Customers' Gratification and ISO 9001 Quality Management Practices Among Manufacturing Companies

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Abstract

It is imperative to have a thorough awareness of the relationship between ISO 9001 quality management and customer satisfaction. It is on this basis that this study aims to analyze the link that exists between customer satisfaction and ISO 9001 Quality Management proxies by dedication to quality, employee participation, and fact-based management. The descriptive survey design was used for this study, and primary data were collected using a self-developed questionnaire from 630 randomly chosen respondents from a population of 17836 employees of 30 manufacturing companies in Lagos State, Nigeria. Deming's Theory of Total Quality Management and Signaling Theory underpinned the study. The Statistical Package for Social Scientists (SPSS 21.0) was used to evaluate the four hypotheses raised using the Pearson Product Moment Correlation Coefficient at 0.05 significance level and multiple regression. The study found that dedication to quality, and employee participation have a significant positive relationship and good predictors of customer satisfaction among manufacturing companies. However, based on the study's findings, fact-based-management did not have any influence on customer satisfaction. The study concludes that organizations should strive to conduct a continuous review of customers' viewing orders to retain the customers by providing them with quality products through ISO 9001 while encouraging employee participation in its implementation.

Keywords: ISO 9001 quality management, Dedication to quality, Employee involvement, Fact-based management, Deming, Customer satisfaction

INTRODUCTION

Accelerating advancements, innovation, and vast amounts of fresh information characterize today's competitive market, in practically every class of products and services. To improve competition, organizations must be committed to service and product quality, and customer satisfaction programs (Nguyen & Nagase, 2019). The amount to which a customer's expectations, requirements, and desires are met is also a factor for product quality (Kotler 1998). This suggests that by encouraging constant product quality, effective communication, customer focus, solid supplier connections, continuous improvement, and strong staff involvement, quality management practices can help increase customer satisfaction).

A basic measurement of product quality and customer satisfaction is the difference between the customer's expected and delivered (perceived) products. What then is the significance of customer satisfaction? In general, customer satisfaction suggests continually producing high-quality products, developing strong relationships, actively seeking out feedback and acting on it, offering wonderful experiences, and eventually, ensuring customer loyalty and advocacy.

In line with this, customer satisfaction was defined by Agnihotri, Gabler, Itani, Jaramillo, and Krush (2017) as a client's positive or negative feelings about the value s/he received as a result of using a certain product in a given situation. It was defined by Ali, Gardi, Othman, Ahmed, Ismael, Hamza, Aziz, Sabir, and Anwar (2021) as the outcome of a psychological mechanism in which the customer compares his perceived level of company success to a set of certain standards, which are usually his expectations.

Kotler (1966), as well as Kotler and Stonich, (1991), referred to "Customer satisfaction as the fulfillment that customers derive from doing business with a firm. In other words, it is how happy the customers are with their transaction and overall experience with the company." From the different definitions highlighted above, customer satisfaction denotes the extent to which a company's goods and services meet or exceed customers' expectations. However, this study defines customer satisfaction by adopting Agnihotri, Gabler, Itani, Jaramillo, and Krush's (2017) definition.

A customer remains the only source of revenue for an organization, and in these times of fierce competition and constant change, customer satisfaction is becoming increasingly vital in making purchasing decisions (Banwo et al., 2021; Goodman & Colin, 1992). The customer remains the most important factor in any organization. No organization can thrive without them. Therefore, the management of every firm appropriately values customer satisfaction. Existing research indicates that a company's chances of long-term, sustainable success increase with the number of satisfied customers.

Therefore, ISO 9001 standard can be utilized by company management to improve product quality output (Raisinghani et al., 2005) to achieve customer satisfaction. As a result, the eight principles in connection to product quality output are customer focus, leadership, employee involvement, process model to resources and activities, system management approach, dedication to quality, and competitive supplier and customer partnerships (ISO 9001: 2000). Other quality systems include Zero Defects, Total Quality Management, the Malcolm Baldrige National Quality Award, and the Six Sigma technique, to mention a few (Sader et al., 2021).

Over the years, the emphasis has always been on manufacturing quantity rather than quality, but this has always resulted in a high level of stock and unnecessary spending on assessment, rework, and warranty repairs, which may not be acceptable to customers at the end of the day (Agnihotri et al., 2017). Companies have realized that it is less expensive to make products correctly rather than waste resources on poor items that fail to fulfill customer satisfaction.

