THE INTERNATIONAL JOURNAL OF BUSINESS & MANAGEMENT

The Impact of Total Quality Management on the Performance of Small and Medium Enterprises in Ghana

Ebenezer Ankrah
Lecturer, Department of Information Technology, Central University College, Tema, Ghana

Abstract:
In Ghana a number of state institutions are charged with the duty of ensuring the quality of goods and services as well as educating manufacturers, entrepreneurs and consumers on quality standards. The study examines the relationship between total quality management (TQM) practices of small and medium enterprises (SMEs) and the performance of these businesses in Ghana. With the use of a mixed research method consisting of descriptive and inferential statistics the researchers found that differences exist between SMEs in relation to managerial education level, TQM awareness, managerial commitment to TQM principles of continuous improvement, use of new technology, putting the customer first, effective supervision and enforcement of quality practices. The study also shows a statistically significant association between the implementation of TQM and the SMEs' financial and organizational performance. The implication of the findings is that the government of Ghana should pursue policies aimed at encouraging training and improving the managerial skills of SME owner/managers as well as creating the enabling environment for the development of improved modern technologies to transform the business processes of these vital industries. The Ghana Standards Board must also sit up and enforce quality regimes to ensure goods and services produced meet international standards.

Keywords: Total Quality Management, Small and Medium Enterprises, Performance

1. Introduction

Information technology (IT) available today is being leveraged in customer acquisitions, driving automation and process efficiency, delivering ease and efficiency to customers (Ankrah, 2012). Total Quality Management (TQM) is an approach that seeks to improve quality and performance which will meet or exceed customer expectations. Quality management has been widely practiced both locally and internationally in different sectors and subsectors of different economies. The concept is linked to several international self-assessment models that evaluate the TQM efforts and in line with the International Organization for Standardization which represents a system as a common denominator for what business quality entails internationally (Okpala, 2012). TQM is a comprehensive and structured approach to organizational management that seeks to improve the quality of products and services through ongoing refinements in response to continuous feedback. Key features of TQM include: (a) managerial leadership and commitment to quality (Garvin 1983); (b) preparation of a quality policy and a quality strategy that sets the overall intentions and direction of the firm with regard to quality (c) pursuit of customer satisfaction and putting the customer first (d) the search for continuous improvement (Deming, 1999); (e) use of new technology to enhance products, services and processes; and (f) continuous training and development of the workforce (Hackman & Wageman,1995), (g) involvement of people in decision making and supervision and enforcement of quality standards (Okpala, 2012).

Small and Medium Enterprises (SMEs) are recognized as important engines of growth and development in both developed and developing countries due to the role they play in generating employment, stimulating growth and creating social cohesion. Their flexibility and quick adaptability to change make SMEs essential instruments capable of responding to the increasing globalization of businesses. SMEs are a major part of the industrial economies (Eikebrokk and Olsen, 2007), and play a unique role in most country's industrial development. SMEs have advantages about flexibility, reaction time, and innovation capacity that make them central actors in the new economy (Raymond and Croteau, 2006). Hence, an economy that meets the needs of its SMEs enhances the chances of job growth and consequently a vibrant economy (UNESCAP, 2009). In Ghana, the SME sector constitutes the vast majority of businesses and over the years, they have evolved to become key suppliers and service providers to large corporations including multinational and transnational corporations. SME's in Ghana contribute about 70% to Ghana's Gross Domestic Product (GDP) and account for about 92% of all businesses in the country (GSS, 2012). Principally, they have contributed to "expanding output, providing value-added activities in the manufacturing sector, creating employment opportunities especially in the service sector and contributing to broadening Ghana's export base" (Ghana Investment Promotion Centre, 2012). The lack of SME owner/managers' ability to practice quality management has been identified as one of the major causes of SME failure (Jennings & Beaver 1997). According to Hodgetts et al., (1999), firms that implement quality practices are better performers as implementation of quality management practices is crucial in reducing the high direct cost associated with poor quality and this in turn will lead to increase in productivity and profitability. Deming (1999),

1.1. Research Hypotheses
- H1: Effective implementation of quality Management initiatives has positive effect on profitability.
- H2: Managers educational level has effect on the level of quality management
- H3: Effective Quality Management has positive effect on customer satisfaction and loyalty.

