



## RESEARCH ARTICLE

### ISO 9001 IMPACT ON OPERATIONAL PERFORMANCE

\*Dr. Adalia Martin

Head of Quality Assurance Centre, Oman College of Management and Technology

#### ARTICLE INFO

##### Article History:

Received 14<sup>th</sup> December, 2016  
Received in revised form  
25<sup>th</sup> January, 2017  
Accepted 24<sup>th</sup> February, 2017  
Published online 31<sup>st</sup> March, 2017

##### Keywords:

ISO 9001,  
Operational Performance,  
TQM,  
ISO 9001 Hypothesis,  
ISO 9001 Processvariables.

#### ABSTRACT

This paper summarizes the research on ISO 9001 certification impact on operational performance done in year 2000 up to the present year and will group the results based on variables affecting it. Sources from case studies, statistical reports and empirical studies have been analyzed to see if ISO 9001 has an effect in organization's operational performance. An analysis on the most cited ISO 9001 sources was performed. Hypotheses are extracted and the outcome of it was used to define variables affecting operational performance of ISO certified companies. After implementing the ISO 9001 standard companies have more satisfied customers, better process and improved decision making which resulted in higher profit. For many of those companies, higher profit was the main goal. The targeted goal for implementing the standard plays a key role in the outcome of the certification. According to the result employee involvement and customer satisfaction affects ISO 9001 implementation and operational performance. Testing other researches analysis brings some limitations. The methods, data and approach taken differ from one research to another. The sample data is from different business area, region, period and years. These aspect variations may result in statistical error. On the other hand this study used limited number of research papers, which does not grasp all possible findings in the area. The paper identified the most common variables affecting operational performance. It summarized findings from year 2000 up to the present year to provide a nice overview of the current state of the art in respect to ISO 9001.

#### INTRODUCTION

According to ISO survey, there were 1138155 ISO 9001 certified companies around the world (ISO, 2014). The changes in the competitive landscape at an ever quickening pace and the flow of the business process is the result of globalization. This has been proven the importance of standardization for business companies worldwide. And through TQM implementation such as ISO 9001 in all companies is a way to achieve it. The introduction of the ISO 9001 in a company does not always produce the desired results; in practice, this is usually due to ineffective implementation (Psomas *et al.* 2010). Thus, the effectiveness of the ISO 9001 implementation and its real value in enhancing a firm's performance has been a highly controversial subject. Singh *et al.* (2011) point out that many studies have shown no conclusive evidence of the standard's effectiveness. In fact, some authors (Naveh and Marcus, 2005; Singh *et al.*, 2011) have claimed that the success of ISO 9001 does not depend on the standard itself, its content and requirements, but rather, on how this standard is implemented by various organizations. Thus, the success or failure of the ISO 9001 standard to improve firms' performance may be attributed to their effective or ineffective implementation, and not to inherent deficiencies of the standard.

\*Corresponding author: Dr. Adalia Martin,  
Head of Quality Assurance Centre, Oman College of Management and Technology.

For this reason, a number of authors (Sampaio *et al.*, 2009; Heras, 2011; Bell and Omachonu, 2011; Singh *et al.*, 2011; Sampaio *et al.*, 2011) suggest further research be conducted in the field of quality management systems assessing the value of the ISO 9001 and its relation to company performance. In addition, many researchers (Zaramdini, 2007; Jang and Lin, 2008; Magd, 2008; Feng *et al.*, 2008; Sroufe and Curkovic, 2008) suggest a wide variety of factors that might have an adverse impact on the implementation of ISO 9001. So, there is a need to determine the level of influence of critical factors on the effective implementation of ISO 9001. Companies have sought to understand how the implementation of the ISO 9001 assists organizations to intrinsically improve their internal organizational processes. Singh (2008) points out that there is a paucity of research that has focused on how ISO 9001 related management practices impact upon firms' performance. ISO 9001 is an international standard of quality management system (ISO, 2008). The standard describes the requirements of a quality management system that needs to be implemented consistently so that the companies can produce the products according to customers' requirements, achieve customer satisfaction, and achieve continual improvement on the effectiveness of their quality management system (Van den Heuvel *et al.* 2005). Furthermore, ISO 9001 requirements represent quality management system best practices (Psomas, et al 2013). ISO 9001 is not intended as a detailed prescription for how quality is to be achieved, but rather as what needs to be done in a generic sense.

In other words, gaining ISO certification does not guarantee quality of products and services, but rather it provides an assurance to customers that the organization has conformed to an international standard (Brunsson et al., 2000). This paper will attempt to review the most acknowledged studies done in the area and to summarize their findings.

### Related Research

Many researchers around the world studies about the impact of ISO 9001 on operational performance and the results are still not the same. This paper reviews the studies done by different researchers. The methodologies used in the studies vary from one researcher to another. From certified and non-certified companies having the same business nature and measuring certain parameters. Another is measuring the same company parameters before and after certification. Or doing empirical analysis based on public data of companies. Operational performance management is the alignment of all business units within an organization to ensure that they are working together to achieve core business goals. Firm's performance is measured against standard or prescribed indicators of effectiveness, efficiency, and environmental responsibility such as, cycle time, productivity, waste reduction, and regulatory compliance. The papers examined base their findings on companies from the continents of Asia, Africa, Australia, Europe and North America.

