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Pakistan National Operational Model For Business Improvement based on the ISO Management System Standards

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Abstract

Quality initiatives are used worldwide to improve the performance of products, services, processes, and systems performance. ISO Management System (IMS) standards certification is a minimum requirement of quality control, assurance, and management systems. But no model is available to measure businesses' performance improvements (%) and to conduct comparative merit indexing after post-IMS certifications. A gap exists in both theory and practice. This research aims to fill the theoretical and practical gaps by developing an 'operational model to assess performance improvements and develop comparative merit indexing of all businesses after obtaining IMS standards certifications. A mix of thematic, qualitative, and quantitative research methodology using a conceptual research framework, word cloud analysis using the 'Quirkos' software, Judgemental Association Method, and synthesis techniques. World secondary experiential and Pakistan primary national empirical data on IMS standards certifications were collected, reviewed by the ISO focus group, ISO experts, ISO consultants, and ISO users, and then synthesized. Nine essential tests were performed on the national primary empirical data of ISO Certifications. Pakistan National Operational Model for Assessment of Businesses' Performance Improvement at post-IMS standards certification was developed, comprising a set of criteria comprising 13 major factors and 60 elements, forming a 'framework'. This national operational model is a reliable, validated, registered with IPO and novel approach to achieving the research aim and objective. Businesses' performance improvements can contribute to greater prosperity, sustainability, operational excellence, and environmental improvement, increasing national GDP and supporting the 17 UN-mandated SDGs for all countries of the world.

Keywords: *IMS Standards Certifications, Businesses' Performance Improvement Factors and Elements, Criteria set and a Framework of Pakistan National Operational Model, Comparative Merit Indexing, GDP and SDG.*

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1. INTRODUCTION AND BACKGROUND

At present, many quality initiatives are used worldwide to improve the quality performance of products, services, processes, and systems. These quality improvements include product standards, process standards, system standards, management systems standards, assurance systems, ISO management system (IMS) certifications, and national and regional TQM awards. Pakistan is one of such countries where IMS standards certifications are most popular due to export businesses. It has also developed and announced the 'Pakistan National Quality Award but has yet to implement it at the national level (Nawar, 2008). Getting IMS standards certifications demonstrates that the documented system is in place and represents the minimum level of quality control, management, and assurance. Most organizations take a sigh of relief after obtaining IMS standards certifications, but forget to assess their comparative merit index.

As there is no assessment system or model at the national level to measure the business's performance improvements and its comparative merit index after IMS standards certifications. The world scenario is also not significantly different, as there is no other intermediary system or model between IMS standards certification and the TQM award to assess quantitatively (%) the improvement made after IMS standards certification.

Hence, a gap exists in both theory and practice. This research initiative aims to fill the theoretical and practical gap by developing a national operational model to assess improvements in businesses' performance at the post-IMS standards certification stage.

This research utilized analysis of both the world's secondary experiential data on IMS standards certification, collected through international literature reviews, and primary national empirical data on IMS standards certification, collected from all Chambers of Commerce and Industry in Pakistan.

The world's secondary experiential data on IMS Standards certification and national primary empirical data on both ISO certification and non-certification were recently collected (Nawar et al., September 2021; Nawar et al., March 2022; and Mirza et al., 2025). Analysis of this mega data was conducted using various software, performing numerous tests to confirm the impact of IMS standards certification on businesses' performance, and conducting a comparative performance analysis of IMS standards-certified companies versus non-certified companies. The analysis confirmed that IMS-certified companies outperformed non-certified companies across all 13 major business performance improvement areas and 60 sub-business performance improvement areas, as shown later in the paper (Nawar et al., 2024). Based on the results, a national operational model for assessing businesses' performance improvement was developed to serve as a guiding standard for identifying and ranking performance improvement across all types of businesses in Pakistan.

This positive trend of businesses' performance improvement can lead to an increase in national GDP. This national prosperity can ultimately help achieve all 17 Sustainable Development Goals (SDGs) issued by the United Nations (UN) for all countries worldwide.

2. LITERATURE REVIEW:

Academic and professional communities have been keenly interested in the growing number of Integrated Management System (IMS) standards worldwide, especially in how they can improve organizations' performance and competitiveness within their industries (e.g., Magd & Karyamsetty, 2020; Shams et al., 2023). Over time, organizations have adopted IMS standards as strategic management tools (e.g., ISO 9001, a quality management standard; ISO 14001, an environmental management standard; ISO 45001, an occupational health and safety standard) to standardize their internal processes, streamline their operations, and increase the level of confidence that all parties involved with the business have in it (e.g., Adedeji, 2025; Francisco et al., 2024). A significant body of empirical and theoretical research has established that these standards are increasingly used through integration into a company's management system to achieve excellence and fulfill the organization's mission and vision.

