
Using ISO 9001 Principles to Enhance Total Quality Management: A Case Study of a Packaging Manufacturer in South Africa

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Abstract

The lifting of sanctions post-1994 ushered in the era of international trade in South Africa. To be competitive, the selected packaging organisation became ISO 9001 certified. However, it continued to be plagued by product quality complaints filed by customers. The objective of the study was to ascertain the factors contributing to quality gaps using the ISO 9001:2015 Quality Management Principles descriptors as measures and to recommend a TQM improvement framework based on the gap analysis. A mixed method approach was adopted for the study. Questionnaires were used to capture baseline information from employees and interviews were conducted with selected managers. The reasons for there being a high number of customer complaints not being closed off timeously, were found to be embedded in the disjuncture between skills required and personnel appointed to various positions. This also had a negative influence on people engagement, resulting in demotivated employees. It was also found that there was insufficient time allocated and personnel dedicated to performing root cause analysis. Continual improvement was found to be primarily constrained by cost considerations, and supplier quality was not being managed effectively.

Keywords: *continual improvement; ISO 9001; quality; TQM*

Introduction

This study is located within the South African packaging industry, which as a sector contributes approximately 1.5 per cent to South Africa's gross domestic product (Braithwaite, Groenewaldt, Kruger, Padgett, Scholtz and Smith, 2019:4). The organisation in this case study's is one of the four predominant metal converters that converts raw materials into packaging for food, beverage, and aerosol cans (Braithwaite, *et al.* 2019:94). Literature suggests that ISO 9001 certification supports successful Total Quality Management (TQM) implementations (Luburic 2014:67). The case organisation is certified against the ISO9001 Quality Management System, but in practice, this has not translated into better TQM implementation. Most concerning is the organisation's trajectory towards almost a ten per cent yearly increase in the number of product-related customer complaints. The nature of complaints received vary from issues relating to colour, shape, and form of packaging material. The role of packaging, amongst other functions such as containment, protection, convenience, and communication, includes tasks such as attracting attention and supporting brand image (Rundh 2016:2493). Thus, any deviation from customer expectation relating to, for example, colour or texture, detracts from this objective. The quantifiable consequences of the non-conformance are the costs that accrue in the form of isolation, sorting, and scrapping costs, and even the loss of revenue. Dale, Bamford, and Wiele (2016:34) assert that, in general, the cost of non-conformance can range between five and twenty-five per cent of a manufacturing organisation's annual sales turnover.

The organisation's quality management system is documented via three levels: policies, procedures, and work instructions. The policies are aligned to the requirements of ISO 9001, while the procedures give a broad overview of the processes that are intended mainly for middle management, and the work instructions are detailed descriptions of the procedures, which are intended for the operator level. The idea of using case organisation is that when there is a complaint, the customer communicates the non-conformance to the respective sales representative, who then visits the customer and obtains samples. The samples are then delivered to the quality department which prompts a Root Cause Analysis (RCA) investigation. A cross functional team is formulated to conduct the RCA. The team brainstorms against the documented procedure or work instruction and any improvements result in changes to the documented procedures or work instructions.

The key research question that was set to be answered was: What are the reasons for the apparent disconnect between theory (ISO 9001:2015 supports TQM) and practice (high customer complaints) at the case organisation. Hence, the aim of this study was to identify the factors impeding TQM implementation with the research objectives being:

- (i) To ascertain the factors contributing to high non-conforming products; and
- (ii) To ascertain how the identified quality gaps could be addressed to enhance TQM.

The theoretical framework that underpins this study is depicted in Figure 1:

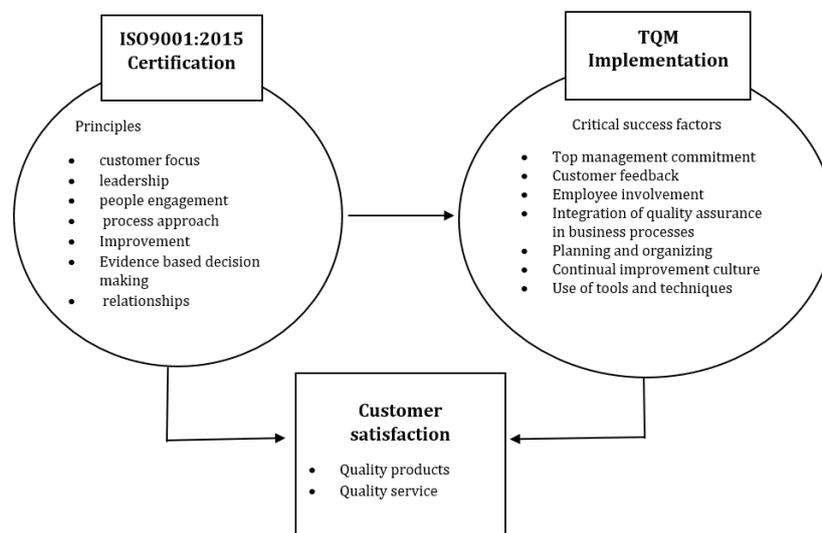


Figure 1: Theoretical framework

Source: Author's own construction

The theoretical framework is premised on the notion of the perceived synergy between ISO 9001 certification and TQM implementation. The literature review expounds on how ISO 9001 certification demonstrates an organisation's ability to deliver quality products and services and the TQM culture required to achieve this. This study draws upon the ISO 9001 principles to bridge the gap to TQM implementation.

Literature Review

Organisations need to satisfy customers by offering quality products and services, but at the same time there is the need to reduce costs to improve financial performance (Nahyan, and All, 2017:1). Thus, in order to achieve optimal balance, a culture of improving processes, products and services is required (Alotaibi, 2014: 35; Toma and Naruo, 2017:567). Continual improvement requires support in the form of cooperation, teamwork can flourish when TQM principles are embedded

within the culture of the organisation (Gomez-Lopez, Serrano-Bedia, and Lopez-Fernandez, 2016:1224; Diamandescu, 2016:94). More specifically, it is widely claimed (Chen, Anchecta, Lee and Dahlgaard, 2016:65; Dinu, 2017:936; Nahyan and All 2017:1) that employee participation is central to TQM's holistic approach of applying organisational resources and quality tools and techniques to satisfy customers. Some studies have shown the positive impact of TQM implementation on organisations. For instance, a study that was conducted at a leading tyre manufacturing firm in Sri Lanka that was experiencing high cost of quality, in the form of non-conformance, found that TQM implementation resulted in increased operational efficiency (Ishanka and Gooneratne, 2018:11). Another study conducted by Phan, Abdallah and Matsui (2011:518) in Japanese manufacturing companies, found a positive correlation between TQM implementation and competitive advantage. At British Airways, the benefits of TQM implementation was visible through an increased turnover of 23 per cent over just one year (Madar, 2015:130). However, the literature also provides evidence that such success stories of TQM implementation are few and far between.

TQM implementation can be quite challenging and in this regard Kovach and Mairani (2012:24) assert that globally, 60 to 80 per cent of total quality management initiatives fail, and purport that the main reasons for failure are the lack of senior management support, the lack of attention to change management, a failure to adopt quality philosophies, and poor supplier and customer relationships. The assertion regarding the high percentage of failed initiatives is supported by Abusa and Gibson (2013: 693) who attribute the failure to a lack of understanding of the critical success factors for TQM implementation. It is therefore important to identify the TQM critical success factors (Calvo-Mora, Ruiz-Moreno, Picón-Berjoyo and Cauzo-Bottala, 2015:2186). The TQM critical success factors, as explicated by Aquilani, Silvestri, Ruggieri and Gatti (2017:187), are detailed in Table 1.

Table 1: TQM critical success factors

Critical Success Factors	Insight
Top management commitment and leadership	TQM initiatives must be driven by senior management of the organisation.
Customer focus or satisfaction	The philosophy of TQM is centred on the customer.
Employee involvement	Everyone is responsible for quality.
Employee relations	The extent that employees are involved is enhanced by senior management's commitment.
Teamwork	Employee involvement and commitment is required for successful TQM implementation.
Training and education	Training and education are a key human resource factor.
Human resource management (HRM)	Employee performance appraisals support business transformation.
Process management	Process approach is important to identify and create value add.
Supply chain management	Satisfaction of requirements between internal and external suppliers and customers ensures the flow of goods and services.
Strategic planning and role of quality department	The quality department plays an important role in managing quality.
Information and analysis	Measurement assists in determining the gap for continual improvement and provides the basis for strategic direction.
Product/service design	Product and service design can improve an organisation's quality performance.

