

The Moderating Factors Assessment of ISO 9001 – Quality Management System (QMS) of Micro Small Medium Enterprises (MSMEs) In Tarlac Province

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Abstract— This study investigates the critical moderating factors of ISO 9001 – Quality Management System of Micro, Small, and Medium Enterprises (MSMEs) within Tarlac Province. By employing a mixed-method approach through a structured interview questionnaire and using Partial Least Square – Structural Equation Modeling (PLS-SEM) in hypothesis testing of this study, the research paper assessed the moderating factors such as their ISO 9001's awareness, willingness adaptability, financial and human resources, QMS alternative practices controls, seven dimensions of quality, and barriers implementing a standard and potential benefits and impact of this factors to the ISO 9001 adaptation and certification of MSMEs, data were collected through guided interview survey-questionnaires and document review and analysis. The study reveals that there are three critical or important moderating factors in adapting and implementing ISO 9001 standards, including the importance of Awareness such as understanding of ISO standards, Financial and Human resources, for instance, limited resources of the MSMEs, and the seven (7) dimensions of quality. Notably, the study emphasizes how this critical factor will influence and its importance in the adaptation of the ISO 9001 in their organization. This research contributes to the body of literature and knowledge on ISO 9001, the locale of Micro, Small, and Medium Enterprises, by examining the moderating factors behind the adaptation and implementation of ISO 9001 certification.

Index Terms— Quality management system, MSMEs, readiness assessment, SPSS, PLS-SEM.

1. Introduction

Micro, small, and medium-sized enterprises (MSMEs) are critical drivers of economic growth, innovation, and job creation in the global economy. More than 90% of businesses globally are MSMEs, and this group of companies holds 80% of newly created jobs in emerging areas.

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As has been widely noted in the literature, MSMEs are important for several reasons, including (i) their widespread presence throughout rural areas, making them crucial for the economic development of those areas; (ii) their capacity to hire a sizable number of workers; (iii) their function as a hub for entrepreneurship and the development of business skills, particularly in rural areas; and (iv) their availability as a source of business opportunities for women. However, several obstacles stand in the way of their growth, chief among them being the inability to obtain bank financing and the challenges associated with marketing. (Orlando & Pollack, 2000; Midgley, 2008; Tambunan, 2009).

In the Philippines, 99.52% of all businesses were MSMEs as of 2018. They made up 62.19% of the workforce and were expected to be strong and competitive domestically and abroad. The top five (5) industry sectors, which made up about 83.62% of all MSME establishments, are as follows: (1) Manufacturing; (2) Accommodation and Food Service Activities; (3) Wholesale and Retail Trade, Repair of Motor Vehicles and Motorcycles; (4) Other Service Activities; and (5) Financial and Insurance Activities. Most of our workforce works in this area because MSMEs account for most business establishments in our country.

An international standard called ISO 9001 outlines the fundamental needs for a QMS. The standard's two main goals are to increase customer satisfaction and assist a business in demonstrating its capacity to satisfy legal and consumer criteria. To do this, the standard has key requirements clauses that address the following topics: (1) general QMS, (2) management accountability, (3) resource management, (4) product realization, and (5) measurement, analysis, and improvement. Released in 1987, the standard had updates in 1994, 2000, and 2008. At least 951,486 certifications attesting to confirmed compliance with ISO 9001 had been granted globally as of December 31, 2007 [1]. An expanded set of standards underpins ISO 9001. Among them are ISO 9000 (vocabulary and principles of QMS).

The research agrees that SMEs have certain qualities that will affect how ISO 9001 is implemented. In a commonly used representative study, Ghobadian and Gallear [2] compared the characteristics of large firms and SMEs regarding organizational structure, contacts, behavior, processes, and people. For instance, SMEs typically have fewer levels of management than large firms, informal rules and processes, a flexible culture, a basic planning and control system, limited financial and human resources, and a small clientele. [2]. Although the term "SME" has no agreed-upon definition, it is commonly understood to mean an organization with fewer than 500 people.

Several articles have been written concentrating on adapting ISO 9001 and general total quality management (TQM) principles to SMEs, acknowledging the contrasts between SMEs and large enterprises. The study determines if SMEs' performance may be enhanced by using ISO 9001. For instance, in a survey of Australian SMEs, Rahman [3] found no discernible differences in TQM implementation and organizational performance across SMEs with and without ISO 9001 certification. Nonetheless, Bayati and Taghavi [4] found that obtaining ISO 9001 certification enhanced the performance of Iranian SMEs in their study. Similarly, Koc [5] discovered that ISO 9000 standards had a major positive impact on SMEs. For more details on the application of TQM and ISO 9001 in SMEs.