According to industry observations, few organizations that have implemented ISO 9001 quality management procedures have a less thorough understanding of the instruments (Chukwu, Adeghe, & Anyasi, 2016), which has resulted in poor adoption over time and is evidenced by the defects in the products of many manufacturing companies. That is, the majority of the producers believe that any viable product rolled out would be accepted by the market and so ignore the quality component and rely only on the size of the economy's teeming population (NAFDAC, 2018).

As a result, most commercial organizations treat quality management systems and certification with disdain and pay lip service to quality management principles and the related advantages of quality certification (Oluwafemi & Okon, 2018). Incidentally, as observation suggests, their production process, quality control, and maintenance system are never up to par in terms of driving quality service delivery. This implies that there are issues with the manufacturing company's quality assurance procedure leading to practical problems of decreased product quality and eventually leading to challenges in providing customers with satisfactory service. This led Chukwu, Adeghe, and Anyasi (2016), as well as Babich and Hilary (2020) to assert that just a fraction of existing manufacturing companies are aware of quality management practices while the vast majority of them failed in the area of defect control. In addition, many businesses still place a premium on quantity above quality, and effective employee coordination and incentive are in short supply (Zeng & Hou, 2019).

As a result, this study aims to determine the influence of ISO 9001 quality management practices on customer satisfaction in manufacturing. Therefore, the study is set out to achieve the respective objectives namely, *(i) To evaluate the effect of dedication to quality of ISO 9001 quality* management practice on customer satisfaction of manufacturing firms; *(ii) To determine the influence of employee participation of ISO 9001 quality management practice on customer satisfaction of manufacturing firms; (iii) To explore the relationship between fact-based management of ISO 9001 quality management practice on customer satisfaction of manufacturing firms; and (iv) To investigate the combined effect of dedication to quality, employee participation, and fact-based management on customer satisfaction of manufacturing firms.*

Deming's Theory of Total Quality Management (TQM)

The Total Quality Control (TQM) philosophy, though was born in Japan as Company Wide Quality Control and was propounded by Edwards Deming (1956). Likewise, Walter Shewhart also worked on TQM in the form of statistical control in the 1920s. In Deming's (1956) submission, the terms "total" and "quality" were interpreted to represent the entire organization, "quality" to mean improving customer satisfaction, and "management" to mean step-by-step improvement management (Vonderheide-Liem & Pate, 2004). A core principle of TQM is that perceived human errors are frequently a result of faults in the process or system. Kaizen proposed that these mistakes can be corrected by putting in place a continuous improvement process carried out gradually. Part of the techniques proposed by Kaizen is the Deming cycle.

The Deming cycle explains the philosophy of TQM to provoke improvement efforts continuously. This cycle includes the four steps necessary for the business to be in compliance with its processes of planning, doing, checking, and acting (Afrin, Islam, Fontaine, Ali & Rahman, 2019; Deming, 1986; Helmold, 2023). Using process modeling tools, in the "plan" phase, there is the identification and modeling of organizational processes, using process modeling tools. In the second "do" phase, procedures are put into place and the organizational structure is changed to accommodate the processes.

On the basis of the data gathered in the first phase, analyses of processes are conducted in the third "check" phase. Last but not least, modifications to the processes are made in the fourth "Act" phase based on the third phase's evaluation. The constant long-term strategy is one of the reasons TQM is so successful. Manufacturing firms apply the Deming technique to focus on statistical quality metrics, which give the organization solid direction on what to refine and improve on in the future.

Signaling theory

Economists Akerlof (1970) and Spence (1980) developed the theory of signaling (1973). This Theory explains why ISO 9001 certification processes are so prevalent in various fields. Information asymmetry does not obligate an organization to evaluate the practices of other organizations, according to signaling theory. Instead, an organization might employ certification standards to communicate the superiority of its practices. Theoretically, ISO certification refers to an intrinsic, well-defined quality that is unaffected by the signaling channel ((van Pelt-Verkuil & van Leeuwen, 2019; Spence, 1973).

