

Assessing the performance of the South African automobile manufacturing companies by means of quality management practices

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Abstract

Within the current worldwide business environment, several manufacturing firms have been spotted within a significant competition for survival; this has led firms to continuously longing to enhance the quality of their goods and cut the cost down. Most of these firms are seeking to address radical amendments in accordance with the demands in the market with the aim of being ahead of their contenders, however there is an unceasing necessity regarding maintenance and continual enhancement concerning quality management practices. South Africa is currently in the progressing phase and quality of the products by local manufacturing companies is still below average and thus, it is essential to improve the quality of manufactured goods to encourage economic expansion. Even though, the quantity of ISO certified organisations is on an increase, the quality of the product is still not enough. Additionally, in South Africa, most of manufacturing companies lack effective quality systems established. Hence, several critics suggested that the awareness to the significance to implement efficient quality practices that can give the local manufacturing firms more advantage within the global market by means of high quality yardstick has not been outstanding. This research, thus, seeks to close the gap by clarifying and improving the awareness of the quality management practices effects and the performance of local manufacturing companies within South Africa.

Keywords

Quality management practices, automobile manufacturing sector, South Africa.

I. Introduction

In the light of globalisation, the highly competitive market segments, permanent industrial development, and progressively demanding consumers, quality has developed into one of the most crucial aspects regarding the strategy of creating manufacturing companies competitive in the light of global market. To this end, ISO has the main wideranging scope within the enhancement of manufacturing companies' performance by means of promoting quality. The ISO family of standards are universally well known and are designed in such a way that they demonstrate the ability of a manufacturing company to handle the processes as well as to make the product or service adequate; thus, their operation could be a foundation of competitive benefit, improving the performance of the company's (Ambe & Badenhorst-Weiss, 2011) Consequently, most manufacturing companies need to execute and operate using a collection of quality methods which have been successful somewhere else which will assist them to detect changes in their work environment and to provide feedback proactively in the course of continuous improvement and to enhance performance. In South Africa, many manufacturing companies are quickening to being ISO certified, but whether the certification will bring about improved business performance is still to be established. Many other African countries, including South Africa, have implemented ISO standards. Barnes & Morris (2008) noticed that being ISO certified is relevant and appropriate to all type of organization, that include the manufacturing sector, and it compels performance to improvement. Given the Resource-Based View theory, performance of a company is established on the resources and competences it has in control, of which may develop into a foundation of competitive advantage. Riemann &

Hertz, 2004 reported that, to produce a competitive advantage, this is the extent to which an organization must do better than its competitors, performance methods, should be selected for benchmarking. It is vital to consider that those organization-specific resources that are beneficial, exceptional, imperfectly unique and not replaceable (Barney, 2007). In other words, performance is accumulated upon the resources that are worthy to the organisation and which are not regularly circulated through competing organisation. For the manufacturing organisation to generate a continuous competitive advantage, it must also acquire imperfectly moveable resources which are useful to an organisation's performance (Brown et al., 2004). Globally, the manufacturing sector, is being driven by extraordinary change from challenges in association with supplying quality products and services, which leads to implementation of ISO certification to improve the performance. These impacts, contain pressure from the government sector to make sure that manufacturing companies are making high quality products which will satisfy the demands of consumers. (Quazi et al., 2002). Barney (2007) suggests that outstanding performance is accomplished when management strategies focused on enhancing the quality of products/goods and services. Performance measures which regulate how an organisation's management systems is worth can be challenging to develop, use as well as to analyse and various researchers have numerous views regarding performance. Even though quality has dependable and constant positive relationship with improved performance, there are little similarities on how performance should be calculated and described. Organisational performance can be viewed as a recurring subject in the concept of quality enhancement, and it holds a meaningful interest for academics as well as practitioners. Components like employee fulfilment, quality of the product, companies' performance, productivity and business outcomes are related to performance measures of the company.

Quality management is the process of defining the problem, which should be solved in the real word of the end-users, afterward a solution can be defined. If the problem within the real word of end-users is not well understood, the endusers' world and the defined solution, will not be a merged entity. Therefore, effective communication is the key to have a good understanding of the problem. Quality emerges from the social interaction and communication between quality managers and end-users. The system of an automobile industry has got various interlinked, dependent components, therefore engineers and developers working in the automobile industry must all have a common understanding of how all the components should be working together. In order to reach this objective, engineers and developers have to be capable of seeing all of the connections. Otherwise, the end products will be distorted and will not meet the customers' expectation (William & Vincent, 2012). Currently, introducing a new innovative product into a highly competitive market is an important key to sustain company's economy. Introducing new products into a new market is significant due to the fact that product innovation is a key success component for firms to adjust to shifting conditions within the markets with regards to technology and competency perspectives. The automobile firm is considered as one of the precious technical concept marvel by human being. It is one the most growing industry across the world, and its dynamic increased phases can be demonstrated by its highly competition, product life cycle and customers' needs. Currently, the automotive sector is largely concerned with customers' demands that mostly are based on quality, designing, fuel cost, safety, and comfort.

The automobile company is one of the most universal companies, owing to the fact that its products are spread across the world, however controlled by small industries that are internationally recognised (Barnes & Morris 2008; Humphrey & Memedovic 2003). Because of its huge development that is associated with various important components of the economy, the automotive industry has an important impact over the growth of a country's economy and therefore is a key player for the economy growth of many countries around the world. Globally, this industry plays a critical role by developing transport sector, and also its assists industrial sector to move at a fast pace and thus create important employment opportunities. The automotive sector is a capital intensive and technologically advanced about manufacturing processes and its products (Wei & Chen 2008). In this area, currently the level of competition is growing and the production centres of many big automobile companies is being moved from the developed countries to developing countries with the aim of producing at a lower cost (Nag et al.2007). However, the issue with the automotive industry is that it is becoming more and more competitive. Consequently, the worldwide automobile industry is plenty of opportunities and risks that are found around the world mostly in emerging and mature markets. But, profitability growth has become complex because of many competitors and too much redundancy and overlap. In other word, the global automobile industry is within the grips of an international price-war.