SMEs face several challenges in achieving an effective ISO 9001. Building on the discussion in Ghobadian and Gallear [2], A few of the typical difficulties that SMEs may encounter are a lack of capital and personnel, insufficient technical expertise in quality management, a lack of comprehension of structured processes, and a lack of prior experience with internal auditing. Although it is difficult to make generalizations about SMEs due to their heterogeneous character, managers, and staff, they are usually highly focused on their core competencies, including sales, production, and customer service. However, they typically do not know how to enhance procedures or what ISO 9001 requires. As Temtime [9] explains, "... Most SMEs know how crucial TQM and planning are to their continued existence and expansion. However, they typically take an ad hoc, informal, and short-term focused approach to both." Implementing ISO 9001 will likely provide SMEs with more challenges if a disorganized approach is taken.

Managers of SMEs should be able to maximize the likelihood of successful implementation by creating a systematic approach to ISO 9001 implementation. Guidance is needed to identify the starting and goal states and lay out a plan for navigating the transition. With such needs in mind, the conceptual model presented in this study. There are five sections in this study. The four initial states of a QMS in SMEs are introduced right after this introduction. This is the foundation for the third portion, which focuses on transforming the QMS from its initial condition to its intended state. Some of the most important factors to take into account when implementing ISO 9001 in SMEs are outlined in the fourth section. Conclusions and a

summary round out the paper.

2. Literature Review

A. Related Studies – Foreign

According to the latest statistics from ISO, more than one million organizations have adopted and implemented QMS due to its advantageous impact on their organization. (Chen et al., 2019) discovered that companies that adopt a proactive stance towards internal training and development demonstrate elevated levels of preparedness. The study emphasizes the significance of harmonizing internal processes with ISO requirements to guarantee a more efficient implementation process. However, this is not consistently true in the context of Micro, Small, and Medium Enterprises (MSMEs).

ISO 9001:2008, the Quality Management System, offers a systematic approach to enhance an organization's management competency. Improving the level of management competency can result in a superior quality output for a business or organization. According to Al-Khadher (2015), a Quality Management System (QMS) is a framework within an organization that includes its structure, responsibilities, processes, procedures, and resources. The purpose of a QMS is to guide and control the organization in terms of quality to improve its performance continuously in terms of effectiveness and efficiency.

The studies conducted by Stanton (2023) and Salles (2023) emphasize the enhancement of operational effectiveness through the implementation of Quality Management Systems (QMS). Implementing a Quality Management System (QMS) such as ISO 9001 can assist organizations in efficiently organizing their operations in the immediate term. The benefits encompass operational consistency, ongoing enhancement, effective employee communications and onboarding, data-driven decision-making, augmented profits, heightened customer satisfaction, activity standardization, and numerous other advantages.

The evolution of Micro, Small, and Medium-Sized Enterprises (MSMEs) in the food industry is intricately linked to adopting Quality Management Systems (QMS). This integration has become a crucial strategy for MSMEs to enhance their performance and competitiveness in a dynamic and demanding market. The synthesis of findings from various studies emphasizes the unequivocal positive influence of QMS implementation on pivotal aspects of MSME operations, making it an essential tool for organizational development.

Garcia Alarcon and Manzano Perez's (2022) review highlights the benefits of Quality Management Systems (QMS) in the food industry. The review emphasizes advantages such as improved product quality, heightened customer satisfaction, cost reduction, and enhanced export performance. Analyzing the nuances of QMS, the study establishes its multifaceted impact on MSMEs in the food sector. This thorough analysis guides businesses in informed decision-making and strategic planning, presenting QMS adoption as indispensable for

ongoing improvement and sustainable growth in the complex food industry.

B. Related Studies – Local

MSMEs in the Philippines have a limited understanding of ISO 9001:2008. This encompasses the Micro, Small, and Medium Enterprises (MSMEs) operating in the furniture and crafts segment of the manufacturing industry. According to Juanzon (2015), a study conducted among SME-based respondents revealed that most respondents were unaware of or familiar with the ISO 9001:2008 standard. Only 30% of the respondents knew this standard before its adoption. Furthermore, Micro, Small, and Medium Enterprises (MSMEs) in the Philippines encountered difficulties when attempting to adjust and execute a Quality Management System (QMS) within their organization. This is due to multiple factors that acted as obstacles in adopting QMS.

In their study among Employees at Clark Freeport zone, Quiambao and Alvaro (2023) found that a quality management system (QMS) can enhance an organization's financial standing by standardizing financial control systems; it can also raise customer satisfaction levels by establishing systematic methods for gathering and analyzing customer data; it can enhance internal processes; and it can spur innovation and learning initiatives because QMS's primary goal is the continuous improvement of operations.

