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ACHIEVING ORGANIZATIONAL EFFECTIVENESS THROUGH TQM PRINCIPLES IN DEVELOPING INDUSTRY: A CASE STUDY OF PALM OIL MERCHANDISING BUSINESS IN CROSS RIVER STATE

Abstract: *As a developing country, economic and environmental performance has to be balanced in India. Green supply chain management (GSCM) is emerging as an important proactive approach for Indian enterprises for improving environmental performance of processes and products in accordance with the requirements of environmental regulations. This study examines the consistency approaches by confirmatory factor analysis that determines the construct validity, convergent validity, construct reliability and internal consistency of the items of Sustainable supply chain management (SSCM) requirements. This study examines the consistency approaches by Confirmatory factor analysis that determines the adoption and implementation of Sustainable supply chain management activities in small & medium scale industries. The requirements include Management commitment, customer coordination, sustainable design & production, green procurement and eco logistics for sustainable supply chains. This study suggested that the five factor model with eighteen items of the sustainable supply chain design had a good fit. Further, the study showed a valid and reliable measurement to identify critical items among the requirements of sustainable supply chains.*

Keywords: *sustainable, green supply chain, factor analysis, reliability organizational effectiveness, total quality management, (TQM), TQM principles, quality , agro-allied industry*

1. Introduction

Prior to the discovery of crude oil, the Nigerian economy depended almost entirely on agriculture. Produced on commercial quantities were groundnuts in the north, cocoa in the South West, Palm produce (palm oil and Palm kernel) in the South east and rubber in the then Mid-western region (now Edo and Delta States). These regions,

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and by extension Nigeria depended on these agric-products for survival. Anselem (2001), maintain that the country seemed to have fared better when her fortune depended on agric. products than now that her survival depends on crude oil.

Agricultural products give birth to agro allied industry as inputs. Many industries such as pharmaceutical, confectionary, plastic, tyre, food processing, soap, and palm oil, etc. can be grouped under the agro-allied industry since all of them, in one way or the other, use farm products as their raw materials. According to Adebayo (2003), agro-called industry should not be conceived as a single industry, but as a conglomerate comprising many other industries.

Some agro-allied industries operate in Cross River State, one of which is the palm oil business. The product is found in abundance in the state due to fact that apart from the wild palm trees and the private palm plantations, the state has at Least four big palm estates at Calaro, Ibiae, Kwafalls (i.e. Anigheje), and Nsadop, all established by the then eastern Nigerian government under the auspices of Eastern Nigeria Development Corporation (ENDC), which was later named Agricultural Development Corporation (ADC). With this background, palm oil business is thriving in the state capital.

In Calabar, individual palm oil merchants now form themselves into groups, called beaches and/or market centres. Consequently, there are at least four beaches: beach one, two, three and four, all situated at the outskirt of Marian market, and three market centres at Bogobiri, Akim market and Akim barracks respectively. Palm oil have two variants – special palm oil (SPO) and technical palm oil (TPO), both traded together. Usually, the SPO is a more preferred type since it is good for eating and for any other purpose. TPO is usually patronized by industrial users. The concern of dealers is two-fold: where to buy from, and who to sell to, since there is much competition in these two areas. To contain this competitive atmosphere, good customer relationship becomes imperative, i.e. how well you "treat" your customers both sellers and buyers is a critical success factor.

Studies have been conducted on the agro-allied industry in general, but there is no known study on the palm oil sub-sector, moreso in Calabar, Cross River State. This present work is aimed at filling this gab by contributing to the literature on agro-allied industry and organizational effectiveness and total quality management (TQM) principles using the palm oil business in Calabar, Cross River State as case study.

1.1 Statement of the problem

Agriculture has been the mainstay of Nigeria's economy before the advent of crude oil in 1958. Even at that, it is estimated that over 70 percent of Nigerians still depend on agriculture and its allied businesses for a living (Etuk, 1985).

