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An Investigation into the Reasons for and Benefits of ISO Certification in Small Manufacturing Firms in Botswana

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Abstract

This study investigates the benefits of and reasons for and ISO (International Organization for Standardization) certification in small manufacturing firms (SMFs) in Botswana. The most common standards SMFs have opted for are in the ISO 9000 family of standards which include ISO 9000, ISO 9002 and ISO 9003. An in depth literature review was carried out to gather the most prevalent concepts describing ISO. Empirically, a total of 141 questionnaires were collected for analysis. The research findings showed that 135 of these 141 firms had some form of ISO certification while 6 had not yet been implemented. Further, using descriptive statistics, the study showed that the reasons for certification stated by the small manufacturing firms were, among others, for continual survival (Mean = 4.29, SD = 1.251), to improve quality culture (Mean = 4.27, SD = 1.212), to improve company performance (Mean = 4.33, SD = 1.131) and motivated workers (Mean = 4.04, SD = 1.322). Again, firms believe that there are more benefits accrued from certification. These are, among others, improved organisational performance (Mean = 4.06, SD = 1.243), competitiveness (Mean = 3.86, SD = 1.376), improved employee commitment (Mean = 3.84, SD = 1.255), improved communication (Mean = 3.76, SD = 1.373), increased productivity (Mean = 3.98, SD = 1.227) and more satisfied customers (Mean = 4.06, SD = 1.196).

Keywords

Botswana, ISO Certification, Perceived Benefits, Small Manufacturing Firms, Reasons for Certification

1. Background

A quality management is a business practice that may benefit small manufactur-

ing firms in Botswana. Small manufacturing firms (SMFs), which fall under the small and medium-sized enterprises (SMEs) category, have been praised for contributing immensely towards the growth of their national economies around the world. In this regard, various authors have engaged in debates that are premised on attainment as well as the sustenance of organizational excellence of SMFs by improving their systems and processes through quality initiatives as they benchmark against the best in class. Some notable contributions by these firms include "profitability and business performance" (Musa & Alawad, 2011: p. 4426), improved efficiency and customer focus (Talib, Rahman, & Azam, 2011: p. 233), improvement in organization performance (Sohail & Hoong, 2003: p. 37) and provision of greater value through speed, quality, cost and other distinctive competencies focusing on process performance (Kumar et al., 2006: p. 407). Given this background, it should be stressed that, for these firms to achieve and maintain excellence, there is a need to boost their quality. Increasing quality in products and services can therefore be achieved through ISO certification. This study discusses ISO certification which allows firms having it to be able to trade across borders.

2. Statement of the Problem

Because business competition is getting bigger, fiercer and becoming global, organizations that value excellence now have to be more responsive, offer a better product, provide world-class service and keep seeking for improvement. One of the quality systems that firms can embark on is seeking for ISO certification. Although most small manufacturing firms (SMFs) in Botswana are ISO certified, customers have argued that they cannot provide products and services of a high standard.

Despite efforts by the Government of Botswana (GoB) and other relevant bodies such as the Local Enterprise Authority (LEA), Botswana Export Development and Investment Authority (BEDIA), Botswana Institute for Development Policy Analysis (BIDPA) and Botswana Confederation of Commerce Industry and Manpower (BOCCIM) to empower them, the small manufacturing firms remain lowly-ranked in terms of performance. Their larger (firms) counterparts continue to occupy and enjoy top positions regarding, among others, supply, service delivery, and product manufacturing as well as winning lucrative tenders to carry out large capital projects in Botswana. Most of the SMFs are ISO certified and this may be as a result of external motivation where customers' demand for quality (or they abandon non-complying suppliers) rather than internal pressure where management and workers have to buy-in and implement systems that attract and retain customers. Some of the SMFs acquire standards which are issued by a locally-based body known as the Botswana Bureau of Standards (BOBS).

Against this backdrop, a pertinent question may then arise: "Why do small manufacturing firms fail to make an impact on their national economies?" This

study carries out an evaluation of the reasons for and benefits accrued from ISO certification in small manufacturing firms in order to try and answer this relevant question. The challenges faced by the firms are also highlighted.

3. Research Objectives

The main goal of this study is to carry out an analysis of the reasons for and benefits accrued from ISO certification by small manufacturing firms (SMFs) in Botswana. In order to reach this main goal, this study formulates literature and empirical objectives as follows:

The objectives from the literature review were:

1) To scientifically define the concept of ISO.

2) To identify the reasons for certification and the extent to which SMFs have implemented ISO standards.

3) To review the elements of, the process of, as well as barriers to ISO certification.

4) To identify the perceived benefits accrued from ISO certification.

5) To discuss small manufacturing firms' characteristics, the roles they play in the economy, the benefits accrued and obstacles encountered in quality systems implementation.

6) To explore the roles of small manufacturing firms in the national economies.

The objectives for the empirical research were:

1) To determine the extent to which small manufacturing firms (SMFs) in Botswana have implemented ISO standards in their systems.

2) To explore the reasons for which SMFs in Botswana have implemented ISO standards in their systems.

3) To investigate the benefits SMFs claim to have accrued through implementing quality systems.

4. Research Questions

In order to address the research objectives, the following questions, both from literature and from empirical considerations, are paused.