In the insightful study titled "A Case Study on the Role of Quality Management Systems (QMS) in Enhancing the Performance of Micro, Small and Medium-Sized Enterprises (MSMEs) in the Philippine Food Industry" crafted by Bautista and Santos (2022), we delve into the journey of a specific MSME within the vibrant landscape of the Philippine food industry. This case study not only unveils the technical intricacies but also humanizes the experience by spotlighting the tangible impact resulting from the adoption of Quality Management Systems (QMS). We witness how introducing a QMS has streamlined operations and tangibly improved product quality, heightened customer satisfaction, and boosted overall operational efficiency for this MSME. The study's exclusive focus on the practical challenges and benefits provides a deeper, more relatable understanding of the journey MSMEs undertake when integrating QMS into their operation.

C. Hypotheses Development

Figure 1 shows the research framework, which focuses on finding the relationship between the components of the ISO 9001 Quality Management System, such as awareness, willingness, and adaptability, financial and human resources, QMS alternative practices controls, the seven dimensions of quality, and the barriers to implementing QMS standards.

Six hypotheses were developed to determine the relationship between ISO 9001 Quality Management Standards and MSMEs' moderating factors in the ISO 9001 Quality Management System.

Hypothesis 1: Awareness will have a positive influence on

the motivating factors of MSMEs on ISO 9001 Quality Management System

Hypothesis 2: Willingness and adaptability will have a positive influence on motivating factors of MSMEs on ISO 9001 Quality Management System

Hypothesis 3: Financial and Human Resources will have a positive influence on motivating factors of MSMEs on ISO 9001 Quality Management System

Hypothesis 4: QMS Alternative Practice Protocols will have a positive influence on motivating factors of MSMEs on ISO 9001 Quality Management System

Hypothesis 5: 7 Dimensions of Quality will have a positive influence on motivating factors of MSMEs on ISO 9001 Quality Management System

Hypothesis 6: Barriers to implementing standards will have a positive influence on motivating factors of MSMEs on ISO 9001 Quality Management System

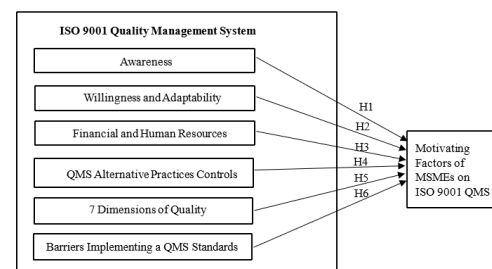


Fig.1. Research Framework

3. Research Method

A. Research Instrument

The structured questionnaire was distributed to the 50 MSMEs in Tarlac Province and consisted of the demographic profile of the respondents in terms of the type of industry, business years, estimated amount of capital, and estimated number of employees. Next were the 31 questions answerable using the 5-point Likert scale: 5=Strongly Agree, 4=Agree, 3=Neutral, 2=Disagree, and 1=Strongly Disagree. This 5-point Likert scale structured rating system allows respondents to express their views on the significance of these factors in a detailed and differentiated manner. Respondents can precisely communicate the varying degrees of influence that different aspects may exert on the overall success of QMS implementation initiatives.

Table 1 shows that the questionnaire was reliable. The respondents had a Cronbach's Alpha of 0.882, greater than the Cronbach's Alpha value of 0.70. Moreover, the data was clean using the SPSS software.

Descriptive analysis was used to analyze the demographic profile of the respondents in this study. This includes the type of industry, business years, estimated amount of capital, and estimated number of employees. Partial Least Square – Structural Equation Modeling (PLS-SEM) was then used for the hypotheses testing due to its powerful provision of visual

representations that specify the model's constructs, indicator variables, and interrelationships. The structural model represents a set of one or more dependence relationships linking the model's hypothesized constructs. Moreover, PLS-SEM tests the model fit and hypotheses on individual paths or regression weights. Therefore, it was then first tested using the confirmatory factor analysis and subject to a series of validity checks, including the convergent validity and reliability measures and discriminant validity using the Fornell and Larcker Criterion (Henseler, 2015).

Table 1. Checking For the Reliability Of N=50 Respondents

	Reliability Statistics	
Cronbach's Alpha		N of Items
0.882		31

B. Participants

The respondents of this study are the owners, managers, and finance officers of the thirty (50) MSMEs in the Tarlac Province. The respondents are chosen for their capability to provide the necessary information and data for the study.

C. Population and Sampling

This study employs convenience sampling to select the surveyed participants based on their accessibility and availability within Tarlac. This criterion ensures regulatory adherence and enhances the study's focus on MSMEs operating within established legal frameworks.

