among employees in Jordanian insurance companies.

The analysis of variance results presented in Table 6 (Appendix) demonstrate a statistically significant effect at the ($\alpha \leq 0.05$) level for one of the TQM dimensions: employee participation, continuous improvement, top management commitment and support, or strategic quality management planning. The computed F value (33.345) is statistically significant ($p < 0.001$).

The results of the multiple regression analysis presented in Table 7 (Appendix) demonstrate a statistically significant impact of employee engagement, continuous improvement, top management commitment and support, and strategic quality management planning, with coefficients of 2.261, 2.245, 2.239, and 4.542, respectively, and p-values of 0.022, 0.029, 0.029, 0.031, and 0.000. The explanatory value of 0.272 indicates that 27.2% of

the variation in the growth of relational capital is attributable to TQM parameters.

Consequently, the hypothesis of the second sub-study is rejected, and the alternative hypothesis is articulated as follows: (Ha1-2): The dimensions of Total Quality Management (employee participation, continuous improvement, commitment and support from top management, and strategic planning for quality management) have a statistically significant effect ($\alpha \leq 0.05$) on the enhancement of relational capital in Jordanian insurance companies.

5 Discussion

5.1 Findings Related to Total Quality Management

The study showed that the level of application of TQM dimensions was moderate in Jordanian insurance companies. At the level of the dimensions of the variable, it is noted that the highest degree of application of its dimensions was on the dimension of continuous improvement, then came the dimension of strategic planning, while the dimension of employee participation came at the lowest level of application, and this may be attributed to the weak interest of the company's management in applying modern management concepts in its operations, and its focus on financial and sales aspects, which is consistent with the results of the study of [33] which found that the level of application of all TQM principles in Arar Central Hospital was moderate. It differs from the study of [34], which showed that the level of application of TQM in general was at a high level.

5.2 Development of Intellectual Capital

The study indicated that the implementation of intellectual capital development in insurance companies was moderate, with an arithmetic mean of 3.35. All dimensions of the variable also exhibited moderate levels, with relational capital demonstrating the highest degree of application at an arithmetic mean of 3.49, followed by structural capital at an arithmetic mean of 3.38. This can be ascribed to the inadequate functioning of human resource management and the insufficient awareness among senior management regarding the significance of implementing intellectual capital development in Jordanian insurance companies, as well as its impact on operational efficacy and employee performance enhancement.

5.3 Testing the Hypotheses of The Study

The study's results demonstrated a statistically significant impact of TQM dimensions (employee participation, continuous improvement, top management commitment and support, and strategic quality management planning) on the enhancement of intellectual capital in Jordanian insurance firms. The development of intellectual capital in Jordanian insurance companies shows an explanatory value of 0.388, indicating that 38.8% of the variance in intellectual capital development is attributable to TQM dimensions. This underscores the significance of implementing TQM dimensions and their role in fostering an appropriate work environment for employees, which directly influences employee performance, aligning with the study's findings [35], which showed that the interplay between TQM and organizational culture was statistically significant and favorably correlated with organizational performance, aligning with the findings of [33], which showed a positive correlation between TQM principles and human resource strategies, all of which are statistically significant, and the study of [34], which demonstrated a statistically significant impact of human resource development strategies, including employee training and development, human resource planning, selection and appointment systems, and performance evaluation, alongside the involvement of senior management in shaping the future objectives and aspirations of all employees. This involvement facilitates opportunities for employee participation in change implementation and fosters a culture of change and continuous improvement aimed at achieving total quality, and the study of [36], which showed that the application of TQM dimensions has a statistically significant relationship with human resource development in productive organizations.

- The study's findings demonstrated a statistically significant effect of TQM characteristics, including employee involvement, continuous improvement, commitment and support from top management, and strategic planning for quality management. The explanatory value of 0.555 signifies that 55.5% of the variance in the development of structural capital is attributable to TQM dimensions, which may be linked to the implementation of TQM dimensions in insurance companies to establish specific criteria for attracting proficient human resources capable of advancing and modernizing the organizations.

- The study's findings demonstrated a statistically significant impact of TQM dimensions—employee involvement, continuous improvement, top management commitment and support, and strategic quality management planning—on the enhancement of relational capital. The explanatory value of (0.272) signifies that (27.2%) of the variance in the development of relational capital within Jordanian insurance companies is attributable to the dimensions of Total Quality Management (TQM), which underscores the significance of integrating quality dimensions into the design processes of training programs tailored to the needs of employees in the insurance sector.
- The study's findings demonstrated a statistically significant impact of TQM characteristics, including employee involvement, continuous improvement, top management commitment and support, and strategic planning for quality management. The explanatory value of 0.416 signifies that 41.6% of the variance in human capital is attributable to TQM dimensions, likely due to the enhancement of TQM via the continuous improvement of employee performance, as evidenced by the assessment of human resource performance within the group.

