

# Total Quality Management in Libya Manufacturing SMEs Performance in Developing Country

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**Abstract:** *The purpose of this paper is to explore the relevant issues in the relationship between Total Quality Management (TQM) and the performance of SMEs. This study focuses mainly on the application of TQM in the Libyan industrial sector. The population surveyed includes only fifty five Libyan manufacturing companies. Objectives: To determine the dominance of TQM practices in small and medium manufacturing companies in Libya and their relation to financial performance. This paper also discusses the need to mediate the relationship between the performance of TQM and SMEs. The Concept Paper conducts a comprehensive review of relevant literature prior to the development of proposals for TQM practices and the performance of SMEs. Moreover, apart from the continuous improvement that was found to have a significant correlation with corporate solvency, there was no statistically significant relationship between other TQM areas and the financial performance of companies in terms of liquidity, solvency and profitability. The collected data were analyzed using user frequency and methods (descriptive statistics), t-test, correlation and step regression analysis (deductive statistics). These results go hand in hand with the fact that TQM rewards are very long-term which means that any investment in quality efforts may not necessarily lead to any positive improvement in financial performance at once. This study has resulted in an important insight that could be a development campaign Quality SME long-term strategy is ideal for improving productivity. Improvements: The comparison of the TQM adoption between companies in terms of time period gives insights into TQM impacts, if any, when carried out over the long term.*

**Keywords:** Total Quality Management, Small and Medium Sized Enterprises, TQM Implementation, Critical Success Factors

## 1. Introduction

To survive the global market with a lot of competition, Libyan managers have long realized that there is a need to produce high quality goods and services. In the developed countries TQM activities are largely practiced, such the US. Thus, TQM is now a new concept being introduced in Libya to improve the quality of products and services and improve productivity among employees. Now many Libyan manufacturers have started to implement TQM and produce high quality goods to enhance their competitive position [1,2]. The Libyan industrial sector is seen as the engine of growth in the economic and social development process and therefore needs to play a crucial role as the main supplier in the domestic market. This should strengthen exports and contribute to the Libyan economy. The beginning of the twenty-first century saw a wide range of revolutionary changes in humanity [3]. The researcher have seen technical progress that in the past was the product of our wild imagination, but is now part of reality.

The problem for Libya however is how to compete successfully in a world market in order to survive in business. The Libyan industrial sector needs to follow the example of successful organizations world-wide and embrace Quality Management (QM), but at the same time make allowances for Libyan traditions and Islamic beliefs [4]. Economies that used to be self-sufficient are now active players in the global marketplace. Businessmen nowadays have to face the harsh reality of competition. The key issue now is not just how to start a business but how to sustain the business and to ensure its profitability not only in the short-run but in the long-run as well Libyan manufacturing companies need to strengthen their performance by improving companies performance and providing quality products which operate under a competitive free market system [5,6]. The adoption of a well recognized paradigm

for improving companies performance and product quality is imperative. It is time for a suitable QM approach for Libyan industrial sector to be adopted in order to compete successfully.

In the Arab world, companies, so far, are mostly interested in quality assurance systems. Therefore, TQM adoption was minimal. As customers are the lifeblood of business, it is important to ensure that their needs are met significantly with the products and services provided by companies. Now, more than ever before, customers have been fully aware of the quality of the goods and services they receive so that they feel they have the best value for their money. However, manufacturing companies in Libya have begun to implement the TQM process and thus have an interest in their success [7]. Although many competitive and global companies have implemented TQM strategies as a means to continue to perform better, many studies have revealed inconsistent and contradictory results regarding the relationship between TQM and performance. It is possible to measure the performance and effectiveness of a specific quality improvement initiative through comprehensive indicators that should provide a comprehensive assessment of the strength and sustainability of overall quality and sustainability [8]. The TQM curriculum needs to be developed, refined and expanded, even in companies that have already achieved great success, so it is the measure between customers at present whether they are doing frequent business with the same company or whether they will buy the same product again in the future. Since the value of quality is relative, it is a great challenge for companies to exceed customer expectations all the time. Furthermore, the Department should also recognize that ensuring the highest quality standards among its products requires a comprehensive approach. This means that quality must be integrated not only in production, but in every aspect of management as well, otherwise the competitive

Volume 7 Issue 11, November 2018

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advantage promised by TQM will not be achieved and many companies will be left struggling against competitive decline without consolidation or rationality. Start to activate [9,10].