4. Results

Table 2 shows the respondents' demographic results. Of 50 respondents (MSMEs), 10 or 20% are from the metal, 32 or 64% from the food and beverages, and 8 or 16% from the wood crafts industry. For the business years, the results show that 4 or 8% from 0-5 years, 19 or 38% from 6-10 years, 23 or 46% from the 11-15 years, and 4 or 8% from the 16-20 years. In terms of the estimated capitalization, it shows that 50 or 100% are with less than 3,000,000. The results also showed that 20 or 40% have less than ten employees, and 30 or 60% have 10-99 employees.

The results support the study of Anos et al. (2020), which shows that the number of employees depends on the nature, capitalization, and volume of the business or industry. They also show that the industry in the city was small, with less than 3,000,000 in capital, and considered a small enterprise.

Similar to D. Napitupulu's (2020) study, which used a qualitative approach and the Meta-Synthesis Approach to identify the critical success factors of ISO 9001 Implementation for a Small Medium Enterprise in Indonesia, Small Medium Enterprises found it difficult to implement the quality management system, particularly 9001, despite the standard's general applicability to all kinds of organizations, including SMEs. They still had to deal with many challenges, impediments, and other issues, such as scarce resources, ignorance, insufficient HR capabilities, and a lack of funding.

Table 2. Respondents' Demographic Results

Demographics	Frequency	Percent
Type of Industry		
Metal	10	20.0
Food and Beverages	32	64.0
Wood Crafts	8	16.0
Business Years (years)		
0-5	4	8.0
6-10	19	38.0
11-15	23	46.0
16-20	4	8.0
Estimated Capitalization (Php)		
Less than 3,000,000	50	100
3,000,000 – 15,000,000	0	0
Estimated Number of Employees		
Less than 10	20	40.0
10-99	30	60.0
100-199	0	0

Table 3 shows the results of the respondents' assessment of awareness. The composite mean of 3.08 indicates a neutral awareness assessment with a standard deviation 1.45. The variable AW2 received the greatest mean of 3.18 with a standard deviation of 1.48, indicating instability of answers.

Table 4 shows the results of the respondents' assessment of willingness and adaptability. The composite mean of 3.81 agreed with the respondents' overall assessment, with a standard deviation 1.00. The variable WA7 received the greatest mean of 4.12 and the lowest standard deviation of 0.961, indicating the stability of the answers.

Table 5 shows the results of the respondents' assessment of financial and human resources. The composite mean of 3.59 agreed with the overall assessment of the respondents on a date, with a standard deviation of 1.08. The variable HF17 received the greatest mean of 3.80, with a standard deviation of 1.03, indicating the instability of answers.

Table 6 shows the results of the respondents' assessment of the QMS Alternative Practices / Controls. The composite mean of 3.88 agreed with the respondents' overall assessment, with a standard deviation of 0.88. The variable AP21 received the greatest mean of 3.98, with a standard deviation of 0.915, indicating the instability of answers.

Table 7 shows the results of the respondents' assessments of the seven dimensions of quality. The composite mean of 4.32 agreed with the respondents' overall assessment, with a standard deviation of 0.637. The variable DQ37 received the greatest mean of 4.53, with a standard deviation of 0.613, indicating the instability of answers.

Table 8 shows the results of the respondent's assessment of the barriers to implementing a QMS standard. The composite mean of 3.43 agreed with the respondents' overall assessment,

Table 3. Respondents' Assessment of Awareness

Code	Indicators	Mean	Std. Deviation	Interpretation	Rank
<i>Awareness</i>					
AW1	Are you aware of the International Standard? Specific to ISO Standards?	3.08	1.550	Neutral	2
AW2	Are you familiar with the term Quality Management System (QMS) / ISO 9001?	3.18	1.480	Neutral	1
AW3	Do you know the key concept of a Quality Management System?	3.06	1.391	Neutral	3
AW4	Do you know how the Quality Management System works?	3.00	1.370	Neutral	4
Composite Mean		3.08	1.45		

Legend: 1.00-1.79=Strongly Disagree; 1.80-2.59=Disagree; 2.60-3.39=Neutral; 3.40-4.19=Agree; 4.20-5.00=Strongly Agree (Pimentel, 2010)

Table 4. Respondents' Assessment of Willingness and Adaptability

Code	Indicators	Mean	Std. Deviation	Interpretation	Rank
<i>Willingness and Adaptability</i>					
WA7	Do you think that the implementation of ISO 9001 / QMS will have a benefits to Micro, Small and Medium Size Enterprises (MSMEs)?	4.12	0.961	Agree	1
WA8	How aware are you of the benefits of implementing QMS?	3.56	0.993	Agree	3
WA9	If ISO 9001 / QMS is not implemented in your company, do you have any future plans in implementing it?	3.76	1.061	Agree	2
Composite Mean		3.81	1.00		

