

Quality management improvement challenges: A case of a multi-business packaging organisation in South Africa

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ABSTRACT

Background

The current challenging economic environment requires organisations to differentiate their products and services from competitors. Therefore, organisations must continually monitor the micro and macro business environment and strategise continual improvement initiatives. ISO 9001:2015 is a quality management system (QMS) that offers a structured approach for organisations to control and enhance the quality of their operations.

Aim

The aim of the study was to assess the quality management status of a selected organisation and to identify the challenges hindering its quality improvement efforts.

Setting

The researched organisation is a multi-business packaging organisation in South Africa that is ISO 9001:2015 certified. Despite such certification the organisation was still experiencing higher than acceptable levels of internal and external quality non-conformances.

Methods

A quantitative and qualitative mixed method research design was adopted to achieve a broader perspective of the research problem by examining the perceptions of both employees and management to understand the reasons for continued quality non-conformances. The total population of the quantitative research consisted of 500 employees from different levels within the organisation. A 5-point Likert Scale questionnaire based on ISO 9001:2015 requirements were administered to a sample of 217 employees from the total population. SPSS (version 26) was adopted to analyse the data with inferential and descriptive statistics. Reliability was evaluated using Cronbach's alpha with a 0.700 threshold. The findings from the quantitative research were used for the qualitative research, to establish interview questions aimed at gaining deeper insights, with interviews conducted among nine senior management personnel across production, safety, quality, and engineering departments. The interview data were reviewed, validated by participants for accuracy, and analysed thematically using Nvivo version 12 software, to identify recurring patterns and enhance the understanding and confirmation of the quantitative results. The quantitative and qualitative methods were triangulated to confirm the research studies' reliability.

Results

The key finding was that despite ISO 9001:2015 certification, the organisation needs to strengthen efforts to enhance the provision of necessary resources and tools required to support a continual quality improvement strategy.

Conclusion

ISO 9001:2015 QMS offers a framework that enables organisations to deliver consistent quality products and services, thereby enhancing their competitive position. However, it is essential for organisations to continually review and ensure that the required resources and tools are provided for optimal performance of the QMS.

Contribution

While the review of literature identifies resource and quality tools provision as a challenge in general, it falls short of providing guidance on exactly how challenges can be addressed within the scope of the overall organisational strategy. This study

provides a framework that links quality management system improvement to organisational strategy.

Keywords: quality, quality management systems, quality objectives, ISO 9001:2015

INTRODUCTION

Ensuring the production of high-quality products is a crucial competitive factor, making it imperative for organisations to carefully plan and implement their Quality Management Systems (QMS) while considering the surrounding environment (Behmera, Jochemb, and Hanke 2016: 963). To encourage QMS certification, decision-makers must possess an understanding of the environmental opportunities and challenges that organisations encounter (Aamer, Al-Awlaqi, and Mandahawi 2020: 358). Therefore, to support resource allocation, optimise cost management, and cultivate a quality-oriented culture, organisations need to establish well-defined quality objectives that align with the organisation's strategic goals. Even if organisations already have quality management initiatives in place, it is essential to assess their current quality management status considering global trends. This evaluation enables organisations to identify areas for improvement and stay attuned to evolving quality management practices.

Organisational context

This study focused on three business units within a metal packaging organisation. The driving factors for this organisation were the regulatory, legislative, and quality requirements of the market it serves. Trading on the South African Stock Exchange in Johannesburg since 1969, the organisation holds a prominent position as the foremost packaging manufacturer in Africa. With operations spanning across 19 sites in South Africa, the organisation specialises in the manufacture of diverse packaging materials, including paper, plastic, and metal (Anon 2020:1). This research study focused on the QMS implemented within the packaging division for diversified metal, which specialises in the production of primary packaging using tinsplate and aluminium raw materials. Within the organisation, the metal packaging division holds a dominant position as the top supplier of food and diversified metal cans in South Africa. Its

product range includes, tinsplate can components, cans for food, shoe polish, paint, and aluminium aerosol cans and tinsplate aerosol cans.

According to Barbosa, Oliveira, and Santos (2018: 925), a SWOT analysis is a valuable tool that is utilised to understand the operating environment of an organisation, and it empowers organisations to develop a long-term strategic plan that aligns with their organisational goals. Consequently, conducting a SWOT analysis is crucial for organisations to identify internal strengths and weaknesses and external opportunities and threats. By conducting this analysis, organisations can formulate a strategic plan that is informed by the SWOT findings. Table 1 presents the quality SWOT analysis conducted by the research organisation.