Since the 2000 version of the standard, ISO 9001 integrated the Total Quality Management principles into the standard and more focuses on the process and performance rather than documentation (Hoyle, et al, 2009). In addition, ISO 9001 also adopted the methodology of PDCA (Plan Do Check Act) (ISO, 2008). More specifically, ISO 9001 is based on eight quality management principles, namely customer focus, involvement of people, process approach, system approach to management, continual improvement, factual approach to decision making, and mutually beneficial supplier relationship (Lewis, et al 2006). The eight quality management principles were deployed into five main requirements of ISO 9001 (Hoyle, et al 2009). According to (ISO, 2008), the first requirement, quality management system, relates to the obligation of organization to manage quality management system processes and documentations. The second requirement, management responsibility, refers to the responsibilities of top management on quality management system. The third requirement, resource management, requires organization to manage resource needed by quality management system. The fourth requirement, product realization, relates to the obligation of the organization's core process. The fifth requirement, measurement, analysis, and improvement, refers to the obligation of organization to measure, analyze, and improve quality management system. O'Donnell and Duffy (2002) and Oztas *et al.* (2007) describe "effectiveness" as the degree to which results (output) meet prescribed goals. So, in order to determine the effectiveness of the ISO 9001, its objectives should be clearly identified. According to Luning and Marcellis, (2006), Heras *et al.* (2006), Gotzamani *et al.* (2007) and ISO (2008), the ISO 9001 standard aims at achieving customer satisfaction by meeting customer requirements, continuous improvement and preventing non conformities in products and services. Customer satisfaction is the customer responsiveness in assessing the perceived difference between its expectations

and the perceived product performance (Kotler, 1991). As far as continuous improvement is concerned, it is a systematic approach for measuring, analyzing and improving operational and business procedures (Terziovski and Sohal, 2000). Non-conformance is defined as the deviation in the level of a product quality characteristic from the desired pre-established level (Besterfield *et al.*, 2003). Non-conformance is also any process mistake that is transferred into a product or service and is observable by the customer, either directly or indirectly.

Chris *et al.* (2007) performed an event study and found that the time-based efficiency started to improve right after the implementation of the ISO 9000. They also found a better performance for ISO certified companies after they obtained certification. Al Turki and Faris (2010) found a positive impact in Malaysian companies that have ISO 9001 certification to gain customer confidence in their products. Some studies in this field were found a negative impact or a positive weak effect from the ISO 9001 certification. Abraham *et al.* (2000) found that no guarantee of ISO 9000 certification on supplier products or services quality that meet customer requirements. Hesan *et al.* (2002) found that ISO 9000 registration in Singapore did not have any impact on quality management practices and quality results of Singapore firms. Zeng *et al.* (2004) found from 100 certified companies' survey answers that 50% of the respondents indicated that ISO 9000 certification has no obvious effect on quality improvement. A survey in Australia and New Zealand based on manufactures and Services Companies has been carried out by Mei *et al.* (2006). The study demonstrated a positive weak effect on business performance. Moreover the study concluded that ISO 9000 itself does not lead to improvement in business performance. Smite and Brede (2006) concluded in their study that even though a company might be certified in accordance with ISO standard; it doesn't prove successful implementation and usage of the company's quality system. Kumar and Balakrishnan (2011) found few negative impacts in many areas of 100 contractors from UAE responders, more than half of it, found the same level of customer satisfaction before and after ISO certified, as well as documents volume was increased after ISO certified. In the context of ISO 9001 implementation in food manufacturing industry, the effectiveness of ISO 9001 implementation still becomes a fundamental issue. This is because there is no measurement instrument of ISO 9001 implementation effectiveness in food manufacturing companies that is widely accepted (Oztas, et al 2007). In fact, researchers who propose the measurement instrument of the effectiveness of ISO 9001 implementation in food manufacturing companies are still very limited (Psomas *et al.* 2013).

Overall, firm performance is defined in relation to the quality of the organization's results (Lakhali *et al.*, 2006). It is the measurement of a firm's success and achievements (Yeung *et al.*, 2003). Consistent with prior research (Sousa and Voss, 2002; Naseret *et al.*, 2004; Lakhali *et al.*, 2006; Kumar *et al.*, 2009) the present study relies on multiple measures of restaurants' performance to attain robustness of results. So, three performance related dimensions have been chosen: product quality, operational performance and business performance. Product or service quality is the degree to which it satisfies customer requirements (Gill, 2009). The five items of Garvin's quality dimensions (performance, reliability, durability, perceived quality, conformance to specifications) and food safety are used for measuring product

quality. Operational performance is usually measured as a composite of several performance dimensions and reflects the performance of the internal operation of a company in terms of product/process quality and inventory performance (Naser et al., 2004; Salaheldin, 2009). Prajogo (2010) further reports that certification of ISO 9001 has had a positive impact on the operational performance of organization's and improved quality performance.

### Research Methodology

The sources for this study on ISO 9000 impact on business are coming from case studies, statistical reports and empirical data analysis. The study performs a literature review in order to identify empirical studies related to ISO 9001.

The table below presented hypothesis from 20 papers examined in a literature review. They are marked as either yellow or blue. The yellow correspond to true and blue to false.