Legend: 1.00-1.79=Strongly Disagree; 1.80-2.59=Disagree; 2.60-3.39=Neutral; 3.40-4.19=Agree; 4.20-5.00=Strongly Agree (Pimentel, 2010)

Table 5. Respondents' Assessment of Financial and Human Resources

Code	Indicators	Mean	Std. Deviation	Interpretation	Rank
<i>Financial and Human Resources</i>					
FH15	Do you think that your company has sufficient supervisory and workforce skills to implement QMS?	3.34	1.364	Neutral	3
FH16	Are you willing enough to accept the change in the work culture related to the implementation of QMS?	3.62	0.855	Agree	2
FH17	Do you think that the company will be able to motivate company employees to support the implementation of QMS as a new maintenance strategy through rewards system?	3.80	1.030	Agree	1
Composite Mean		3.59	1.08		

Legend: 1.00-1.79=Strongly Disagree; 1.80-2.59=Disagree; 2.60-3.39=Neutral; 3.40-4.19=Agree; 4.20-5.00=Strongly Agree (Pimentel, 2010)

Table 6. Respondents' Assessment of QMS Alternative Practices / Controls

Code	Indicators	Mean	Std. Deviation	Interpretation	Rank
<i>Alternative Practices and Controls</i>					
AP21	Standard Procedure on Handling a Customer Complaint	3.98	0.915	Agree	1
AP25	Quality Policy or Objectives	3.94	0.867	Agree	2
AP26	Strategic Plans and Action Plans	3.72	0.858	Agree	3
Composite Mean		3.88	0.88		

Legend: 1.00-1.79=Strongly Disagree; 1.80-2.59=Disagree; 2.60-3.39=Neutral; 3.40-4.19=Agree; 4.20-5.00=Strongly Agree

Table 10 shows the discriminant validity using the Fornell-with a standard deviation of 1.15. The variable BI59 received the greatest mean of 3.80, with a standard deviation of 1.03, indicating the stability of answers.

5. Analysis

Table 9 shows the convergent validity and reliability measures obtained from this study. The threshold limit must equal or exceed 0.70 for the Composite Reliability (CR) and Cronbach's alpha (CA). The table below demonstrates all the indicators and passes all the requirements for convergent validity.

Larcker criterion. Assessing discriminant validity is important in any research involving latent variables to prevent multicollinearity issues.

Table 11 shows the Model Fit and Quality Indices with a coefficient value ARS (0.647, $P < 0.001$) and AARS (0.598, $P < 0.001$), resulting in an acceptable decision. In addition, the AVIF and AFVIF are ideal, with 1.479 and 1.858 coefficient values, respectively. The obtained value is 0.699, which indicates that the model is a large fit.

Figure 2 and Table 12 present the results of the analysis of the hypotheses testing. It shows that Awareness ($\beta = 0.25$, $p = 0.03$), Financial and Human Resources ($\beta = 0.44$, $p < 0.01$), Dimension of Quality ($\beta = 0.29$, $p = 0.01$). Hence, H1, H3 and H5 are supported. The other variables, Willingness and Adaptability ($\beta = 0.06$, $p = 0.32$), Alternative Protocols and Practices ($\beta = 0.17$, $p = 0.10$), Barriers ($\beta = 0.05$, $p = 0.36$), are not significantly related to the moderating factors of MSMEs. Hence, H2, H4, and H6 are not supported.

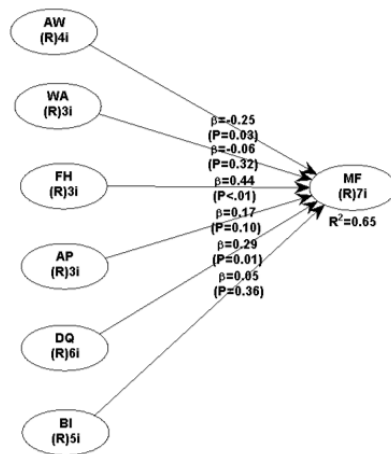


Fig.2. The Structural Model with Parameter Estimates

6. Discussion And Conclusion

The ISO 9001 Quality Management System has been implemented for more than thirty-five years and has become one of the ISO standards most commonly accepted globally. This study aimed to identify and assess the key factors and moderating elements of Tarlac Province's ISO 9001 Quality

Management System for Micro, Small, and Medium-Sized Enterprises (MSMEs).

The main barrier preventing MSMEs from implementing ISO 9001 is organizational resources. For the implementation process to be effective, the organization and its members must be aware of the standard, the financial and budgetary requirements, the time commitment, and the substantial human resource efforts—including training and seminars.

The result of the study reveals that Hypothesis 1: Awareness, Hypothesis 2: Financial and Human Resources, and Hypothesis 3: Dimensions of Quality significantly influence the moderating factors of MSMEs to adapt the ISO 9001 Quality Management System.