The cause of this is linked with the growth in number of cars models being launched into integrated markets that is why most of executive managers are looking forward to maintaining their companies competitive in a cost-effective way. However, this is not an easy task for executive managers because with the growing competition into the worldwide's automobile market, demand is being placed upon the safety, comfort, fuel economy, performance and

quality of the product. Thus, it is always important to schedule for future increase when operating in a highly competitive market. Because, it is important to have on time an understanding how what really the consumers want. Therefore, this project will firstly focus on discovering whether the challenges that hamper the South African automotive industry from becoming competitive are organizational, managerial or environmental factors, and secondly based on the findings the project will design a requirement engineering in order to overcome these challenges.

II. Literature review

II.1 South African automobile manufacturing sector

Over the last decade, the South African automotive industry has been manufacturing various type of vehicles such as Nissan, General Motors, BMW, Volkswagen, Ford, Mercedes-Benz and Toyota (Van der Merwe & Visser 2008). Since the beginning of 1990s, the production of vehicles has been increasing dramatically. And this has pushed local manufacturers to step into new world market (Lamprecht 2009). A significant number of vehicles that are locally manufactured, are now being exported into new markets. And the exportation of the local manufactured vehicles is positively affecting the balance of disbursement and employment in the country. Pires and Neto (2008) point out that the automobile industry is contributing significantly to the national economy. For example, in 2012 the contribution of the automobile sector to the Gross Domestic Product (GDP) amounted to R 3251 billion. (Automotive Industry Export Council [AIEC] 2013). Though, the automotive industry contributes significantly to the growth of the national economy and creates important opportunities for the jobs in the country, but the following researchers in the table below argue that the South African automobile industry is dealing with serious challenges in international market, and therefore it is internationally uncompetitive.

II.2 Review of previous studies

Javed (2015) organised a research with the objective to actually examine the effect of top-level management involvement and commitment on quality management success. This research was restricted to ARL Company in Islamabad. The sample of the research involved managers and executives who were employed below functional heads. The academic utilised sampling which are judgmental when it comes to subject selection. Survey questionnaire was the instrument which was utilised in the research. The Correlation analysis described a positive mild connection regarding achievement of quality management as well as top-level management commitment. Specifically, top-level management obligation positively inter-relate to the achievement of quality management in an organisation. In the current study, the researcher used objective sampling method, whereas the above study employed judgmental sampling, which was likely to be biased. Wahid and Corner's (2009) conducted a research on service organisations in Malaysia established that the implementation of ISO is a significant factor on performance. The methods utilised in the collection of data were interview sessions with the relevant representatives regarding the implementation of ISO. Qualitative data analysis with the usage of thematic analysis could classify numerous critical factors the implementation of ISO 9001.

Those factors were the following: top-level management commitment, incentive systems, workers partaking and participation, understanding of ISO 9001, constant improvement, joint efforts amongst workers, performance measurement and communication. The research classified support and contribution of the top-level managements an utmost crucial factor. The decision made from the 83.33% results of the representatives interviewed specified that for ISO 9001 to be a success and sustainable is influenced by top-level management. Three factors were created from this research and were viewed as most crucial regarding ISO 9001 implementation, which were received from the number of respondents who provided the inputs during their interview. The most leading factors were as follows: top-level management encouragement and commitment, be familiar with ISO and constant improvement. Data that was based on interviews regarding representatives, was analysed using The Thematic method. The recent research made use of questionnaire for data collection from representatives and the data were analysed using informative and inferential statistics. The vital benefits are perceived from effectiveness of the quality system. Though, the representatives remarked that there is lack of top-level management involvement and the absence of skilled workers to be the main barriers in the efficient ISO implementation. The recent research made use of both illustrative and expressive research design to institute the connection concerning ISO endorsement and performance and data were collected in a drop-and-pick system and the response rate was a satisfactory 85.8%. Chin and Choi (2003) study concentrated at the impact of ISO and the established organisation's performance. The utmost crucial factor was the way the endorsement is understood by top-level management, as it is categorised as the most dominant factor for executing the standard. If endorsement is understood positively, top-level management will offer unlimited provision for it. After all, the top-level management should be the driver in the execution of quality management systems when setting up required resources,

which are crucial factors in constant improvement throughout the conception of goals, systems and values to fulfil customer expectations and enhance the organisation's performance. That research resolved that while toplevel management dedication holds a significant role on quality performance, more research must be conducted to establish whether ISO endorsement is motivated internally or externally. However, the research did not cover some factors like consumer focus, constant improvement and organisational ability, which the recent research takes it into account.

Huselid and Becker's (2005) research explored the connection concerning Human Resource management effectiveness and a company's performance. The research made use of survey research design based on a sample of 60 companies. A simple random sampling was utilised to collect questionnaire responses. A background of each organisation's HRM system was created, reflecting to the degree that a company had implemented the highperformance work system, and it was constantly established that companies with greater values in this index have increased performance. The research established that a Human Resource system that concentrated on human capital management was directly associated to several aspects of operational performance, for example machine effectiveness, worker's production as well as consumer alignment. The research finalised that organisational efficiency was directly linked to the competences and qualities of Human Resource staff. Additional, research finalised that the connection concerning Human Resource management cash flow, efficiency and production as well as market values was positive. To reach conclusions, the research utilised the survey design whereas the recent research made use of both expressive and illustrative research design to capture the population characteristic of the sample.