Table 2: The organisation's quality SWOT analysis

Strengths	Weaknesses
i. ISO 9001 certification since 1995 ii. Annual quality management review, iii. Dedicated quality assurance department, iv. Dedicated quality assurance manager, v. Allocated independent quality auditors per department, vi. Support of Organisation's Research and Development department, vii. Ongoing training provided, viii. Real time statistical process control, ix. Support of divisional quality manager, x. Loyal customer base and partnership, xi. Use of root cause analysis techniques with cross function team for problem solving and xii. Senior management's commitment to quality with a signed quality policy by the General Managers.	i. Limited raw material supplier base, ii. Absenteeism and iii. Excessive overtime
Opportunities	Threats
i. Light weighting of cans, ii. New product and development and Trial Management processes review and improvement and iii. Integrated SHEQ management system	i. COVID 19 Pandemic, ii. Imports, iii. Demand Fluctuation, iv. New entrants into the market and v. Alternative packaging. Replacement of metal container with plastic containers

Source: Quality Management Committee (2021: 13)

The QMS of the organisation is certified to the ISO 9001:2015 QMS standard and undergoes surveillance audits annually as well as triennial audits by a certification body. Furthermore, legal audits are performed annually to verify compliance against statutory and regulatory requirements. The certification to ISO 9001:2015 obligates the organisation to establish objectives for quality that align with its strategic direction

(South African National Standard 9001:2015: 1). Throughout the past century, multiple quality experts who contributed to the evolution of Quality Management Systems (QMS), support the notion that an organisation must set and work towards key quality objectives to achieve continuous improvement in quality. The aim is to establish and attain the overall objectives of quality of the organisation (Kumar, Maiti, and Gunasekaran 2018: 1036). The organisation's quality objectives and initiatives are presented in Table 2.

Table 3: The organisation's objectives and initiatives for quality

Quality Objectives	Initiatives
i. Right first-time philosophy	i. Employee quality awareness training
ii. Reduction in customer complaints	ii. Root cause analysis centre
iii. Reduction in hold for inspection stock	iii. Statistical process control
iv. Improve non-conformance response time,	iv. Membership with a producer responsibility organisation
v. Reduction in sorting and rework due to quality defects	v. Customer visits
	vi. Internal auditing
	vii. ISO 9001:2015 certification
	viii. Documented management system for quality
	ix. A policy for quality signed by the general manager of the organisation, demonstrating leaderships commitment to quality.

Source: Quality management committee (2020: 3) minutes

PROBLEM STATEMENT

The rise in international trade and a greater share in exported domestic content is regarded as a country's key drivers of participation, highlighting the increasing significance of global market value chains. (Bjelic and Kastratovic 2019: 394). The manufacturing sector in South Africa contributes 13% to the country's gross domestic product (GDP) but experienced a contraction of 1.8% in quarter four of 2019 (Statistics SA 2020: 51). In 2018, the South African packaging market sector packaging metal was 9.2%, with a value of R5.9bn (Research and Markets report 2019:01).

Due to the escalating significance of global value chains, the expansion of global trade and the augmentation of the proportion of locally produced goods or services in exports, are regarded as crucial elements for a country's active engagement (Bjelic and Kastratovic 2019: 394). Hence in the current global economic climate, it is imperative for the research organisation to not only preserve its existing market share but also strive to expand it further to ensure its long-term sustainability.

However, the research organisation experienced internal and external quality non-conformances and lacked a clear understanding of its existing quality management status. Therefore, it was necessary for the organisation to assess its current quality management status to develop strategies that would enable it to reduce quality non-conformances to showcase a competitive level of quality.

RESEARCH AIM

The aim of the study was to establish the organisation's quality management status by examining the perceptions of both employees and management regarding the commitment level and resources, tools and techniques availability to support quality initiatives.

RESEARCH OBJECTIVES

- i. To evaluate the perception of employees with regards to the commitment of leadership and the availability of tools, techniques and resources to support quality initiatives.
- ii. To ascertain the current business environment and develop continual improvement strategies for the organisation's QMS.

RESEARCH QUESTIONS

- i. How do employees perceive leadership commitment and the adequacy of available techniques, resources, and tools in supporting quality management within the organisation?
- ii. How does the current business environment influence the development and implementation of continual improvement strategies within the organisation's Quality Management System (QMS)?

THEORETICAL FRAMEWORK

The theoretical framework of a research study functions as a guiding lens that directs attention to relevant data, identifies critical areas of focus, clarifies underlying theories, and reveals the study's strengths and limitations (Given, 2014: 872). This study adopted the process approach grounded in systems theory. Cornell and Jude (2015: 1) describe a system as a network of interrelated processes and subsystems that operate synergistically to achieve a common goal. The International Organisation for

Standardisation (9001: 2015: vi), defines a process as a sequence of interrelated activities that transform inputs into outputs. Hence, an organisation can be viewed as an integrated structure of processes and subsystems that collectively function as a unified system to accomplish its objectives. The ISO 9001:2015 quality management standard reinforces this perspective by encouraging the application of the process approach, together with the Plan-Do-Check-Act (PDCA) cycle and risk-based thinking, to ensure the alignment and integration of management systems (International Organisation for Standardisation 9001: 2015: vi). Figure 1 illustrates the theoretical framework for this research study.

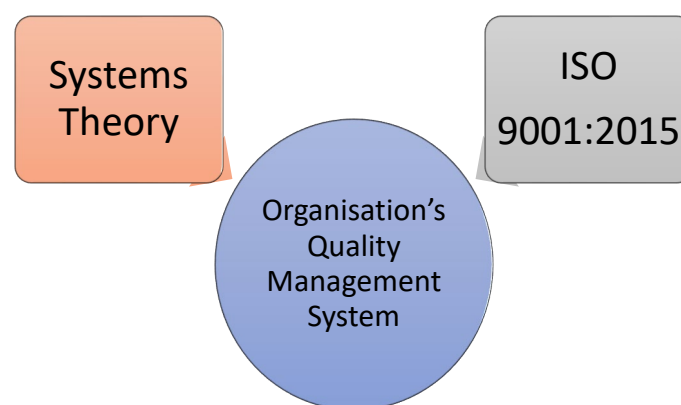


Figure 2: Theoretical Framework

Source: Constructed by the researcher

The subsequent section of the paper presents the literature review, underpinning the research questions, followed by the research methods employed for data collection and analysis, the findings, a discussion linking the results to the literature, and finally, a conclusion based on the results along with suggestions for future research.