ISO's Annual Survey, covering the years 2018 to 2022, indicates a continuous increase in the number of organisations worldwide certified to ISO standards. The increase in the number of certifications worldwide reflects the requirements of ISO/IEC 17021 and organisations' voluntary obligation to improve their quality and environmental performance (Simion et al., 2025). According to some researchers, the increase in IMS certifications is evidence that the increasing value placed on regulatory compliance by all organisations is now being realised, thus providing a clear example of how worldwide acceptance of IMS provides an avenue for companies to demonstrate their compliance with regulations through certification (Fonseca et al, 2022; Budayan et al, 2022). Fonseca et al. (2022) noted that organisations are now perceiving the adoption of IMS as a method for responding to competition in the global marketplace and implementing critical controls, streamlining process documentation, and establishing a culture of continuous improvement within their organisations (i.e., through IMS). Heras et al. (2001) also stated that organisations do not necessarily adopt IMS to comply with regulations, but rather to provide superior customer satisfaction, reduce costs and operational inefficiencies, and improve their environmental responsibilities.

Numerous empirical studies have examined the performance impact of IMS certifications across a wide range of sectors. Arocena et al. (2020) note that companies that have integrated their quality, environmental, and safety management systems tend to exhibit greater resilience and higher productivity, particularly during periods of significant market volatility. Additionally, research from developing nations supports this theory; researchers Waxin et al. (2019) report that certified firms experience significant improvements in operational control, Customer Relationship Management, and Organisational Learning as a result of their certifications. Similarly, Jannah (2020) and Rogala & Wawak (2021) highlight

that IMS certifications help firms achieve measurable performance improvements by standardising risk management and eliminating non-value-added tasks arising from fragmented management systems.

Furthermore, Zimon et al. (2021) contribute to this discourse by illustrating how IMS frameworks support supply chain integration, reduce discrepancies in supplier quality, and enhance inter-organisational coordination. Furthermore, studies such as Klute-Wenig (2020) and Said et al. (2021) observe that continuous auditing and monitoring embedded within IMS standards help organisations maintain transparency and accountability attributes increasingly demanded by global stakeholders. These benefits extend beyond operational outcomes, as IMS adoption positively influences organisational reputation and improves firms' access to international markets (Wang & Liu, 2023).

Even though numerous studies from around the world explain various ways to gain benefits from IMS Certification, researchers have noted significant uncertainties about how these standards translate into long-term organizational performance across diverse national contexts. Jabbar et al. (2025) state that while IMS is widely adopted, the extent of performance improvement varies significantly across regions due to differences in institutional, cultural, and resource factors. Therefore, it is essential to develop context-specific frameworks and assessment models that can account for these nuances.

Within Pakistan, the uptake of IMS certifications has increased gradually, yet studies assessing their tangible impact remain limited. Primary national empirical work (Nawar et al., 2022; 2023) demonstrates a clear performance gap between certified and non-certified firms, particularly in areas such as process control, customer satisfaction, workplace safety, and environmental performance. Their findings align with global evidence and reinforce the argument that IMS-certified companies exhibit stronger operational maturity and strategic discipline. However, these studies also highlight the absence of a structured national framework capable of measuring post-certification performance improvements and benchmarking organisations against consistent criteria.

Research conducted on a global scale has developed specific ways to assess parts of IMS performance, for example, by examining how environmental impact or quality maturity affects outcomes. However, there is currently no overall operational framework that provides a comprehensive view of business performance across all functional areas after an IMS implementation. It is clear from the work of Kartha (2022) and Doerga (2021) that there is a need for an integrated method to assess business performance by combining financial, operational, regulatory, and sustainability measures. Such integrated assessment tools will be even more critical in emerging economies, given varying levels of institutional support and implementation capacity.

The existing literature thus reveals two complementary themes: first, the global evidence overwhelmingly supports the performance-enhancing effects of IMS certifications; and second, there is a notable methodological and practical gap

in assessing post-certification improvements through a unified, contextually grounded model. This gap is particularly pronounced in Pakistan, where businesses increasingly adopt IMS standards, yet lack a national-level operational model for systematic evaluation and comparative merit indexing. Addressing this gap would not only strengthen organisational accountability but also support national economic development, enhance business sustainability, and contribute indirectly to progress on multiple Sustainable Development Goals.

The most comprehensive global secondary experiential data on IMS standards certifications were collected and analyzed to determine the worldwide population for each IMS standard certification, including Pakistan's share from 2018 to 2022. The data analysis revealed that a lot of businesses have implemented the IMS standards certification (ISO Survey, September 2018; ISO Survey, September 2019; ISO Survey, September 2020; and ISO Survey, September 2021; Fonseca et al., 2022; Budayan et al., 2022; Saizarbitoria & Ochoa, 2021; Demir, 2021; Arocena et al., 202; Khan et al., 2021; Jannah, 2020; Rogala & Wawak, 2021; Santos et al., 2019; Zimon et al., 2021; Said et al., 2021; Klute-Wenig, 2020; Saputra et al., 2023; Fahmi et al., 2021; Rodriguez-Mantilla et al., 2019; Kartha, 2022; Doerga, 2021; Matradi et al., 2022; Sweis et al., 2023) whereas others are in the process.
Also, the primary national empirical data for both IMS standards-certified and non-certified business companies was collected from all available chambers of commerce and industry of Pakistan and analyzed (Nawar et al., September 2022 & Nawar et al., March 2023).