Bass (1990) recorded that the study on participative decision-making is most likely to be acknowledged by those influenced by it, adding that everybody in the organisation, top to bottom, should be a team and partake in quality issues. Individuals are the originators of concepts and invention and their skills, knowledge, expertise and cooperation should be combined and ideas related to higher fulfilment implemented for higher quality decisions. The research noted that handing over implementation of quality accountability in the hands of those who are pressurised and whose future is affected by quality management are more likely to influence the style and passion in which their work is performed. The research proposed that quality accountability should be allocated to workers who are in charge of their own duties as by doing that enhances motivation by creating fulfilment in their job. Management and Quality Theory suggests that entities and work teams must own the authority to enhance their own quality and this should signify real authority and the capability to regulate what they do. The research concluded that some dimensions of people management should be investigated to measure their impact on endorsement of ISO and company's performance. The recent research argues that quality accountability depends on the entire organisation.

Kehoe's (1996) research proposed that quality development includes techniques, people, systems and the most crucial factor that needs improvement is the people. This is endorsed by Alfeler and Low (2000) who emphasised two methods in ISO: the practical and non-practical behavioural methods. Culture assists as a groundwork for the organisation's management system; therefore, a beneficial conclusion is that managers will not function should it not be suitable to the current existing culture (Schneider & Barsoux, 2000). Goffee and Jones (1996) decided that in order for the culture to be operative, it must be constant contact with the business environment where the organisation operates. But although there is a connection regarding encouraging culture and endorsement of ISO, unacceptable organisational culture would demoralise efforts. This research emphasises merely the effect of culture on the employee, disregarding all other concepts like top-level management's loyalty and operating environment, that should hold an influence on the company's quality performance.

Lees & Sadri's (2001) research on the effect of quality culture on competitive advantage reported that in order for culture to be efficient, it must be constant with the business environment in which the organisation functions. Though there is a connection regarding supportive culture and the endorsement of ISO, organisational culture that is inappropriate would demoralise efforts of improving quality. The research recorded the elements of organisational culture essential in quality improvement efforts. These include encouraging an inspiring job, stay attentive to detail, trust and encouragement, appropriate leadership, employee participation, open communication, consumer focus, continuous improvement and decision making. The research proposed that organisations must evaluate and categorise their organisational culture and consider how it influences employee's production and self-esteem. This research did not reflect on the importance of culture in relation to performance but instead it reflected to culture in relation to competitive advantage. Chang & Lo's (2005) research on motivation reported that there are several approaches of motivating workers and the executives must understand the significance of these approaches and where they can be useful. Workers must be properly educated ahead of being assigned to jobs. When there are any new procedures of technology introduced, employees should be trained to be able to use them. Employees should also be given a good

remuneration in order for their financial needs to be accomplished. Furthermore, to remuneration, employees should be provided with welfare facilities, performance incentives, promotion, bonus, job securities and social securities. The mentioned facilities would contribute in retaining the trained individuals in the workplace. It is a challenge to get a decent employee, but it can be even more challenging to keep him or her. The research concentrates on employee empowerment through motivation, whereas the recent research focused on additional variables namely, constant improvement and customer focus in improving performance.

Psomas et al. (2010) performed a research on the crucial factors for efficient application of the ISO standard on Small Medium Enterprises (SMEs) functioning in the service sector. The research utilised five (5) crucial latent concepts (requirements of the quality system, employee attributes, internal motivation attributes of company and attributes of external environment). Organisations utilised a sample of 93 ISO endorsed service. Data were conducted using questionnaire survey of representatives accountable for quality in each of the sampled companies. Data was analysed with the use of expressive statistics and investigative factor analysis. The conclusion was that all the examined crucial factors regarding the influence on ISO effectiveness in this research are important. This research was conducted in a service sector and representative selected were quality executives. But the recent research was conducted in the manufacturing sector and the respondents were quality executives and internal auditors, with the intention of eliminating bias. Maull, Brown and Cliffe (2001) in their research on external environment discovered that there are factors which may still have a huge impact on the way business functions which are outside the control or influence of the business. These are, for instance, social and political policy, legislation changes as well as economic trends. The research conceptualises external environment from five major features: environmental capacity, environmental uncertainty, environmental concentration, heterogeneity and domain consensus. Environmental capacity consists of the level of supplies accessible to an organisation. Heterogeneity can be defined as the extent to which the organisation resolves various demands from various shareholders (Dowell, 2006).

The demands on organisations have strengthened over the current previous years as a result of political, rapid social and environment changes and standards that play an important role to enhance corporate performance. The research finalised that in order for more advantages to accumulate from ISO endorsement, organisations needed to take into account the design and execution of quality management systems, which were persuaded by the organisation's structure, size and strategy, organisational environment, its modification and the consequences related to that environment. The research regarded cultural issues and environmental issues as self-regulating variables, whereas the recent research made use of operating environment as a regulating variable. According to Lee, To and Yu (2009), ISO 9000 have turned out to be a common knowledge within organisations and the standard is broadly implemented across various firms and sectors and it may be a good foundation of competitive advantage. It is sensible to accept that other factors, like external environmental scanning and adaptation as well as internal environmental scanning and adaptation, may drive organisations to understand constant improvement as well as to be competitive in the targeted market. This might have a vital effect on the strategy of the ISO 9000 implementation. The current research that took place in South Africa, one of the developing countries, with the purpose of establishing the connection regarding toplevel management commitment and performance of manufacturing companies.

III. Methods

A quantitative methodology was used in the present study, deploying a survey that was conducted based on a questionnaire as the primary data and secondary data from previous studies. The collection of primary data was done anonymously. The design of the questionnaires was solely set to assess the impact of quality management practices on the performance of the South African automobile manufacturing industry in a highly competitive market. At least a total of 126 respondents answered to the questions.