The main assumption is that quality is equally important for small and medium enterprises and large corporations. One reason is that some small domestic companies have been competing simultaneously with foreign companies for a long time. Another reason is that many large companies rely on a number of small companies for parts and services they use to produce their products [11]. High quality conscious companies demand higher quality in the goods and services they buy from small businesses. At the same time, they reduce the number of vendors. The criteria used to determine a company that it retains as a vendor are based almost exclusively on cost, quality, and revenue. Still another reason is that competition in the global economy has intensified and new challenges have emerged for small businesses to adapt to. Quality and production seem to be the key elements of a small company's struggle to survive in these new circumstances. The need for continuous improvement to become part of the organizational culture is highly desirable in small and medium-sized enterprises (SMEs), as is the case with large firms [12,13]. Due to competitive pressures created by globalization, quality has become a competitive weapon in most industries. Its role in economic life can not be reduced. Quality is no longer a competitive advantage; it is a prerequisite for survival, especially for small and medium-sized enterprises. One of the characteristics of the shrinking global market is a kind of competition between companies that exceed time and distance.

This study deals with the application of TQM and its impact on the performance of companies in Libya. In particular, it examines to what extent Libyan companies have adopted the following six elements of TQM: senior management commitment; customer focus; quality management of supplier management personnel; continuous improvement and operations management. It also examines the impact of implementing these elements on acceptable financial and operational performance measures. Because TQM is a very useful strategy to improve competitiveness, it has been adopted around the world and as Libya is now part of the world.

## 2. Specific Problem Defined

Libya is the late sponsor of quality management systems, and there is still no study examining the accreditation of TQM and its impact on operational policy in Libya. Comparison of the application of TQM among different countries may help explain any differences between Libya and other countries. Libya differs from the rest of North Africa in terms of its location, wealth and small population [14]. Despite the lack of information on the current state of TQM implementation, it is widely believed that many Libyan companies have begun to focus on their implementation and produce high quality products to support their competitive position and meet the needs of local and international consumers. All these products require a strong focus on quality, and this can not be achieved without adopting an effective strategy and measuring its

impact on companies. Therefore, studying the application of TQM in the Libyan context is very important. The need to implement TQM in Libya is driven by competition between domestic and international companies [15,16]. This paper proposes a framework for investigating the current state of TQM implementation and measuring its impact on companies, making TQM initiatives more effective and active in Libyan industries. Libya applied for membership by transforming itself into a free trade country to encourage international investment and adopt TQM with the belief that this would modernize the manufacturing industries.

## 3. The Importance of the Paper

The importance of quality as a means of competitive advantage in the global markets has grown. As the manufacture is considered one of the main contributors to the Libyan economy, this analytical study will determine the degree to which the industrial companies adopt Libya TQM structures and define the relationship between TQM and business performance in These companies. To achieve these objectives, first of all, investigate any of the following recognized TQM components implemented in the Libyan industrial companies. Senior management commitment, customer focus, quality management of supplier management personnel, continuous improvement. Furthermore, study the relationship between TQM and business performance measurements in these companies [17]. In addition, measure the overall business performance of these companies, which includes both financial and non-financial metrics. The last point is to study the effects of contextual factors on TQM structures and companies.

## 4. Elements of TQM

There are three basic principles in TQM philosophy: customer focus, continuous improvement, and teamwork. Customer focus is important because the TQM hypothesis satisfies customers by producing products and services that meet customer needs. The implicit assumption is that customer satisfaction is the most important prerequisite for high performance organizations [18]. Continuous improvement as advocated by TQM teachers involves continuous examination of processes to monitor performance and identify areas of utilization of high performance. The third principle involves teamwork or cooperation among all components of the organization - managers and non-managers, functional groups, as well as organization and suppliers [18,19]. Organizations should work closely with suppliers to ensure that materials are of the highest quality while within teams, teams work as a mechanism to engage staff on a large scale.

Oakland (1995) illustrates the concept of TQM by suggesting that TQM initiative requires commitment, communication and culture. Commitment to quality is required of people at all levels, but especially among senior managers. Commitment is essential if a culture of quality improvement is to be developed around an open communication environment. The concept of culture can be extended to the national level, which may contribute to the success or failure of the implementation of TQM [20].