No	Author/s and Year Publish	Hypothesis
1	Abbas Al-Refae, Ola Ghnaimat, Ming-Hsien Li, 2012 Abu Bakar Ilyas (2014), Dr. Muhammad Fiaz, Dr. Muhammad Shoaib Owino A. Okwiri 2013	H1a: ISO 9001 certification/KAAE positively influences firm's quality outcomes. H1b: ISO 9001 certification/KAAE positively effects on business performance. H1c: ISO 9001 certification/KAAE enhances customer satisfaction. H1d: ISO 9001 certification/KAAE has a positive effect on firm's innovation.
2	Dr. Muhammad Fiaz, Dr. Muhammad Shoaib Owino A. Okwiri 2013	H1: QMS Implementation significantly affects Operational Performance.
3		H1 Success in ISO 9001 certification audit indicates ability to achieve greater operational performance H2 Success in ISO 9001 certification audit indicates greater customer focus has been achieved
4	Dr. Iqbal S. Alsaleh, Heba M. Ahmed 2015	H1a: There is a relationship between ISO 9001 and data quality. H1b: There is a relationship between ISO 9001 and procedures integration. H1c: There is a relationship between ISO 9001 and reduced process time. H1d: There is a relationship between ISO 9001 and the satisfaction of internal users.
5	Mei Feng, Mile Terziovski, Danny Samson 2007	H1: There is a significant and positive relationship between implementing procedures of ISO 9000 certification and operational performance. H2: There is a significant and positive relationship between implementing procedures of ISO 9000 certification and business performance. H3: There is a significant and positive relationship between organizational commitment to implementing ISO 9000 certification and operational performance. H4: There is a significant and positive relationship between organizational commitment to implementing ISO 9000 and business performance. H5: There is a significant and positive relationship between planning for ISO 9000 certification and operational performance. H6: There is a significant and positive relationship between planning for ISO 9000 certification and business performance. H7: The relationship between implementation of ISO 9000 and organizational performance strengthens when covaried for company size.
6	Marija Dragicevic, Ksenija Zarkovic 2012	H1: International Standard ISO 9001 is not widely implemented in Croatian hotel industry H2: Implementation of Quality Management System ISO 9001 improves marketing performances in Croatian hotel industry H3: Implementation of Quality Management System ISO 9001 improves operational performances in Croatian hotel industry;
7	Başak Manders 2015	H4: Implementation of Quality Management System ISO 9001 improves human resource management performances in Croatian hotel industry. H1. ISO 9001 certification leads to higher financial performance. H2. ISO 9001 certification leads to lower costs.
8	Salah Alolayan 2014	H3. ISO 9001 certification leads to higher revenues. H4. ISO 9001 certification leads to higher stock market value. H1: There are no significant differences between the government and private sectors with respect to motives in seeking the ISO 9001 certification. H2: There are no significant differences between the business sectors with respect to motives in seeking the ISO 9001 certification.
9	Sik Sumaedi, Medi Yarmen 2014	H3: Percentage of organizations that noticed the benefits of the ISO certifications, are significantly higher than ones which did not. H4: The QMS functions remain the same for all business and operations sectors. H5: Significant QMS awareness level differences exist between quality and non-quality related staff.
10	Lassaad Lakhal 2014	H1: Usefulness of ISO 9001 implementation for food manufacturing companies H2: Measurement of ISO 9001 implementation effectiveness achieved ISO objectives H1: ISO 9000 certification efforts have a direct positive effect on TQM practices.  H2: TQM practices have a direct positive effect on performance. H3: ISO 9000 certification efforts have a direct positive effect on organizational performance.

Continune.....

Thus, a computer search of the international journal databases was conducted. In the field of ISO 9001, a search was made for works that related the expressions "ISO 9000", or "ISO 9001" and "performance" or "profitability" in the title or the abstract of the paper.

### RESULTS

The summary of the findings is presented in the table below.

#### Analysis

#### ISO 9001 factors influencing operational performance

#### ISO Certification

According to Almeida et al. (2009) the sample of 45 certified firms had superior performance to the 85 non-certified.