Comparative analysis of both the world's IMS standards, secondary experiential data, and national primary empirical data confirmed that IMS standards-certified companies perform much better than non-certified companies. But there is a dire need to develop a National Operations Model to assess businesses' performance improvements and their comparative merit indexing after IMS standards certification.

2.1. Rationale of the Research Study:

Based on a nationwide mega research study conducted over 2.5 years, involving all chambers of commerce and industry, Pakistan's national operational model was developed to bridge the gap between theory and practice. This new model fulfilled the dire need for assessment of businesses' performance improvement post-IMS standards certifications.

Also, the following rationales were used for this research study.

- No holistic research evidence exists in past literature at the national level on comparative performance analysis of IMS standards certified companies against the non-certified companies
- No standard of national operational model is available based on the IMS standards certifications for the assessment of businesses' performance improvement and comparative merit indexing after IMS standards certification in Pakistan.
- Identification and improvements in quality are required in all major and sub-

business areas or fields of performance for the prosperity, competitiveness, and sustainability of all businesses at the national level for competitive marketing and customer satisfaction.
- Enhancement in the national Gross Domestic Product (GDP) is required for national prosperity and attainment of the 17 Sustainable Development Goals (SDGs) of the United Nations (UN).

2.2. Research Objective:

To fulfill the need for assessment (%) of businesses' performance improvement after getting IMS standards certifications.

3. RESEARCH METHODOLOGY

A mix of Thematic, Qualitative, and Quantitative research methodology is used. The research design of this study is based on the development of a national operational model for assessing businesses' performance improvement after IMS standards certification.

Analysis of world secondary experiential data of IMS standards certification retrieved through an extensive literature review for 2.5 years, and national primary empirical data of both IMS standards-certified and non-certified business companies collected from all 72 chambers of commerce and industry of Pakistan, which provide the base for the model as criteria set and framework.

3.1. Conceptual Research Framework:

A conceptual research framework outlining the holistic background of the mega research study, the Pakistan National Operational Model for businesses' performance improvement, is shown in Figure 1 and has already been discussed by Nawar et al. (2021, 2022, 2023). However, performance evaluation/assessment of an organization after an IMS standards certification is a 'Crucial Mediation Process'. The competitive business position/ranking based on a business's quantifiable score is now possible through the Pakistan National Operational Model.

Figure 1: Conceptual Research Framework for attaining Competitive Business Position using Ranking Technique.

3.2. World Secondary ISO Certification Experiential Data Collection and Analysis:

At the start of the research, a qualitative methodology was used to collect and analyze secondary-source data on ISO certification experiences. Some well-known qualitative techniques were used, including word cloud analysis. Figure 2 below is generated by using the software called 'Quirkos'. The second method used in this study is the 'Judgemental Association Method'.

Figure 2: An exhibit of 'Word Count Analysis' using Quirkos software.

Also, another analysis of the identification of major ISO 'Themes' (main and sub

business improvement areas) using NVIVO software is shown in Table 1.

Table 1: Major ISO 'Themes' (major business improvement areas) identified using NVIVO software.

S. No	Major Themes	Percentage
1	Operational Performance	19.5%
2	Quality Effect	17.9%
3	Revenue	16.6%
4	Certified Management	12.5%
5	Satisfaction	6.7%
6	Awareness	6.7%
7	Incompetence	6.5%
8	Increased Turnover/Profit	5.8%
9	Company Image	4.3%
10	Elements	3.5%

The significant business performance improvement areas (factors) and sub-improvement areas (elements and items) from world secondary experiential data collected from the literature of IMS standards-certified companies for the years 2018, 2019, 2020, and 2021. The comprehensive data were synthesized and then reviewed by the ISO focus group, ISO experts, ISO consultants, and ISO users.

Afterward, the quantitative research methodology is used. This review and synthesized results showed a total of 13 major business performance improvement factors (main business improvement areas or fields) with 60 minor elements and items (sub business improvement areas) having a cumulative frequency of 740, as shown in Table 2, and its bar chart is shown in Figure 3 (Nawar et al., 2021).