Source: Aquilani, Silvestri, Ruggieri and Gatti (2017:187).

What is apparent is that, firstly, the critical success factors are very generic statements relating to philosophy, without detailed steps for implementation, and secondly, senior management's

commitment is a critical success factor and this has been repeatedly reiterated in literature (Kovach and Mairani 2012:24; Aquilani, *et al.*, 2017:187). In a survey conducted by Abusa and Gibson (2013:693), the commitment of top management rated the highest for the successful implementation of TQM. Another study by Almeida, Pradhan and Muniz (2018:1343) conducted in the Brazilian automotive sector, found that although a combination of factors are required, the commitment of top management of an organisation is key. Having discussed TQM, the focus of the literature review now shifts to the ISO 9001 standard.

The objective of the ISO 9001 standard is to specify customer, statutory and regulatory requirements that have to be met in order for organisations to demonstrate that they can produce goods or services that satisfy the customer (International Organisation for Standardisation, 2015). The ISO 9001 standard is underpinned by the following seven guiding principles: customer focus, leadership, engagement of people, process approach, improvement, evidence-based decision-making, and relationship management (International Organisation for Standardisation, 2015). With regards to customer focus, Pal and Jasial (2015:78), emphasised that customer requirements should be considered during the product or service design phase. Singh, Singh and Gandhi (2018:54) add that such consideration extends beyond efforts to reduce nonconformances but to the creation of actual partnerships to enhance product and service attributes. Thus, leadership has to communicate and drive policies to establish unity of purpose and people engagement with regards to competence and empowerment (Elshaer and Augustyn, 2016:1288).

The intent behind the process' approach is to enable organisations to systematically identify the various activities and to manage these activities as interrelated processes so that a coherent system emerges (Ladislau and Zsuzsana, 2016:7). The synchronisation of processes is not limited to within the organisation, but extends to managing supplier relationships to assure the flow of information and materials (Noshada and Awasthi, 2014:466). Evidence-based decision-making requires the availability of accurate information (Rodriguez and Alvarez, 2013:24) which is available for purposes such as six sigma and statistical process control (Oakland, 2014:126; Yadav, 2015:18; Marques, Requeijo, Saraiva and Guerreiro, 2013:42).

In tandem with TQM, some organisations also adopt the ISO 9001 Quality Management System to meet customer requirements (Militaru and Zanfir, 2016:131). For a better understanding of the link between TQM and ISO 9001, Dale, Bamford and Wiele (2016:32) mapped the TQM critical success factors to the seven ISO 9001 principles as depicted in Table 2.

Table 2: TQM Elements and ISO 9001, 2015 Principles

TQM Critical Success Factors	ISO 9001:2015 Principles
Top management commitment and leadership	Leadership
Measurement and feedback of customer perceptions	Customer focus
Involvement of employees, education and training, and teamwork	Engagement of people
Integration of quality assurance in all business processes	Process approach
Planning and organising	Relationship management
Continual improvement culture	Improvement
Use of tools and techniques	Evidence-based decision-making

Sources: Dale, Bamford and Wiele (2016:32, and the International Organisation for Standardisation (2015)

What becomes apparent from Table 2, is that the ISO 9001 principles dovetail into the TQM critical success factors and vice versa, thus lending support to the claim that ISO 9001:2015 supports successful TQM implementation (Luburic, 2014:67) and there is some evidence in this regard. For example, a study conducted by Abusa and Gibson (2013:696) in 57 Libyan manufacturing companies, concluded that ISO9001 certified companies performed better in TQM implementation. While the potential for synergy between ISO 9001:2015 and TQM implementation is apparent, reaping the benefits thereof, could still be a challenge. Hence, this

study seeks to identify the reasons for the apparent disconnect between theory (ISO 9001:2015 supports TQM) and practice (high customer complaints) at the case study organisation.

Methodology

This study adopted a mixed methodology involving both quantitative and qualitative research designs. The qualitative part of the study was included to get a deeper and more nuanced understanding of the phenomenon relating to the mismatch between theory and practice. A closed-ended questionnaire was used to collect data for the quantitative part of the study, and interviews were conducted to collect qualitative data. The population for this study comprised of senior management, middle management, and operational staff, totalling ninety-five personnel. The sample size for the quantitative part of the study was seventy-seven, and was considered to be adequate for a population size of ninety-five (Sekaran and Bougie, 2016:294). A stratified random sampling technique was employed to select participants according to job level. The questionnaire consisted of two sections, i.e. section 'A' covered biographical data and section 'B' comprised of statements that measured the respondent's perception of the organisation's quality against ISO 9001:2015 principles.