LITERATURE REVIEW

Organisations frequently operate in a dynamic and challenging business environment marked by fierce competition, technological advancements, emerging consumer markets, and resource constraints (Basaran 2018: 1). Organisations perceive product and service quality as a crucial factor for gaining a competitive edge, as it allows them to distinguish themselves from other entities and by consistently providing products and services that are of high-quality, organisations aim to differentiate themselves and establish a unique position in the market (Asif, 2020: 1). Hence, organisations require a business strategy that aligns with the current micro and macro environments. While

the management system standards set by the International Organisation for Standardisation (ISO) are not mandatory, they are widely recognised as a strategic tool for achieving success in a competitive global economy. Therefore, aligning the quality management system with the organisation's strategic goals can bring benefits in both the short and long term (Basaran 2018: 01). The advent of the 4th industrial revolution (4IR) has brought forth a new set of opportunities and challenges to be considered in the realm of quality management systems (Corti, Masiero, and Gladysz 2021: 1). Table 3 illustrates the opportunities and challenges associated with quality management systems.

Table 4: QMS opportunities and QMS challenges

Opportunities	Challenges
i. Provide consistent high-quality products ii. Gain a greater market share iii. Implementing Fourth industrial innovations iv. Digital and technology providing competitive advantages in quality v. Data driven quality vi. Availability of big data vii. Internet of things devices operating as data acquisition source viii. Real time monitoring of quality ix. Investment in artificial intelligence x. Problem solving using cyber physical systems xi. Embedding quality in the process, allowing for quick detection of non-conformances xii. Introducing real time statistical process control	i. Cost cutting ii. Unclear goals iii. Workload iv. Poor communication v. Lack of commitment vi. Resistance to change vii. Resource allocation viii. Fourth industrial revolution ix. Required quality culture changes and involvement of employees in embracing quality 4.0 x. Provision of quality assurance for complex products xi. Higher cost of quality non-conformances xii. Limited skills and knowledge of quality 4.0 xiii. Planning and implementation challenges of quality 4.0 xiv. Management of large amount of data xv. Adoption of new technology and xvi. Funding

Source: Behmera, Jochemb and Hanke (2016: 963), Corti, Masiero and Gladysz (2021: 1) and Amer, Al-Awlaqi and Mandahawi (2020: 358).

Throughout history, the existence and prosperity of organisations has been closely linked to trade and certification to the ISO 9001 standard, which instils customer confidence in the supplier's ability to meet their present and future requirements and expectations, thereby facilitating trade (Hoyle 2018: 67). Attaining ISO 9001:2015 certification signifies adherence to global quality standards, enhances internal operations and processes within an organisation, aids in capturing a larger market share, and promotes increased customer loyalty (Majerník, Daneshjo, Chovancova, and Sanciova 2017: 135). With the rise of globalisation, the advent of the fourth industrial revolution, and heightened customer expectations, ISO 9001 plays a pivotal

role as a vital quality assurance tool. By establishing a quality-oriented environment, ISO 9001 facilitates the development of sustainable competitive advantages (Kakouris and Sfakianaki 2018: 2248). The seven principles of ISO 9001:2015 QMS are crafted by the ISO technical committee. These principles serve as valuable guidance for enhancing the quality of an organisation's products and services. (International Organisation for Standardisation, 2015). The seven principles of ISO 9001:2015 are presented in Table 4.

Table 5: The seven principles of ISO 9001:2015

ISO 9001:2015 Principles	Description
1. Customer focus	The main objective of a QMS is to satisfy and strive to exceed the requirements of customers.
2. Leadership	Leaders at all levels of an organisation establish unity of purpose, set strategic direction and create a culture for employee engagement to achieve an organisations' quality objectives.
3. Engagement of people	To achieve organisation quality objectives, efficiency and effectiveness, organisations require competent, empowered and engaged people.
4. Process approach	Activities of an organisation must be understood and managed as interrelated processes that function as a coherent system.
5. Improvement	Organisations must be able to focus on maintaining the current levels of performance, react to changes and create opportunities for improvement.
6. Evidence-based decision making	Organisations must make objective decisions based on the analysis and evaluation of data and information.
7. Relationship management	An organisation's relationship with interested parties impacts on the organisation's performance therefore organisations must manage these relations to optimise their impact on its performance.

Source: Adapted from South African National Standard (9001:2015: 1)

The seven principles of ISO 9001:2015 are a result of the expertise and insights contributed by quality professionals worldwide, who are members of the ISO technical committee (Gueorguiev and Sakakushev, 2016: 972). By acknowledging the increasing customer expectations for superior quality products, organisations have adopted QMSs to maintain competitiveness and confirm the long-term viability of their organisation's operations. According to the International Organisation for Standardisation (2015: vi), the standard for QMS requirements, along with the studies conducted by Kumar, Maiti, and Gunasekaran (2018: 1056) suggest the following advantages can be derived from the implementation of ISO 9001:2015:

- i. Facilitates the consistent attainment of statutory, regulatory and customer requirements by the organisation.