Table 2: Reviewed and Synthesized Business Performance Improvement Factors (main Areas) and Elements / Items (minor areas)

No of Factors	Factors (Major Improvement Areas)	Elements and items (Minor Improvement Areas)	Number of Elements/Items	Frequency-based Weightage%
1	Financial Performance	Financial Performance, Sales Increased, Business Efficiency, Reduce Manufacturing Cost, Reduce Cost, Minimize Risks	6	124 / 16.7%
2	Quality Assurance	Quality of Product and Services, Quality Awareness, Develop Quality Management System, Quality Management Practices	4	94 / 12.7%
3	Customers' Satisfaction	Customer Satisfaction, Reduction in Complaints, Delivery on Time	3	71 / 9.5%
4	Employees' Satisfaction	Employees Satisfaction, Employee's motivation, Human Resource Management, Employee Training, Employee skills, Job satisfaction	6	68 / 9.2 %
5	Market Potential	were collected from all these national chambers of commerce and industry in Pakistan and analyzed using various software, performing numerous tests (Nawar et al.,	9	68 / 9.2%
6	Operational Performance	Productivity, Operational Efficiency, Technical Improvement, Growth of Production, Operational Performance, Safety Performance	6	66 / 8.9%
7	Company Performance	Company Performance, Company Image, Company Size, Company Culture, Company Reputation	5	66 / 8.9%
8	Continuous Improvements	Continuous Improvement, Reduction in Waste, Process Improvement, Reduce Errors	4	56 / 7.5%
9	Top Management Performance	Top Management Support, Top Management Commitment, Top Management Performance, Administration Improved	4	42 / 5.6%
10	Communication	Documentation, Internal Communication, External Communication	3	32 / 4.3%
11	Stakeholders Relations	Stakeholders Relations, Build Relations with Suppliers	2	28 / 3.7 %

12	Environmental Improvement	Environmental Performance, Environmental Awareness, Environmental Sustainability, Environmental Improvement, Reduction of Pollution, Environmental Management	6	16 / 2.2%
13	Competition	Competition, Competitive Advantages	2	9 / 1.2%
Total Factors = 13		**Total Elements = 60**	**Total Frequency = 740**	100%

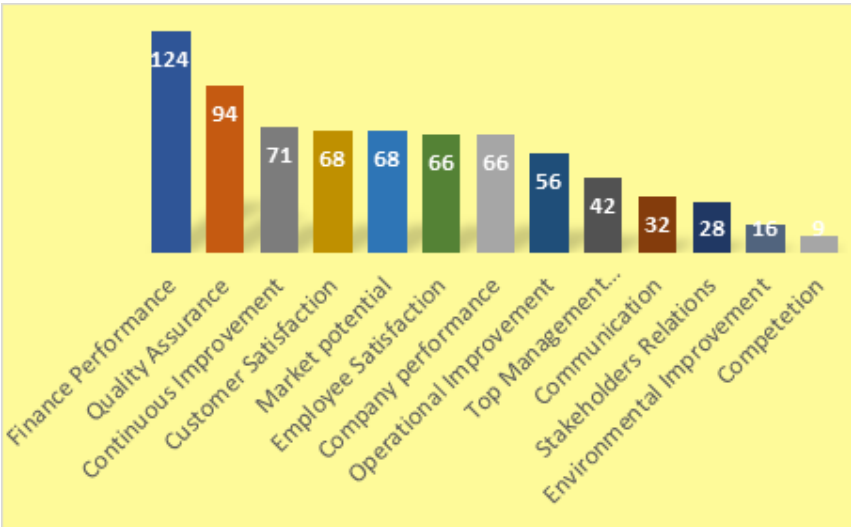

Figure 3: Bar Chart of Reviewed and Synthesized Businesses' Performance Improvement Factors and elements

3.3. National Primary Empirical Data Collection and Analysis:

A research survey questionnaire was designed using the 'Statement Technique' based on the synthesized and reviewed performance improvement factors and elements identified earlier from a secondary analysis of ISO experiential data from the world. The survey instrument (questionnaire) underwent verification and validation (piloting) at various national workshops and seminars organized by provincial and federal chambers of commerce and industry in Pakistan. The participants include trainers, consultants, chief executives of ISO consulting firms, implementers, auditors, and users in the field of IMS standards certification. The 'Reliability and Validity' of the newly designed research survey questionnaire was confirmed. Hence, use primary national empirical data collected from all chambers

of commerce and industry in Pakistan for both IMS standards-certified and non-certified companies.

3.4. Chambers of Commerce and Industry of Pakistan

A summary of the Chambers of Commerce and Industry of Pakistan is shown in Table 3. In the past, the number of chambers of commerce and industry was fewer, but now it is multiple due to the authorization of a local chamber in each province's division.

Table 3: Summary of Chambers of Commerce and Industry of Pakistan

S No	Total Chambers	Federal	Provincial
1	Identified: 71	Chambers: 2	Chambers: 69
2	Total Chambers made Contact: 71	Responsive Chambers: 54	Non-responsive Chambers: 17
3	Total Provincial Chambers:69	Main Chambers:52	Women Chambers:17
4	Total Main Chambers:52	Main Chambers Responsive: 39	Main Chambers Non-responsive:13
5	Total Women Chambers:17	Women Chambers Responsive:13	Women Chambers Non-responsive: 4

National primary empirical data were collected from all these national chambers of commerce and industry in Pakistan and analyzed using various software, performing numerous tests (Nawar et al., 2022). The findings confirmed the positive impact of IMS standards certification on the businesses' performance. The comparative performance analysis also showed that IMS-certified companies outperformed non-certified companies. Hence, the IMS standards certifications data is selected as the basis for the Pakistan National Operational Model.