4.1. Literature Review Questions

1) What is ISO?

2) What are the reasons for ISO certification and what is the extent to which SMFs have implemented ISO standards?

3) What are the elements of, the process of, as well as barriers to ISO certification?

4) What are the perceived benefits accrued from ISO certification?

5) What are the characteristics and the roles played by SMFs in the economy?

6) What benefits are accrued and obstacles encountered in quality systems implementation?

4.2. Empirical Questions

1) To what extent have SMFs in Botswana implemented ISO standards in their systems?

2) What are the reasons for which SMFs in Botswana have implemented ISO standards in their systems?

3) What are the benefits that SMFs claim to have accrued through implementing quality systems?

5. Limitations the Study

The scope of this study covers only small manufacturing firms (SFMs) in Botswana. Further, research is confined to the greater Gaborone which is home to just over 75% of the country's SMFs (BOCCIM Directory, 2012; BEDIA Directory, 2013); the argument being that, the results obtained using such a sample is more likely to be used to generalize for the whole nation as it is representative. Again, a longitudinal, rather than a cross sectional study, would have been more appealing as the changing circumstances of quality issues would be recorded over time, for example growing from non-ISO to ISO certification. Again, a study catering for all sectors of the economy, and not just small manufacturing firms, could be more representative.

6. Literature Review

6.1. Definition of ISO 9000

The aim of this study is to investigate the determinants of ISO certification in small manufacturing firms (SMFs) in Botswana. Further, the study investigates the benefits accrued as a result of certification. ISO is the abbreviation for 'International Organization for Standardization' which is a worldwide federation of national standards bodies and by 28 February 2011 (Singhal & Singhal, 2012: p. 11) comprised 160 members. The standards maintained by ISO have gone through so much change over the years with ISO 9000 (and its many versions) being the most common one. Managers of small manufacturing firms employ the ISO 9000 standards to address many issues that ensure their continued existence (Mo & Chan, 1997: p. 135; Lewis et al., 2007: p. 1; McAdam, 1999: p. 229; Rahman, 2001: p. 36).

The main thrust of ISO 9000 is for firms to meet customer needs and expectations through offering products and services of world class standards as well as offering room for continuous improvement. The ISO 9000 standards offer an assurance to customers that a certified firm is able to design, produce and deliver quality goods and services all the time. Zhelyazkov (2010: p. 917) defines ISO 9000 as "a quality management framework developed by the International Organization for Standardization (ISO) in 1987", further recognizing its applicability in small businesses. Fotopoulos et al. (2010: p. 503) notes that ISO 9000 was revised in 1994 and 2000. The 1994 version of the ISO 9000 standards gave birth

to ISO 9001, ISO 9002 and ISO 9003 while the 2000 review resulted in the three merging into ISO 9001. Whereas the 1987 version focused on quality improvement, the 1994 one changed its stance to emphasize more on process documentation. The ISO 9000 requires huge capital outlays and time and a yearly budget for maintenance is also a considerable cost component.

Nagalingappa and Manjunath (2010: p. 97) enumerate five objectives for ISO 9000 as follows:

1) To achieve, maintain, and seek to continuously improve product quality and after sales services in relationship to requirements.

2) To improve the quality of operations to continuously meet customer's stakeholder's stated and implied needs.

3) To provide confidence to internal management and other employees that quality requirements are being fulfilled and that improvement is taking place.

4) To provide confidence to customers and other stakeholders that quality requirements are being achieved in the delivered products.

5) To provide confidence that quality system requirements are fulfilled.

Firms intending to get ISO certified have to follow the process of certification which involves various stakeholders such as the firm itself, the certification body and other third parties. The stages are as depicted in Table 1.

6.2. Reasons for Certification

Many organizations certify their products and processes so as to give an assurance of quality and world class standards to their customers. They use standards

Table 1. Stages in certification.

Stage	Responsibility	Activity
Initial Visit (Pre-assessment Visit)	Certification Body	Learning and understanding the supplier's operations. Carrying out an evaluation to evaluate firm readiness. Reviewing supplier documentation for if it complies with ISO 9000 standards. Nonconformance is corrected by supplier before the formal assessment is scheduled.
Verification	Third Party Auditor	Verifying if the suppliers implement their own procedures. Reviewing if procedures conform to the intent of the requirements of ISO 9000 standards.
Granting	Certification Body	Granting certificate if results are satisfactory. Certificate is valid for 3 years.
Follow-up	Third Party	Conducting periodic follow-up audits for surveillance. This is done every six months.

Source: the researcher's compilation.

that are applied to both the manufacturing and service sectors (Nagalingappa & Manjunath, 2010: p. 97) and the ISO 9000 is the most commonly adopted standard throughout the world. The major reason around certification through the ISO is premised on firms being able to continue to survive.