- ii. Offers the organisation avenues to enhance customer satisfaction.
- iii. Enables the organisation to address risks and opportunities that are pertinent to the context and quality objectives of the organisation.
- iv. Equips the organisation with the capability to demonstrate conformity with QMS requirements.
- v. Enhances the organisation's products and processes quality.
- vi. Promotes opportunities for export market expansion.

Hence, organisations can benefit from implementing a system to manage quality. According to a research study conducted by Kumar, Maiti, and Gunasekaran (2018: 1056), it was revealed that out of 263 articles analysed regarding QMS implementation, 90 percent of the surveyed organisations reported a positive correlation between adopting a QMS and experiencing a favourable impact on their performance. However, the remaining 10 percent indicated either a lack of relationship or a negative association. Shepherd (2020:8) conducted a study that similarly concluded that ISO 9001 contributes to increased trade, although there is limited evidence of a positive influence in developed nations. Therefore, for organisations to fully harness the advantages of implementing ISO 9001:2015, they must carefully consider the objectives, benefits, success factors, and challenges associated with adopting a QMS. According to Hoyle (2018: 67) the implementation of a successful ISO 9001:2015 QMS relies on the following factors:

- i. The application of a QMS should be decision based on the organisation's strategic intent and must be embraced at all levels of the organisation, with a focus on meeting the quality requirements of all stakeholders.
- ii. The commitment and involvement of all stakeholders are essential to ensure the production of quality products and the delivery of service quality.
- iii. The identification and provision of necessary resources are crucial for effectively managing and improving an organisation's product and service quality.

- iv. Ongoing communication of pertinent information to all relevant parties is vital.
- v. Conducting a training needs analysis and developing employees are necessary steps for the organisation to enhance its capabilities.
- vi. Rather than implementing ISO 9001:2015 as a mere paperwork system that adheres to each clause of the standard, it should be integrated into the existing organisational processes.

Therefore, organisations should take these factors into account during QMS implementation to ensure a successful alignment with and support of the strategic quality objectives of the organisation. Manufacturing organisations have a fundamental goal of achieving consistency and minimising process variation and the advancements in technology introduced by the fourth industrial revolution present organisations with the opportunity to replace traditional labour-intensive methods with modern machines and robots (Yadav, Shankar, and Singh, 2020: 815). This shift enables organisations to enhance their operational efficiency and reduce variability in processes. Quality 4.0 corresponds to the quality aspect that aligns with Industry 4.0, that presents a distinctive opportunity for organisations to gain an advantage against competitors. By improving the customer's quality experience, organisations can improve their profitability and establish a unique position in the market (Antony, McDermott, and Sony, 2021: 1).

In separate studies conducted by Sony, Antony, and Douglas (2020: 779) and Yunus (2020: 1214), it was concluded that Quality 4.0 centres around leveraging digital tools within the 4IR context to improve product and service quality. The research findings highlighted the following key requirements for effectively implementing Quality 4.0:

Ensuring the commitment and support of top management to provide leadership, training, and establish an organisational culture that embraces Quality 4.0; this commitment should be reflected in the organisation's strategic plan, demonstrating readiness to embark on the 4IR journey.

Utilising Quality 4.0 to facilitate vertical integration across manufacturing processes, horizontal integration across the value chain, and integration throughout the product life cycle; this approach enhances the seamless flow of information and collaboration.

Developing the capability to handle large volumes of data, improving prescriptive analytics, and possessing expertise in data analytics, corporate digitisation, and data security management; these competencies enable organisations to effectively utilise the potential of Quality 4.0 and leverage data-driven insights for improvement.

RESEARCH METHODOLOGY

The goal of organisation research is to envisage and elucidate phenomena within the business environment that is always subject to change (Hair, Page, and Brunsveld 2020: 5). According to Saunders, Lewis, and Thornhill (2016: 5) and Bairagi and Munot (2019: 2) business research is a structured analysis aimed at understanding knowledge that exists and contributing new insights through continuous improvement. According to Harrison, Birks, Franklin, and Mills (2017: 2), the case study research method has gained significant recognition as an effective methodology for exploring and comprehending intricate issues within real-world contexts and the aim of employing this method is to offer a comprehensive and detailed portrayal that enhances one's understanding of the research phenomena in question. A cross-sectional mixed-method approach, combining both qualitative and quantitative case study research, was employed to offer a more comprehensive and balanced perspective on the study. The mixed method strategy that was adopted by the researcher is illustrated in Figure 2.