IV. Results

This section aims at addressing and analyzing the findings as collected and calculated.

IV.1. Demographic Profile of the respondents

Profiles of the firms sampled, time taken to get certified, hiring of consultants, firms' turnover and level of education are presented in Table 1.

Table 1: Results for demographic profile of the respondents

Type of Company	Frequency	Percent (%)
Private	95	83
Public	31	17
Total	126	100
Certification period		
Under 24 months	17	14
6-12 months	70	59
Above 12 months	39	27
Total	126	100
Hiring of consultants		
Yes	95	88
No	31	12
Total	126	100
Firms Turnover		
More than 250 million	73	71
20-50 million	29	29
Below 5 million	24	0
Total	126	100

IV.2. Continuous Improvement

Constant Continuous Improvement was assessed with the use of indicators containing system measurement, continuous quality audits, employee training and benchmarking. The expressive statistics for each one of these indicators are discussed and presented in the table 2 below:

Table 2: Results for continuous improvement

Descriptions	N	Mean	Std. Deviation
The firm has training policies for employees	126	4.28	0.44
Employees are continuously trained to enhance internal quality performance	126	4.18	0.46
There is continuous training of employees to improve their problem-solving skills	126	4.23	0.49
The firms has continuous improvement of quality systems, leading to increased revenues	126	4.42	0.62

The quality systems contribute to zero defect of quality objectives	126	4.44	0.50
There is continuous monitoring and improvement of quality systems and procedures to enhance performance	126	4.17	0.40
The firm benchmarks its quality against other quality management practices best practices.	126	4.92	0.42
The firm has set time limit to meet efficiency of products delivery	126	4.22	0.50
There are set benchmarks for internal quality realization and conformity	126	4.20	0.48
Internal quality audits are carried out annually as per ISO certification requirements.	126	4.24	0.76
There are continuous improvement reviews through internal quality audits.	126	4.22	0.61
There is a policy for making continuous improvement of product quality for every individual in the company	126	4.14	0.37

It can clearly be observed from the table 2 above that the complete average score of 4.14 specifies that organisations approved that constant continuous improvement contributes to manufacturing organisations' performance. However, it was evident from the given results above that representatives strongly agreed that the organisation benchmarks its quality against best practices of other quality management practices (mean 4.92, SD 0.42). Consequently, most of the representatives agreed that the policy for making constant continuous improvement of product/service quality for every individual in the organisation (mean 4.14) and internal quality audits were carried out on an annual basis as per requirements of ISO endorsement (mean 4.24). The systems of quality contribute to zero defect on quality objectives and the element that the organisation benchmarks its quality with other quality management practices best practices. In general, the responses are structured around the mean responses and the entire standard difference is low, disclosing agreement among respondents that constant continuous improvement is important for performance in the manufacturing organisations.

IV.3. Customer focus

The variable Continuous Consumer Focus was measured using indicators containing handling of consumer retention methods, consumer feedback systems, consumer complaints and market-based research. The expressive statistics for each of these indicators are discussed and presented in table 3 below:

Table 3: Results for customer focus

Descriptions	N	Mean	Std. Deviation
Mechanism exists for customer complaints handling.	126	4.20	0.33
Firm has customer complaints procedure where customers are attended to.	126	4.15	0.31

Customer care employees are well trained as telephone customer care.	126	3.83	0.38
The firm has consistent tracking of complaints and procedures for all cases of complaints.	126	4.18	0.36
Firm is committed to customer retention by ensuring quality products	126	4.23	0.31
Customer needs are reviewed regularly to meet changing customer preferences and expectations.	126	4.34	0.31
Customer needs and expectations are communicated throughout the company.	126	4.06	0.24
There is improved customer loyalty, leading to repeat business	126	4.17	0.38
The firm conducts customer feedback surveys regularly	126	4.13	0.31
The firm stresses the importance of obtaining feedback on its quality control systems from customers	126	4.13	0.29
The firm undertakes market based research annually on quality issues.	126	4.09	0.49
The firm collects, analyses and disseminates information for market decision-making by management	126	4.24	0.21
Benchmarking helps the firm to measure performance progress.	126	4.22	0.35

The outcomes in table 3 above, disclose that the mean score for the items used to measure consumer focus was 4.22 and the standard deviation was 0.35. The overall mean score of 4.22 indicated that the consumer has approved on how the expectations and needs are communicated throughout the company. It is expected to enable them to create services and products of superior value, thus by establishing greater consumer satisfaction and value, which leads to superior organisations' performance. Furthermore, the results show that the organisations surveyed gather, investigates and disseminate information for market decision-making by management (mean score=4.24 SE=.021). Consumer needs are regularly revised to meet changing consumer expectations and preferences (mean score=4.34, SE=.031). The results indicate that most of the organisations surveyed were focused on consumers and this was suggested by means of the consensus of representatives whose mean was above 4.00 and low disparity of standard deviation from consumers (SD 0.33).

IV.3. Senior management commitment

Senior management's commitment was investigated by utilising indicators comprising quality vision, quality leadership, resource allocation, and quality policies. The expressive statistics for top-level management's commitment are presented below.