The use of signaling theory in the analysis of standards such as ISO has been used by management researchers (Ballina, Valdés & Del Valle, 2020; Bedard, 2001). According to these studies, firms are more likely to want to certify their procedures when information gaps between various stakeholders are substantial (Jiang & Bansal, 2003). The core notion of signaling theory is that certification is a sign of superior performance, but the theory's capacity to explain a wide range of behaviors that might assist overcome information gaps gives it a promising approach to analyzing management standards.

However, the relevance of signaling theory to the examination of a quality management system may be limited since a quality management system necessitates the implementation of practices that are likely to affect the performance attribute that certification is meant to communicate (Olonade & Oyatoye, 2017; Yasar, Martin & Kiessling, 2020). In line with the foregoing and to achieve the objectives of the study, the study came up with the respective hypotheses namely, *Ho1: Dedication to quality of ISO 9001*

quality management practice does not impact customer satisfaction of manufacturing firms, Ho2: Employee participation in ISO 9001 quality management practice does not influence customer satisfaction of manufacturing firms, and Ho3: There is no significant relationship between fact-based management of ISO 9001 quality management practice and customer satisfaction of manufacturing firms.

Customer satisfaction

Knowing a customer is vital to an organization's survival and long-term success (Shamsudin et al, 2019). Customers are one of a company's most essential sources of revenue (Quoquab et al., 2019). Customer satisfaction can be used by businesses to improve their products or services. Currently, research cannot define categorically what constitutes consumer satisfaction or what factors impact it (Otto et al., 2020). For the aim of quality management systems, certain attempts have been made to govern the approach to evaluating customer satisfaction (Ardani et al., 2019); nevertheless, these regulations are fairly generic.

Consumer satisfaction is a crucial factor in determining whether or not a customer will buy something again in the future ((Alzoubi, Alshurideh, Kurdi, Akour & Aziz, 2022). Furthermore, satisfied clients are more inclined to tell others about their good fortune. This is especially true in Middle Eastern civilizations, where social connection has been developed to benefit society through social interaction with others (Jamal & Naser, 2002). Sustaining existing customers is less expensive than gaining new ones; therefore, customer satisfaction is crucial to a company's success (Kadir & Shamsudin, 2019). That is, satisfied customers, are more likely to buy or use a company's products and services again (Hassan et al., 2019; Shamsudin et al., 2019) because they know the firm values them (Hamzah & Shamsudin, 2020).

As a result of the positive feedback obtained from satisfied customers, the number of new customers increases (Shamsudin et al., 2020). It will save the organization money, especially in marketing, because the organization spends less time figuring out how to entice customers to buy and use their products or services (He & Harris, 2020; Kim et al., 2019).

Dedication to Quality and Customer Satisfaction

The ISO 9001 standard provides a quality concept that can be utilized for third-party certification as well as customer-supplier contracts. According to Merli, Preziosi, and Massa, (2015), third-party certification is based on an assessment of particular criterion of context-neutral audit against a quality system. It stipulates that the firm must decide on the order and relationship of all procedures required for the quality management system's implementation, as well as the methodology and criterion that will be required to ensure control processes and operations (Chiarini, 2020).

ISO implementation necessitates management selection of the organization's operations, strategy, employees, and technology (Merli et al., 2015; Zimon & Dellana, 2020). Nonetheless, in recent years, the market rivalry has been affected by innovation, rapid changes, and a wealth of current knowledge to match the changing wants of customers in all areas, including production. Customers' behavior can change dramatically in the blink of an eye (Nabavi et al., 2014). Changes in market preference that took years in the past can now be obtained in a matter of days thanks to modern technologies (Banwo et al., 2021). The rapid pace of change can make it difficult to maintain agreements with suppliers, distributors, brokers, firm employees, and customers (Abdullah et al., 2012).

To compete in today's market, businesses must be devoted to providing high-quality products and programs that delight customers. Innovative techniques such as after-sale support or management reacting to client complaints should be viewed as a way to increase customers' preference for purchasing organization products and services for current and future purchases (Kotler et al., 2019). Customers choose items that satisfy their demands in terms of delivered value ((Keiningham et al., 2020).

ISO is necessary for an organization's management to improve performance and produce high-quality output. Process approach, leadership, system approach, employee involvement, customer partnerships, customer focus, mutually beneficial supplier connection, and continuous improvement are all essential management principles (Rusko et al., 2014).