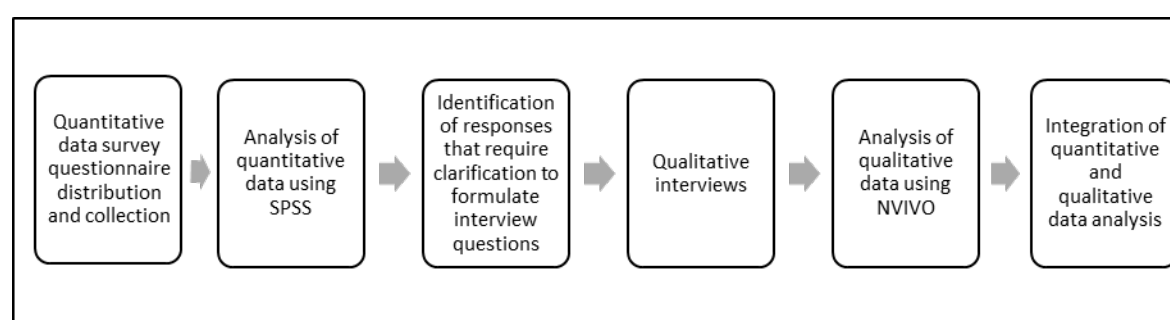


Figure 3: Mixed method strategy

Source: Constructed by the researcher

Quantitative research study

The data collection and analysis of the quantitative research method involve utilising closed-ended questionnaires, as stated by Dudovski (2015: 37). To gather data, a

Likert Scale questionnaire with 5-points was administered to participants, with the statements developed based on the ISO 9001:2015 quality management standard requirements. The research organisation had a population of 500 employees across operational management, middle management, and senior management employees, as indicated in the organisation's human resource records (Human Resource Management Committee, 2021: 2). For the research, a sample of 217 employees was deemed appropriate, following the guidance provided in Sekaran and Bougie's (2016: 294) population sampling table.

The SPSS statistical package (version 26) was utilised to analyse the quantitative data, using both descriptive and inferential statistics. Descriptive statistics were displayed through charts and tables to offer a clear and concise representation of the data. Cronbach's alpha was used to ensure reliability of the quantitative data, with a value of 0.700 recommended as suggested by Gliem and Gliem (2003: 87).

Qualitative research

The quantitative responses collected from the study were used to develop interview questions aimed at gaining deeper insights and validating the findings of the quantitative data. Qualitative data collection, as outlined by Hair, Page, and Brunsveld (2020: 161), involves the use of interviews that are unstructured or observations to probe deeply into an issue and instead of numerical data, key words and key phrases are collected by recording for the qualitative data. For this research study, the organisation's senior management was interviewed to gain a more comprehensive appreciation and a perspective that is in-depth. The interview sample for this study comprised nine participants, including three employees from production, a senior safety, health, and environment officer, three quality employees, and two engineering employees.

To ensure accuracy and reliability the interview recordings and notes were carefully reviewed. These notes were then shared with the participants to validate data accuracy and ensure trustworthiness. Thematic data analysis was completed to identify recurring patterns and themes within the qualitative data, providing a deeper understanding of the insights gathered.

Research ethical protocols and independence

To uphold ethical standards, stringent measures were taken throughout the study to ensure participants anonymity and confidentiality. The identities of the participants were not disclosed, and the participants data and information were solely used for the purpose of this research. Prior approval was obtained from the DUT Institutional Research Ethics Committee, to commence the study, demonstrating compliance with ethical guidelines.

DISCUSSION OF RESULTS AND FINDINGS

The composition of the staff position population is depicted in Figure 3.

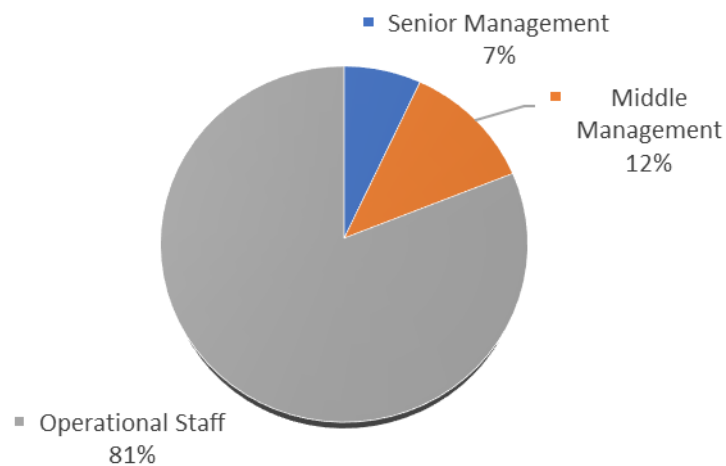


Figure 4: Composition of Staff position

Source: Constructed by the researcher

Table 5 shows the stratified random sampling that was used to select the sample.

Table 6: by Employee level stratified sampling

	Gauteng		Kwa-Zulu Natal		Cape Town		Grand Total	
Management Level	Target	Actual	Target	Actual	Target	Actual	Target	Actual
Senior	4	4	6	6	4	4	14	14
Middle	8	7	10	11	9	10	27	28
Operational	52	52	77	80	47	47	176	179
Total	64	63	93	97	60	61	217	221

Source: Constructed by the researcher

The distribution of the ages of the respondents is illustrated in Figure 4.