6 Recommendations

In light of the findings of the study, the following are recommended:

- Insurance companies should foster a culture of continuous improvement among employees and encourage them to make suggestions for process improvement and quality development.
- Management should be interested in enhancing employee participation in decision-making processes and developing policies and procedures.
- In order for the firm to accomplish this objective, it is necessary for the company to cultivate intellectual capital in all of its dimensions and to supply instruments that are efficient in this respect.
- In order for a company to expand its intellectual capital in all of its dimensions, it is vital for the company to make investments in appropriate training programs. By making use of this resource, workers will have the opportunity to

improve their capabilities, talents, and skills in order to improve their ability to deal with future difficulties.

7 Future Research Recommendations

- There is a need for more research to discover whether or not Total Quality Management (TQM) has an effect on the expansion of intellectual capital across a variety of industries, including the public and commercial service sectors.
- Results from the study with a larger sample size may be more reliable and generally applicable.
- Future research may use qualitative or mixed methods, such as focus groups and interviews, to collect information.
- It's possible that more independent factors may be examined in further research to ascertain the ways that advancements in technology, corporate culture, and leadership philosophies affect the acquisition of intellectual capital. This would completely ignore the factors that go into developing intellectual capital.
- To find out how much these variables affect the relationship between Total Quality Management (TQM) and the growth of intellectual capital, further research may be done on the moderating factors, such as the size of the business and market conditions. even though the main independent variables in the relevant analysis were the TQM aspects.
- Researchers may use longitudinal research to find patterns and changes across time. These people will comprehend how TQM implementation affects the long-term growth of intellectual capital.

Declaration of Generative AI and AI-assisted Technologies in the Writing Process

During the preparation of this work the authors used Grammarly for language editing. After using this tool/service, the authors reviewed and edited the content as needed and takes full responsibility for the content of the publication.

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APPENDIX

Table 1. The value of the stability coefficient (internal consistency) for each of the study variables

Variable	Number of paragraphs	Stability coefficient	
Employee Engagement	5	0.727	
Continuous improvement	5	0.811	
Total Quality Management	Senior management commitment and support	6	0.715
	Strategic planning	5	0.733
	All paragraphs of the variable	21	0.888
Intellectual Capital Development	Human Capital	5	0.791
	Structural Capital	5	0.705
	Relational Capital	5	0.722
	All paragraphs of the variable	20	0.781
All questionnaire items		41	0.894

Table 2. Arithmetic means and standard deviations on TQM domains

No.	Dimension	Arithmetic mean	Standard Deviation	Rank	Degree of approval
1	Employee engagement	3.43	1.01	4	Medium
2	Continuous improvement	3.64	0.80	1	Medium
3	Commitment and support of senior management	3.52	0.75	3	Medium
4	Strategic planning	3.54	0.87	2	Medium
Overall Score		3.55	0.68	---	

Table 3. Arithmetic means and standard deviations on the dimensions of intellectual capital development strategies

Number	Dimension	Arithmetic mean	Standard Deviation	Rank	Degree of agreement
1	Human Capital	3.37	0.96	3	Medium
2	Structural Capital	3.38	0.80	2	Medium
3	Relational Capital	3.55	0.56	1	Medium

Table 4. The results of the analysis of variance to test the fit of the study model

Model	Sum of squares	Degrees of freedom	Mean squares	F-value	Statistical significance
Regression	10.785	4	2.696	16.971	*0.000
Remainders	17.000	107	0.159		
Total	27.785	111			

*F value is statistically significant at the ($\alpha \leq 0.05$) level

Table 5. Results of multiple regression analysis to test the impact of TQM with its dimensions (employee participation, continuous improvement, commitment and support of top management, strategic planning for quality management) On the development of intellectual capital

Independent variable	Correlation Coefficient R	Coefficient of determination R ²	Regression Coefficient B	Calibrated regression coefficient Beta	Calculated T value	Significance level T
Employee Engagement	0.623	0.388	0.312	0.472	5.155	0.000*
Continuous improvement				0.541	5.094	0.000*
Senior management commitment and support				0.532	5.241	0.000*
Strategic planning				0.571	6.369	0.000*

* The effect is statistically significant at the level of ($\alpha \leq 0.05$)

Table 6. The results of the analysis of variance to test the fit of the study model

Model	Sum of squares	Degrees of freedom	Mean squares	F-value	Statistical significance
Regression	57.136	4	14.284	33.345	*0.000
Remainders	45.835	107	0.428		
Total	102.971	111			

*F value is statistically significant at the ($\alpha \leq 0.05$) level

Table 7. Multiple Regression Model

Independent variable	Correlation Coefficient R	Coefficient of determination R ²	Regression Coefficient B	Calibrated regression coefficient Beta	Calculated T value	Significance level T
Employee Engagement	0.623	0.388	0.312	0.472	5.155	0.000*
Continuous improvement				0.541	5.094	0.000*
Senior management commitment and support				0.532	5.241	0.000*
Strategic planning				0.571	6.369	0.000*

* The effect is statistically significant at the level of ($\alpha \leq 0.05$)

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The authors equally contributed in the present research, at all stages from the formulation of the problem to the final findings and solution.

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