- 11 Unnikrishnan Kartha N. R 2010  
 H1: Top Management Commitment is higher in ISO 9001:2000-certified organizations, compared to that in those not certified by this standard.  
 H2: ISO 9001:2000 certified organizations display a higher level of Employee Involvement in comparison with that seen in organizations which are not qualified by this standard.  
 H3: Better Team Working exists in ISO 9001:2000-certified organizations, compared to that in organizations not certified by this standard.  
 H4: ISO 9001:2000 certified organizations practice Continual Improvement more meticulously in comparison to those which are not certified by this standard.  
 H5: ISO 9001 :2000 certified organizations put higher thrust on Internal Communication compared to those which are not certified by this standard.  
 H6: Customer Satisfaction is higher in ISO 9001:2000 certified organizations in comparison to what is practiced by organizations which do not have this certification.
- 12 Luis Miguel Fonseca, Vanda Marlene Lima 2015  
 Hypothesis 1: Supplier Orientation is positively dependent on Organizational Strategy;  
 Hypothesis 2: Supplier Orientation is positively dependent on External Environment;  
 Hypotheses 3: Stakeholders satisfaction is positively dependent on Supplier Orientation;  
 Hypotheses 4: Organizational Performance is positively dependent on Stakeholders Satisfaction.
- 13 Dimitrios P. Kafetzopoulos, Katerina D. Gotzamani 2013  
 H1a Internal business motives have a positive significant impact on the effectiveness of the ISO 9001 and HACCP systems  
 H1b Employees' attributes have a positive significant impact on the effectiveness of the ISO 9001 and HACCP systems.  
 H1c Organizations' attributes have a positive significant impact on the effectiveness of the ISO 9001 and HACCP systems.  
 H1d The external environment has a positive significant impact on the effectiveness of the ISO 9001 and HACCP systems.  
 H1e Systems' requirements have a significant positive impact on the effectiveness of the ISO 9001 and HACCP systems.  
 H2 The effectiveness of the ISO 9001 and HACCP systems has a significant positive impact on product quality.  
 H3 The effectiveness of the ISO 9001 and HACCP systems has a significant positive impact on operational performance.  
 H4 The effectiveness of the ISO 9001 and HACCP systems has a significant positive impact on financial performance.
- 14 Eitan Naveh and Alfred Marcus 2005  
 H1: Use of ISO 9000 (in daily practice and as a catalyst for change) is positively related to operating performance.  
 H2: Installation of ISO 9000 (external coordination and internal integration) is positively related to use of ISO 9000 (in daily practice and as a catalyst for change).  
 H3: Use of ISO 9000 (in daily practice and as a catalyst for change) is positively related to business performance.  
 H4: Operating performance is positively related to business performance.
- 15 Evangelos Psomas & Jiju Antony 2014  
 H1: The ISO 9001 QMS's effectiveness is well described for manufacturing companies by the standard's objectives (prevention of non-conformities, continuous improvement and customer satisfaction focus).  
 H2: Internal motivation has a significant impact on the ISO 9001 QMS's effectiveness in manufacturing companies.  
 H3: External environment pressure has a significant impact on the ISO 9001 QMS's effectiveness in manufacturing companies.  
 H4: Employee attributes have a significant impact on the ISO 9001 QMS's effectiveness in manufacturing companies  
 H5: Company attributes have a significant impact on the ISO 9001 QMS's effectiveness in manufacturing companies.  
 H6: Quality system attributes have a significant impact on the ISO 9001 QMS's effectiveness in manufacturing companies.
- 16 Dimitrios Kafetzopoulos, Spyridon Mamalis 2012  
 H1: Achievement of the ISO 9001 standard objectives  
 H2: Critical factors for effective implementation  
 H3: Performance using a sample of Greek certified restaurants

Continune.....

17 ErlantzAllur, In<sup>^</sup>akiHeras-Saizarbitoria, Marti Casadesus 2014  
 H1. Early adopters who mainly cite internal motives for adopting ISO 9001 experience a higher level of internalization of the standard.  
 H2. Early adopters who mainly cite internal motives for adopting ISO 9001 experience greater benefits from the adoption of the standard.  
 H3. Higher level of internalization among early adopters lead to greater benefits from the adoption of ISO 9001.

18 Daniel I. Prajogo Amrik S. Sohal 2002  
 H1: Do TQM practices – that have been successfully proven as significantly and positively related to quality performance – have a similar predictive power against innovation performance?  
 H2: Is there any significant relationship between quality performance and innovation performance? If yes, what is the nature of this relationship?

19 Jacob van den Heuvel 2007  
 H1: Do the ISO 9000 standards provide a useful tool to implement a quality management system in a hospital?  
 H2: Does the implementation of Six Sigma in a hospital provide a quality improvement system equally powerful as in industry?  
 H3: Does quality management, by using ISO 9000 and Six Sigma, contribute to the strategy of a hospital?  
 H4: Can Lean principles, when combined with Six Sigma, provide an additional positive effect on the quality improvement system?

20 Sisnuhadi and Jamal Abdul Nasir 2013  
 H1a Infrastructure practices significantly affects core practices in Indonesia’s ISO 9000 registered companies  
 H1b Infrastructure practices significantly affects core practices in Malaysia’s ISO 9000 registered companies  
 H2a Infrastructure practices significantly affect organizational learning in Indonesia’s ISO 9000 registered companies  
 H2b Infrastructure practices significantly affect organizational learning in Malaysia’s ISO 9000 registered companies  
 H3a Core practices significantly affects organizational learning in Indonesia’s ISO 9000 registered companies  
 H3b Core practices significantly affects organizational learning in Malaysia’s ISO 9000 registered companies  
 H3c Core practices significantly mediates the relationship between infrastructure practices and organizational learning in Indonesia’s ISO 9000 registered companies  
 H3d Core practices significantly mediates the relationship between infrastructure practices and organizational learning in Malaysia’s ISO 9000 registered companies

Paper No.	ISO certification	QMS Implementation	Business Performance	Employee Involvement	Customer Satisfaction	Environment	Organizational Commitment	Continual Improvement
1	√		√		√			
2		√						
3	√				√			
4	√							
5	√		√				√	
6		√						
7	√							
8	√							
9	√					√		
10	√		√					

Paper No.	ISO Certification	QMS Implementation	Business Performance	Employee Involvement	Customer Satisfaction	Environment	Organizational Commitment	Continual Improvement
11	√			√	√			√
12					√			
13	√			√			√	
14	√		√					
15	√	√	√	√	√			√
16	√				√	√		
17	√							
18								
19	√							
20	√							
Total	16	3	5	3	6	2	2	2

Therefore, it was verified that the ISO 9001:2000 certification, as a quality management system can indeed provide better Management Practices and better Results for the organizations.