Table 4: Results for senior management commitment

Descriptions	N	Mean	Std. Deviation
Quality management is embraced in the vision of the company.	126	4.10	0.22
Top management reviews the organization's QMP at planned intervals to ensure continuity, adequacy and effectiveness.	126	4.50	0.22
Employees are motivated towards the organization's goals and objectives	126	4.18	0.42
Top management devotes resources for development and support for ISO certification	126	4.09	0.26
There is provision of resources for training and freedom to act with responsibility and accountability	126	4.15	0.32
Quality policies and procedures are documented and communicated to all employees	126	4.70	0.35
Quality policies are reviewed regularly to meet the needs of the organization	126	4.25	0.30
Quality policies are communicated and understood throughout the company	126	4.12	0.32
Management takes leading position on guiding quality teams	126	4.11	0.31
Top management establish trust and commitment to quality improvement by eliminating fear	126	4.09	0.52
The management allows participative and engagement of employees in making decisions on quality issues	126	2.85	0.64
Authorities and responsibilities are defined and communicated throughout the firms by management	126	4.26	0.27
There is creation and sustenance of shared values and fairness at all levels of the company	126	4.15	0.43

The results in table 4 above yield an overall mean score of 4.9 and standard deviation of 0.23 Quality procedures and policies are documented and communicated to all workers with the highest level of agreement (mean score=4.70, SD=.035). This indicates that most representatives approved that quality procedures and policies are vital to the organisation for efficient management of quality management practices to enhance the organisation's performance.

The lowest score was recorded where the representatives disagreed that management permits engagement and participative of employees in making decisions on quality issues (mean score=2.85, SE=.064).

V. Conclusion

The key focus to management of the company is performance. This research investigated the connection relating to quality management practices and performance of the organisation. Based on the outcome of this research, it is reasonable to conclude that quality management practices contributed to performance of the South African manufacturing organisations. Based on the outcome of this research, the researcher gathered some vital conclusions. Constant continuous improvement was found to be statistically significant in influencing the organisation's performance; consequently, managers must consider other ways to monitor and sustain performance through employees training and to ensure constant continuous quality audits and system measurements of manufacturing organisations. Consumer focus was initiated to be constructive and substantial. The management of the organisations must take note that consumers are economic assets and they play a vital role on the performance of the organisation. Today's consumers are highly well-informed and demanding. In order for the managers in manufacturing companies to succeed in an operating environment, they must respond to the needs and necessities of their target consumers much better than their competitors. This calls for organisations to be more competition-oriented, consumer-focused and ready to utilise the company's rare resources effectively. The outcomes suggest that concentrating on consumers is a vital strategy for manufacturing companies to consider when it comes to improving performance. The research outcomes established that top-level management commitment was statistically substantial. Top-level management are crucial to determine how the organisation's resources are assigned in order to realise performance. It is one of the top-level management's role to be able to define the mission, vision and goals that encourage quality culture and to establish a set of common values, which leads to improved performance. The research suggests that managers must focus on enhancing the quality of services and products and therefore improve performance. This research focused on the connection relating to quality management practices and performance of South African manufacturing organisations. Most recent empirical research done has established that quality management practices have significant connection on performance. Though, it was being recorded that the attention of those studies were sectors and organisations in developed countries. Additionally, the research adds to the current body of empirical literature and influences the debates on the concern of the management and researchers on the issues that influence performance. The current research focuses on the conceptualisation of the connection regarding quality management practices and performance throughout the integration of mediating variable, organisational capability and the moderating variable. This integrated research has consequences to both the practitioners as well as the researchers in the manufacturing organisations. Furthermore, the three (3) crucial factors that are utilised in the current research are continuous improvement, consumer focus as well as top-level management commitment whose responsibility is to improve conceptualisation of quality management practices framework.

References

- Ab-Wahid. R. & Corner, J. (2009). Critical success factors & problems in ISO 9000 maintenance, International Journal of Quality and Reliability Management, 26(9): 881–893.
- Alfelor. M. & Low .A (2000). "Cross-cultural influences on quality management systems: two case studies", Work Study, Vol. 49 No. 4, pp. 134 – 145.
- Anderson, S. W., Daly, J. D. & Johnson, M. F. (1994). Why firms seek ISO 9000 certification: regulatory compliance or competitive advantage or competitive? Production and operations or competitive management or competitive, Vol. 8 No. 1, pp. 28-43
- Anyango, D., Wanjau , K. & Mageto, J. N. (2012). Assessment of the relationship between quality management practices and performance of manufacturing firms in Nairobi. African Journal of Business and Management, Vol. 2, 2012.

Ansoff, H. I., & Suvillan, A. P. (1993). Optimizing Profitability in Turbulent Environments: A Formula for Strategic Success. *Long Range Planning*, Vol.26 No.5, pp. 11- 23.

Arauz, R. & Suzuki, H. (2004). "ISO 9000 performance in Japanese industries" ,*Total Quality Management and Business Excellence*, Vol.15 No. 1, pp. 3-33.

Arumugam, V., Ooi, K. B. & Fong, T. C.,(2008).TQM practices and quality management performance- an investigation of their relationship using data from ISO:2000 from Malaysia. *The TQM magazine*, Vol. 20 No. 6, pp. 636-650.

Aslanertik, E., & Tabak, B. (2006). Marketing And Cost Dimensions of ISO Implementations of Small and Medium sized Manufacturers: A Case study analysis. *E.g. Academic Review*, Vol. 6 No.2, pp. 47-57.

Augustyn, M. M. & Pheby, J. D. (2012).ISO 9000 and performance of small tourism enterprises: a focus on Westons Cider Company. *Managing Quality management practices*, Vol. 10 No. 6, pp. 360-88.

Baidoun, S. (2003) "An empirical study of critical factors of TQM in Palestinian organizations. *Journal of Logistics Information management*, 16(2) 156-171.

Barney, J. B. (2001). Firm Resources and Sustained Competitive Advantage. *Journal of Management*, Vol .17 , pp 99-120.

Barney, J. B., (2007). 'Is the resource-based 'view' a useful perspective for strategic management research? Yes', *Academy of Management Review*, Vol 26, pp 102-105.134

Baron, R. M. & Kenny, D. A. (1986). The Moderator- Mediator variable distinction in social psychological research. Conceptual, strategic and statistical consideration. *Journal of personality and social psychology*, Vol.51, No.3, pp. 1173-1182.