Employee Participation and Customer Satisfaction

ISO 9001 has recently gained acceptance in most organizations throughout the world. Many businesses believed that ISO 9001 would assist them in surviving the market's unpredictability and gaining a competitive advantage over their competitors. As a result of the aforementioned, many organizations use ISO certification to convince their clients that they are compliant when it comes to the quality of products and services given (Börnfelt, 2023).

The ISO 9001 quality standards allow employees to be active and participate in the decision-making process, which makes them more invested in the quality project (Budayan & Okudan, 2022; Rakonjac & Spasojević Brkić, 2018). Employees are adequately compensated under ISO 9001, and as a result, their dedication, teamwork, and performance have improved (Sandeep, Singhal, & Kansal, 2022). Moreover, the implementation of ISO 9001 necessitates the assignment of an employee to different tasks, resulting in increased burden and paperwork, a change in the working environment, and a change in management style, including corporate ethics.

In the pasty ears, employee involvement was found to be critical to quality management themes (Lim & Prakash, 2017; Sıtkıİlkay & Aslan, 2012). To improve employee discretion, the employee participation idea emphasizes cascading authority, information, rewards, and training to the lowest level possible in the organizational hierarchy (Lim & Prakash, 2017). ISO 9001 established participative management principles, which advocate for managers sharing power with employees in decision-making to improve performance, job satisfaction, and customer delight (Cagnin, Oliveira & Cauchick, 2021).

For many firms, the employer-employee relationship has been redefined, resulting in fundamental change, including a shift away from a paternalistic and bureaucratic attitude (Honore et al., 2013). Manresearchersch and practitioners claim that empowering the proper people to work in the organization can manifest in increased productivity, efficiency, and satisfaction of the customers (Sari et al., 2017; Kasperaviciute, 2013). Another study reported employee participation, and control of the aspect of human assets of corporate firms in a better form to achieve quality enhancement (Kafetzopoulos et al., 2015).

Fact-Based Management and Customer Satisfaction

Making decisions is largely seen as one of the most critical, if not the most important, tasks of management. Several factors influence the way humans make decisions (Oluwafemi & Ametepe, 2023; Gigerenzer, 2020). One of the hallmarks of the quality movement, since its inception and so for some time now, has been the concept of making judgments based on facts (Gigerenzer, 2020). There are various definitions for fact-based management, but David Sackett's definition of evidence-based medicine is the most often used. The concept of evidence-based medicine has been expanded to "evidence-based practice" since 2005 to focus on sharing evidence-based practitioners' attitudes toward the evidence-based practice paradigm. The United Nations Population Fund (UNFPA) defined fact-based management as an evidence-based strategy that is characterized as an "organized attempt to give the finest empirical proof in making riding planning, monitoring, implementation, and evaluation programs". Evidence-based management is a methodology for bridging the research-practice divide in the field of management (Rousseau, 2020).

Fact-based management entails putting best-practice principles into effect by moving away from personal preference and unsystematic experience toward decisions based on the best available scientific data (Briner, Capezio & Decosta, 2022). As a result, managers are able to make continuous research-based decisions based on principles underpinning behavior and organizational actions, i.e., they are able to transform principles from research findings into practices in resolving their organizational challenges (Briner et al., 2022). This is supported by Rousseau (2020) who asserted that despite the difficulties, evidence-based management has the potential to help organizations achieve their objectives in terms of employees, investors, and the general public. However, Gigerenzer, (2020) posited that managers continue to depend heavily on personal experience to the exclusion of more systematic information, rather than a scientific understanding of the human condition and organizations. According to Rousseau (2006): "Out of these personal and professional experiences, I have nourished my great hope—that, via study and education,

we might create effective companies where management makes well-informed, less arbitrary, and more thoughtful decisions". However, it has been a source of tremendous disappointment for me because study findings do not appear to have migrated effectively to the workplace.

Quality Management Practices and Customer Satisfaction

Customer satisfaction has risen as a result of quality management. Al-Rafaie, Ghnaimat, and Ko (2011) evaluated the influence of quality management and customer satisfaction in firms that were ISO 9001 quality certified from a market perspective as emphasized by this study, and discovered that several elements contributed to customer satisfaction. Quality management techniques and customer satisfaction are investigated by Okey-Wokeh, Obunwo, and Wokeh, (2021) who found that knowledge of quality management methods, supply of skill development approaches, employment of professionals, and usage of standardized and recognized international best practices were among the quality management practices that contributed to customer satisfaction in the project.