For each item, respondents were to indicate their responses according to a five-point Likert scale, ranging from one (strongly disagree) to five (strongly agree). Construct validity was ensured by extracting items for each ISO 9001:2015 principle from the actual checklist that is used by the organisation to prepare for a ISO 9001:2015 certification audit. To ensure that there was an adequate and representative set of items that relate to the content domain (Sekaran and Bougie, 2016: 206) the expert opinions of two industry representatives and a senior academic in the field of quality management was solicited. The suggestion that a content validity ratio of at least 0.78 is necessary to deem an item as being valid (Frey 2018) was used as a guide to include or exclude items. The reliability for this study was ensured by targeting a Cronbach's alpha coefficient of at least 0.7. The quantitative data was analysed using the SPSS statistical package (version 25) through descriptive and inferential statistics.

The results from the questionnaire were used to guide the compilation of open-ended interview questions to facilitate the triangulation of the data to allow for a better understanding of the problem (Hesse-Biber, 2014:466). Thirty-minute interviews were conducted with the production manager, the engineering manager, and the continuous improvement engineer of the organisation. In order to ensure credibility, the recordings of the interviews were summarised and transcripts were presented to interviewees for validation and amendments were made to the satisfaction of those interviewed. The confirmability of the data was ensured by presenting the audit trail that follows. The qualitative data was analysed, on a response to a question-by-question approach, using thematic analysis. A transcript was chosen randomly and the response to the first question was read and the key phrases used were noted. Thereafter, the next transcript was read to identify similar or equivalent key phrases. When a new key phrase was identified it was added to the original list and the process continued until the responses for the question in all transcripts were dealt with. The process was then repeated for the responses to all subsequent questions. The key phrases were then grouped together forming themes and sub-themes in response to a question-by-question basis. The naming of the themes was informed by the literature review.

The dependability of the findings was confirmed through an inquiry audit that was performed independently by the co-author, thus ensuring that the findings were supported by the data collected, and where there were differences consensus was used to get a final position. The anonymity and confidentiality of participants were maintained at all times to ensure that the study was conducted ethically. The research proposal for this study was approved by the Durban University Institutional Research Ethics Committee, prior to the study being conducted.

Results and Discussion

The distribution of the the respondents, according to gender is represented in Table 3.

Table 3: Gender distribution of respondents

Gender	Male		Female	
Population	62	33	95	
% Population	65.3%	34.7%	100%	
Sample	52	26	78	
% Sample	66.7%	33.3%	100.0%	

The population comprised 65.3 per cent males and 34.7 per cent females. The ratio of males to females was well represented in the sample which comprised 66.7 per cent males and 33.3 per cent females. The distribution of respondents according to positions held is depicted in Table 4.

Table 4: Positions held by respondents.

Job Level	Population	Sample
Senior management	7	7
Middle management	16	13
Operational employees	72	58
Total employees	95	78

There was a high degree of representativeness, with at least 80 per cent from all the levels in the organisation. The questionnaire was distributed to senior management, middle management and operational employees. Table 5 reflects the Cronbach's Alpha score for the items constituting each construct measured in the questionnaire.

Table 5: Cronbach's Alpha score

Constructs	Number of items	Cronbach's Alpha
Leadership	3	0.575
Customer Focus	4	0.752
Engagement of People	3	0.719
Process Approach	3	0.827
Relationship Management	3	0.808
Improvement	3	0.808
Evidence based decision-making	3	0.766

Except for the leadership construct, the Cronbach's Alpha values exceed the threshold value of 0.7 (Nunnally, 1978) for all the constructs. The leadership construct was excluded from further analysis due to a perceived lack of reliability.