Bearing in mind that agriculture is relegated to the background by the present generation of Nigerians, the question then is: Given that agriculture is not accorded the attention it deserves, can there still be enough agric products sourced locally to feed our agro-allied industries, particularly the palm oil business? How can the palm oil merchants in CRS use the principles of TQM to improve the effectiveness of their groups? In other words, can the TQM principles be applied in the informal sector such as the palm oil business in Calabar successfully? What can government do for palm oil business to thrive in the state?

Answers to these questions (and more) are premised on this statement: "Palm oil dealers in Calabar, CRS can improve the effectiveness of their groups through the application of TQM principles to attract and retain palm oil sellers and buyers".

2. Literature review: theoretical framework and proposition development

2.1 Total Quality Management

Organizations today, quality is considered a driving force for competitive advantage. Quality can be defined as the value the end user perceives (or receives) from using a product or enjoying a service, including satisfying customer needs or expectations and conforming to standard (Gow, 2005). Mcshane and Glinow (2000), maintain that defining quality in terms of value is justified because the benefits of a product or service must be assessed against its price to the consumer.

Quality management (QM), also known as total quality management (TQM) is a philosophy and a set of guiding principles to continuously improve on the firm's product or service quality. Ghobadian *et al*. (1994) opine that the quest for quality is a journey, rather than a or goal, and that the challenge is for firms to provide products and/or services that meet (and exceed) customer needs and expectations at the lowest possible cost, the first time, and everytime.

Quality mentality is embedded in the philosophy of TQM, now considered a must for business success and survival. Hansson and Ericksson (2002) maintain that TQM is a way of managing to improve the effectiveness, flexibility and competitiveness of business as a whole. Its focus is the customer, goodwill and respect which Mahata Ghandi of India taught long ago. Hear Him: a customer is the most important visitor to our business premises. He is not an interruption to our work, he is the purpose of it. He is not an outsider on our business, he is put of it. We are not doing him a favour by serving him, he is doing us a favour by giving us opportunity to do so (Thamizhmanii & Hasan, 2010).

TQM principles, which are the main factors to guarantee its implementation can be classified into ten main headings:

- Leadership
- Commitment
- Total involvement (by management and employees)
- Continuous improvement
- Total customer satisfaction
- Training and education
- Ownership
- Recognition and reward
- Error prevention (quality at source)
- Cooperation and teamwork.

TQM has been variously defined. For example, Stahl (1995) defines it as "a systems approach to management that aims to enhance value to customers by designing and continually improving organizational processes and systems", while Cherkasky (1992) in (Oriaku and Oriaku, 2008) see it as a creative problem-solving process of managing quality throughout the organization in order to improve its products, services and operation as well as the process used in producing those goods and services.
As the definition of TQM suggests, modern managers and business people are to be involved in the management of systems and processes rather than in the direct supervision and control of people. This new orientation is equally applicable in this service sub-sector: palm oil business in Calabar, Cross River State.

2.2 Organizational Effectiveness (OE)

A conceptual framework. What is organizational effectiveness. How and when is it achieved? Problem of definition of effectiveness arises because a multiplicity of OE models exist. Several models have been developed to capture the richness of OE construct. This multiplicity can be explained by the nature of the effectiveness construct, specifically it has unspecified boundaries, and also by the various conceptualizations of organizations that yield different models of effectiveness (Herman & Renz, 1998). OE is therefore, often defined in the context of the

model it is used. In this work OE is defined in two perspectives: (i) how successfully organizations achieve their missions, and (ii) their ability to adapt to the expectations of the external environment. Bearing these contexts in mind, we define OE as (a) "The measure of how successfully organizations achieve their missions through their core strategies". Effectiveness studies are concerned with the unique capabilities that organizations develop to assure their success (Jamrog & Overholt, 2005), and (b) the ability of organization to adapt, manipulate, or fulfill the expectations of the external environment (Cameron, 1978c).

2.3 Organizational Effectiveness (OE) Models

The following approaches are frequently used to define and assess OE.