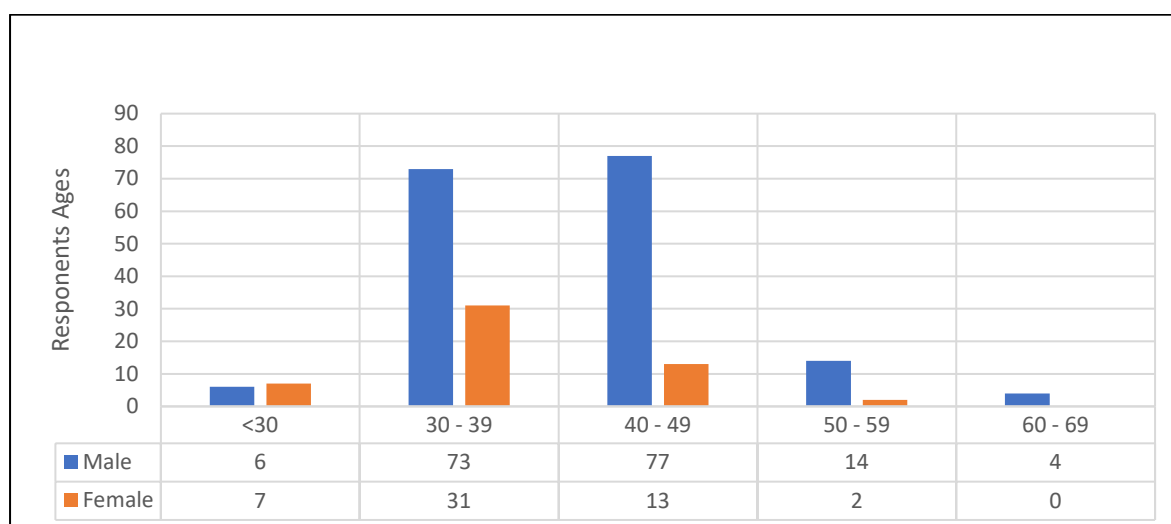


Figure 5: Respondents ages distribution

Source: Constructed by the researcher

The uneven male-to-female ratio mirrors the imbalance in the overall population. Most respondents were between the ages of 30 and 39, followed by the 40 to 49 age group, suggesting a predominantly middle-aged workforce. The scoring trends for the questionnaire for the Quality Management Survey are shown in Table 6.

Table 7: Scoring patterns for Quality Management Survey questionnaire

	Research Objective	Research Question	Statement	Strongly Disagree		Disagree		Neutral		Agree		Strongly Agree		Chi Square p-value
				Count	Row N %	Count	Row N %	Count	Row N %	Count	Row N %	Count	Row N %	
Top management demonstrates committed leadership with respect to the quality management system.	1	1	C7	1	0.5%	3	1.4%	18	8.1%	177	80.1%	22	10.0%	< 0.001
My organisation has determined its quality objectives	1	1	D13	0	0.0%	0	0.0%	22	10.0%	165	74.7%	34	15.4%	< 0.001
My organisation has communicated its quality objectives to employees	1	1	D16	0	0.0%	3	1.4%	24	10.9%	162	73.3%	32	14.5%	< 0.001
My organisation provides the necessary resources needed for the operation of the quality management system	1	1	E19	0	0.0%	3	1.4%	104	47.1%	105	47.5%	9	4.1%	< 0.001
My organisation has measures in place to manage (Plan, organise, lead and control) the processes relating to the quality management system	1	1	F22	0	0.0%	2	0.9%	15	6.8%	185	83.7%	19	8.6%	< 0.001
My organisations reviews (monitors, measures, analyses, and evaluates) its quality performance	1	1	G25	0	0.0%	1	0.5%	17	7.7%	182	82.4%	21	9.5%	< 0.001
My organisation identifies opportunities for the improvement of the quality management system	1	1	H28	0	0.0%	1	0.5%	29	13.1%	178	80.5%	13	5.9%	< 0.001
My organisation provides resources for the improvement of the quality management system	1	1	H31	0	0.0%	3	1.4%	81	36.7%	132	59.7%	5	2.3%	< 0.001
My organisation's management has determined the external factors (Political, Economic, Social, Technological, Legal and Environmental) that may impact on the strategic direction of the organisation's quality management system.	2	2	B1	0	0.0%	1	0.5%	33	14.9%	156	70.6%	31	14.0%	< 0.001
My organisation understands the quality needs and expectation of stakeholders (Customers, suppliers, employees, legal & regularity compliance bodies)	2	2	B4	0	0.0%	2	0.9%	22	10.0%	166	75.1%	31	14.0%	< 0.001
My organisation has completed a product quality risk assessment considering the internal and external business environment.	2	2	D10	0	0.0%	0	0.0%	35	15.9%	148	67.3%	37	16.8%	< 0.001

Source: Constructed by the researcher

Figure 5 indicates scoring pattern of the survey questionnaire for Quality Management.