Mamalis et al. (2012) agreed that marketers and managers need to fully understand the role of ISO9001 certification and the advantages that this certification offers to the companies.

So, they can use it as a marketing tool for differentiating their products and gain a competitive advantage in the market place. The result shows that certified companies which adopt the ISO standards boost their business performance thus improving the operational performance. Galin (2011) studies shows that ISO 9000 certified companies pursuing a cost leadership strategy results in profit increase, while pursuing a market differentiation strategy results in sales increase.

### **QMS Implementation**

Singh et al (2006) who found out that adoption of ISO 9001:2008 QMS led to improvements in product/service quality and operational performance. Zarcovic (2013) proves that the implementation of Quality Managing System ISO 9001 influences better introducing of new technologies in the hotel business practice in Croatia which shows that also show that there is a correlation between the implementation of ISO 9001 and better business process control and more precise job descriptions. The result strongly shows that QMS Implementation has a significant effect on the operational performance suggesting that if ISO 9001 is implemented in an organization by keeping in view all the relevant process areas, operational harmony can be created. Any organization that want to extract best out of its operations must, implement QMS in its true sense.

### **Employee Involvement**

As defined by Yarmen et al (2014) in their study that employee involvement means involvement of people, the clear and accepted job description, the competence of personnel, the consistent & effective system of training, the consistent & effective system of recruitment, employee satisfaction. While Gotzamani (2013) define the term also as employee attributes which specifically describes the know-how of employees, involvement of employees, commitment of employees and availability of human resources. The result shows that employee involvement affects the operational performance of the company. This was supported by Antony et al (2014) study that it is the critical areas concerning the internal business environment (company internal motivation, company attributes and employee attributes) that have a significant impact on the degree to which the ISO 9001 objectives are achieved. And if the ISO 9001 is not implemented effectively due to failure in employee involvement and its attributes then firm's operational performance will suffer since employee performs the operations and operations makes the business function.

### **Environment**

Based on Yarmen (2014) study, the result shows that the major reason for ISO 9001 certification relates to the internal business environment. Another study by Kafetzopoulos et al (2012) shows that as far the dimensions of restaurants' performance are concerned the results show that the ISO 9001 certified restaurants achieve high performance level regarding their product quality and the internal business environment (operational performance). This means that product quality is increased to the certified restaurants and that enhance their competitive performance. In addition, the internal processes are improved while a restaurant operates effectively. It seems that the process approach of the ISO 9001 standard makes restaurants process oriented and consequently to improve their operational performance.

### **Organizational Commitment**

Gotzamani et al. (2014) defines in their study that organizational commitment which is one element in an "organization's attributes" which also means commitment of managers. The ISO 9000 series standard refers specifically to the need for commitment from all organizational members at all stages of the process (ISO, 2000). According to Masula (2010) study, conversion to an ISO 9001:2008 quality management system environment results in significant changes in organizational commitment in the employees. Another study supports that the top management commitment, employees' training and empowerment, supplier development and coordination between departments are found to be the major driving factors for implementing TQM, whereas process management, product/service design, product quality and customer satisfaction are observed as dependent variables. The result shows that ISO 9000 certification has a positive and significant effect on operational performance proven by Samson et al (2007) study.

### **Continual Improvement**

According to Okwiri (2013) study, the aims of ISO 9001:2008 standard as stated in the publication is to "enhance customer satisfaction through the effective application of the system, including processes for continual improvement of the system and assurance of conformity to customer and applicable regulatory requirements" [15- p. 1]. Another study, by Psomas et al (2014) supports the view that as far as the manufacturing sector is concerned, the main dimensions of ISO 9001 QMS effectiveness, reflecting the standard's objectives, are indeed those that are described by the standard itself as well as by numerous authors, namely continuous improvement, customer satisfaction focus and prevention of non-conformities. And from Karsha's (2010) thesis defined continual improvement as improvement which is everlasting. The result shows that continual improvement of the processes enhances the effectiveness and efficiency which are the attributes of operational performance.

### **Customer Satisfaction**

Al-Refaei et al. (2012) study identifies criteria for customer satisfaction includes consistency in documentation, customer service and perceived product quality by customers and results showed that ISO 9001 certification has significant effect on quality outcomes, business performance, and customer satisfaction. Okwiri (2013) study shows that performance data and customer satisfaction score together constituted one form of operational performance data. Karsha's thesis proves that there is no difference between organizations which are certified by ISO 9001: 2000 and those which are not certified by it, in respect of customer satisfaction. From the study result shows, like Mamalis et al. (2012) study that the Greek restaurants are continuously improving their QMS and successfully preventing nonconformities. As a consequence, these companies enhance customer satisfaction adequately. Ilyas et al. (2013) study connects the QMS to operational performance and it has a higher significant effect.