Factors contributing to high product non-conformance

Customer focus

Customer focus as a construct was measured by eliciting the extent to which respondents agreed or disagreed with the statements listed in Table 6:

Table 6: Customer focus scoring patterns

Regarding our customers (those buying our products)	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Chi Square p-value
There is an Acceptable Quality Level (AQL) agreement with all major customers.	3.8%	14.1%	10.3%	44.9%	26.9%	0.000

Customer requirements are clearly communicated.	2.6%	9.0%	11.5%	46.2%	30.8%	0.000
The number of customer complaints is at an acceptable level.	17.9%	35.9%	12.8%	24.4%	9.0%	0.002
Customer complaints are closed off within the agreed timeframe.	10.3%	38.5%	21.8%	23.1%	6.4%	0.000

The p-values shown in Table 6 are less than 0.05 implying that the distributions were not similar. The first two statements show significantly higher levels of agreement and the last two statements show significantly higher levels of disagreement. While a high percentage of the respondents agreed or strongly agreed that there is an AQL agreement with all major customers (71.8 per cent) and that customer requirements are clearly communicated (77 per cent), this has not translated into quality products and service as alluded to by the responses to the other two statements. More than half (53.8 per cent) of the respondents disagreed or strongly disagreed that customer complaints are at an acceptable level, and almost half (48.8 per cent) disagreed or strongly disagreed that customer complaints are closed off within the agreed timeframe. Although the essence of the questions posed to managers in the interviews were similar to those posed in the questionnaire, the responses revealed much deeper layers of information regarding customer focus. The themes and sub-themes that were extracted from the responses is summarised in Table 7.

Table 7: Factors impacting customer focus

Theme: Lack of focus on internal customer requirements	Theme: Lack of focus on external customer requirements
Sub-theme <ul style="list-style-type: none"> Employee turnover is high and the recruitment practices do not match appointees to job requirements, resulting in loss of skills to conduct root cause analysis. 	Sub-theme <ul style="list-style-type: none"> There is not enough time to respond to customer complaints due to a fast-paced manufacturing environment. Some of the customer complaints require significant time for a full investigation before closing off.

The lack of focus on the internal customer requirements makes it difficult to build a culture of quality within the organisation. Re-deployment, recruitment and training are functions of the human resources department, for which the production department is the internal customer. The literature (Nahyan and All, 2017:1) has highlighted the need for internal customers to be satisfied, and any deviation from this has a chain reaction on external customer satisfaction. The lack of key personnel and time have been sighted as the two main factors that contribute to customer complaints not being closed off timeously, thus evidencing a lack of focus on external customer requirements. In the face of limited resources, Singh, Singh and Gandhi's (2018:54) suggestion of the creation of actual partnerships with customers to enhance product and service attributes, could be explored for future adoption.

People Engagement

People engagement as a construct was measured by eliciting the extent to which respondents agreed or disagreed with the statements listed in Table 8:

Table 8: People Engagement

Statements	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Chi square p-value
There is a high level of employee engagement.	5.1%	23.1%	30.8%	33.3%	7.7%	0.000
There is teamwork within the organisation.	3.8%	19.2%	25.6%	37.2%	14.1%	0.000
There is a quality suggestion system in place.	25.6%	17.9%	21.8%	26.9%	7.7%	0.0450

Despite the first two statements indicating significantly higher levels of agreement than disagreement ($p < 0.05$), only just over half (51.3%) of the respondents agreed or strongly agreed

that there is teamwork within the organisation. The reason for the lack of teamwork as mentioned by the managers, was that many of the functional managers focus on the pursuit of their own functional goals and this translates into a silo mentality amongst employees as well, which does not foster teamwork. Also a much lower percentage (41%) of the respondents agreed or strongly agreed that there is a high level of employee engagement. There was a higher level of disagreement than agreement to the statement: "There is a quality suggestion system in place". The managers indicated that senior management do not promote employee engagement as a key objective and this has left employees demotivated and with low levels of employee morale. Andrade, Mendes and Lourenc (2017:76) allude to the need for employee engagement and empowerment through increasing decision-making power, responsibility, and authority. On a positive note though, management was very optimistic about the potential contribution of the implementation of a quality suggestion system to improve quality.

The Process Approach

The process approach, as a construct, was measured by eliciting the extent to which respondents agreed or disagreed with the statements listed in Table 9.