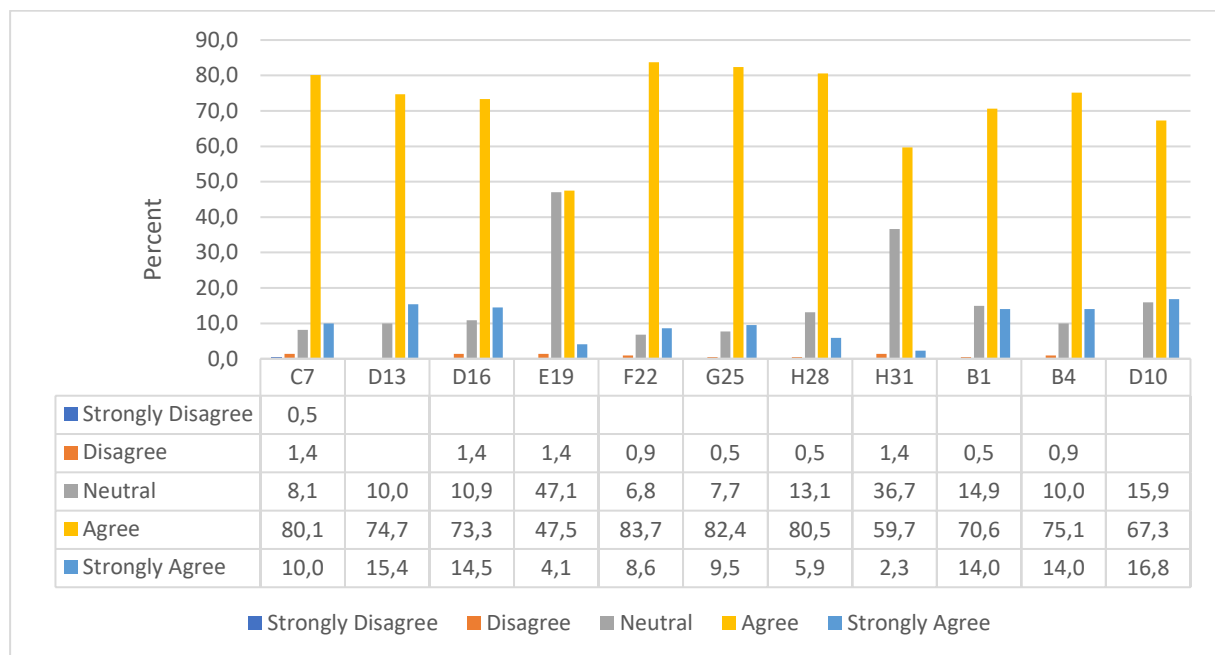


Figure 6: Quality Management survey questionnaire scoring trends.

Source: Constructed by the researcher

Table 6 reflects the significance of the score differences that was analysed, and is presented in Figure 4, revealing the patterns in the statements presented in Table 7. None of the statements received strong disagreement.

Table 8: Comments on scoring patterns observed

Statement t	Research Objective	Research Question	Comment
C7	1	1	Statement C7 is based on the commitment of leadership to the QMS, with 80.1% of the respondents agreeing and 10% strongly agreeing. There was a higher level of agreement than neutral or disagreement.
D13 D16	1	1	Statements D13, and D16, which relate to the quality objectives determination, and objectives communication, received agreement that was higher than neutral or disagreement.
E19	1	1	Statement E19 relates to the provision of resources by the organisation for the QMS. The percentage of disagreement and neutral responses was higher in comparison to the other statements.
F22	1	1	Statement F22 relates to the organisation's planning, organising, leading and controlling of the quality management system. The percentage of respondents who agreed was higher, compared to neutral and disagreement responses.
G25	1	1	Statement G25 relates to the organisation's QMS performance evaluation. There was a higher percentage of respondents who agreed compared to neutral and disagreement responses.
H28	1	1	Statement H28 relates to the organisation's QMS improvement. A higher percentage of respondents agreed, compared to neutral and disagreement responses.
H31	1	1	Statement H31 relates to resources provision for the QMS improvement. The percentage of disagreement and neutral responses was higher in comparison to the other statements.
B1 B4	2	2	Statements B1 and B4 are based on the quality management system and have similar scoring patterns
D10	2	2	Statement D10, which relates to the quality risk assessment of the internal and external business environment, received agreement that was higher than neutral or disagreement.

Source: Constructed by the researcher

Discussion on quantitative findings

The findings are discussed in accordance with the research objectives that were set for the study.

Research objective 1: Evaluating employee perceptions of leadership commitment and resource availability

According to DNVGL (2016: 4), the success of an organisation's management system depends largely on leadership commitment and accountability. Employee perceptions of leadership's commitment to quality management were assessed in Statement C7 of the survey. Findings revealed a strong consensus that the organisation's management demonstrated a clear and consistent commitment to quality management practices. This indicates that employees generally view leadership as supportive of quality objectives and actively engaged in maintaining the Quality Management System (QMS).

However, perceptions regarding the availability of resources and tools to support quality were less positive. As Abuhav (2016: 39) notes, the provision of adequate resources is essential to achieving the intended outcomes of a management system, a view supported by the British Standards Institute (2015: 3). Survey Statements E19 and H31 evaluated this aspect, revealing that a significant proportion of respondents expressed neutrality regarding the adequacy of resources provided for both the operation and improvement of the QMS. Specifically, 47.1% were neutral about resource provision for QMS operation, and 37.7% were neutral concerning resources for QMS improvement. This high level of neutrality suggests uncertainty or limited confidence among employees about management's commitment to adequately supporting the QMS. Such perceptions may point to communication gaps or inconsistencies in resource allocation that could hinder the effective functioning and continual improvement of the system. Overall, the results indicate that while leadership commitment to quality is clearly recognised, perceptions of tangible support through resources and tools remain ambiguous.