4. TESTS PERFORMED ON COLLECTED BIG DATA

The following are the major tests performed on the empirical national survey data collected from all chambers of commerce and industry of Pakistan for both IMS standards-certified and non-certified companies.

4.1. Discriminant Validity via HTMT Analysis

The evaluation of discriminant validity was conducted using the Heterotrait-Monotrait (HTMT) ratio criterion, with a preset threshold of 0.85. As delineated by Hair et al. (2021), this approach ensures that each reflective construct shows the strongest associations with its indicators among all constructs. The absence of collinearity among the latent constructs in both data sets confirms that multicollinearity is not an issue, thereby establishing the reliability of the collected data.

4.2. Overall Model Fit Assessment

Model adaptation was examined using indices of goodness specific to partial least squares structural equation modeling (PLS-SEM). The standardized Rotmid average square debris (SRMR) value was less than 0.08, and the standardized fit index (NFI) was below 1; both indicators suggest an acceptable model fit. It is, however, acknowledged that while the GoF metric may aid in PLS multigroup analysis, its broader applicability as a definitive measure of fit remains debatable among scholars.

4.3. Variance Explanation via R Square

The coefficient of determination, R-square, was used to measure the proportion of variance explained by the regression model for the dependent variable. The threshold for R-Square has been set at 0.7. In the present analysis, an R-square value of 60% indicates that the independent variable accounts for 60% of the variability in the target outcome, thereby validating the model's explanatory power.

4.4. Internal Consistency and Construct Validity (Reliability Test)

Internal consistency was assessed by computing Cronbach's alpha, with a threshold of 0.70 or higher indicating reliable scale performance. In both the IMS-certified and non-IMS-certified datasets, the values exceeded the established threshold, confirming that the measurement items are cohesively interrelated. In addition, the Average Variance Extracted (AVE) measure, which must surpass 0.50, further substantiated the validity of the constructs under study. This indicates that measurement error is well controlled within the questionnaire.

4.5. Paired-Sample Comparisons (Two-Pair Test)

A paired-samples t-test was used to compare the means of two related measurements. The test compared metrics from IMS-certified companies to those from non-certified companies. Since the results indicated that the means for IMS-certified companies were higher, it can be inferred that certification is associated with superior performance. This comparative analysis underscores statistically significant differences within the paired observations.

4.6. Correlational Analysis for Survey Validation

The path coefficient was calculated to explore the correlation among survey components. The criteria for strong positive correlation were defined as coefficients ranging from ±0.50 to ±1, while coefficients between ±0.30 and ±0.49 were interpreted as indicative of moderate correlation. Coefficients below +0.29 implied weak associations. The analysis demonstrated significant correlations at the 0.01 and 0.05 levels (2-tailed) and validated the instrument's internal consistency across both IMS-certified and non-certified companies.

4.7. Confirmatory Factor Analysis (CFA) – Level 1 and Level 2

Confirmatory factor analysis was initially used to assess the factor structure of the observed variables and to test the hypothesis links with the underlying latent structures. For the CFA, each item's threshold had to be greater than 0.75. As every variable met this criterion, no items were removed during this stage of analysis, and further elaboration through a second-level CFA was deemed unnecessary.

4.8. Normality Verification Using Skewness and Kurtosis

To evaluate whether the data were derived from a normally distributed population, normality tests were performed by examining bias and kurtosis. The acceptable ranges were set to ±2 for bias and ±7 for kurtosis. The statistical outcomes for all variables were well within these limits, thereby confirming that the sample data adheres to normal distribution.

4.9. Construct Reliability and Validity Examination

The reliability of the construction was re-evaluated via SmartPLS, again using Cronbach's alpha with a criterion of 0.70 or above. This analysis further confirmed that the questionnaire's design demonstrates acceptable reliability and validity and ensures respondents understand the survey effectively. The findings confirm that the instrument is both robust and methodologically sound.

5. DEVELOPMENT OF PAKISTAN NATIONAL OPERATIONAL MODEL FOR BUSINESS IMPROVEMENT BASED ON THE ISO MANAGEMENT SYSTEM STANDARDS

The tests performed on IMS standards certification data for Pakistan identified valid business performance improvement factors and elements (main and sub-business performance improvement areas), which constitute a 'Criteria Set', and their diagrammatic relationships form a 'Framework' (e.g., parent-child relationships).
A set of relevant improvement factors and elements, and a framework showing the diagrammatic relationship, are the two basic and most essential components for any valid model around the world for the TQM award, like the Model of Deming Prize, the Malcolm Baldrige National Award, and the European Quality Award, etc.

5.1. A Criteria Set:

The criteria set for the Pakistan national operational model for assessing businesses' performance improvement are shown in Table 4. The national primary empirical data provide conclusive evidence that IMS standards certification significantly improves businesses' performance. Also, the comparative performance analysis of national primary empirical data shows that IMS standards-certified companies outperformed the non-certified companies in all areas of business performance.