2. Methodology

For this study, owners and managers of manufacturing SMEs in the Accra, Tema and Kumasi metropolis were selected from five main industries. These cities were chosen because they have the highest concentration of manufacturing companies in Ghana. The five main industries examined are the garment and clothing; furniture and carvings; leather and footwear; simple household consumer goods; and beads and jewelry industries. The main reason for targeting these industries is because most of the thriving manufacturing SMEs in Ghana fall under these five industries and "have been the fountain head of several innovations in *manufacturing"* Due to the proliferation of micro and small businesses, only SMEs that strictly fall within the classification of the Regional Project on Enterprise Development Ghana Manufacturing Survey Paper (2008) are included in the study. The survey classified manufacturing SMEs with between 5 – 29 employees as "small enterprises", and SMEs with 30 – 99 SMEs as "medium enterprises". Hence, only manufacturing SMEs with 5 – 99 employees were included in the study. The samples were drawn from a list of companies registered with the Association of Ghana Industries (AGI). Using the AGI compilation of registered members for 2012, 250 manufacturing companies were randomly selected using a sample frame and given questionnaires delivered by hand to owner/managers at their respective manufacturing sites. However, only 200 completed questionnaires were eventually received fully completed. This represents a response rate of 80%. The data is consistent with hand delivered self administered questionnaires that score over 70% response rate (Stover & Stone, 1974). The data were analyzed by Statistical Package for Social Science (SPSS) and presented in tables and charts. Chi square and correlation tests were also used to test three hypotheses and to establish relationship between the variables studied.

3. Major Findings

	Statements	Agree	Neutral	Disagree
1	We have increased sales because of the improvement in the quality of our products and services	92	80	28
2	Our customers are satisfied with our products and loyal to us because of the quality of our products and services	105	63	32
3	Our business is more efficient because of continuous improvement in technology and strict of enforcement of quality standards	109	55	36
4	Our business is more profitable because of our attention to quality and strict enforcement of quality standards	90	85	25
5	We have increased productivity and sales due to our reliance on modern technology	90	60	50
6	We will export our products if we meet the international quality standards	124	52	24

Table1: Impact of Quality Management on SME Performance
Source: Field data, 2014

The table above shows a positive relationship between quality management and customer loyalty and organizational efficiency. This is reflected in the fact that majority of owner/managers i.e. 52% and 54% respectively agree to the relevant statements. However, only 90 SMEs and 92 SMEs agree that quality management positively impact on their profitability and sales respectively. There are however, significant differences between owner/managers with TQM awareness and those who lack TQM awareness. For example, all the sixty SMEs (100%) who have employed modern technology report increase in efficiency and productivity, whereas only 22% of those who lack TQM awareness report increased efficiency and productivity. Majority of SMEs will export their products if they can meet international standards. Hence the desire for export development is very high among manufacturing SMEs in Ghana.

3.1. Hypotheses Testing
Hypothesis is a specific statement of prediction. It describes in concrete (rather than theoretical) terms what the expectation will be in the study. A single study may have one or many hypotheses. The chi-square statistic was used to test the three hypotheses. The chi-square statistic was use to test the hypotheses because the researcher was testing for goodness of fit or better still relationships.

3.2. Hypothesis One
- Ho: Effective implementation of quality management initiatives does not have positive effect on profitability.
- Ha: Effective implementation of quality Management initiatives has positive effect on profitability.

Where **Ho** is the null hypothesis and
Ha is the alternative hypothesis

3.2.1. Significance Level
The significance level (α) for this test is 0.05.

3.2.2. Critical Value
From the chi square distribution table, a significance level of 0.05 with two degrees of freedom gives a critical value of 5.99.