In addition, Cui, Cui, Barnard, and Bond (2023) revealed that quality control procedures, such as defect detection and post-production inspection, have an impact on customer satisfaction. In a convenience store, Chamchong and Wonglorsaichon (2016) explored the relationship between consumer satisfaction and quality management and found that quality control measures such as teamwork, multifunctional employees, customer focus, customer improvement, customer cooperation, convenience process improvement, and quality system lead to enhanced customer satisfaction. Sadiq (2018) looked into customer satisfaction and quality management and discovered that better productivity, managerial improvement, and improved operations management were among the performance measures that increased, according to the report.

Using a structural equation model and 300 Turkish banking customers investigated the effects of service quality and customer satisfaction on customer loyalty. They discovered that these factors have a favorable impact on customer loyalty. Another study by Pakurár, Haddad, Nagy, Popp, and Oláh (2019) employed exploratory factor analysis to examine the impact of multiple service quality aspects on customer satisfaction among 825 consumers of the Jordanian banking industry and found a significant positive relationship.

According to Aboudahr (2022), quality management systems offer direction for producing high-quality goods and services that satisfy patients, weak clients, and powerful clients. All customers are significant, but powerful customers are more significant since they ensure that quality assurance procedures and improvement goals are followed. Customers can ask businesses for quality management certification, thus it's critical for businesses to maintain a quality management system to satisfy customers, claim Kulenovi, Folta, and Veselinovi (2021). With core standards covering management accountability, service, product actualization, measurement, analysis, and improvement, the ISO standard clause, integrated into standard management procedures, incorporates the Deming cycle (PDCA) to improve customer satisfaction (Khan, Malik & Janjua, 2019).

In relation to the foregoing, numerous research has looked into the relationship between quality management practices and customer happiness, but there has not been any consensus on the results. The dimensions linked to quality management practices are also not widely agreed upon. As a result, this study tries to close this gap by presenting a distinctive trio of dedication to quality, employee participation, and fact-based management as dimensions for quality management methods in developing nations like Nigeria. Hence it was hypothesized that: *Ho4: The combination of dedication to quality, employee participation, and fact-based management predicts customer satisfaction in manufacturing firms*.

METHODOLOGY

This study used a descriptive research design based on a cross-sectional survey method. The cross-sectional design was employed for this study because it allows researchers to measure the variables of interest at a single moment in time and to gain a clear understanding of the participants' measurable dimensions for outcome and exposure at the same time (Bryman, 2012).

The study population consisted of employees of 30 companies listed on the Nigerian Stock Exchange that have received ISO 9001 quality management certifications and operate in a variety of industries in Lagos. The rationale for selecting Nigeria was because the country is the most populous black nation in the world and the rationale for choosing Lagos State was because Lagos triples as Nigeria's formal capital, the 5th densest city in the world, and the commercial hub of Nigeria; it has a population of over twenty million people, and the majority of those who buy the products live here (Guardian, 2021, Nov. 28). The 30 enterprises that were chosen employed a total of 17, 836 employees which form the population of the study.

The study used multistage sampling. First, through purposeful sampling, the study chose 30 manufacturing firms that adhere to ISO 9001 management standards. This decision was made based on the annual balance sheet and the number of financial transactions. Following that, a sample size of 630 manufacturing company employees was chosen using simple random sampling and the percentage method. To arrive at 630, 21 questionnaires were distributed to each manufacturing company. This method proposed by Weisberg and Bowen (1977), suggests a sample size of 3 to 10% of the population with a low error rate of 1%. Of the 437 returned questionnaires (or 69.37% response rate), 193 questionnaires (30.63%) could not be used because of incomplete or incorrect responses. Simple random sampling was preferred because of its equal inclusion probability and relatively low cost.

The research instrument employed was a questionnaire. The questionnaire was divided into two parts – A and B. Part A measured the respondents' demographic characteristics like age, gender, marital status, etc. Part B contained items that addressed items covering the both outcome and the predictor variables of the study. All questionnaire items were measured on a five Likert scale ranging from 1 = Strongly disagree to 5 = Strongly agree.