Bass, J. (1990). *The essence of Total Quality Management*, Hemel Hempstead: Prenticehall.

Bell, M. & Omachonu, V. (2011). "Quality system implementation process for business success", *International Journal of Quality and Reliability Management*, Vol. 28 No. 7, pp. 723 – 73.

Bontis, N., (1998). Intellectual capital: an exploratory study that develops measures and models. *Management Decision*. Vol. 36 No.2, pp. 63–76.

Brown, A., Van D. W. T. & Loughton, K. (2004) 'Smaller enterprises' experiences with ISO 9000' *International Journal of Quality R and reliability Management*. Vol.15 No.3, pp. 273-85.

Bryman, A. & Bell, E. (2003) *Business research methods*, Oxford, UK: Oxford University Press. Pearson Education Limited.

Casadesus, M. & Karapetrovic, S. (2005). The erosion of ISO 9000 benefits: a temporal study. *International Journal of Quality and Reliability Management*, Vol. 22, No. 2, pp. 120-36.

- Casadesus, M. Marimon, F & Heras, I.(2008) .Countries behavior regarding the diffusion of ISO standards, Journal of Quality and Reliability Management, Vol.16 No. 16 , pp1741-54.
- Chi, C. G & Gursoy, D. (2008). Employee satisfaction, firms performance, and financial performance: An empirical examination. International Journal of Hospitality Management, Vol. 28, No.2, pp. 245–253.
- Chin, S. K. & Choi, W. T. (2003). Construction in Hong Kong: success factors for ISO 9000 implementation. Journal of Construction Engineering and Management, Vol. 129 No. 6, pp.599–609
- Chow-Chua, C., Goh, M. & Wan, B. W. (2003). Does ISO 9000 certification improve business performance? International Journal of Quality and Reliability management, Vol. 28 No. 8, pp. 936-953
- Conca, F., Llopis, F. & Tari, J. (2004). Development of a measure to assess quality management in certified firms', European journal of operational Research, Vol. 156 No.3, pp.683-97.
- Cooper, D. R., & Schindler. P. S. (2008). Business Research methods (8th edition).USA: McGraw-Hill.
- Crosby, P. B. (1979). Quality is Free, Cambrige, New York; McGraw-Hill
- Daft, R., (1983). 'Organization theory and design, New York, West
- Daft, R. I. (2007). Understanding the Theory and Design of Organizations. Thompson: South Western
- Dancey, C. & Reidy, J. (2004). Statistics without maths for Psychology. Pearson Education Limited.
- Deming, W. E. (1986). Out of Crisis. Cambridge, M. A: MIT Centre for Advanced Engineering Study.
- DiMaggio & Powell, W. (1991 The New Institutionalism and Organizational Analysis. pp. 1–38. Chicago: University of Chicago Press.
- Dowel, G. (2006). Product Line Strategies of New Entrants in Established Industries: Evidence from the US. Bicycle Industry. Strategic Management Journal, Vol.27, pp. 959-979.
- Dunstan, I. (1993), ``International defense", European Quality, June, pp.51-3
- Emeka S., Dunu & Michael, F. A. (2008). The Impact of ISO 9000 Certification on the Financial performance of organizations. Journal of global business, Vol.2 No. 2, pp 135
- Eriksson & Kovalainen (2008). Quantative Methods in business Research, 1st ed. Sage Publications Ltd., London.
- Evangelos, L & Psomas, E. (2013). The effectiveness of the ISO quality management system in service firms. Total Quality Management and business excellence, Vol. 24 pp.769-781.
- Evangelos L.; Psomas C. V.; Fotopoulos, D. P. & Kafetzopoulos, (2010), "Critical factors for effective implementation of ISO in SME service firms", Managing Quality management practices: An International Journal, Vol. 20 No.5. pp. 440 – 457.

Evans, J. R (1996). Leading practices for achieving quality and high performance, Benchmarking for quality management and Technology. Vol. 3, No.4. pp.43-50

Fassoula, D. (2006). "Transforming the supply chain" Journal of Manufacturing Technology Management, Vol.17 No.6, pp. 848-60.

Feng, M. Terziovski, M. & Samson, D. (2007). Relationship of ISO:2000 quality system certification with operational and business performance: A survey in Australia and New Zealand-based manufacturing and service firms. Journal of Manufacturing Technology Management, Vol.19, No.1, pp. 22-37.

Field, A. P. (2009). Discovering statistics using SPSS, 2nd edition. Sage publications.

Fotopoulos, C., Kafetzopoulos, D. & Psomas, E. (2009). "Assessing the critical factors and their impact on the effective implementation of a food safety management system", International journal of quality and reliability management, Vol . 26 , No 9. pp. 894-910.

Fotopoulos,C., psomas, E. & Vouzas,F. (2010), "Investigating total quality management practice's inter-relationships in ISO:2000 certified organizations", Total quality management & Business Excellence, Vol.21 No.5,pp.503-515.

Gastwirth, J. L., Gel, Y. R & Miao, W. (2009). The impact of Levene's test of equality of variances on statistical theory and practices. Journal of statistical science, Vol 24, pp. 343- 360.

Goetsch D. & Davis S.(2006). Total Quality Approach to Quality Management Quality Management. Introduction to Total Quality Management for Production, Processing, and Services. 5th ed. New Jersey: Pearson Prentice Hall.

Goffee, R. & Jones, G. (1996), ``What holds the modern company together? ", Harvard BusinessReview, Vol. 74 No. 6, pp. 133-48

Gupta, A. (2008). Quality management practices of ISO versus non-ISO firms: a case of Indian industry. Industry Management and Data System, Vol. 100 No. 9, pp. 451-5.