Caulcutt (1995) comments on the Oakland model that the element of cooperation must be added to the model because the health of a company's culture can be measured by the extent of existing cooperation. Oakland Adds the concrete elements of the model - teamwork, systems, tools or techniques. For example, companies that obtain the ISO 9000: 2000 certification, in addition to the intensive training of their members in teamwork and the use of quality tools, may help to create a culture of overall quality. The center of Auckland model is the process that binds together a chain of customers and suppliers [21].

For Deming (1994), TQM needs a detailed understanding of operational processes and functions within the organization. From Deming's definition, it could be seen that TQM aims continually to improve the quality of products and services by:

- Setting standards to meet and then surpassing requirements
- Measuring the standards of services providers
- Creating organizational policies, procedures and practices focused on product service standards
- Eliminating wasted time, effort and resources by achieving the standard first time
- Establishing relevant product service monitoring and review procedures.

However, whatever the particular mix advocated in the TQM philosophy, there remains a set of core assumptions, identified by Nwabueze [22], that underpin the TQM concept:

- The customer is the all-important person
- Measurement is critical to success
- Align all corporate systems and processes
- Everyone's involvement and commitment must be achieved
- Continuously educate, train and listen to the workforce; however, retention of good employees is the key to achieving business results
- Constantly strive for better ways of doing things; creativity and innovation
- Properly rewarded employees and recognition of people's contribution is the key to sustain employee performance

## 5. Quality Management System

The quality system is a guarantee for enterprises to reach their destination safely. Thus, the quality system is a set of components, such as organizational structure, responsibilities, procedures, processes and resources required to implement TQM. As Rao Tummala & Tang [7] stated, no company can purchase or install a system or process to achieve qualitative excellence in its products or services. TQM application calls to invest primarily in people and time; time to apply new concepts, training time, time for people to learn about the benefits and move forward in a new or different organizational [16,19]. There have been many recent developments in quality management systems and frameworks that organizations can evaluate or measure themselves, followed by the so-called "gap analysis". Most frameworks can be grouped into three broad categories and

are based on consultants and are based on a formal evaluation based on awards and on an academic pilot basis.

## 6. Total Quality Management and Firm Performance

TQM is a management approach that began in Japan in the early 1980s and seeks to enhance quality and productivity in business. In the 1990s, TQM gained popularity among companies, which began to adopt a management philosophy that focused on customer satisfaction and improved company performance. In research literature in TQM, most companies claim a positive relationship between TQM and performance, but some companies also point to an unfavorable outcome [20,22]. Very few researchers have conducted empirical studies to understand the relationship of performance in TQM in the context of SMEs. Some studies have found that TQM can be successfully adopted by SMEs. However, other studies have reported that there is a detrimental impact of TQM on SME performance. These inconsistent results in the literature call for further scientific research of the relationship between the performance of TQM and SMEs, leading to the hypothesis that "TQM positively affects the performance of the company."

## 7. Obstacles to implementation of total quality management practices by SMEs

Most researchers assume that human resources are essential for the implementation of quality management practices, because people are often the key elements of operations [14]. Senior management and culture are also an essential area and it is important that senior management understands and provides adequate support for the application of TQM in the companies. Many SMEs, by default, reflect in their culture and the personality of senior management personnel and are constrained by this in terms of the changes they may be able to make [14,20]. The challenge for senior management is to cultivate an organizational culture that supports the philosophy of quality control and management. The flat organization structure of small and medium enterprises and fewer administrative interfaces usually results in a more flexible working environment. Also, small and medium Indian companies have a very special problem. The workers working in these small and medium manufacturing companies come from poor backgrounds and uneducated. They learn their work through the path of informal apprenticeship, and develop their skills through mistakes and practice [23]. These workers with low educational background show inherent resistance to change and adaptation to new work practices and organized systems, which seriously affect the speed of implementation of TQM. Some manufacturers misuse quality management practices. The main reason for this scenario lies in their internal issues such as lack of knowledge and understanding of quality management practices, cultures, skills, etc, resulting in "using the wrong tool to solve the problem". And "use the same set of tools in each problem" [12,10]. Inadequate technical expertise, unfortunately, often results in individual dependence on individual practices, but failure to establish system-wide philosophy and culture to support these practices. [23] This lack of experience can be

overcome through the use of external consulting, but this option is often not possible because these small and medium manufacturing companies will require financial resources to hire consultants as well as assist in the actual implementation of such ideas.