The quest for quality in manufacturing firms throughout the world has resulted in research based on quality systems such as the ISO 9000. Many authors who wrote about ISO certification referenced most of their findings to the fact that total quality management (TQM) can spring from ISO 9000. For instance, Rahman (2001: p. 36) reported on a study commissioned by the Lloyds Register Quality Assurance of 1994 and concluded that "… ISO 9000 companies experienced improvement in management control, better service delivery, higher productivity and competitive advantage" while also noting the fact that ISO 9000 is widely regarded as a starting point if firms require to successfully implement TQM or other systems. Earlier in 1999, McAdam (1999: p. 229) had also observed that ISO 9000 was the first step towards TQM further noting that although the cost incurred when registering for the standards is too high, the benefits accrued thereafter by a firm with ISO 9000 certification far outweigh this cost. They cite such reasons as pressure from large customers, prevention of scrap, reduction of cost of customer claims, doing things right the first time, service improvement, increased competitiveness and retention of customers.

Kuo et al. (2009: p. 1332) also expressed the sentiments of others adding that ISO 9000 increases the awareness of quality in every division in a firm. Lewis et al. (2005: p. 569) studied the extent to which the criteria of TQM are achieved in ISO 9001 certified small firms in Trinidad and Tobago and concluded that ISO certification could be used as a springboard for launching TQM. Chikuku et al. (2012: p. 4168), while evaluating the impact of ISO certification on manufacturing companies in Zimbabwe, noted that "getting ISO certification is widely touted as a major boost to a company's performance". Iwaro and Mwasha (2012: p. 63) carried out a study on workmanship in ISO certified firms concluding that the positive correlation that existed between workmanship performance and improvement of workmanship factors was as a result of ISO 9000 certification.

In a comparative study on performance measures (such as return on investment, return on equity and others) against such attributes as size and capital structure, Mokhtar, Muda (2012: p. 189) discovered that ISO registered companies in Malaysia outperformed those who were not ISO-certified. Zhelyazkov (2010: p. 916) poses a question: does ISO 9000 affect business performance? Zhelyazkov study compared certified and non-certified firms and formulated a hypothesis which claimed that firms with ISO certification experience more benefits than those with no certification. The other result of Zhelyazkov's study was that profit margins in ISO 9000 firms were higher than those without. Ordinarily, it is also logical to conclude that a positive relationship exists between the quality culture of a firm with ISO certification and the benefits obtained as a result of certification.

In other related studies, Han (2000: p. 1), while studying the effects of ISO 9000 on TQM practices, concludes that the registration of the standards increases a firm's competitiveness as well as customer satisfaction and business performance. Other authors have observed that through the registration process and TQM practices have a significant positive relationship.

Other adoption reasons have been studied and documented. The question is: what impact does ISO 9000 certification have on a firm's customers? Expectations are evident as documented by many writers (Iwaro & Mwasha, 2012: p. 54; Viadiu et al., 2006: p. 142; Al-Najjar & Jawad, 2011: p. 118; Rahman, 2001: p. 35; Kuo et al., 2009: p. 1321; and others) who have identified such reasons as improvements in productivity, increase in motivation and customer satisfaction. Iwaro and Mwasha (2012: p. 53) argue that workmanship in a firm improves with certification as compared to that in non-certified organizations. In the end, it is very likely that small firms seek for ISO 9000 because customers tend to follow certified firms and products, to capture a wider market share and as a way of stepping up the quality of their processes.

The question that seeks to ascertain the reasons for certification is best answered by noting internal and external reasons as shown in **Table 2**.

A further synthesis of these internal and external reasons for the purpose of the questionnaire resulted in the creation of **Table 3**.

Lastly, these firms would state the standards for which they have taken certification. These are identified in literature and are as summarized in **Table 4**.

The standards in **Table 4** can be grouped into two categories: the requirements and guidelines. The requirements standards (ISO 9001, ISO 9002, ISO 9003 and ISO 10012) are mandatory—they specify what a firm must do. The guidelines (ISO 8402, ISO 9000, IS 9004, ISO 10011) are for assisting firms to interpret the requirements standards. All the other standards are related to the requirement standards (ISO 9001, 9002 and 9003). The ISO 9001 is the most

Table 2. Internal versus external reasons.

Internal reasons	External reasons
- Awareness on the importance of quality is higher - Company employees have a better understanding of their problems regarding their systems, processes and procedures - Quality of product improves - Large and more significant improvement in organization and management - To enforce discipline on employees (McAdam, 1999: p. 230)	- Because customers depend on assurance of quality, firms will register - Certified firms compete better with others in the market place - Market share improves due to perception - To put it on the letterhead (McAdam & 1999: p. 230) - To retain existing customers

Source: The Researcher's compilation.

Table 3. Reasons for certification.

#	Reasons
1	For continual survival
2	To increase awareness of quality in the firm
3	As a starting point to implement total quality management
4	To boost company performance
5	To improve workmanship and productivity
6	To increase profits
7	To improve quality culture
8	To increase competitiveness, customer satisfaction, business performance, worker motivation
9	To attract customers as they tend to follow certified firms, products and services

Source: the researcher's compilation.

Table 4. ISO standards.

Code	Name of standard
ISO 8402	Quality management and quality assurance vocabulary
ISO 9000	Guidelines for selection and use
ISO 9001	Model for quality assurance: design, development, production, installation and servicing
ISO 9002	Model for quality assurance: production, installation and servicing
ISO 9003	Model for quality assurance: final inspection and test
ISO 9004	Quality management and quality system elements
ISO 10011	Guidelines for auditing quality systems
ISO 10012	Requirements for measuring equipment
ISO 10013	Guidelines for quality manuals.
BOBS Series	Botswana bureau of standards

Source: the researcher's compilation.

comprehensive with 20 specific elements covering a particular area of business processes in an organization. These are, among others, management responsibility, quality planning, control of customer-supplied product, process control, inspection and testing and training.