Gupta, A. (2009). Organization External, Environment. <http://www.practicalmanagement.com/Organization-Development/Organization-s-ExternalEnvironment.htm>

Hair, J. F., Tatham, R.L.T., & Black, W.C. (2010). Multivariate Data Analysis, fifth ed. Prentice-Hall, UK.

Hair, J. F., Money, A. H., Samouel, P., & Page, M. (2007), Research Methods for Business. England, West Sussex, John Wiley and Sons

Hart, S. L. (1995). A natural resource-based view of the firm. Academy of Management Review, Vol.20, pp. 986-1014.

Heras, I., Dick, G. P. M. & Casadesús, M. (2002). ISO 9000 registration's impact on sales and profitability: A longitudinal analysis of performance before and after certification. International Journal of Quality and Reliability Management Vol.19, No.6, pp. 760-791.

Heras, I., Casadesus, M. & Dick, G. P. M. (2008). "The contribution to excellence of ISO: the case of certified organization in Cyprus" The TQM Magazine, Vol. 19 No.5, pp.388-402.

Heras, I., Casadesus, M. and Dick, G.P.M. (2002), "ISO 9000 certification and the bottom line: a comparative study of the profitability of Basque companies", Managerial Auditing Journal, Vol 17 No 1/2, pp.72-8

Hill, S. & Wilkinson, A. (1995). 'In search of TQM', Employee Relations, 17 (3):8-

Hockman, K. K. & Grenville, R. J. S. (2004), "Road map to ISO 9000 registration", Quality Progress, Vol. 27 No. 5, pp. 39-42.

Hubert (2005). Managing Total Quality, Enhancing Personal and Firms value. Tata Me Grawhill, New Delhi, pp. 127-158.

Ismyrlis & Moschidis (2015) The effects of ISO certification on the performance of Greek firms. The TQM journal. Vol. 27 No.1, pp.150-162

Ikay ,M. S. & Aslan, E. (2011) .The effects of the ISO quality management system on the performance of SMEs', International Journal of Quality and Reliability Management. Vol. 29 No. 7, pp. 753-778.

Lin, C. L.& Jang, W. Y. (2008). "Successful ISO 9000 implementation in Taiwan. How can we achieve it, and what does it mean?" International journal of productivity and performance management, Vol. 15 .No. 8, pp. 600-42.

Huselid, M. A. & Becker, B. E. (2005) HR as a source of shareholder value: Research and recommendation. Human Resource Management, vol. 36, pp 39-47

Ismyrlis, L. & Moschidis, O, 2015). The effects of quality management practices on the performance of Greek firms. The TQM journal, Vol.27 No.1, pp 150-162.

ISO, (2008). "The ISO survey of ISO:2000 and ISO 1400 certification up the end of 2006" available at www.iso.org/iso/survey2006.pdf/accessed 23rd July 2013.

ISO, (2008). Quality Management System (QMS) Requirements. Retrieved June 3, from: http://www.iso.org/iso/en/catalogueDetail_pg_catalogueDetail.

Javed, S. (2015). Impact of Top Management Commitment on Quality Management" International Journal of Scientific and Research Publications, Volume 5, Issue 8, August 2015ISSN 2250-3153 www.ijsrp.org

Johnson, G., Scholes, K., & Whittington, R. (2008) . Exploring Corporate Strategy: Texts and Cases. Boston: Prentice Hall Inc

Jones, R., Arndt, G. & Kustin, R. (2004) " ISO among Australian open firms: impact of time and reasons for seeking certification on perception of benefits received", International journal of Quality and Reliability Management, Vol.14 No. 6, pp. 650-60.

- Juran, J.M. (1982). *Juran on planning for Quality*. New York: Free Press
- Kagumba, A. M. & Gongera E. G. (2013). Quality Assurance Strategy on Organizational Performance: Case of Kenyatta University. *European Journal of Business and Management*, Vol. 5 No. 2, pp. 265 - 270.
- KBS (2014). ISO 9001:2008 Quality management systems – Requirements. ISO, Kenya
- KMA (2014). *Leading quality and economic Indicators*. Nairobi: Kenya National Bureau of Statistics
- Kanji, G. K. (2008) Measurement of business excellence, *Total Quality Management*, Vol. 9, No.7, pp. 633 – 643.
- Kaplan, R. S. & Norton, D. P. (1992). The balanced scorecard – measures that drive Performance, *Harvard Business Review*, Vol. 70 No.1, pp. 71-9.
- Karthi, S., Devadasan, S. R., Murugesh, R., Screenvasa, C. G. & Sivaram N. M. (2012), Global views on integrating six sigma and ISO certification, *Total Quality Management*, Vol.107 No.1, pp.103-24.
- Kaziliunas, A. (2010). Success factors for quality management systems: certification benefits” , *International journal of Quality and Reliability Management*, Vol.14 No. 6, pp.10-17.
- Kenneth, S., Anderson & Eddy, G. (2011) Creating SCA: RBV analysis OF Ganzaga University Basketball Programme. *Journal of sport administration and supervision*, Vol. 3 No. 3, pp.58-78.
- Klassen ,R. D. & Whyback, D. C. (1999). The impact of environmental technologies on manufacturing performance. *Academy of Management journal*, Vol. 42. No.6, pp 599-615.
- Kyalo, M. J. (2013). The Effect of ISO 9001:2008 Certification on Process Quality: A Case Study of Kenya Power and Lighting Company. Unpublished MBA Research Project, University Of Nairobi, Kenya
- Lai, H. K., Weerakoon, S.T. & Cheng, C. C. T. (2002).The state of quality management implementation: a cross sectional study of quality-oriented firms in Hong Kong. *Total Quality Management*, Vol.13, No.1, pp. 29–38.
- Landau, S. & Everitt, B. (2004) . A Handbook of Statistical Analyses using SPSS. *Journal of Statistical Software*, Vol.11, pp 2-3.
- Lamport, M., Seetanah, B., Cohhyedass, P., & Sannassee, R. V. (2014). The association between ISO 9000 certification and financial performance. *International Research Symposium in Service Management*, Mauritius.
- Lee, P. K. C., To, V. M. & Yu, B. T. W. (2009). The implementation and performance outcomes of ISO 9000 in service organizations: an empirical taxonomy. *International Journal of Quality and Reliability Management*, Vol.26 No.4, pp. 646–662.