Customer satisfaction was measured with a 3 items scale adapted from the customer satisfaction scale developed by Mukherjee, S.P. (2003). Sample item includes "My expectations for the quality of the products I consume are ideal".

Dedication to quality was measured with 14 items adapted from a service commitment questionnaire developed by Hayday (2007). Sample item includes "I am encouraged to be creative and innovative to meet my customers' needs"

Employee participation was measured with items adapted from the employee participation scale by Patterson, West, Shackleton, Dawson, Lawthom, Maitlis, and Wallace (2005). The sample item includes "information about ISO 9000 is widely shared among the employees in the organization" (α= .81).

Fact-based management was adapted from 15 item knowledge management questionnaire developed by Biasutti and Heba (2012). Sample item includes "My organization updates my knowledge repertoire about ISO 9001 consistently" (α= .78)

The reason for choosing a questionnaire was that it allows the researcher to swiftly gather the necessary data from the participants with little difficulty (Creswell & Clark, 2011). Apart from this, it is a simple and quick way to collect data directly from the source. It is also cost-effective and capable of reaching a huge portion of the target demographic.

Validity and Reliability of Research Instrument

The fit between important ISO 9001 dimensions was used to assess the content validity. Its draft was also submitted to quality management specialists to evaluate whether the contents/items in the instruments measure what they claim to measure. Before it was given to the respondents, these corrections were included in the final copy of the study instrument. In a similar vein, a test of internal consistency using Cronbach's

standardized alpha was used to assess the level of reliability of the questionnaire's measures. All of the ISO 9001 proxies/dimensions scored Cronbanch Alpha 0.70 or above, which is consistent with the literature's recommendation of 0.70 (Pallant, 2007). As a result, an ISO 9001 measurement, i.e. a dedication to quality, had a Cronbach alpha of 0.73, employee participation had a reliability coefficient of 0.71, and fact-based management had a Cronbach alpha of 0.73. As a result, the above report demonstrates that the instrument was consistent and reliable.

Statistical Tool

Both descriptive and inferential statistics were employed to attain the stated goals. Averages and percentages were included in the descriptive statistics. Correlation and Multiple regression models are included in the inferential statistics. The choice of correlation is to show the link between the predictor variables and the outcome variable and it serves as a pre-test to another test (Field, 2017). The choice of multiple regression is to show the predictability between the predictor variables and the outcome variable.

RESULTS AND DISCUSSION

Table 1 provides the analysis of the demographic profiles of the respondents of the study. It shows that there was 236 (54%) male surveyed in the course of the study, while 201 (46%) female was surveyed. The implication of this is that it shows that administering the questionnaire was fair and not a biased distribution. While the same Table 1 offers the marital status of the participants, 123 of them were single 28.2%, 307 of them were married and which accounted for 70.2%, and 7 of them were divorced which accounts for 1.6%. The age distribution of the respondents in Table 1 shows that 73 respondents were between 18 and 25 years of age which gives 16.7%, 59 respondents fell into the category of 26 and 35 years, and 6 people were in the age bracket of 36 and 45 years. 109 respondents with 24.9% were within the age bracket of 46 and 55 years of age and 190 respondents were in the category of 56 and 65 years.

Also in Table 1 is the work experience of the respondents, 109 of them had 3 years' experience which accounts for 24.9%, 163 respondents with 37.3% were between 4 and 7 years of work experience, 96 representing 22% had between 8 to 10 years work experience, while 69 (15.8) respondents had 11 years and above work experience. The educational background of the surveyed in Table 1 shows that 366 respondents had a Bachelor of Science degree (83.8%). 48% of respondents had a master's, (10.9%) and 23 of them had a Doctor of Philosophy Degree (5.3%).

The last two items in Table 1 demographic characteristics were the salary/income of respondents. 168 respondents (38.4%) were management staff, 199 (45.5%) were middle-level level staff and 70 (16.1%) were from junior level staff category. Finally, 49 (11.2%) respondents were on a salary # of 200,000 less than two hundred thousand Nairas, and 145 (33.2%) respondents were earning an income between #2001,000 and #300,000. 102 (23.3%) were on a salary scale of #301,000-#400,000, and 141 (32.3%) were on a salary of #400.000 and above per month.