6.3. Benefits of and Barriers to ISO 9000

Firms with standardization certificates are expected to derive benefits from that certification as a result. Nagalingappa and Manjunath (2010: p. 98) enumerates some benefits which include, among others, a feeling of great achievement that they are internationally recognized through standards, increase in productivity.

enhancement of customer satisfaction, increase in profit for the firm, a happy workforce with increased morale, increase in market share, improvement of organization's image, and a greatly reduced need for inspection, rejections, wastages. Apart from these, small manufacturing firms that are certified are in a better position to make use of data to aid managers in decision making. Management commitment and communication with customers also improve.

Despite these benefits, there are numerous barriers associated with certification. Implementation of ISO 9000 itself presents the major barrier. For instance, Al-Najjar and Jawad (2011: p. 122) made some observations to this effect. The study revealed several barriers namely, among others, lack of top management commitment, employee resistance (Nagalingappa & Manjunath, 2010: p. 113), difficulty of performing internal audits, ISO 9000 requirements are unrealistic, lack of financial resources, lack of human resources, insufficient employee training and insufficient knowledge about quality programmes. McAdam (1999: p. 231) compared the costs of ISO 9000 in small and large firms and found out that costs are higher in small companies. They categorize the costs into initial costs (set up and implementation, time, consultancy, training) and ongoing costs (maintenance and annual fee to remain conformant). Mo and Chan (1997: p. 136) refer to barriers as inhibitors which include, among others, high costs and time. The costs include those of obtaining and then maintaining the ISO certification and registration fees, for auditing and consultancy.

To this effect, the current study asks the firm managers of the benefits of ISO certification that they have seen in practice.

7. Research Methodology

To make this study effective, the research methodology considers both the evidence from literature as well as empirical research. Literature research for this study discusses existing data and developments within the quality management system namely the International Organisation of Standardization (ISO) certification as well as implementation of this system in small manufacturing firms (SMFs). Its main purpose is to reveal developments, new ideas and shortcomings. It also exposes areas for future research in the field of quality.

Main survey respondents will be Quality Managers (QM), Chief Executive Officers (CEO), Technical Directors (TD), Human Resources Managers (HRM), Customer Services Managers (CSM), Sales Managers (SM), Finance and Accounting Managers (FAM) and Manufacturing Managers (MM) of these small firms. These respondents are expected to have a better understanding of quality issues as they are likely to hold high positions within firms and therefore their grounding in quality terminology and issues is strong. This is consistent with the methodology employed by Zadry & Yusof (2006: p. 1003) who interviewed "executive directors, managing directors, manufacturing managers, quality managers, production managers, and planning and development managers, in the automotive suppliers" of Malaysia. They further supported their decision by ad-

vancing arguments that this group of people were "directly involved in the process, have first-hand knowledge and experience in TQM implementation.

The main goal of this study is to carry out an investigation of the reasons for and benefits of ISO certification in small manufacturing firms in Botswana. For the purpose of data collection, close-end questionnaires were used. The questionnaires were delivered to firms and then collected when completed to ensure a high return. The SMFs selected for the study are ISO certified since ISO implementation is considered a stepping stone (Quazi & Padibjo, 1998: p. 490), logical and practical step towards higher quality systems like TQM (Idris et al., 1996: p. 66) or even Six Sigma.

7.1. Questionnaire Development

To investigate the reasons for certification and the benefits accrued as a result thereof, the questionnaire consists of total ISO standards constructs. Again, as suggested by Chowdhury et al. (2007: p. 5) in their study, this study also uses a Likert scale measurement. From several literature sources, the reasons for and benefits of ISO in small manufacturing firms are widely expounded. For instance, firms needed to improve their businesses and boost company performance (Gopal & Attri, 2017; Juan José, Azorín, Francisco, & Iñaki, 2012). Gopal and Attri (2017) and Juan et al. (2012) also emphasize the need to sustain continual survival, increased competitiveness and profit maximization. Regarding benefits, several authors (Lushi, Mane, Kapaj, & Keco, 2016; Neyestani & Juanzon, 2017; Tari, Molina-Azorin, & Heras-Saizarbitoria, 2012) have mentioned the need for small manufacturing firms to reduce defects, wastes and rework; improved organisational performance, satisfied customers and employee commitment., among others.

In view of this vast literature reviewed, it was imperative that the constructs contained in the questionnaire came from there.

7.2. Testing for Validity and Reliability

To ensure consistency in future or repeated experiments, testing for reliability and content validity of the measurement scale is a critical step. Reliability and validity analysis, two methods consistent with various other studies (Chowdhury et al., 2007: p. 5; Kuo et al., 2009: p. 1326; Sakthivel & Raju, 2006: p. 918; Hung et al., 2010: p. 430; Zadry & Yusof, 2006: p. 1003), will be used. Content validity does not involve numerical manipulation (Zadry & Yusof, 2006: p. 1003) but "judged subjectively by the researchers" seeking a common understanding involving various research concepts. The summary of these methods are depicted in **Table 5**.