There are parallels and divergences between the results of the current study on MSMEs and earlier research on small businesses' adoption of a management system-based quality certification. When Fotopoulos et al. (2009) examined the crucial elements influencing the implementation a quality-based food safety management system in SMEs, they identified four latent components. The results based on the structured questionnaire of this study are consistent with attributes related to the organization, human resources, organizational and personnel knowledge and awareness, and external environment. This contrasts with this study (Casadesus & Karapetrovic, 2005). This study compares the 1994 and 2000 versions of ISO 9001 in terms of the motivation for implementation, the associated challenges, and the costs and benefits of getting the standard. They concluded that significant similarities exist between the two standards: expenses, motivation, implementation method, and valuation 2005). This study compares the 1994 and 2000 versions of ISO 9001 in terms of the motivation for implementation, the associated challenges, and the costs and benefits of getting the standard. They concluded that significant similarities exist between the two standards: expenses, motivation, implementation method, and valuation.

The main conclusion from this study is that three critical moderating factors should be considered by MSME manufacturing firms that seek to implement ISO 9001 effectively and successfully. These three critical moderating factors were revealed to constitute the underlying structure of the moderating factors requiring attention. The study thus concludes that MSMEs should consider the critical moderating factors are the following:

A. Awareness

Awareness refers to a sense or understanding of something. The term is frequently used interchangeably with consciousness. Nevertheless, like in the case of blindsight, awareness of something can exist without conscious awareness of it (Wikipedia). Establishing ISO 9001:2015 awareness within an organization is crucial to ensuring that every employee understands their role, aligns with the quality policy, recognizes internal and external stakeholders, and proactively manages quality risks and opportunities. This concept of

Table.7. Respondents' Assessment On 7 Dimensions of Quality

Code	Indicators	Mean	Std. Deviation	Interpretation	Rank
7 Dimensions of Quality					
DQ31	I always make the values in the vision and mission of the business as a guide in doing the work	4.18	0.596	Agree	5
DQ32	I am always obedient and obedient to prevailing laws and regulations	4.44	0.577	Strongly Agree	2
DQ33	I always share information with employees about what is being done	4.24	0.625	Strongly Agree	4
DQ34	I always involve employees in making business strategies	4.14	0.783	Agree	6
DQ36	I can always control the entire work process well	4.36	0.631	Strongly Agree	3
DQ37	Every mistake I make is always an input for better process improvement.	4.54	0.613	Strongly Agree	1
Composite Mean		4.32	0.637		

Table 8. Respondents' Assessment of Barriers Implementing A QMS Standard

Code	Indicators	Mean	Std. Deviation	Interpretation	Rank
Barriers Implementing A QMS Standard					
BI56	Lack of ownership and commitment of the top management	3.12	1.394	Neutral	5
BI57	Lack of strategic planning and approach	3.18	1.155	Neutral	4
BI59	Lack of knowledge in QMS standard	3.80	1.030	Agree	1
BI62	Lack of supplier's participation	3.34	1.099	Neutral	3
BI63	Uncertainty in adapting a new technology / standard	3.72	1.070	Agree	2
Composite Mean		3.43	1.15		

awareness is similar to that found in the ISO standards and plays a vital role in adapting and implementing an ISO-based management system.

Based on the ISO 9001:2015 Clause 7.3. Awareness: The organization shall ensure that persons doing work under the organization's control are aware of the a.) quality policy, b) relevant quality objectives, c) their contribution to the effectiveness of the quality management system, including the benefits of improved performance; and d) the implications of not conforming with the quality management system requirements.

This awareness fosters a culture of quality that drives continuous improvement and enhances the organization's overall quality performance. Investing in ISO 9001:2015

awareness is an investment in a better, more competitive future for any organization.

B. Financial and Human Resources

In compliance with the organization's quality policy and strategic direction, ISO 9001:2015 employs the Plan-Do-

Check-Act (PDCA) Cycle, a process technique that entails the methodical definition and management of process interactions to achieve the desired outcomes. The organization must define the goals of the system and its procedures under the Plan cycle. It must also have the resources necessary to deliver results in compliance with the demands of the clients and the organization's policies, as well as recognize and take advantage of opportunities and risks. (ISO 9001 standard)

Under Clause 7. Support, Section 7.1.1 Resources. The organization shall determine and provide the resources needed to establish, implement, maintain, and continually improve the quality management system. The organization shall consider a) the capabilities of, and constraints on, existing internal resources and b) what needs to be obtained from external providers. And section 7.1.2 People. The organization shall determine and provide the persons necessary to effectively implement its quality management system and to operate and control its processes. (ISO 9001:2015 Standard)