Table 9: Scoring pattern for the process approach

Statements	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Chi square p-value
The organisation uses a process approach to manage quality.	0.0%	3.8%	19.2%	59.0%	17.9%	0.000
Process risks are identified and understood.	1.3%	5.1%	16.7%	56.4%	20.5%	0.000
All critical to quality points are identified.	0.0%	3.8%	17.9%	47.4%	30.8%	0.000
All critical to quality points are monitored.	0.0%	7.7%	23.1%	46.2%	23.1%	0.000

All statements showed significantly higher levels of agreement than disagreement, which augurs well for the organisation. The literature positions the process approach as being central to managing activities as interrelated processes for systems coherence (Ladislau and Zsuzsana, 2016:7). Management was requested to comment on 'processes' in the organisation and their responses gravitated towards the excellent processes in place to identify and monitor potential risks to quality. However, this would not necessarily translate into actual quality improvement if time were a constraint, as was a finding in the foregoing discussion relating to a lack of focus on customer requirements.

Relationship Management

Relationship management, as a construct was measured by eliciting the extent to which respondents agreed or disagreed with the statements listed in Table 10.

Table 10: Relationship management scoring pattern

Statements	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Chi square p-value
Supplier quality is well managed.	5.1%	20.5%	33.3%	28.2%	12.8%	0.000
Suppliers are viewed as an extension of the organisation.	5.1%	11.5%	30.8%	42.3%	10.3%	0.000
Customers are viewed as an extension of the organisation.	0.0%	5.1%	24.4%	53.8%	16.7%	0.000

Some statements show significantly higher levels of agreement whilst other levels of agreement are lower (but still greater than levels of disagreement) ($p < 0.05$). Only 41 per cent of the

respondents agreed or strongly agreed that supplier quality is professionally managed. While 70.5 per cent of the respondents agreed or strongly agreed that customers are viewed as an extension of the organisation, just a little over half (52.6%) of the respondents agreed or strongly agreed that suppliers are viewed as an extension of the organisation. Hence, the question that was pitched to management was: “What are the challenges to managing supplier quality?” The theme and sub-themes extracted from the responses is summarised in Table 11.

Table 11: Challenges to supplier quality

Theme	Subthemes
Lack of focus on supplier relationship management.	<ul style="list-style-type: none"> • Over reliance on single suppliers for critical raw materials. • Suppliers not held liable for costs associated from the use of non-conforming raw material. • Supplier level agreements not enforced • Procurement team was not held accountable for purchasing non-conforming raw material • The objective criteria that was used to select suppliers was not used to monitor the performance of suppliers.

The main theme that arises is the lack of focus on supplier relationship management. As alluded to by Noshada and Awasthi (2014:466), supplier relationship needs to be effectively managed as supplier quality has a direct impact on costs.

Improvement

Quality improvement as a construct was measured by eliciting the extent to which respondents agreed or disagreed with the statements listed in Table 12.

Table 12: Quality improvement scoring pattern

Statements	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Chi square
There is a clearly communicated continual improvement strategy.	2.6%	15.4%	21.8%	41.0%	19.2%	0.000
Employees are continually trained with regards to quality.	1.3%	23.1%	23.1%	38.5%	14.1%	0.000
The organisation has a continual improvement quality culture.	1.3%	15.4%	25.6%	37.2%	20.5%	0.000

While all the statements indicate significantly higher levels of agreement than disagreement ($p < 0.05$), the levels of agreement are not relatively high. Just over half of the respondents (57.7%) agreed or strongly agreed that the organisation has a continual improvement quality culture, and only 52.6 per cent agreed or strongly agreed that employees are continually trained with regards to quality. Hence the question pitched to managers was: “What are some of the hurdles to quality improvement?” The themes and sub-themes that were extracted from the responses are summarised in Table 13.

Table 13: Reasons for a lack of focus on quality improvement

Theme: Cost factors	Theme: Personnel
Sub-themes <ul style="list-style-type: none"> • Investment in continual improvement resources is not viewed as a long-term investment - where an initiative cannot be quantified in value, it is viewed as an avoidable cost. • Lack of incentives to promote a continual improvement culture. 	Sub-themes <ul style="list-style-type: none"> • The organisation is under-staffed to run continual improvement projects. • The organisation does not have a dedicated continual improvement project team.

The reasons for a lack of focus on continual improvement revolves around cost and personnel. The literature positions continual improvement as an important component in support of the strategic objectives of an organisation (Solomon, Bester and Moll, 2017:151). Hence, the need for the case organisation to overcome the challenges impeding continual improvement.

Evidence-Based Decision-Making

The last section focussed on the respondents' perceptions of whether the organisation's decision-making is evidence based. Table 14 summarises the scoring patterns.