7.3. Sampling

Sampling techniques are important in any study and will determine whether the results obtained are fairly representative.

Table 5. Validity and reliability testing methods.

#	Method	Purpose	Best Tool	Notes
1	Reliability Analysis	To test for internal consistency of the research instrument	Cronbach's Alpha	The Cronbach's Alpha of more than 0.8 is very reliable.
2	Validity Analysis	To ensure that the instrument measures exactly what it is meant to measure:	Content Validity	A general consensus is reached among researchers and subjects (Chowdhury, Paul, & Das, 2007: p. 6) that every aspect of the phenomenon under study is covered.
			Criterion-related Validity	This is also called predictive validity or external validity. It is premised on the degree to which the measuring instrument is related to an independent measure of the relevant criterion.
			Construct Validity	The extent to which the items in a scale measure the same construct.

The following set of rules guides the sampling techniques for this study:

- ISO 9000 certified small manufacturing firms (SMFs) were randomly chosen from two data bases 1) the Botswana Confederation of Commerce Industry and Manpower (BOCCIM) directory of companies and 2) the Botswana Export Development and Investment Authority (BEDIA) directory of companies.
- Using Simple Random Sampling, a purely random sample was selected.

7.4. The Survey

A two-stage survey method was used for this study. First, a pilot study was carried out in order to test the validity and reliability of the questionnaire. Second, the proper survey was conducted over a period of at least ten weeks in order to collect the data required to address the study objectives. In order to ensure a good response rate, a follow up on questionnaires dropped at the firms was instituted using telephonic and email platforms.

7.5. Analysis and Results

This study uses the Statistical Package for Social Scientists (SPSS) software for analysing data. Based on the study objectives, conclusions can be deduced as to whether or not small manufacturing firms (SMFs) have implemented ISO standards in their systems and for what reasons as well as identifying the benefits accrued as a result of their certification.

7.6. Reliability of the Questionnaire

To test for the reliability of the questionnaire, Valmohammadi (2011) provided a method that used the Cronbach's Alpha value. The Cronbach Alpha value is used to determine if all the items in a test or in an assessment of some kind are measuring the same construct. If they are measuring the same construct, they must be related to each other. The questionnaire for this study used two criteria being "reason for ISO certification" and "benefits accrued from ISO certification" measuring the level importance. In this research the Cronbach's alpha was calculated for each of the two criteria of the questionnaire. To assure construct validity, factor analysis was performed separately for each construct (reason for ISO certification with 11 items and benefits from ISO certification with 9 items). Both Kaiser-Meyer-Olkin (KMO) values are above the desired 0.80. The two factors extracted from the two groups (reason for ISO certification with 11 items and benefits from ISO certification with 9 items) contributed 71.647% and 78.783% towards what could have been achieved by the original variables. The Cronbach's alpha value for each of the two criteria is acceptable at close to 1.0. **Table 6** provides a summary of the analysis carried out.

Through a literature review, the constructs gathered to finally come up with the questionnaire were validated and judged by fellow researchers, academics and peers as having content validity.

8. Findings

The empirical objectives of this study addressed ISO certification in small manufacturing firms (SMFs) in Botswana. Specifically, the objectives were:

1) To assess the extent to which small manufacturing firms (SMFs) in Botswana have implemented ISO standards in their systems;

2) To explore the reasons for which SMFs in Botswana have implemented ISO standards in their systems;

3) To investigate the benefits SMFs claim to have accrued through implementing quality systems.

In order to address these objectives, the questionnaire was utilised to collect the relevant data.

The first objective was to assess the extent to which small manufacturing firms (SMFs) in Botswana have implemented ISO standards in their systems.

Table 6. Summary of test statistics for each ISO construct.

Criteria	N	# of factors extracted	Alpha	Factor Loading	KMO value	% variation explained
Reason for ISO certification	11	1	0.959	0.798 - 0.883	0.903	71.647
Benefits from ISO certification	9	1	0.966	0.810 - 0.910	0.913	78.783

To meet this objective, the questionnaire which sought to establish whether the small manufacturing firms were ISO certified or not was used to provide some descriptive statistics. Out of 141 such firms, 135 (96%) were certified while 6 were not as shown in Table 7.

Again, the questionnaire addressed managers as shown in Table 8. These managers were targeted because they (managers) are perceived to have some level of knowledge of quality concerning processes, products and systems in a manufacturing setup. Quality managers (29) and Chief Executive Officers (27) topped the list of respondents.

Further, ten ISO standards, among others, ISO8402, ISO9000 and ISO9003 were suggested in which respondents had to indicate the ones applicable to their firms. The majority of the small manufacturing firms are certified in the ISO 9000 range (ISO 9000, ISO 9001, ISO 9002) as indicated in Table 9.

Table 7. If your firm certified or not?

Response	Frequency	Percent	Percent
Yes	135	95.7	95.7
No	6	4.3	4.3
Total	141	100.0	100.0

Table 8. Who responded to the questionnaire?