- **Goal achievement model:** This traditional model which relies on a vision of the organization as a rational set of arrangements oriented towards the achievement of goals, maintain that effectiveness is measured in terms of accomplishment of outcomes. The focus is exclusively on the ends – i.e. the achievement of goals, objectives, targets, etc .
- **Systems Model:** The systems model, while not disputing the importance of ends, emphasizes the means needed for the achievement of the goals in terms of inputs, resources, and processes. With this approach, the conception of the organization is grounded in the open systems theory whereby the inputs, transformation and outputs are considered part of a whole and not independent outcomes.
- **Strategic-constituencies Model:** By broadening the scope of the two previous models, this model adds the expectations of the various key stakeholders that gravitate around the organization. Thus, the organization is conceived as a set of internal and external constituencies that negotiate a complex set of constraints, goals and referents (Goodman and Pennings, 1977). The owners, employees, customers, suppliers, creditors, community and government represent stakeholders that must be satisfied to ensure the effectiveness and survival of the organization.
- **Competing-value model:** This model constitutes a synthesis and an extension of the previous models (Quinn and Rohrbaugh, 1983). It views the assessment of OE as an exercise grounded in values, from where three sets of values are juxtaposed to form different definition of effectiveness. These sets of values encompass various aspects of the previous models (i) Means-ends dilemma refers to the goal and systems model (ii) internal-external focus dilemma refers to the different stakeholders' needs, and (iii) the control-flexibility dilemma is an open debate in OE literature. Based on these competing values, Quinn and Rohrbaugh (1983) identify four models of OE: rational goal, internal process, open systems and human relations models.
- **Ineffectiveness model:** By focusing on factors that can inhibit high performance, this model evinces a different perspective by considering the organization as a set of problems and faults: Its basic assumption is that, it is easier, more accurate, more consensual and more beneficial to identify problems and faults (ineffectiveness) than criteria for competencies (effectiveness). Hence, OE is defined as the "absence of ineffectiveness factors".

2.4 TQM models and Service delivery

The development of quality management systems has substantially been influenced by quality experts like Deming, Juran, Crosby, Feigenbaum and Ishikana, etc. The main theme of Deming is that increased

productivity will result in improved firm's competitiveness (Franks, 2009). For Deming, the quality improvement of a firm's processes will result in less rework, less waste of resources, and less errors. He stressed the importance of continuous improvement (CI) of the system of production and service. Management, he maintains, should continuously reduce waste and improve the quality of every activity in the company in all its functions. It was his conviction that both product and service quality will create competitive advantages for firms. Deming developed a management model, the PDCA cycle, an acronym for Plan-Do-Check Act, which has been proved to be useful in both manufacturing and service industries universally.

Juran's contribution to quality is in the area of quality control. To him, managing quality should not be relegated to the subordinate hierarchy; it should be top-management driven to be successful. It must involve everybody in the organization, and visible leadership cum top management involvement are very crucial for achieving strategic and operational goals. Quality control, Juran stresses, should be an integral part of management functions, and the firm culture and leadership can play a major role in quality management. (Juran, 1991).

Ishikawa provided four aspects of quality management: quality circles, continuous training, the quality tool (Ishikawa diagram), and the quality chain. (Isikawa, 1985) maintains that to practice quality control is to develop, design, produce, and service a quality product, which is most economical, most useful and always satisfactory to the customer. To meet this goal everyone in the organization should participate in quality control efforts including top executives, all units, and all employees. He maintains that quality control is not limited to quality assurance department but involves all units of the organization, stressing a clear customer orientation – both "internal" and "external" customer(s). Contemporary service firms are compelled by their nature to provide excellent service in order to prosper in the increasingly competitive market place. As service firms find themselves in this increasingly competitive and complex environment, they are bound to re-examine their service delivery processes, in line with the principles of TQM such as continuous improvement, total involvement and leadership, among others.

Literature reveals that the concept and practices of service quality are not well developed as those of product quality: service organizations are lagging behind their manufacturing counterparts in terms of effective use TQM principles aimed at achieving organizational effectiveness (Ghobadian *et al*., 1994; Gupta *et al*., 2005). Even though the views of quality gurus aforementioned are prominent in the manufacturing literature, they can easily be deployed for services, as theoretical foundations and methods of total quality supports its use for both manufacturing and services. The founders of quality management revealed that quality concepts (TQM principles) are universally applicable. Since it is understood that the fabrication of products is quite different from service delivery, the concept of total quality services (TQS) is now gaining attention (Robinson, 1999). Gupta *et al* (2005) maintain that TQS is TQM applied in service organizations. But because of the increasing complexity in measuring service rather than product quality, TQM cannot be said to be purely synonymous with TQS. Service quality can be operationally defined as the difference between customer expectations of service and perceptions of actual service delivery (Wisniewski, 2001; Sharma *et al*., 2012).