3.2.3. Decision Rule
The researcher cannot accept Ho, if chi-square calculated is greater than 5.99 and conclude that, effective implementation of quality management initiatives have positive effect on profitability else the researcher will fail to reject Ho and conclude that, effective implementation of quality management initiatives does not have positive effect on profitability.

3.2.4. Test statistic

The test statistic is a chi square, χ^2 with (I-1)*(J-1) degrees of freedom.

$$\chi^2 \text{ value} = \sum_{i=1}^{I}\sum_{j=1}^{J}\frac{\left(O_{ij}-E_{ij}\right)^2}{E_{ij}} \quad \text{with } df = (I-1)*(J-1)$$

Where **Oij** are the observed values
Eij are the expected values and
df is the degrees of freedom

Now, the calculated chi-square from Table 2 is as follows;

$$\chi^2 = \frac{(23-30.6)^2}{30.6} + \frac{(4-24.7)^2}{24.7} + \frac{(103-74.8)^2}{74.8} + \frac{(24-16.5)^2}{16.5} + \frac{(34-13.3)^2}{13.3} + \frac{(12-40.3)^2}{40.3}$$

$$= 1.8876 + 17.3478 + 10.6316 + 3.4091 + 32.2173 + 19.8732$$

$$= 85.3666$$

N = 200			Profitability			Total
			low	Moderate	High	
Effective Quality Management	Yes	Count	23	4	103	130
		Expected Count	30.6	24.7	74.8	130.0
		Std. Residual	-1.4	-4.2	3.3	
	No	Count	24	34	12	70
		Expected Count	16.5	13.3	40.3	70.0
		Std. Residual	1.9	5.7	-4.5	
Total		Count	47	38	115	200
		Expected Count	47.0	38.0	115.0	200.0

Table 2: Relationship between Effective Quality Management and Profitability
N = 200   P-value = 0.000   COV = 0.856
Source: Field data, 2014

The p-value of 0.000 is an indication that the null hypothesis must be rejected. This would lead to a conclusion that effective implementation of quality management initiatives have a positive effect on profitability. The correlation coefficient of 0.856 also shows a positive and strong relationship between quality management and profitability. The findings support the numerous researches which show that effective implementation of TQM ensures that organizations eliminate inefficiency by reducing scrap, mistakes and rework as well as improve customer satisfaction and command premium prices which enables firms to enjoy high profit margins (Porter & Parker, 1993; Sila, 2007). There was however differences between the SMEs regarding the impact of TQM on efficiency and profitability. While majority (84%) of SMEs which show awareness of TQM, use new technology and enforce quality standards in their businesses mostly report increased profitability, only 16% of those who do not apply these TQM practices report increased efficiency and profitability.

3.3.Hypothesis Two
- Ho: Managers educational level does not have effect on the level of quality management
- Ha: Managers educational level has effect on the level of quality management

N = 200			Educational Level				Total
			No Formal Education	Basic	Sec / Tech	Tertiary	
Levels of Quality Management	Technology	Count	5	11	29	39	84
		Exp Count	2.1	11.3	34.9	35.7	84.0
		Std. Res	2.0	-.1	-1.0	.6	
	Leadership	Count	0	10	21	14	45
		Exp Count	1.1	6.1	18.7	19.1	45.0
		Std. Res	-1.1	1.6	.5	-1.2	
	Awareness of TQM	Count	0	0	8	7	15
		Exp Count	.4	2.0	6.2	6.4	15.0
		Std. Res	-.6	-1.4	.7	.2	
	Quality of policy	Count	0	6	13	6	25
		Exp Count	.6	3.4	10.4	10.6	25.0
		Std. Res	-.8	1.4	.8	-1.4	
	Customer demands	Count	0	0	12	19	31
		Exp Count	.8	4.2	12.9	13.2	31.0
		Std. Res	-.9	-2.0	-.2	1.6	
Total		Count	5	27	83	85	200
		Expected Count	5.0	27.0	83.0	85.0	200.0