Position	Frequency	%
Quality Manager	29	20.6
Chief Executive Officer	27	19.1
Technical Director	21	14.9
Customer Services Manager	7	5.0
Human Resources Manager	13	9.2
Customer Services Manager	3	2.1
Sales Manager	2	1.4
Finance and Accounting Manager	12	8.5
Manufacturing Manager	13	9.2
Other (state)	14	9.9
Total	141	100.0

Table 9. Certification details of firms.

ISO FAMILY									
8402	9000	9001	9002	9003	9004	10011	10012	10013	None
19	82	78	45	5	12	6	4	6	6

The results in Table 9 show that some firms had more than one type of certification while only 6 had none, an indication signalling that more firms are increasingly raising their level of quality awareness through registration with quality standards bodies. In Botswana, the Botswana Bureau of Standards (BOBS) facilitates the establishment of national standards. In their mission statement, BOBS states that the main aim is to "promote their [standards] implementation in order to improve quality of products and services for the befit of enterprises, consumers and the environment".

The second objective was to explore the reasons for which SMFs in Botswana have implemented ISO standards in their systems and processes.

Respondents were asked to state the level of importance of the reasons that made their firms acquire ISO certification. The 5-point Likert scale (1 = Not at all, 2 = Low, 3 = Moderate, 4 = High, 5 = Very high) was used to indicate the level of importance on each of the reasons that led their firms to acquire ISO certification.

These reasons were stated as illustrated in Table 10 which shows the level of importance emphasized by each firm grouped by reason for certification.

Table 10 shows the mean and standard deviations of the level of importance per reason for ISO certification. All except one have mean above 4.00 which indicates "high" to "very high" importance in the way they weight these reasons. The variable "to increase profits" scored an average of 3.94. The firms rated business performance improvement, customer attraction, continual survival and an improvement in quality culture as the most important reasons. Overall, there is however no significant differences in all the reasons' mean values of importance and so it can be concluded that the small manufacturing firms consider a multiple of reasons when opting for ISO certification.

The third objective of this study was to investigate the benefits SMFs claim to have accrued through implementing quality systems.

On a scale measuring the levels of importance, respondents were asked to rate the nine constructs found in literature and commonly used in firms.

The descriptive statistics of mean and standard deviations per benefit identified are displayed in Table 11.

From Table 11, it can be noticed that the majority of firms value what they benefit from ISO certification by selecting moderate, high and very high importance for each benefit suggested. Firms place moderate to high importance in the benefits accrued as a result of ISO certification. According to the firms, the top five benefits accrued were a reduction of defects, wastes and rework in production, improved organizational performance, more satisfied customers are more satisfied, a gain in competitive advantage and an increase in productivity. Each of these means was above 4.00, a score that signals a high to very high level of importance. However, it can also be deduced that, the small manufacturing firms regarded all the benefits as important due to insignificant differences in the means.

Table 10. Reasons for ISO certification.

REASONS FOR ISOO CERTIFICATION	Level of importance						
	No at all	low	moderate	high	Very high	mean	standard deviation
To improve business performance	0	0	22	46	69	4.48	1.066
To boost company performance	0	3	25	52	57	4.33	1.131
To attract customers as they tend to follow certified firms, products and services	4	4	18	49	62	4.31	1.249
For continual survival	1	7	28	35	66	4.29	1.251
To improve quality culture	1	4	31	41	60	4.27	1.212
To improve workmanship and productivity	0	0	32	56	49	4.26	1.106
To increase competitiveness	1	11	21	42	62	4.26	1.273
To increase awareness of quality in the firm	2	10	22	50	53	4.18	1.278
As a starting point to implement total quality management	0	10	19	66	42	4.16	1.187
To motivate workers	4	12	20	60	41	4.04	1.322
To increase profits	6	2	44	47	38	3.94	1.319

Group mean and standard deviation (4.23; 1.03).

Table 11. Benefits of ISO certification.

BENEFITS OF ISO CERTIFICATION	Level of importance						
	no at all	low	moderate	high	very high	mean	standard deviation
Defects, wastes and rework have reduced	2	3	43	39	50	4.11	1.258
Organizational performance has improved	1	5	43	43	45	4.06	1.243
Our customers are more satisfied	1	0	50	44	42	4.06	1.196
Our firm has gained competitive advantage	3	8	32	51	43	4.04	1.292

Continued

Productivity has increased	1	8	37	58	33	3.98	1.227
Our firm has become more competitive	3	12	50	29	43	3.86	1.376
Employee commitment has improved	1	9	50	48	29	3.84	1.255
Communication in the firm has improved	7	13	32	60	25	3.76	1.373
Our market share has increased	4	8	56	39	30	3.76	1.325

Group mean and standard deviation (3.94; 1.14).

9. Discussion

The study has found that the most common standard that small SMFs have opted for is in the ISO 9000 family of standards particularly ISO 9000, ISO 9001 and ISO 9002.

The research findings also showed that 135 of the 141 firms investigated had some form of ISO certification while 6 had not yet implemented.