### **Business Performance**

Ming-Hsien Li et al. (2012) study shows that ISO 9001 certification is considered an important tool for improving the efficiency and effectiveness of quality management systems as

reflected by improving quality outcomes, customer satisfaction, and business performance. This result was also reached by previous studies conducted in literature such as Yeung (2008), based on a quantitative and qualitative study of the HongKong electronics industry concluded that supplier strategic management is positively associated with time-based and cost-related operational efficiency leading to customer satisfaction and superior business performance. Mangula (2013) has also the same view from his study which concludes that the QMS (ISO 9001) certified organizations show much improvement on the performance in terms of quality as well as the quantity of product. From the result shows the findings which support that supplier orientation, mediated by stakeholder satisfaction, is an essential tool for the enduring success of ISO 9001 certified organizations bringing awareness and understanding of Supply Chain Management relevance for the satisfaction of their stakeholders and the achievement of enduring business performance (Fonseca et al, 2015).

### Conclusion

This study concludes that operational performance at any business industry is effected by ISO implementation directly on customer satisfaction and indirectly on employee involvement. Quality Management System is a source of operational performance as it positively affects that organization's operational performance such that it can be increased if resources are managed properly. Also, the success of implementing ISO 9001 quality management systems will increase operational and business performance if it is well planned and implemented when the philosophical quality aspects of the organization are coupled with employee training, periodic audits, corrective action and commitment at all levels of the organization. Although there is a weak relationship in between operational performance and organizational performance because ISO 9000 led to distinct operating performance improvement but better operating performance did not necessarily lead to better business performance. Better organization of work processes and more precise responsibility of job descriptions can improve productivity and customer satisfaction. Organizational commitment was strongly related to both operational performance and business performance. All of the factors that has undergone from literature review has one thing in common from all the authors, and synonymously all have similar conclusions that it has direct and indirect effect on the firm's overall operational performance.

### REFERENCES

- Abdulrahman, Mohammed 2014. Effect of ISO 9001:2008 Certification on operational performance of Hashi Energy Kenya limited, A Research Project. *E-repository. University of Nairobi*.
- Abraham, M., Crawford, J., Carter, D., Mazotta, F., 2000. Management decisions for effective ISO 9000 accreditation. *Management Decision*. 38 (3), 182-193.
- Al Turki, A. N., Faris, W. F. 2010. A critical evaluation on the effectiveness of ISO 9001:2000 (QMS) implementation in Malaysian and Saudi manufacturing companies. *Int. J. Arab Culture, Management and Sustainable Development*, 1(3), 285-307. <http://dx.doi.org/10.1504/IJACMSD.2010.032653>.
- Ali Hamza, Mohammed and OkapAlenazi, Mefleh H. 2013. The Impact of ISO 9001 Certification Audit on Oil and Gas Organizations' Performance in Qatar. *Engineering Management Research*. Vol. 2, No. 1; 2013 ISSN 1927-7318.
- Allur, Erlantz, Heras-Saizarbitoria, In'aki and Casadesus, Marti 2014. Internalization of ISO 9001: a longitudinal survey *Industrial Management & Data Systems*. Vol. 114 No. 6, 2014 pp. 872-885.
- Almeida, Marcelo Hoss, Ten Caten, Carla Schwengber and Gutterres, Mariliz 2009. Evaluating ISO 9001:2000 Certified and Non-Certified Organizations in Brazilian Leather-Footwear Chain. *Brazilian Journal of Operations & Production Management*. Volume 6, Number 2, 2009, pp. 51-73.
- Alolayan, Salah 2014. An assessment of quality management system indicators for the ISO 9001: 2008 certified work organizations in Kuwait. *School of Mechanical and Manufacturing Engineering Dublin City University*. PhD Thesis.
- Al-Refaie, Abbas Ghnaimat, Ola and Li, Ming-Hsien 2012. Effects of ISO 9001 Certification and KAAE on Performance of Jordanian Firms. *Jordan Journal of Mechanical and Industrial Engineering*. Volume 6, Number 1, Feb. 2012 ISSN 1995-6665 Pages 45 – 53.
- Alsaleh, Iqbal Dr. and Ahmed, Heba M. 2015. The impact of ISO 9001 on Geographic Information Systems' Procedures: An empirical study in Jeddah municipality. *International Journal of Liberal Arts and Social Science*. Vol. 3 No. 6.
- Bell M. and Omachonu, V. 2011. "Quality system implementation process for business success", *International Journal of Quality & Reliability Management*, Vol. 28 No 7, pp. 723-734.
- Besterfield, D., Besterfield-Michina, C., Besterfield, G. and Besterfield-Sacre, M. 2003. Total Quality Management, 3rd edition, Pearson, New Jersey.
- Brunsson, N., B. Jacobsson and Associates. 2000. A World of Standards, Oxford University Press, New York.
- Chris, K. Y. L., Andy Yeung, C. L., Edwin, C. T. C. 2007. Impact of ISO 9000 on time-based performance: An event study. *World Academy of Science, Engineering and Technology*, 30.
- Dragičević, Marija and Zarkovic, Ksenija 2012. Influence of quality management system ISO 9001 at hotel business practice in Croatia. *Proceedings of the "Scientific Management" and Management Science Today International Scientific Conference*. Page 113-121
- Feng Mei, Terziovski Mile, Samson, Danny 2007. Relationship of ISO 9001:2000 quality system certification with operational and business performance. *Journal of Manufacturing Technology Management*. Vol. 19 No. 1, 2008 pp. 22-37
- Fonseca, Luis Miguel and Lima, Vanda Marlene 2015. Impact of Supplier Management Strategies on the Organizational Performance of ISO 9001 Certified Organizations. *Quality Innovation Prosperity*. Vol 19, No.2
- Galim, Z. 2011. Impact of ISO 9000 on Business Performance. [Galimzhenyazkov.com](http://Galimzhenyazkov.com)
- Gill, J. 2009. "Quality follows quality: add quality to the business and quality will multiply the profits", *The TQM Journal*, Vol. 21 No 5, pp. 530-539.
- H. Magd., Kadasah, N. and Curry, A. 2003. "ISO 9000 implementation: a study of manufacturing companies in