Table 4: The Criteria Set of Pakistan National Operational Model for Assessment of Businesses' Performance Improvement.

S No	Factors / fields	Elements / sub fields	Frequency based Weightage (%)	Assessment after IMS certification- (% Improvement)
1	Financial Performance (FP) -6	a. Financial Performance (FP01)	124 / 16.7%	
		b. Sales Increased (FP02)		
		c. Business Efficiency (FP03)		
		d. Reduce Manufacturing Cost (FP04)		
		e. Reduce Cost (FP05)		
		f. Risks Minimize (FP06)		
2	Quality Assurance (QA) -4	a. Quality of Product and Services (QA01)	94 / 12.7%	
		b. Quality Awareness (QA02)		
		c. Developing Quality Management System (QA03)		
		d. Quality Management Practices (QA04)		
3	Customer Satisfaction (CS) - 3	a. Customer Satisfaction (CS01)	71 / 9.5%	
		b. Reduction in Complaints (CS02)		
		c. Delivery on Time (CS03)		
4	Employee Satisfaction (ES) -6	a. Employees Satisfaction (ES01)	68 / 9.2 %	
		b. Employee's motivation (ES02)		
		c. Human Resource Management (ES03)		

		d. Employee Training (ES04)		
		e. Employee skills (ES05)		
		f. Job satisfaction (ES06)		
5	Market potential (MP) - 9	a. Market Share (MP01)	68 / 9.2%	
		b. Access to International Market (MP02)		
		c. Compete Internationally (MP03)		
		d. Marketing Tools (MP04)		
		e. Goals Achieved (MP05)		
		f. Market Efficiency (MP06)		
		g. Exports Increased (MP07)		
		h. Growth Rate (MP08)		
		i. Market Potential (MP09)		
6	Operational Performance (OP) - 6	a. Productivity (OP01)	66 / 8.9%	
		b. Operational Efficiency (OP02)		
		c. Technical Improvement (OP03)		
		d. Growth of Production (OP04)		
		e. Operational Performance (OP05)		
		f. Safety Performance (OP06)		
7	Company Performance (CP) - 5	a. Company Performance (CP01)	66 / 8.9%	
		b. Company Image (CP02)		
		c. Company Size (CP03)		
		d. Company Culture (CP04)		
		e. Company Reputation (CP05)		
8	Continuous Improvement (CI) -4	a. Continuous Improvement (CI01)	56 / 7.5%	
		b. Reduction in Waste (CI02)		
		c. Process Improvement (CI03)		
		d. Reduce Errors (CI04)		

9	Top Management Performance (TP) -4	a. Top Management Support (TP01)	42 / 5.6%	
		b. Top Management Commitment (TP02)		
		c. Top Management Performance (TP03)		
		d. Administration Improved (TP04)		
10	Communication (CM)-3	a. Documentation (CM01)	32 / 4.3%	
		b. Internal Communication (CM02)		
		c. External Communication (CM03)		
11	Stakeholders Relations (SR) - 2	a. Stakeholders Relations (SR01)	28 / 3.7 %	
		b. Build Relations with Suppliers (SR02)		
12	Environmental Improvement (EI) - 6	a. Environmental Performance (EI01)	16 / 2.2%	
		b. Environmental Awareness (EI02)		
		c. Environmental Sustainability (EI03)		
		d. Environmental Improvement (EI04)		
		e. Reduction of Pollution (EI05)		
		f. Environmental Management (EI06)		
13	Competition (CN) - 2	a. Competition (CN01)	9 / 1.2%	
		b. Competitive Advantages (CN02)		

Note: The last column is used for recording the performance evaluation/assessment after IMS standards certification of an organization to check its quantifiable score. Such action is undertaken either for self-assessment purposes or for a national award-winning competition based on IMS standards certification (Nawar, 2008).

5.2. A Framework:

The framework (factor–element relationship) developed for the Pakistan national operational model for assessment of businesses' performance improvement is shown in Figure 4.