Table 3: Relationship between Levels of Quality Management and Educational Level
N = 145   Chi-Square = 23.564   df = 12   p-value = 0.000   COV = 0.421
Source: Field data, 2014

The above table is constructed to test hypothesis two. A p-value of 0.000 is enough to reject the null hypothesis at a significant level of 0.05 and accept the alternative hypothesis, hence the conclusion that, managers educational level has effect on the level of quality management. This hypothesis is further strengthened by a correlation coefficient of 0.421. This is an indication that the relationship between managers' education and quality management is positive and relatively strong. This confirms Pidani et al., (2012) finding that educational level of owner managers determines performance and export orientation of manufacturing SME in Indonesia.

3.4. Hypothesis Three
- Ho: Effective Quality Management does not have positive effect on customer satisfaction
- Ha: Effective Quality Management has positive effect on customer satisfaction

Where **Ho** is the null hypothesis and
Ha is the alternative hypothesis

3.4.1. Significance Level
The significance level (α) for this test is 0.05.

3.4.2. Critical Value
From the chi square distribution table, a significance level of 0.05 with two degrees of freedom gives a critical value of 5.99.

3.4.3. Decision Rule
The researcher cannot accept Ho, if chi-square calculated is greater than 5.99 and conclude that, effective Quality Management has positive effect on customer satisfaction else the researcher will fail to reject Ho and conclude that, effective Quality Management does not have positive effect on customer satisfaction

3.4.4. Test Statistic

The test statistic is a chi square, χ^2 with (I-1)*(J-1) degrees of freedom.

$$\chi^2 \text{value} = \sum_{i=1}^{I}\sum_{j=1}^{J}\frac{(O_{ij}-E_{ij})^2}{E_{ij}} \quad \text{with df} = (I-1)*(J-1)$$

Where **Oij** are the observed values
Eij are the expected values and

df is the degrees of freedom
Now, the calculated chi-square from Table 4 is as follows;

$$\chi^2 = \frac{(26-35.1)^2}{35.1} + \frac{(28-18.9)^2}{18.9} + \frac{(1-18.9)^2}{18.9} + \frac{(28-10.2)^2}{10.2} + \frac{(103-76.1)^2}{76.1} + \frac{(14-41.0)^2}{41.0}$$

$$= 2.3593 + 4.3815 + 16.9529 + 31.0627 + 9.5087 + 17.7805$$

$$= 82.0456$$

N = 200			Effective QM		Total
			Yes	No	
Customer Satisfaction	low	Count	26	28	54
		Expected Count	35.1	18.9	54.0
		Std. Residual	-1.5	2.1	
	Moderate	Count	1	28	29
		Expected Count	18.9	10.2	29.0
		Std. Residual	-4.1	5.6	
	High	Count	103	14	117
		Expected Count	76.1	41.0	117.0
		Std. Residual	3.1	-4.2	
Total		Count	130	70	200
		Expected Count	130.0	70.0	200.0

Table 4: Relationship between Customer Satisfaction and Effective Quality Management
N = 145   p-value = 0.000   COV = 0.558
Source: Field data, 2014

The third hypothesis is also accepted because the p-value is less than the significant level of 0.05. Therefore, effective Quality Management has positive effect on customer satisfaction and customer loyalty. The relationship is positive but not quite strong. Omachonu and Ross (1994) noted that the effective implementation of TQM by firms will increase customer satisfaction and consequently customer loyalty. According to Ankrah (2013), customer satisfaction has a positive relationship with profitability. Effective quality management allows firms to provide quality goods and services in order to meet customer demands, exceed customer expectation and achieve customers' satisfaction and loyalty.