Most SMEs are not financially qualified and have poor financing arrangements. Another complication in most SMEs is that they add new capacity and the design of their products develops, in order to keep pace with manufacturing for small and medium enterprises that give quality management initiatives shorter time horizons than they do elsewhere and implement them more quickly. [24] Training individuals to use TQM tools and techniques requires adequate financial resources. Thus, poor training and resource availability are key factors in the deployment of the TQM program in small and medium-sized enterprises [25]. TQM practices in manufacturing are resource intensive and yield long-term results. [8]. Also, SMEs may lack the market power to influence business partner networks, especially suppliers to adopt quality control and management practices.

## 8. Characteristics of SMEs and TQM implementation

There are some characteristics that characterize small and medium-sized enterprises from large enterprises: structure, procedures, behavioral culture, processes, people and contacts [26]. In terms of structure, SMEs have a relatively flat structure compared to large enterprises. SMEs adopt a low-standard, customized approach. In SMEs, the culture and values of the owner manager spread widely throughout companies. Small and medium enterprises tend to use simple and informal control systems. In small and medium-sized enterprises, training and development activities tend to be small and ad hoc. SMEs have limited contacts with suppliers, customers and professional associations. In terms of the application of TQM, although a number of studies have shown that small businesses can adopt some aspects of TQM such as training, use quality and measurement tools effectively like large companies [26,27], and a number of other researchers suggest that there are some drawbacks in front of small and medium enterprises to implement TQM effectively. Since SMEs play a dominant role in most developed or developing countries, there are a large number of studies available in the area of quality management in SMEs. However, there are relatively few quality management studies that include Libyan SMEs.

## 9. TQM in the Middle East and North Africa

The increasing acceptance of TQM as an administrative philosophy to improve competitiveness and organizational effectiveness has left the development of empirical research behind it. This problem is most evident in developing countries where knowledge and understanding of overall quality is still very early in stages. Companies in most Middle Eastern countries were not aware of the impact of quality management on efficiency, productivity and competitiveness. Globalization and volatile oil and gas prices in the world. The market is believed to be the driving force of QMP in the Middle East. The fluctuation of oil and

gas prices in the global market led to the adoption of oil and gas producers in the region to adopt quality management across many industries including the oil and gas industries, the public and private sectors and manufacturing [27]. However, there is a growing awareness and understanding of QMS in the Arab world. One study compared different quality visions and practices in Libya concluded that despite differences in national production factors in quality management from one culture to another, a number of factors were studied in their study, For example. Customers; Problem Solving and Improvement Problems; quality teams quality management system and evidence, customer satisfaction and needs, and zero defects as a quality criterion have been considered either critical or important to the success of TQM [23]. particularly in the oil sector, and new programs of privatisation. The Libyan government's commitment to change from a socialist-oriented to a more market-oriented economy made possible the taking of the initial steps of applying for WTO membership, reducing subsidies, and implementing a privatization strategy.

This study focused principally on the implementation of TQM in the Libyan industrial sector which plays a critical role in the process of Libyan economic and social development. However, to compete successfully in a world market, this sector needs to pursue the example of successful organisations world-wide and improve its OP [28,29,30]. TQM implementation in Libyan industrial sector has been shown to be essential for its survival and growth. Focusing on six sub-industries; Food, Mineral, Electronics & Engineering, Chemical, Textile & Furniture, and Cement & Building Materials industries, Libyan manufacturing companies responded to the mail questionnaire. The questionnaire was divided into three sections: section 1: provided the demographic information of Companies, section 2: evaluated the extent of TQM practices, section 3: evaluated the Company's Performance. In this study, six elements of TQM were identified from the literature and examined; they are: Top Management Commitment; Customer Focus; Supplier Quality Management; People Management; Continuous Improvement; and Process Management.