Table 1: Respondent's Demographic Status

Demography		Frequency	Percentage
Gender	Male	236	54.0
	Female	201	46.0
	Total	**437**	**100.0**
Age	18 – 25 years	73	16.7
	26 – 35 years	59	13.5
	36 - 45 years	6	1.4
	46 - 55 years	109	24.9
	56 - 65 years	190	43.5
	Total	**437**	**100.0**
Marital Status	Single	123	28.2
	Married	307	70.2
	Divorced	7	1.6
	Total	**437**	**100.0**
Employee Cadre	Management Staff	168	38.4
	Middle-Level Staff	199	45.5
	Junior-Level Staff	70	1.6
	Total	**437**	**100.0**
Education	B.Sc. Degree	366	83.8
	Master Degree	48	10.9
	Ph.D.	23	5.3
	Total	**437**	**100.0**
	<200,000	49	11.2
	201,000 – 300,000	145	33.2
	301,000 – 400,000	102	23.3
	401,000 - above	141	32.3
	Total	**437**	**100.0**
	0 - 3 years	109	24.9
	4 - 7 years	163	37.3
	8 - 10 years	96	22.0
	11 years above	69	15.8
	Total	**437**	**100.0**

Source: *Field Survey by the researcher, 2022*

Description and Correlation of the study variables

Table 2 shows the mean score, standard deviation, and correlation analysis of dedication to quality, employee participation, and fact-based management of ISO 9000 quality management practice. Dedication to quality (DEQ) was 55% correlated with customer satisfaction (CUS) at ($p < 0.05$). While the employee participation (EMP) construct was 69% correlated with the customer satisfaction variable of the study. Fact-based Management (FBM) was a 54% moderate correlation with customer satisfaction. The results suggest that dedication to quality, employee participation, and fact-based management were connected to customer satisfaction at a moderately high level. The above results in Table 2 supported alternative hypotheses Ho1, Ho2, and Ho3. However, correlation analysis does not denote causation, hence, regression analysis was carried out to study the influence of that dedication to quality, employee participation, and fact-based management of ISO 9001 quality management practice on customer satisfaction.

Table 2: Mean, Standard Deviation, and correlation between the variables of the study

			Correlation			
Factor	**Mean**	**SD**	**1**	**2**	**3**	**4**
CUS	19.96	3.26	1			
DEQ	10.05	3.45	.55	1		
EMP	9.34	3.24	.69	.40	1	
FBM	13.15	3.75	.54	.69	.54	1

Notes: **p<0.01. SD: Standard Deviation; DEQ: Dedication to quality; EMP: Employee participation; FBM: Fact-based management; CUS: Customer satisfaction.

Source: *Developed by the researcher for this study, 2022*

Regression Results and Test of Hypotheses

Table 3 showed that the value of R in the model summary segment of the analysis is 0.432, indicating that there is a 43.2 percent strength of association between dedication to quality, employee participation, fact-based management, and customer satisfaction in manufacturing firms in Nigeria. It reveals a poor link between the variables under investigation. While R-square is 0.187, customer satisfaction accounts for 18.7% of the difference in percentages of attention to quality, employee participation, and fact-based management across all manufacturing enterprises. Other factors not included in this model can account for the remaining 81.3 percent. The analysis of the variance of the fitted model shows a high F value of 33.248, at a 5% level of significance. The result, from Table 3 suggests that the regression model is fit and suitable to explain the significance of the study variables to customers' satisfaction.

The coefficients for the regression equation model, which examines the importance of each variable and collinearity statistics, are found in the coefficients section of Table 3. This means that customer satisfaction is determined solely by dedication to quality and employee participation. In relation to customer satisfaction, dedication to quality has a coefficient of 0.148, indicating a weak relationship at p = 0.001 (1%) (b = 0.0148, p = 0.001), which is greater than 5% of the alpha value and t = 3.222; p < .05, supporting alternative Ho1. The consequence is that Nigerian manufacturing firms' dedication to quality has a weak relationship with customer satisfaction in Nigerian manufacturing firms. Also, employee participation records a positive association at 0.372 (37.2%); it takes a weak relationship at an acceptable confidence level of the interval of P= 0.000 (0.0%) (b = 0.372, p = 0.000). Considering the t-value of the model, employee participation is (t=8.111; p<0.05), thereby supporting alternative Ho2. However fact-based management shows an insignificant value with customer satisfaction on a figure of (t = 0.000, p > 0.05), hence aligning with Ho3. Thus, the regression equation is fitted as follows: Y (Customer satisfaction) = 1.614 + 0.29 (dedication to quality) + 0.073 (employee participation) + 0.001 (fact-based management).