2.5 Sustaining structures the TQM principles and organizational effectiveness of palm oil groups in Calabar.

Three major TQM principles: Continuous improvement, total involvement and visionary leadership are developed from the literature and used for conceptual analysis.

Their relationship vis-à-vis organizational effectiveness is depicted in figure 1 below:

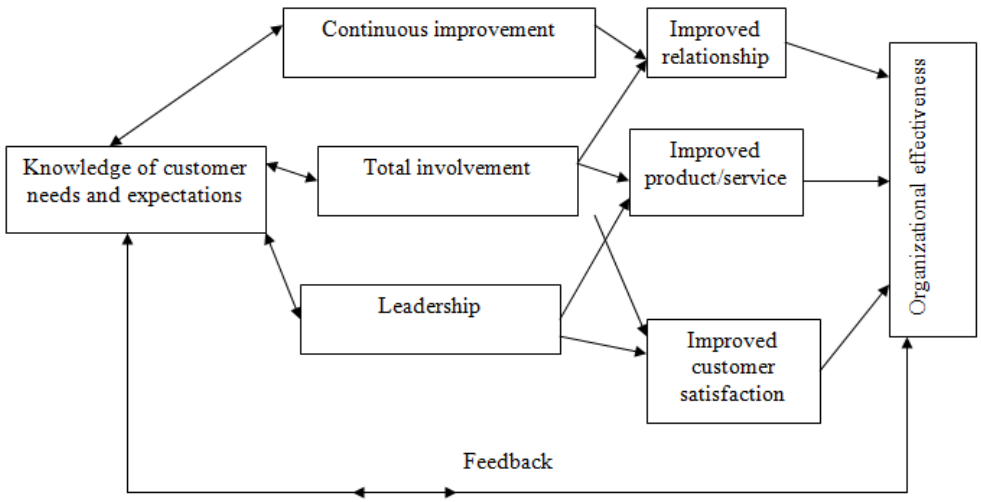

Figure 1. A model of quality service and organizational effectiveness

The model focuses on customer needs/expectations. For there to be effective performance, the groups should understand the needs and expectations of their customers. They should then establish sustaining structures for continuous improvement, total involvement and visionary leadership. These are seen as building blocks for a good TQM program (Krivokapic *et al.*, 2013). Customer expectations and satisfaction are attitudes, and thus, can change under different circumstances. Hence, the model exhibits a two-way flow between customer needs/expectations and the three constructs. The feedback loop affects the constructs by connecting OE to customer needs/expectations and vice versa. A culture of teamwork, cooperation and a team of committed, and loyal employees lead to improved customer relationship, which will result in product/service quality improvements. Improved levels of quality will finally lead to high levels of customer satisfaction. All these epitomize OE.

2.6 Hypotheses

In this section we observe the relationship between three hypotheses/propositions regarding some underlying structures that support TQS as it affect organization effectiveness, thus:

H_{01}: Adoption of continuous improvement efforts will be negatively correlated with OE.

H_{i1}: Adoption of continuous improvement efforts will be positively correlated with OE.

H_{02}: Total involvement by all parties in the palm oil business will not improve OE of the groups.

H_{i2}: Total involvement by all parties in the palm oil business will improve O. E of the groups.

H_{03}: Visionary leadership of the groups' executives will not enhance O. E. of the groups.

H_{i3}: Visionary leadership of the groups' e xecutives will enhance their O.E.