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Table 9. Convergent Validity and Reliability Measures

Code	Indicators	Item Loading	AVE	CR	CA
Awareness					
AW1	Are you aware of the International Standard? Specific to ISO Standards?	0.935	0.923	0.98	0.972
AW2	Are you familiar with the term Quality Management System (QMS) / ISO 9001?	0.974			
AW3	Do you know the key concept of a Quality Management System?	0.964			
AW4	Do you know how the Quality Management System works?	0.97			
Willingness and Adaptability					
WA7	Do you think that the implementation of ISO 9001 / QMS will be beneficial to Micro, Small and Medium Size Enterprises (MSMEs)?	0.903	0.756	0.903	0.838
WA8	How aware are you of the benefits of implementing QMS?	0.844			
WA9	If ISO 9001 / QMS is not implemented in your company, do you have any future plans in implementing it?	0.861			
Financial and Human Resources					
FH15	Do you think that your company has sufficient supervisory and workforce skills to implement QMS?	0.821	0.717	0.884	0.801
FH16	Are you willing enough to acquire any changes in the your company job related to the implementation of QMS?	0.813			
FH17	Do you think that the company will be able to motivate company employees to support the implementation of QMS as a new maintenance strategy through rewards system?	0.904			
Alternative Practices and Controls					
AP21	Standard Procedure on Handling a Customer Complaint	0.885	0.808	0.927	0.881
AP25	Quality Policy or Objectives	0.936			
AP26	Strategic Plans and Action Plans	0.874			
7 Dimensions of Quality					
DQ31	I always make the values in the vision and mission of the business as a guide in doing the work	0.851	0.731	0.942	0.926
DQ32	I am always obedient and obedient to prevailing laws and regulations	0.828			
DQ33	I always share information with employees about what is being done	0.893			
DQ34	I always involve employees in making business strategies	0.862			
DQ36	I can always control the entire work process well	0.859			
DQ37	Every mistake I make is always an input for better process improvement.	0.835			
Barriers Implementing A QMS Standard					
BI56	Lack of ownership and commitment of the top management	0.85	0.674	0.912	0.879
BI57	Lack of strategic planning and approach	0.814			
BI59	Lack of knowledge in QMS standard	0.802			
BI62	Lack of supplier's participation	0.833			
BI63	Uncertainty in adapting a new technology / standard	0.805			
Motivating Factors of QMS					
MF48	To increase employee productivity	0.74	0.676	0.936	0.919
MF49	To reduce customer complaints	0.826			
MF50	To increase profit margins/ lower operational costs	0.772			
MF51	To improve company image and brand	0.806			
MF52	To increase customer satisfaction	0.862			
MF53	To deliver projects on schedule / reduce delays	0.886			
MF54	To use resources more efficiently / reduce wastages	0.855			

AW-Awareness; WA-Willingness and Adaptability; FH-Financial and Human Resources; AP-Alternative Practices and Protocols; DQ-Dimensions of Quality; BI-Barriers Implementing A QMS Standard; MF-Motivating factors of QMS

Table 10. Discriminant Validity Using Fornell-Larcker Criterion On Reflective Constructs

	AW	WA	FH	AP	DQ	BI	MF
AW	0.961	0.308	0.238	0.277	-0.055	0.063	-0.139
WA	0.308	0.87	0.691	0.226	0.126	0.261	0.325
FH	0.238	0.691	0.847	0.294	0.199	0.287	0.546
AP	0.277	0.226	0.294	0.899	0.466	0.011	0.306
DQ	-0.055	0.126	0.199	0.466	0.855	-0.243	0.529
BI	0.063	0.261	0.287	0.011	-0.243	0.821	0.146
MF	-0.139	0.325	0.546	0.306	0.529	0.146	0.822

AW-Awareness; WA-Willingness and Adaptability; FH-Financial and Human Resources; AP-Alternative Practices and Protocols; DQ-Dimensions of Quality; BI-Barriers Implementing A QMS Standard; MF-Motivating factors of QMS

Table 11. Model Fit and Quality Indices

Model fit	Coefficients	Decision
Average R-squared (ARS)	0.647, P<0.001	Acceptable
Average adjusted R-squared (AARS)	0.598, P<0.001	Acceptable
Average block VIF (AVIF)	1.479, acceptable if <= 5, ideally <= 3.3	Ideally
Average full collinearity VIF (AFVIF)	1.858, acceptable if <= 5, ideally <= 3.3	Ideally
Tenenhau GoF (GoF)	0.699, small >= 0.1, medium >= 0.25, large >= 0.36	Large

Gallear (1997) state that financial and human resources are needed for an organization to adapt and apply ISO standards relevant to ISO 9001:2015 successfully. SMEs have several obstacles to adopting an efficient ISO 9001 system, including financial and human resource issues. SMEs may have several common factors that challenge them to implement ISO 9001, such as insufficient funding and personnel, insufficient technical expertise in quality management, unfamiliarity with structured systems, and insufficient experience in internal auditing. Although it is challenging to generalize SMEs due to their heterogeneous character, managers, and staff, they are usually highly focused on their core competencies, including sales, production, and customer service. However, they typically lack expertise in process improvement techniques and QMS criteria.

leadership, employee engagement, process approach, customer focus, and improvement.