Research objective 2: Assessing the business environment and developing continual improvement strategies for the QMS

The current business environment was examined in relation to the organisation's planning, awareness of risks, and responsiveness to internal and external factors. Statement D10, in the survey assessed planning elements related to risk assessment as a key indicator of proactive management. Respondents showed strong agreement that the organisation had conducted appropriate risk assessments for quality management, aligning with DNVGL's (2015: 3) recommendation that organisations should develop clear plans for addressing internal and external business risks. Participants also expressed a high level of agreement that management demonstrated awareness of the external factors influencing the organisation and maintained a comprehensive understanding of stakeholder needs and expectations. This reflects a mature appreciation of the organisation's operating environment and supports a foundation for continual improvement. Further insights from Section F22 of the survey showed that the organisation's planning, organising, leading, and controlling mechanisms were rated above neutrality, suggesting strong management structure and coordination. Section G25, which focused on performance evaluation, revealed consistent agreement that the organisation. Overall, the organisation demonstrates

strong quality awareness and evaluation capacity but may need to enhance the systematic implementation of continual improvement strategies to fully optimise its QMS.

Summary of qualitative research findings

Table 8 provides a summary of the qualitative interviews.

Table 9: Summary of the qualitative findings of the research

Areas of enquiry	Research Objective	Research Question	Summary of responses
Organisations leadership commitment to product and service quality	1	1	<i>The organisation's senior management demonstrates commitment to quality management through a formal quality policy endorsed by the General Manager and by maintaining compliance with ISO 9001:2015 certification.</i>
Organisations' quality operational requirements	1	1	<i>The organisation recognises the need to identify, adequately budget for, and allocate resources to support both the operation and continuous improvement of its Quality Management System (QMS). Legal audits are conducted annually by a legal advisor who is external to the organisation to ensure compliance with applicable regulations. Additionally, the organisation maintains active membership in the Metal Packaging Association (MetPac-SA) and the Institute of Packaging South Africa (IPSA), which provides access to industry developments and best practices. The context of the organisation has been formally established through a SWOT analysis, which identified various opportunities for improvement, including those emerging from the Industrial Revolution Four.</i>
Quality risks consideration when setting SHEQ objectives?	2	2	<i>Quality objectives are established based on identified quality risks to confirm that these risks are effectively monitored and managed. Both objectives and associated risks are reviewed and tracked through internal audits, management meetings, and annual management reviews.</i>
What factors that are external affects the organisation's QMS have been considered, and what measures have been implemented in response?	2	2	<i>In an extremely competitive market where supply exceeds demand, customers define strict quality requirements as part of their supplier selection criteria. As a result, strong emphasis is placed by the organisation on meeting these quality expectations. Increasingly, customers demand assurance that suppliers consistently deliver high-quality products. To address this, the organisation has implemented internal audits and a non-conformance management system to ensure compliance with customer quality standards. These efforts are further reinforced by the organisation's ISO 9001:2015 Quality Management System certification and active participation in industry forums that provide insights into market trends and evolving quality expectations.</i>

Source: Constructed by the researcher

The findings from the quantitative and qualitative research satisfactorily answer the research questions that was set for the study. The recommendations that follow are presented in alignment with the research objectives.

Recommendations

Research objective 1: Evaluating employee perceptions of leadership commitment and resource availability.

To strengthen the organisation's QMS, the organisation's leadership must visibly engage in quality initiatives through regular meetings and open communication, promoting trust and confidence in quality. Transparency in resource allocation is equally important, communicating QMS resource budget and providing support supports a culture of leadership commitment to quality. Regular analysis of resource requirements should ensure alignment with strategic quality goals. Continual training in quality tools, process improvement, and risk-based thinking will empower staff and embed a culture of continual improvement. Finally, a structured feedback and recognition system will enhance motivation, encourage collaboration, and deepen employee ownership of quality outcomes.

Research objective 2: Assessing the business environment and developing continual improvement strategies for the QMS

The organisation has shown some success in evaluating the business environment and engaging with stakeholders. However, leadership must continue to monitor the internal and external business environment and respond proactively to market changes. Internal and external factors, along with stakeholder expectations, play a crucial role in the effectiveness of the QMS. To strengthen this, the organisation should fully embed systems and process thinking and adopt the PDCA principles. It is recommended to enhance risk management and environmental scanning processes, institutionalise the PDCA cycle, and establish a dedicated quality improvement team to systematically integrate market requirements into quality initiatives.

The significance of the study lies in its emphasis on the importance of continual improvement, even for organisations already certified under ISO 9001:2015. By focusing on areas of strength and identifying and improving upon areas of weakness, organisations can further accelerate their progress towards continual improvement.

The utilisation of a case study approach, which involved gathering data from a diverse range of employees, enabled the identification of an opportunity for improvement that may have otherwise remained unnoticed. The findings of this study can be valuable for other organisations seeking to enhance their own quality management performance. Furthermore, future research could explore the development of measures to assess the scale and intensity of initiatives, resource allocation, and effectiveness of communication channels in quality improvements within the packaging industry. Such research endeavours could be undertaken in collaboration with the Institute of Packaging South Africa.

CONCLUSION

Trade is crucial for organisations and quality serves as a distinguishing factor that sets their products apart from competitors. With the dawn of globalisation, the 4IR and the increasing customer demand for higher quality products, organisations have recognised the need to implement QMS to maintain their competitiveness. ISO 9001:2015 QMS offers a framework that enables organisations to deliver consistent quality products and services, thereby enhancing their competitive position. Nonetheless, it is crucial for organisations to continuously review and allocate the necessary resources to maintain optimal performance of the quality management system.

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