## 10. Results and Discussion

### 10.1 Predominance of Total Quality Management Practices

The descriptive analysis revealed that TQM practices in terms of management leadership and commitment, customer satisfaction and continuous improvement are highly predominant among the subject companies while strategies involving employee involvement, training and education and rewards and recognition are moderately predominant among the participating SMEs. It can be implied that the Small and Medium Enterprises have not yet taken full gear in implementing TQM. The TQM components that are highly predominant among the surveyed companies include management leadership and commitment, continuous improvement and total customer satisfaction. The high predominance of practicing management leadership and commitment indicates that the companies have full understanding of the importance of getting the support of the

top management before any quality effort is being made. Only a strong commitment towards the implementation of TQM standards can guarantee its completion and continuous improvement. Moreover, a high verbal interpretation in the area of continuous improvement is another positive finding. This suggests that SMEs are fully aware of changes that occur not only in terms of customer preferences but also in terms of business environments, and that the cornerstone of survival is continuous improvement. Total customer satisfaction is the last component of the Total Quality Management which is found to be highly predominant among the subject companies. Most customers no longer tolerate average quality. Companies today have no choice but to adhere to the highest level of quality if they want to stay in the race. Thus, the task of satisfying customer needs remains a company's top priority. In contrast, the TQM components that are moderately predominant among the companies consist of employee involvement, education and training, and rewards and recognition. Small and Medium Enterprises are still on their way of making these areas part of their priority plans.

### **10.2 Relationship between Financial Performance and Predominance of TQM Practices**

In terms of the relationship between the financial performance and the predominance of TQM practices, it was found that there is no significant relationship between these two sets of variables. This implies that TQM cannot be readily equated with improved financial performance most especially among the small and medium enterprises. Among the TQM practices, only continuous improvement significantly correlates with the financial performance of the companies particularly in terms of solvency. All of the other areas of TQM do not relate significantly to the financial performance of the companies. Although the proponents of TQM argue that it can be successfully applied to organizations of all sizes, the results of this study found no evidence to support the assertion that the adoption of TQM practices is of financial benefit to the manufacturing SMEs in the province. There can be several reasons to explain this. For one, the effect of macroeconomic variables such as economic, political, socio-cultural, technological and educational developments have a great impact on how the operations of SMEs are managed<sup>18</sup>. The problems that SMEs face in terms of limited access to financing, limited market, low level of technology and lack of economies of scale, all contribute to the inability of the manufacturing SMEs to develop their maximum production capacity and therefore acquire financial leverage that will support any quality improvement efforts by the organization. In addition, the results of the study run parallel with the fact that the rewards of TQM are highly long-range which means that any investment in the quality efforts now may not necessarily lead to any positive improvement in financial performance at once or in the short term. This is the reason why there is a high degree of management commitment necessary in order to keep the improvement efforts afloat. Moreover, any quality improvement will only lead to tangible financial results if the effort is coupled with the expansion of capacity to produce, thus increasing its production possibility frontier.

## **11. Conclusion**

This paper present the interviews conducted with ten managers in different Libyan industrial companies. These interviews gathered the views and notions from top and senior managers working for the targeted industries and involved in decision making process. The interviews discussed issues such as concepts and principals of TQM implementation, management responsibilities and authorities, and how to overcome the barriers of TQM implementation in their perspective. Through the conduction of face-to-face interviews, the Author summaries the main findings as in the following points:

- 1) Employees in Libyan industrial companies have very low knowledge about TQM.
- 2) TQM never been implemented in Libyan industrial companies.
- 3) TQM is absent in Libyan educational system.
- 4) No national quality awards program in Libya.
- 5) Lack of working in teams, and absence of active and experienced leadership within Libyan companies.
- 6) Lack of top management commitment and leadership.
- 7) Lack of employees training, involvement and empowerment.
- 8) Lack of dealing with external agencies for training and consultation.
- 9) Lack of training and poor education of the employees.

This study included a questionnaire survey where small and medium enterprises claiming to adopt Total quality management practices in their structure of governance were questioned. From the results, the study aimed to deduce that the content of TQM is capable of producing a competitive advantage to SMEs. Results established that there exists a correlation between total quality factors and competitive advantage. Results inferred from the questionnaire survey is that the small and medium scale enterprises in Nairobi are trying cope with new quality management practices to increase the productivity. From the findings, the study recommends that SMEs should establish quality management systems and improve on their quality management programs to ensure effective TQM implementation and for the overall success of the company.

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