3. Methodology

Four groups of palm oil dealers out of the seven earlier identified were selected for

study. The groups (oil depots) were numbered from 1-7 thus: Beach one-1, beach two-2, beach three -3, and beach four-4; Bogobiri market centre – 5, Akim market centre – 6 and Akim barracks centre -7. Using convenience sampling technique, all odd numbered groups were picked and consequently, beaches one and three as well as Akim market and Akim barrack centres were included in the study. 110 respondents were administered with well structured questionnaire thus: 5 executive members from each group, totaling 20 respondents (by total enumeration); 10 other members from each group, making 50 members; 5 turners (i.e. labourers) from each group, summing up to 20 turners, and 5 buyers from each group, making 20 of them. Therefore, the sampled population was 110 out of 425 market participants altogether, giving a sample size percentage of 38.6; a good enough representative of the population.

Questionnaire items were structured on a – four point likert scale, ranging from strongly agree (SA), agree (A), disagree (D) to strongly disagree (SD), and a close-ended dichotomous structure question of "Yes" or "N0". Of the 110 questionnaire items administered, 96 copies (87.3%) were returned as clean and usable thus: Exco members 19' other members 42, turners/loaders 18; buyers 17.

3.1 Data Analysis

Data were analyzed using a non-parametric statistical instrument (X^2, Chi-square). The adoption of chi-square (X^2) was informed by the fact that variables studied were measured on a four point ordinal scale. The following decision rule applied: Reject H_0 if $X^2_c < X^2_t$ at 0.05 significance level and the appropriate degree of freedom (df), otherwise reject H_i and accept H_0.

4. Results and discussion

With respect the first research hypothesis, respondents were asked to indicate the extent to which they agree with the proposition that buying and selling good quality palm oil together with being honest with customers will result in "good market" i.e. O.E of the business. The result of the analysis shows a calculated chi-square (X^2_c) of 0.37624 while chi-square (X^2_t) at probability of 0.05 at 9 degree of freedom (df 9) was 16.90. By this outcome, and in line with our decision rule, the null hypothesis one (H_{01}) was rejected and its alternative (H_{i1}) was accepted. This implies that the adoption of continuous improvement effort will correlate positively with the OE of the palm oil dealers. This result corroborates the literature position that continuous improvement efforts almost always leads to enhanced OE. (Brown, 1997; Chom, 2007; Ehigie and McAndrew, 2009; Gow, 2005). In effect, it can then be asserted that adoption of continuous improvement efforts can lead to organizational effectiveness in the palm oil business. The table below depicts this:

Table 1. Impact of continuous improvement efforts on organizational effectiveness

No	Rating	GROUP A	GROUP B	GROUP C	GROUP D	TOTAL
1.	Strongly agree (SA)	11(10.5)	10(10.06)	11(10.94)	10(10.5)	42
2.	Agree (A)	5(5)	5(4.792)	5(5.21)	5(5)	20
3.	Disagree (D)	4(4.5)	4(4.313)	5(4.689)	5(4.5)	18
4.	Strongly disagree (SD)	4(4)	4(3.833)	4(4.167)	4(4)	16
	Total	**24**	**23**	**25**	**24**	**96**

X^2_C = 0.37624, X^2_t 0.05, df 9 = 16.90

The second hypothesis inquired the extent to which total involvement can enhance the organizational effectiveness of the palm oil groups. The responses received, using the four point likert scale were also analyzed with the aid of chi-square (X^2) statistical tool as in table 2.

Table 2. Extent to which total involvement impacts organizational effectives ness of palm oil group in Calabar.

No	Rating	GROUP A	GROUP B	GROUP C	GROUP D	TOTAL
1.	Strongly agree (SA)	10(10.5)	11(10.94)	10(10.06)	10(10.5)	42
2.	Agree (A)	5(5)	5(5.21)	5(4.792)	5(5)	20
3.	Disagree (D)	5(4.5)	5(4.689)	4(4.313)	4(4.5)	18
4.	Strongly disagree (SD)	4(4)	4(4.167)	4(3.833)	4(4)	16
	Total	**24**	**25**	**23**	**24**	**96**

X^2_C = 0.23425, X^2_t 0.05, df 9 = 16.90

The result of analysis showed that X^2c= 0.23425 and X^2 observed at probability of 0.05 at degree of freedom (df = 9) was 16.90. This result is a confirmation of the alternative hypothesis (H_{i2}) that total involvement by all parties involved in the palm oil business will lead to organizational effectiveness. Hence, we discarded the null hypothesis (H_{02}) and upheld (H_{i2}),.