- Saudi Arabia,” *Managerial Auditing Journal*, Vol. 18, No.4, 313–322.
- Hesan, A., 2002. *A journey towards total quality management through ISO 9000 certification -a Singapore experience*, The TQM Magazine, Vol.9, Issue, 5, pp. 364-371.
- Hoyle, D. 2009. *ISO 9000 Quality System Handbook, Using The Standards as A Framework for Business Improvement*. Sixth Edition. Butterworth-Heinemann.
- Ilyas, Abu Bakar, Fiaz, Dr. Muhammad, Shoaib, Dr. Muhammad (2014). Quality Management System: A Tool to Effect Operational Performance. *Journal of Basic and Applied Scientific Research. J. Basic. Appl. Sci. Res.*, 4(5)141-145, 2014.
- ISO 2014. *The ISO Survey of Certifications 2014*, International Organization for Standardization, Geneva, Switzerland.
- ISO 9001:2008(E). Quality management systems — Requirements.
- ISO. *Quality management principles*. Geneva: ISO; 2008.
- Jang, W. and Lin, C. 2008. “An integrated framework for ISO 9000 motivation, depth of ISO implementation and firm performance”, *Journal of Manufacturing Technology Management*, Vol. 19 No 2, pp. 194-216.
- Kafetzopoulos, Dimitrios P and Mamalis, Spyridon 2012. Quality practices and performance in Greek restaurants. *Proceedings of the 2<sup>nd</sup> Advances in Hospitality and Tourism Marketing and Management Conference*. ISBN: 978-960-287-139-3.
- Kafetzopoulos, Dimitrios P. and Gotzamani, Katerina D. 2014. Critical factors, food quality management and organizational performance. *Elsevier Ltd. Food Control* 40 1-11.
- Kafetzopoulos, Dimitrios P., Psomas, Evangelos L. and Kafetzopoulos, Panagiotis D. 2013. Measuring the effectiveness of the HACCP Food Safety Management System. *Elsevier Ltd. Food Control* 33 (2013) 505-513.
- Kapaj, (Mane) Ana, and Sharu, Edmira 2015. A literature review on ISO 9001 standards. *Proceedings of the The 4th Advanced Research in Scientific Areas November, 9. - 13. 2015 Conference*. ISBN: 978-80-554-1126-2.
- Kumar, M. R., B. K. Sahay, and P. Ranjan. 2011. Adapting TQM to change Indian bureaucracy: A view from inside. *The Quality Management Journal* 18, no. 1:23-38.
- Lakhal, L. 2014. “The Relationship Between ISO 9000 Certification, TQM Practices, and Organizational Performance”, *QMJ Vol. 21, No. 3, ASQ*.
- Lewis, W.G., Pun, K.F., and Lalla, T.R.M. 2006. An Empirical Analysis of ISO 9004:2000 Maturity in ISO 9001 Certified SMEs. *The Asian Journal on Quality* 6(3): 190-203.
- Luning, Pieter A. and Marcelis, Willem J. 2007. A conceptual model of food quality management functions based on a techno-managerial approach. *Elsevier Ltd. Trends in Food Science & Technology* 18 (2007) 159-166.
- Manders, Basak, 2015. Implementation and Impact of ISO 9001. *Erasmus Research Institute of Management – ERIM The joint research institute of the Rotterdam School of Management (RSM) and the Erasmus School of Economics (ESE) at the Erasmus University Rotterdam*. ERIM PhD Series in Research in Management, 337.
- Mangula, Michael Shadrack 2013. Effect Of Quality Management Systems (ISO 9001) Certification On Organizational Performance In Tanzania: A Case Of Manufacturing Industries In Morogoro. *International Journal of Technology Enhancements and Emerging Engineering Research*. Vol 1, Issue 1 14 ISSN 2347-4289.
- Masula, Esther 2010. Perception of success on implementation of ISO 9001:2008 and its influence to organizational commitment in Sabah Electricity Sdn. Bhd. (SESB). Master's Thesis. *E-repository. University of Malaysia, Sabah*
- Matias, Diana, Sampaio, Paulo and Braga Ana Cristina 2011. ISO 9001 Certification: The Customers' Perspective A Research Project. *E-repository. University of Minho, Portugal*.
- McCrosson, Scott, Cano, Michele, O'Neill, Eileen and Kobi, Abdessamad 2013. ISO9001 Certification in UK Organisations: A comparative study of motivations and impacts. *QUALITA2013*, Mar 2013, Compiègne, France <hal-00823149>.
- Naser, K., Karbhari, Y. and Mokhtar, M.Z. 2004. “Impact of ISO 9000 registration on company performance: evidence from Malaysia”, *Managerial Auditing Journal*, Vol. 19 No 4, pp. 509-516.
- Naveh, Eitan and Marcus, Alfred 2005. Journal of Operations Management. Achieving competitive advantage through implementing a replicable management standard: Installing and using ISO 9000. *Elsevier Ltd. Vol 24(1)*, Page 1-26.
- O'Donnell, F.J. and Duffy, A.H.B. 2002. “Modelling design development performance”, *International Journal of Operations and Production Management*, Vol. 22 No 11, pp. 1198-1221.
- Okwiri, Owino A. 2013. ISO 9001 quality management system audit as an organizational effectiveness evaluation tool. *International Journal of Information Technology and Business Management*. Vol.20 No.1.
- Oztas, A., Guzelsoy, S. and Tekinkus, M. 2007. “Development of quality matrix to measure the effectiveness of quality management systems in Turkish construction industry, *Building & Environment*. Vol.42 No. 3, 219–228.
- Prates, Glauca Aparecida and Caraschi, José Claudio 2014. Organizational Impacts due to ISO 9001 Certified Implementation on Brazilians Cardboard Companies. *International Journal of Academic Research in Business and Social Sciences* May 2014, Vol. 4, No. 5 ISSN: 2222-6990
- Projogo, Daniel I. and Sohal, Amrik S. 2002. The relationship between TQM practices, quality performance, and innovation performance: An empirical examination. *International Journal of Quality & Reliability Management*. Vol. 20 No. 8, 2003 pp. 901-918.
- Psomas, E., Fotopoulos, C. and Kafetzopoulos, D. 2010. “Critical Factors for Effective Implementation of ISO 9001 in SME Service Companies”, *Managing Service Quality*, Vol. 20 No 5, pp. 440-457.
- Psomas, Evangelos and Antony, Jiju 2014. The effectiveness of the ISO 9001 quality management system and its influential critical factors in Greek manufacturing companies. *International Journal of Production Research*, 53:7, 2089-2099
- Ratsoeu, Ellen 2012. The Impact of Quality Assurance Systems on the operational performance of laboratories. *PhD Thesis, University of Johannesburg*.
- Roosje van den Heuvel 2001. The Effectiveness of ISO 9001 and Six Sigma in Healthcare. PhD Thesis. *Beaumont Quality Publications*. ISBN 978-90-809277-6-6.