Further, using descriptive statistics, the study showed that the reasons for seeking certification and the benefits accrued as a result thereof were very crucial with the levels of importance ranging from high to very high. The reasons included business performance improvement, customer attraction, continual survival and an improvement in quality culture. The benefits included, among others, a reduction of defects, wastes and rework in production, improved organizational performance, more satisfied customers are more satisfied, a gain in competitive advantage and an increase in productivity. This resonates well with the findings in literature where most authors concluded that, as a result of ISO certification, firms gained a feeling of great achievement that they were internationally recognized through standards, boosted productivity, enhanced customer satisfaction, increased profit for the firm, owned a happy workforce with increased morale, increased their market share, improved organization's image, and greatly reduced the need for inspection, rejections, wastages (Nagalingappa & Manjunath, 2010: p. 98). In a similar argument, Han (2000: p. 1) concluded that the registration of the standards increased a firm's competitiveness as well as customer satisfaction and business performance. Further, Kuo et al. (2009: p. 1332) added that ISO 9000 increased the awareness of quality in every division in a firm.

10. Conclusion

This study dealt with quality issues in small manufacturing firms in Botswana. Specifically, ISO systems were discussed. ISO certification is a special component of quality systems implementation in small manufacturing firms. This is so be-

cause it has been adopted worldwide by many organisations due to the fact that it is easier to implement than other quality systems such as total quality management (TQM), six-sigma and lean manufacturing. Its characteristics are similar to those of the much acclaimed total quality management (TQM). The benefits accrued as a result of ISO certification and the reasons for failure are also similar to those under a TQM environment. In the context of Botswana, several standards are being developed in line with ISO under the guidance of Botswana Bureau of Standards (BOBS). It is therefore pertinent that ISO and other systems are studied together. Also, a study across all sectors would be ideal to provide a strong comparative analysis since it is not only the manufacturing sector that is important in an economy. Botswana is trying to diversify its economy using many sectors such as tourism, agriculture, manufacturing and services.

This paper has deficiencies of its own. For instance, the country was not covered in totality due to time constraints. A study of this nature requires that the whole country is covered. Also, only small manufacturing firms were studied instead of all sectors of the economy. Further, a study of this nature needs to carry out a comparative analysis between small and large firms as the two may be complimentary in their engagement. A study in the future therefore needs to be robust so as to cover as many aspects as possible.

On the other side, the study adds to the body of literature. Many researchers can borrow ideas as the realm of ISO certification continues to expand. Organisations worldwide are seeking for, among others, improved quality and service, delivery on time, right-first-time attitude and fewer returned products and complaints. This study could help organisations improve their organisations in respect of the mentioned objectives.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

References

Al-Najjar, S. M., & Jawad, M. K. (2011). ISO 9001 Implementation Barriers and Misconceptions: An Empirical Study. *International Journal of Business Management, 2,* 118-131. https://doi.org/10.5430/ijba.v2n3p118

BEDIA Directory, 2013.

BOCCIM Directory, 2012.

Chikuku, T., Chinguwa, S., & Macheka, M. (2012). Evaluation of the Impact of Obtaining ISO 9001:2008 Quality Management System (QMS) Certification by Manufacturing Companies in Zimbabwe. *International Journal of Engineering Science and Technology, 4,* 4168-4186.

Chowdhury, M., Paul, H., & Das, A. (2007). The Impact of Top Management Commitment on Total Quality Management Practice: An Exploratory Study in the Thai Garment Industry. *Global Journal of Flexible Systems Management, 8,* 17-29. https://doi.org/10.1007/BF03396517

Fotopoulos, C. V., Psomas, E. L., & Vouzas, F. K. (2010). Investigating Total Quality Management Practice's Interrelationships in ISO 90001: 2000 Certified Organizations. *The TQM Journal, 21,* 503-515. https://doi.org/10.1080/14783363.2010.481512

Gopal, & Attri, R. (2017). An Overview of Literature Review on ISO 9001 Standards. *International Review of Business and Finance, 9,* 31-34. http://www.ripublication.com

Han, S. B. (2000). *The Effects of ISO 9000 Registration Efforts on Total Quality Management Practices and Business Performance*. Dissertations and Master's Theses, Paper AAI998821. http://digitalcommons.uri.edu/dissertations/AAI9988221

Hung, R. Y., Lien, B. Y., Fang, S., & McLean, G. N. (2010). Knowledge as a Facilitator for Enhancing Innovation Performance through Total Quality Management. *Total Quality Management, 21*, 425-438. https://doi.org/10.1080/14783361003606795

Idris, M. A., McEwan, W., & Belavendram, N. (1996). The Adoption of ISO 9000 and Total Quality Management in Malaysia. *The TQM Magazine, 8*, 65-68. https://doi.org/10.1108/09544789610146079

Iwaro, J., & Mwasha, A. (2012). The Effects of ISO Certification on Organization Workmanship Performance. *Quality Management Journal, 19,* 53-67. https://doi.org/10.1080/10686967.2012.11918527

Juan José, T., Azorín, M., Francisco, J., & Iñaki, H. (2012). Benefits of the ISO 9001 and ISO 14001 Standards: A Literature Review. *Journal of Industrial Engineering and Management JIEM, 5,* 297-322. https://doi.org/10.3926/jiem.488

Kumar, M., Antony, J., Singh, K., Tiwar, M. K., & Perry, D. (2006). Implementing the Lean Sigma Framework in an Indian SME: A Case Study. *Production Planning and Control, 17,* 407-423. https://doi.org/10.1080/09537280500483350