Lee, T.Y. & Sandri (2001). The development of ISO 9000 certification and the future of quality management: a survey of certified firms in Hong Kong. *International Journal of Quality and Reliability Management*, Vol. 15 No.2, pp. 162-77.

Aarkar, A., & Mohapatra, P. K. (2006, May). Evaluation of supplier capability and performance: A method for supply base reduction. *Journal of Purchasing and Management*, pp. 148-163.

Al-Najjar, S. M., & Jawad, M. K. (August 2011). ISO implementation barriers and misconceptions: an empirical study. *International Journal of Business Administration*.

Anderson, D. M. (2011). Cost of quality. Available at www.halfcostproducts.com/cost_of_quality.htm (Accessed February, 19, 2012).

Arumugam, V., Chang, H. W., Ooi, K.-B., & Teh, P.-L. (2009). Self-assessment of TQM practices: a case analysis. *The TQM Journal*, Vol.21 No.1, pp. 46-58., 46-58.

Askoy, A., & Ozturk, N. (2011, May). Supplier selection and performance evaluation in Just-In-Time production environments. *Expert Systems with Applications*, pp. 6351-6359.

Bradley, E. (2006). An assessment of supplier development practices at Volkswagen of South Africa. Available at <http://www.nmmu.ac.za/documents/theses/An%20assessment%20of%20the%20supplier%20development%20at%20Volkswagen%20of%20S.pdf> (Accessed October, 21, 2011) 49

Braglia, M., & Petroni, A. (2000). A quality assurance-oriented methodology for handling tradeoffs in supplier selection. *International Journal of Physical Distribution and Logistics Management*, 96-111.

Brue, G. (2006). Six Sigma for Small Business. Entrepreneur Press.

Coronado, R., & Antony, J. (2002). Critical success factors for the successful implementation of Six Sigma projects in organizations. *The TQM Magazine*, 92- 99.

DeCarlo, N. (2007). *The Complete Idiot's Guide to Lean Six Sigma*. New York: Marie Butler-Knight. El Safty, S. (2011). Critical success factors of Six Sigma implementation in automotive industry in Egypt. *SAE Technical Paper 2011-01-1270*.

Feng, J., Prajogo, D. I., Tan, K. C., & Sohal, A. (2006). The impact of TQM practices on performance: a comparative study between Australian and Singaporean organizations. *European Journal of Innovation Management*, Vol. 9, No.3, , 269- 278.

Folaron, J. (August 2003). The Evolution of Six Sigma: A Look at the innovations that contributed to the methodology we call Six Sigma and a glimpse into its future. *Six Sigma Forum Magazine*, 38-44. 50

Galloway, R. M. (2007). Six Sigma implementation: An empirical analysis of critical success factors and performance outcomes. Available at <http://arno.unimaas.nl/show.cgi?fid=10436> (Accessed on December)

- GAO. (1993). Developing and using questionnaires. Available at <http://archive.gao.gov/t2pbat4/150366.pdf>
- Goeff, T. (2001). Six Sigma: SPC and TQM in manufacturing and services. Hampshire: Gower Publishing Limited.
- Gosnik, D., & Vujica-Herzog, N. (2010). Success factors for Six Sigma implementation in Slovenian manufacturing companies. *Advances in Production Engineering & Management*, 205-216.
- Gupta, P. (2004). The Six Sigma performance handbook: A statistical guide to optimizing results. New York: McGraw-Hill.
- Harry, M., & Schroeder, R. (2000). The Breakthrough Management Strategy Revolutionizing the World's Top Corporations.
- Henderson, K. M., & Evans, J. R. (2000). "Successful implementation of Six Sigma: benchmarking General Electric Company". *An International Journal*, Vol. 7 Iss: 4, 260 - 282.
- Humphreys, P. K., Li, W. L., & Chan, L. (2004). The impact of supplier development on buyer-supplier performance. *The International Journal of Management Science*, 131-143. ISO. (2009). The ISO survey of 2009 certifications.
- Geneva: ISO. 51 ISO. (2011). ISO Quality Management - ISO 9000 essentials. Available at www.iso.org/iso/iso_9000_essentials (Accessed on February 28, 2012).
- Jeng, Y. C. (1998). Performance evaluation of ISO 9000 registered companies in Taiwan. *The TQM Magazine*, Vol. 10, No. 2, 132-138.
- Lamport, M., Seetanah, B., Cohhyedass, P., & Sannassee, R. V. (2010). The association between ISO 9000 certification and financial performance. *International Research Symposium in Service Management*, Mauritius.
- Li, W., Humphreys, P. K., L., Y. A., & Cheng, T. (2011). The impact of supplier development on buyer competitive advantage: a path analytic model. *International Journal of Production Economics*. Lin, C.,
- Chow, W., Madu, C., Kuei, C., & Yu, P. (2005). A structural equation model of supply chain quality management and organizational performance. *International Journal of Production Economics*, Vol. 96, 355-365.
- Liu, J., Ding, F.-Y., & Lall, V. (2000). Using data envelopment analysis to compare suppliers for supplier selection and performance improvement. *Supply Chain Management: An International Journal*, 143-150.
- McIntyre, W. W. (2009). Lean and mean process improvement.
- Powell, T. C. (1995). Total Quality Management as competitive advantage: A review and empirical study. *Strategic Management Journal*, 15-37.

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