D. Customer Focus

Customers are essential to an organization's ability to survive. If an SME wants to stay in business, it has to comprehend the requirements of both its present and potential clients (Astuty, 2014). 5. Leadership Clause 5.1.2 Section 5.1.2 According to customer focus, top management must show leadership and dedication in this area by making sure that: a) customer needs and any applicable legal or regulatory requirements are identified, comprehended, and consistently met; and b) the emphasis on improving customer satisfaction is kept constant.

E. Leadership

Under Clause 5, Section 5.1, top management is expected to show leadership and dedication to the quality management system. MSMEs' leadership demonstrates their strong commitment to controlling and achieving business goals and seeking quality improvement.

F. People Involvement

The absence of employee (people) duties related to responsibility, control, planning, and execution of work plans. The fundamental understanding that an organization's success is inextricably linked to its people—its employees at all levels—is the basis of the "Involvement of People" philosophy. Motivated and engaged staff members are more likely to improve the performance of the company as a whole if they are aware of their roles, duties, and contributions to quality. This idea emphasizes how crucial it is to promote an environment that values empowerment, cooperation, and ongoing

Table 12. Results Of Direct Effects

Hypothesis	Path coefficient (β)	p-value	Standard error (SE)	Effective size (f ²)	Interpretation
<i>Direct effects</i>					
H1. AW → MF	0.25	0.03	0.128	0.082	Significant
H2. WA → MF	0.06	0.32	0.138	0.031	Not Significant
H3. FH → MF	0.44	<0.01	0.119	0.309	Significant
H4. AP → MF	0.17	0.10	0.113	0.091	Not significant
H5. DQ → MF	0.29	0.01	0.126	0.176	Significant
H6. BI → MF	0.05	0.36	0.139	0.021	Not Significant

C. Dimension of Quality

Known for its history of promoting customer satisfaction and operational excellence, ISO 9001 significantly impacts manufacturing organizations. The standard comprises seven customer-oriented quality management principles (QMPs) that guarantee high-quality services and products for customers, thereby rewarding businesses with success. The seven QMPs are relationship management, evidence-based decision-making,

development.

G. Process Approach

Based on Section 4.4, Clause 4: Understanding the Context of Organization The processes of the quality management system in order to comply with the requirements of this International Standard, the organization must establish, implement, maintain, and continuously improve a quality management system that encompasses the processes required and their interactions. This includes identifying the resources and inputs needed by the processes linked to the effectiveness factor and the output factors produced by the processes linked to the efficiency factor and determining the sequence in which the processes interact.

H. Continuous Improvement

The ISO 9001 standard must be adopted and implemented using the continuous improvement approach, which motivates all staff members to seek opportunities to improve productivity, efficiency, and effectiveness in their businesses, as required by the ISO 9001 Standard specific to Clause 10. Improvement states that The company must decide which areas need improvement to satisfy client demands and raise customer satisfaction. This requires it to perform the following actions: Enhance the efficacy and performance of the quality management system; b) rectify, prevent, or lessen undesirable impacts; and c) develop products and services to fulfill requirements and future needs and expectations.

I. Supplier Relationship

Suppliers are seen as having a significant role in guaranteeing the sustainability of businesses. The most essential thing for them is keeping their business going, especially with the challenging raw materials unique to the food sector and the surrounding area.

7. Conclusion

First, the survey was conducted on 50 respondents, mostly in the Province of Tarlac. Thus, it is suggested that future research studies increase the number of respondents and expand the locale. Adding more variables or constructs related to ISO 9001 Quality Management Systems is also proposed.

Second, the study focuses on the particular moderating factors of ISO 9001 (QMS) that will positively influence the motivating factors of MSMEs regarding the ISO 9001 Quality Management System, including Willingness and adaptability, Financial and Human Resources, Alternative Practice Protocols, Dimensions of Quality, and Barriers and challenges in implementing ISO 900. Future conceptual work and empirical studies can consider other pertinent aspects and analyze their impacts.

Investigating the moderating elements of ISO 9001 certification adaptation and implementation of this study contributes to the knowledge and understanding of ISO 9001 and the location of micro, small, and medium-sized enterprises.

We hope this study will lead to further research and discussion.

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