Table 3: Regression results

Variables	**B**	**β**	**T**	**Sig**	**R**	**R^2**	**F**	**P**
CONST	1.614		5.397	.007				
DEQ	.029	.148	3.222	.001	.432	.181	33.248	.000
EMP	.073	.372	8.111	.000				
FBM	.000	.001	0.000	.977				

Dependent Variable: Customer Satisfaction; CONST: Constant.

The result suggests that an increase in dedication to the quality of ISO9001 quality practices will increase the level of satisfaction among customers of manufacturing firms. Similarly, employee participation (ß = 0.073, t = 8.111, p < 0.005) is positive with a high significance relation to customer satisfaction. The result proves that the participation of the employee in the management process results in the desired outcome such as customer satisfaction. Therefore, dedication to quality, employee participation, and fact-based management of ISO 9001 have a combined significant effect and predict customer satisfaction in manufacturing firms, supporting Ho4.

Hypothesis IV of this study reveals a positive outcome as it offers a good ground for the discussion on how ISO 9001 quality management practices variables (dedication to quality, employee participation, and fact-based management) significantly affect customer satisfaction in Nigerian manufacturing firms. The finding signifies that dedication to quality encourages quality consciousness and brings about customer satisfaction. The study elicited that customers greatly benefited because they get quality products on account of quality management and this gives customer satisfaction.

This finding is in line with the submissions of Okey-Wokeh, Obunwo, and Wokeh, (2021), Kulenović, Folta, and Veselinović (2021), Chamchong and Wonglorsaichon (2016), and Sadiq (2018) who found that knowledge of quality management methods, supply of skill development approaches, employment of professionals, and usage of standardized and recognized international best practices were among the quality management practices that contributed to customer satisfaction in the project. This shows that dedication to the quality aspect of ISO 9001 quality management practices helps decrease huge production costs for manufacturing firms in Nigeria and enhances the effective utilization of resources in the production systems of Nigeria's manufacturing firms.

The study discovers that dedication to quality continuously checks the production of non-standardized and inferior products as well as wastages thereby bringing down the cost of production considerably. The study reveals that Nigerian manufacturing firms encourage their workforce in participating in production decision-making.

CONCLUSION AND RECOMMENDATIONS

The study's four objectives were examined, and the analysis was carried out. The findings conclusions favor commitment to quality and employee participation as critical in improving firm performance and customer satisfaction. Furthermore, paying enough attention to employee participation can help companies adopting the ISO9001 program improve their performance. Customer satisfaction helps manufacturing companies boost their financial success.

The primary premise of ISO 9001 is to raise profit margins and improve the financial situation by lowering product defect rates and improving quality. As proved in this study, it also improves customer satisfaction, and retention, and produces the best-in-class product from the best process performance.

In light of the findings of this study, the respective recommendations are critical; (i) Organizations should understand the importance and implementation of ISO quality as some of the firms do not realize its relevance in the improvement of their performance, (ii) Organizations should endeavor to be certified in both ISO 9001 as this will enhance the return on asset, and return on capital and largely improve the profitability of organizations, and (iii) Nigerian manufacturing firms should take cognizance of who the customers are, what are their needs, what peculiar product quality they want, and what is the necessity for product continuous improvement. To achieve this, organizations should strive to conduct a continuous review of customers' viewing orders to retain customers by providing them with quality products.

Though the results elicited diverse emotions from the population, this study indicated a good significant outcome of ISO 9001 quality management techniques for Nigerian manufacturing enterprises. Another study may compare ISO 9001, lean, and Six Sigma on customer satisfaction in manufacturing enterprises on the one hand, and ISO 9001, lean, and Six Sigma on customer happiness in the service industry on the other, to open up a new knowledge frontier.

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