Table 14: Evidence-based decision-making scoring pattern

Statements	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Chi Square
Statistical process control is used to control process variation.	1.3%	5.1%	21.8%	53.8%	17.9%	0.000
Root cause analysis is established for all critical and major customer complaints.	3.8%	7.7%	15.4%	43.6%	29.5%	0.000
Decisions are based on supporting evidence.	2.6%	3.8%	33.3%	37.2%	23.1%	0.000

All statements show significantly higher levels of agreement than disagreement. These results augur well for the organisation as literature identifies the evidence-based decision-making methodology as a route to the reduction of process variation (Oakland, 2014:126; Yadav, 2015:18; Marques, Requeijo, Saraiva and Guerreiro, 2013:42). Management was queried as to what prevents the organisation from achieving even higher levels of evidence-based decision-making. The only theme that emerged was around statistical process control. The sub-theme that was identified was that the monitoring of SPC trends needs to be extended beyond the current focus where monitoring is triggered by issues that arise on the production lines and to base machine adjustments.

Conclusion and Recommendations

The aim of the study was to ascertain the factors impeding TQM implementation at an organisation specialising in packaging. The primary objective of the study was to ascertain the factors contributing to high non-conforming products. It was found that there was a lack of focus on both the internal and external customer. Internally, this resulted in a disjuncture between skills required and personnel appointed. This also had a negative influence on people engagement resulting in demotivated employees and the absence of teamwork across the organisation. Insufficient time was allocated to perform root cause analysis to close out customer complaints timeously. It was found that the focus on continual improvement was constrained primarily by cost and lack of skills. Furthermore, it was found that supplier quality was not being managed effectively. The findings of this study evidences that ISO 9001 certification does not necessarily translate into successful TQM implementation. The secondary objective of this study was to ascertain how the identified quality gaps could be addressed to enhance TQM. The recommendations emanating from this study are presented as a framework depicted in figure 2 below:

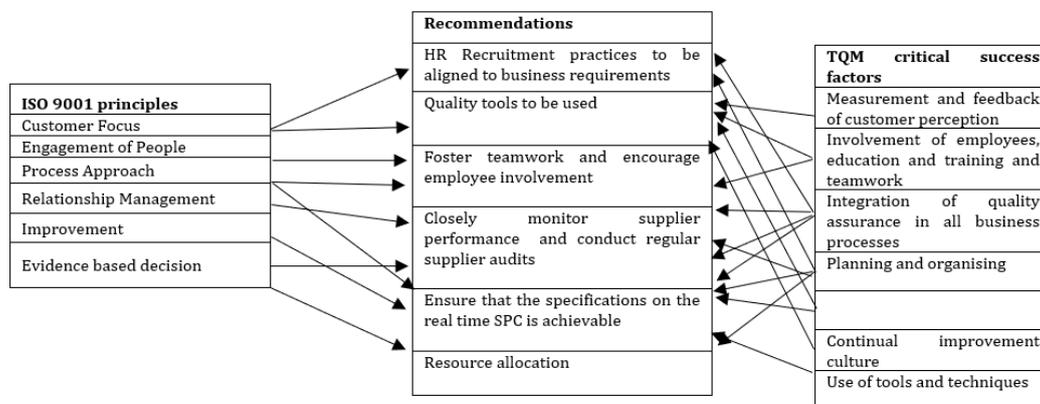


Figure 2: TQM implementation improvement framework
Source: Author's own construction.

The foregoing framework shows the link between the ISO 9001 principles and specific interventions related to TQM critical success factors. Customer focus can be enhanced if HR ensures that the right employees with the right skills are recruited and trained to satisfy the job requirements. Furthermore, quality tools such as Pareto analysis, could be used to determine the priority order in which to address complaints. To enhance people engagement, it is recommended that team building exercises be undertaken, and a quality suggestion scheme be considered for implementation. From a relationship management perspective, supplier performance could be measured against objective selection criteria and it should be ensured that procured materials match machine capabilities. Lastly, there needs to be a shift away from short-term time constraints to a more long-term forecasting that takes the total cost of non-conformance into account. While this study is limited to one specific organisation, its position as a major player in the packaging sector cuts across many supply chains, and quality improvements within the organisation is bound to resonate across the manufacturing sector due to the heavy reliance on packaging to ship materials and products.

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