Kuo, T., Chang, T., Hung, K., & Lin, M. (2009). Employees' Perspective on the Effectiveness of the ISO 9000 Certification: A Total Quality Management Framework. *Total Quality Management, 20,* 1321-1335. https://doi.org/10.1080/14783360903250530

Lewis, W. G., Pun, K. F., & Lalla, T. R. M. (2005). An AHP-Based Study of TQM Benefits in ISO 9001 Certified SMEs in Trinidad and Tobago. *The TQM Magazine, 17,* 558-572. https://doi.org/10.1108/09544780510627651

Lewis, W. G., Pun, K. F., & Lalla, T. R. M. (2007). The Effect of ISO 9001 on TQM Implementation in SMEs in Trinidad. *West Indian Journal of Engineering, 30,* 1-16.

Lushi, I., Mane, A., Kapaj, I., & Keco, R. (2016). A Literature Review on ISO 9001 Standards. *European Journal of Business, Economics and Accountancy, 4,* 81-85.

McAdam, R. (1999). Life after ISO9000: An Analysis of the Impact of ISO9000 and Total Quality Management on Small Businesses in Northern Ireland. *Total Quality Management, 10,* 229-241. https://doi.org/10.1080/0954412997974

Mo, J. P. T., & Chan, A. M. S. (1997). Strategy for the Successful Implementation of ISO 9000 in Small and Medium Manufacturers. *The TQM Magazine, 9,* 135-145. https://doi.org/10.1108/09544789710165581

Mokhtar, M. Z., & Muda, M. S. (2012). Comparative Study on Performance Measures and Attributes between ISO and Non-ISO Certification Companies. *International Journal of Business Management, 7,* 185-193. https://doi.org/10.5539/ijbm.v7n3p185

Musa, E. A. E., & Alawad, I. K. (2011). The Impact of Implementation of Total Quality Management of Plants' Productivity: Evidence from Poultry Processing Plants-Saudi Arabia-Central Region. *International Journal of International Engineering and Technology, 3,* 4426-4433. https://doi.org/10.1080/07359683.2011.595643

Nagalingappa, G., & Manjunath, V. S. (2010). *Total Quality Management-Text and Cases*

(pp. 1-315).

Neyestani, B., & Juanzon, J. B. P. (2017). ISO 9001 Standard and Organization's Performance: A Literature Review. *International Journal of Advanced Multidisciplinary Research, 4,* 6-13. https://doi.org/10.22192/ijamr

Quazi, H. A., & Padibjo, S. R. (1998). A Journey towards Total Quality Management through ISO 9000 Certification—A Singapore Experience. *International Journal of Quality and Reliability Management, 15,* 489-508. https://doi.org/10.1108/02656719810196225

Rahman, S. (2001). A Comparative Study of TQM Practice and Organizational Performance of SMEs with and without ISO Certification. *International Journal of Quality and Reliability Management, 18,* 35-49. https://doi.org/10.1108/02656710110364486

Sakthivel, P. B., & Raju, R. (2006). Conceptualizing Total Quality Management in Engineering Education and Developing a TQM Educational Excellence Model. *Total Quality Management, 17,* 913-934. https://doi.org/10.1080/14783360600595476

Singhal, D., & Singhal, K. R. (2012). *Implementing ISO 9001:2008 Quality Management System: A Reference Guide* (2nd ed., pp. 1-183). PHI Learning.

Sohail, M. S., & Hoong, T. B. (2003). TQM Practices and Organizational Performances of SMEs in Malaysia: Some Empirical Observations. *Benchmarking: An International Journal, 10,* 37-53. https://doi.org/10.1108/14635770310457539

Talib, F., Rahman, Z., & Azam, M. (2011). Best Practices of Total Quality Management Implementation in Health Care Setting. *Health Marketing Quarterly, 28,* 232-252. https://doi.org/10.1080/07359683.2011.595643

Tari, J. J., Molina-Azorín, J. F., & Heras, I. (2012). Benefits of the ISO 9001 and ISO 14001 Standards: A Literature Review. *Journal of Industrial Engineering and Management, 5,* 297-322. https://doi.org/10.3926/jiem.488

Valmohammadi, C. (2011). The Impact of TQM Implementation on the Organizational Performance of Iranian Manufacturing SMEs. *The TQM Journal, 23*, 496-509. https://doi.org/10.1108/17542731111157608

Viadiu, F. M., Fa, M. C., & Saizarbitoria, I. H. (2006). ISO 9000 and ISO 14000 Standards: An International Diffusion Model. *International Journal of Operations and Production Management, 26,* 141-165. https://doi.org/10.1108/01443570610641648

Zadry, H. R., & Yusof, S. M. (2006). Total Quality Management and Theory of Constraints Implementation in Malaysian Automotive Suppliers: A Survey Result. *Total Quality Management, 17,* 999-1020. https://doi.org/10.1080/14783360600747911

Zhelyazkov, G. (2010). *Impact of ISO 9000 on Business Performance, Design, Manufacture & Engineering Management*. Strathclyde University of Glasgow, Working Paper.