The result is in line with evidence in the literature (Cameron, 1978c; Franks, 2009; Ooi, 2009; Gunasekaran, 1999; Balser and McClusky, 2005) who maintain that total involvement of organizational participants in TQM effort will result in improved quality which will in turn, impact on the bottomline.

The third hypothesis was a conjecture that visionary and committed leadership will enhance the effectiveness of the groups. The respondents were consequently asked to indicate whether or not the leadership provided by the exco members can affect the effectiveness of their groups. The respondents indicated their responses on a dichotomous basis of "YES" or "NO" in table 3 below.

Table 3. Effect of visionary relationship on organizational effectiveness of palm oil dealers in Calabar.

No	Rating	GROUP A	GROUP B	GROUP C	GROUP D	TOTAL
1.	YES	16(15.5)	15(14.85)	16(16.15)	15(15.5)	62
2.	N0	8(8.5)	8(8.15)	9(8.85)	9(8.5)	34
	Total	**24**	**23**	**25**	**24**	**96**

X^2_C = 0.09929, X^2_t 0.05, df 9 = 7.81

Analysis of responses in respect of our third hypothesis gave a calculated chi-square (X^2_c) value of 0.09929 while the chi-square observed at df = 9, P=0.05 was 7.81 percentage analysis showed that over 64% of our respondents felt that given good and effective leadership, the effectiveness of their group will improve and this will impact members' fortunes positively. We therefore accept the alternative hypothesis (H_{i3}) which holds that visionary leadership is a prerequisite for organizational effectiveness, and reject the null hypothesis (H_{03}). This result aligns with the position in the literature that leadership commitment in quality management holds the key to its successful implementation (Zbaracki, 1998; Denison and Mishra 1995; Grant *et al*., 1994; Chom, 2007).

5. Conclusion

We noted in this work that there is a seeming correlation between TQM principles and organizational effectiveness in both manufacturing and services. Invariably, successful, planned adoption of TQM principles, particularly, continuous improvement efforts, total involvement and effective leadership have the potential of impacting positively on a firm's performance. For this to be actualized, all organizational participants should "buy into" the quality improvement initiatives.

In our preliminary discussion we argued that organizational effectiveness is intrinsically linked with the adoption of TQM principles in forward looking organizations because of the role quality plays in the success of modern organizations. Following our empirical analysis, we can assert that effective application of TQM principles will positively impact on organizational effectiveness. In effect, we are inclined to accepting the notion that well coordinated quality management programmes through the instrumentality of TQM principles is not only beneficial to customers, but also ensures the well being of an organization and its members (Cameron & Whetten, 1996; Jamrog & Overholt, 2005). The results of our empirical analysis show that TQM principles such as continuous improvement, total involvement and committed leadership are very important factors in successful quality management as they correlated positively and significantly with organizational effectiveness.

We argued further that because customers are now more quality conscious than before, quality issues should be of great concern to organizations, and hence, they must make visible, conscious efforts to improve quality in all their activities, all their products and services. Undoubtedly, achieving higher levels of quality through TQM principles will continue to be sine-quo-non for business success in today's and tomorrow's ever-changing global business environment. Consequently, business managers/leaders should constantly seek for avenues to applying TQM principles to ensure their organizations' effectiveness.

Based on our empirical analysis, we conclude that the essence of adopting TQM principles is the simultaneous improvement of quality and the positive impact it has on organizational effectiveness. Sequel to the fact that research evidence has evinced that quality and organizational performance are inseparable, we in line with (Franks, 2009) urge the palm oil merchants in Cross River State to adopt the principles of TQM to improve their business through quality products and services. Indeed, the key managerial issue concerning the adoption of TQM principles is that practitioners must learn how to design appropriate organizational systems that maintain the momentum of quality management and at the same time ensure that its benefits are derived over time. This requires a re-orientation of mindset from both enterprise management and its employees so as to be assured that their efforts pay off in improved organizational effectiveness.

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