4. Conclusions
The study examines the total quality management practices of manufacturing SMEs in Ghana. By using cross sectional data collected via questionnaires. The results indicate that managers with tertiary education who are aware of TQM are more likely to employ new technology, develop a quality policy and show leadership commitment to implementation of TQM. Effective implementation is also shown to have direct positive relationship with customer satisfaction and customer loyalty. Government must provide the enabling environment for technology development in the country and provide support for businesses to acquire the necessary equipments required for enhancing productivity and quality of goods and services. This will encourage innovation and product development for both the domestic and export market. Improving manufacturing SMEs' quality management capabilities will enhance their competitiveness domestically against imported goods.

5. References
1. Ankrah, E. (2013). Customer satisfaction of electronic products and services in Ghanaian banks. Information and Knowledge Management, 3(1), 7-18.
2. Ankrah, E. (2012). Technology and service quality in the banking industry in Ghana. Information and Knowledge Management, 2(8), 52-60.
3. Deming, W. (1999). Quality Management (4th ed.). Prentice Hall, London, UK.
4. Eikebrokk T, R., & Olsen, D. H. (2007). An empirical investigation of competency factors affecting e-business success in European SMEs. Inf. Manage., 44(4): 364-383.
5. Garvin, D.A. (1983). Quality on the line. Harvard Business Review , 1, 64 -75.
6. Ghana Investment Promotion Centre (2012). Available online at: www.gipcghana.com/smallandmediumenterprises. Accessed 20/10/2014.
7. Ghana Statistical Services (2012). Quarterly GDP Newsletters. Available online at: http://www.statsghana.gov.gh/databases.html. Accessed: 7/08/2014.
8. Hackman, J. R., & Wageman, R. (1995). "Total quality management: Empirical, conceptual, and practical issues", Administrative Science Quarterly, 40(2), 309-342.
9. Hodgetts, R., Kuratko, D., & Hornsby, J. (1999). Quality implementation in small business: perspectives from the Baldrige award winners. SAM Advanced Management Journal, 64(1), 37-47.

10. Jennings, P., & Beaver, G. (1997). The performance and competitive advantage of small firms: a management perspective. International Small Business Journal, 15(2), 63-75.
11. Okoh, K. (2013). The dwindling share of manufacturing in Ghana's GDP. Available online at: http://www.aluworks.com/site/index.php=article&id=89:the-dwindling- Accessed: 7/08/2014.
12. Okpala, K. E. (2012). Total quality management and SMPS performance effects in Nigeria: A Review of Six Sigma Methodology. Asian Journal of Finance & Accounting 4(2), 20-34.
13. Omachonu, V., & Ross, J. (1994). Principles of Total Quality, St Lucie Press, Delray Beach, Fla Pallant, J. (2005) 'SPSS Survival Manual' 2ed, Maidenhead: Open University Press McGraw Hill Education.
14. Pidani, R.R., Mahmood, A., & Agbola, F. (2012). Do managerial characteristics promote export development? A case of manufacturing small and medium enterprises in Indonesia. Academy of Taiwan Business Management Review, 1, 6 – 15.
15. Porter, L.J., & Parker, A. J. (1993). Total quality management: The critical success factors. Total Quality Management, 4, 13 – 22.
16. Raymond, L., & Croteau, A. M. (2006). Enabling the strategic development of SMEs through advanced manufacturing systems: A configurational perspective. Industrial
17. Management & Data Systems, 106, 1012-1032.
18. Sila, I. (2007). Examining the effects of contextual factors on TQM and performance through the lens of organizational theories: An Empirical Study. Journal of Operations Management, 25, 83-109.
19. Stover, R.V., & Stone, W. J. (1974). Hand delivery of self-administered questionnaires. Public Opinion Quarterly, 38(2), 284-296.
20. UNESCAP 2009. Globalisation of Production and the Competitiveness of Small and Medium-sized enterprises in Asia and the Pacific: Trends and Prospects. Available online at: http://www.unescap.org/tid/publication/tipub2540 chap1.pdf. Accessed: 220/08/2014.