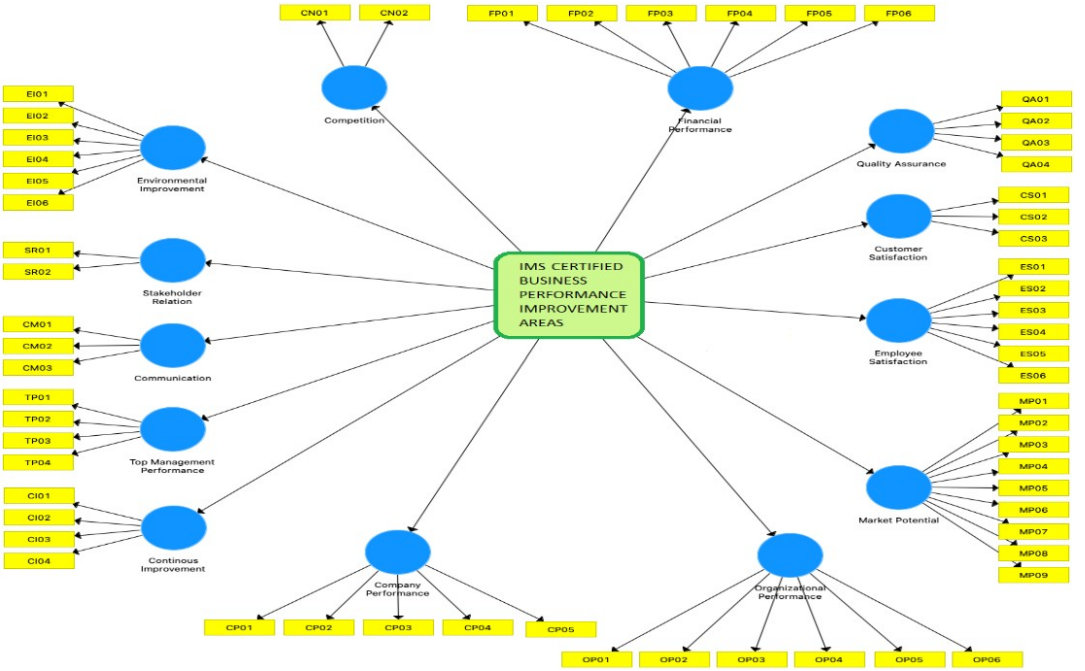

Figure 4: A Framework of Pakistan National Operational Model for Assessment of Businesses' Performance Improvement.

The framework in Figure 4 shows the diagrammatic relationships among major factors and their relevant elements/items of criteria set based on the IMS standards certification. These are the two major requirements to qualify for all quality management and assurance system models operating around the world, such as Total Quality Management (TQM) Award Models (Nawar, 2008). There are many types of assurance models.

Conceptual models encapsulate the fundamental notions, guiding principles, and philosophical underpinnings in their most distilled form. Such models have evolved through the extensive endeavors and experiential insights of leading scholars and practitioners in their respective disciplines.

Implementation models, on the other hand, function as instruments of transformative change within organizational settings. Multiple implementation approaches have been introduced by various experts and advocates, predominantly used by consultants and industry practitioners.

Assessment models are subsequently employed to evaluate organizational performance; they scrutinize the way various factors and elements have been approached, executed, and the outcomes produced. These assessment frameworks, being inherently more intricate than their implementation counterparts, involve an analysis of the correlations among the selected factors, the strategies employed, and the results obtained.

As IMS Standards certifications are the basis of the Pakistan National Operational Model for assessing (%) businesses' performance improvement, these IMS standards are regularly reviewed, updated, and issued as implementation and audit guidelines. The ISO Headquarters at Geneva, Switzerland, issues these standards assurance standards, besides other relevant information around the world (https://www.iso.ch) and (https://www.iso.org). ISO practitioners provide implementation services for these standards. However, the 7 Stages / Steps of the generic implementation model are shown in Figure 5.

Figure 5: A Generic 7-Step Implementation Model

However, businesses' performance improvement can be measured across all areas of the business using the Pakistan National Operation Model to obtain pre- and post-status for calculating improvement.

IMS standards certification is good to put a business house in order and improve but this is the minimum requirement. The assessment of improvement (%) after the IMS certification is the most important factor for setting new improvement targets and ranking the organization in the business community and in its category in the country.

Attaining the IMS certificates is based on qualifying for the minimum requirements. However, self-assessment and competition within a chamber boundary and a country require the best out of the best through quantitative improvement (%) in each major and sub-business area of a business as shown in the criteria set. The ranking technique used to calculate competitive positioning among businesses within a chamber community or at the national level can be conducted using the Pakistan National Operational Model through business performance improvement

(Nawar, 2008; Nawar, 2005; Nawar, 2006).

6. DISCUSSION

This research paper is based on a maiden comprehensive national-level research study carried out under the auspices of the Higher Education Commission of Pakistan. It provides valid data of both IMS certification, secondary experiential data, and national primary empirical data of IMS standards certification. The findings derived from it are as follows.

- Confirmation of the positive effect of IMS standards certification on the improvement of business performance
- The verification that companies certified under IMS standards outperforms their non-certified counterparts' businesses.
- Both the secondary and primary data analysis provided a set of criteria and elements used as a criterion set and a framework for Pakistan's national operational model.
- The need to develop an operational model to measure the improvements made after IMS standards certification was fulfilled.
- Pakistan National Operational Model for assessment of Businesses' Performance Improvement, founded on IMS Standard Certification, comprises a defined set of 13 principal factors (representing the main areas of business enhancement) and 60 sub factors and elements or items (representing the sub-areas of improvement). The diagrammatic framework of these factors and elements provides a clear visual representation of the model.
- This investigation has significantly expanded the existing body of knowledge regarding the influence of IMS standards certification on business performance to new heights.
- Ultimately, the performance enhancement linked with IMS standards certification contributes to improved management practices, operational excellence, environmental sustainability, and overall national prosperity (as reflected in GDP), trends that also support the achievement of the UN's Sustainable Development Goals (SDGs).