- Salaheldin, S.I. 2009. "Critical success factors for TQM implementation and their impact on performance of SMEs", *International Journal of Productivity and Performance Management*, Vol. 58 No 3, pp. 215-237.
- Sampaio, P., Saraiva, P., Guimarães Rodrigues, A. 2011. ISO 9001 Certification Forecasting Models. *International Journal of Quality and Reliability Management*, 28(1), 5-26.
- Singh, P. 2008. "Empirical assessment of ISO 9000 related management practices and performance relationships," *International Journal of Production Economics*, Vol. 113, 40-59.
- Sisnuhadi and Nasir, Jamal Abdul 2013. The role of organizational learning in the relationship between quality management practices and organizational performance. *Interdisciplinary Journal of Contemporary Research in Business*. Vol 4, no 9.
- Smite, D., & Moe, N. 2006. An ISO 9001:2000 Certificate and Quality Awards from Outside – What's inside? A Case Study. *Product-Focused Software Process Improvement* (pp. 208-221). Publisher: Springer Berlin Heidelberg.
- Sousa, R and Voss, C. 2002. "Quality management re-visited: a reflective review and agenda for future research", *Journal of Operations Management*, Vol. 20 No 1, pp. 91-109.
- Sroufe, Robert and Curkovic, Sime 2007. An examination of ISO 9000:2000 and supply chain quality assurance. *Elsevier Ltd. Journal of Operations Management* 26 (2008) 503-520. Volume 26, Issue 4. ISSN 0272-6963.
- Sumaedi, Sikand Yarmen, Medi 2014. The Effectiveness of ISO 9001 Implementation in Food Manufacturing Companies: A Proposed Measurement Instrument. *International Symposium on Food and Agro-biodiversity (ISFA2014)*. Elsevier Ltd. *Procedia Food Science* 3 (2015) 436 – 444.
- Tari, Juan José, Molina-Azorín, José Francisco and Heras, Iñaki 2012. Benefits of the ISO 9001 and ISO 14001 standards: A literature review. *Journal of Industrial Engineering and Management JIEM*, 2012 – 5(2): 297-322 – Online ISSN: 2013-0953 – Print ISSN: 2013-8423.
- Terziovski, M. and Sohal, A.S. 2000. "The adoption of continuous improvement and innovation strategies in Australian manufacturing firms", *Technovation*, Vol. 20 No 10, pp. 539-550.
- Unnikrishnan Kartha N. R. 2010. A study of the impact of ISO 9001:2000 on quality management practices in Selected organisations in Kerala school of management studies Cochin university of science and technology Kochi-682 022.
- Zaramdini, W. 2007. "An empirical study of the motives and benefits of ISO 9000 certification: the UAE experience", *International Journal of Quality & Reliability Management*, Vol. 24 No. 5, pp. 472-491.
- Zeng, S.X., P. Tian, and Jonathan J. Shi. 2005. "Implementing Integration of ISO 9001 and ISO 14001 for Construction". *Managerial Auditing Journal*; 20(4): 394-407

\*\*\*\*\*