6.1 Validity of the Newly Developed Model:

Pakistan National Operational Model for Assessment of Businesses' Performance improvement is a valid model as it is the outcome of an analysis of.A large-scale national research project grounded in the review and analysis of secondary experiential data on IMS standards certification sourced from global literature

Also, national primary empirical survey data encompassing both ISO-certified and non-certified companies, obtained from all national chambers of commerce and industry across Pakistan.

This robust and valid operational model for assessing business performance improvement is based on critical analysis of secondary experiential data on ISO certifications from around the world combined with the collection and interpretation

of empirical IMS standards certification practices data within Pakistan.

6.2 Novelty and Originality of the Model:

This model is based on the first comprehensive national-level research study conducted over 2.5 years to identify the factors and elements of IMS standards certification that improve business performance across all chambers of commerce and industries in Pakistan.

The issuance of "IPO Certificate Registration no 53733 Copr" by the IPO office Karachi as shown in Figure 6 is a proof and authenticity of the novelty and originality of the "Pakistan National Operational Model for Business Improvement based on the ISO Management System Standards" developed and protected in Pakistan and sponsored by the HEC under the mega project scheme of NRPU-12084.

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6.3 Contributions to the Mega National Research Study

a. This research project has notably fulfilled the gap identified in both theory and practice by developing a national operational model that can be used to assess the improvement made by a business after IMS standards certification.

b. To broaden the intellectual boundaries regarding the impact of ISO management system standards certification on business performance improvement and has advanced comparative performance analysis (both factor-to-factor and element-to-element) to novel heights.

c. A reliable and validated national operational businesses' performance improvement model is readily available and shared with all chambers of commerce and industry, FPCCI of Pakistan and academia to teach and implement it in all types of businesses of public, private, commercial, and not-for-profit (NGO)

organizations etc.

The resultant enhancement in business performance attributable to the IMS standards certification is expected to act as a catalyst for encouraging, motivating, and streamlining the implementation and evaluation of ISO management system standards across all public and private sector enterprises in Pakistan. Adopting the IMS Standard System Certification thus creates a mutually beneficial scenario for commercial businesses, customers, employees, stakeholders, and the government. The ensuing improvements in business performance contribute to greater prosperity, sustainability, operational excellence, and environmental improvement, ultimately bolstering national GDP and supporting the 17 SDG of UN agenda.

7. CONCLUSION

The overall conclusion is that this research study fulfilled the need to develop a national operational model, which was used to assess the improvements made through IMS standards certifications. The IMS standards certifications is the first step toward satisfying the industrial house and establishing a documented standard system. However, to assess/measure the improvement made after IMS standards certification, the implementation of the Pakistan national operational model is imperative to set the next target/goal for achievement.

The model presented in this research study is substantiated by evidence drawn from global secondary experiential ISO certification data and national primary empirical data on IMS standards certifications. Both sources confirm the impact of IMS standards certification on business performance improvement.

Also, this is the first-ever model developed, as evident from the national and international literature, to assess the qualitative improvement made after IMS certification.

Improvements in businesses' performance due to IMS standards certification can enhance prosperity, sustainability, and operational and environmental performance, which in turn bolster national GDP and facilitate the attainment of the 17 SDG targets set by the UN for all nations.

The improvement in businesses due to IMS standards certification contributes to prosperity, sustainability, Operational and environmental Improvements, and thus increases national GDP. This trend can ultimately help achieve all the SDGs set by the UN for all nations.

7.1 Implications and Recommendations

To fully realize the accrued benefits, it is imperative for all stakeholders, including commercial businesses, customers, employees, academicians, and government bodies—to mandate (either directly or indirectly) all non-certified local and export-oriented commercial businesses should adopt IMS standards certification within their organizations, thereby fostering widespread prosperity, sustainability, and

competence of businesses through this newly developed national model.

To achieve the desired assessment of improvements in business performance through the national model, it is imperative that all stakeholders associated with commercial business companies, including customers, employees, academicians, and public enterprises and government authorities in Pakistan, disseminate the knowledge through comprehensive awareness and training initiatives.

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Disclosure statement

No potential conflict of interest was reported by the author(s).

Data availability statement

Comprehensive results, including extended tables and figures, are presented in the Supplementary Material accompanying this manuscript.

Authorship Validation:

Author 1: Dr. Nawar Khan: Contributed to study conception, research design, data collection, data analysis, and manuscript drafting.
Author 2: Muhammad Bilal Mirza: Contributed to literature review, methodology development, data interpretation, and manuscript writing.
Author 3: Muhammad Junaid Iqbal: Contributed to data collection, data cleaning, results interpretation, and critical revision of the manuscript.
Author 4: Dr. Ashiq Ali: Contributed to theoretical framework development, model validation, and manuscript editing.
Author 5: Dr. Tasweer Hussain Shah: Contributed to project supervision, overall guidance, final manuscript review, and approval for submission.
All authors confirm that they have reviewed and approved the final version of the manuscript

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