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## Safety management and organizational performance of selected manufacturing firms in Awka Metropolis

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**ABSTRACT:** The health and safety (H&S) of employees is a very significant issue to consider with relation to the attainment of organizational goals. The broad objective of the study is to examine the level of relationship between safety management system and organizational performance of two plastic industries in Awka metropolis. Three research questions and hypotheses were formulated in line with the specific objectives. The study is anchored on Heinrich Theory. In pursuance of the objective of the study, the descriptive survey design was adopted. The study worked with the population of eighty. Pilot study was conducted using a test retest method to establish the reliability of the research instrument. The validity of the instrument was also tested. Chi square was used for data analysis and Z test was also used to test the Chi square at 0.05 level of significance. The findings revealed that safety management has a positive influence on firm's profitability, that there is a relationship between safety management and customer satisfaction, that safety management has influence on employee commitment and that safety management reduces cost for organization. The study recommends that Safety should therefore be afforded the highest priority, taking precedence over commercial, operational, environmental or social pressures, in that staff must be given responsibility for their own actions, and managers held responsible for the safety performance of their organisations.

**Keywords:** safety, performance, management, organization.

### I. INTRODUCTION

#### Background of the study

The widespread concern about employee safety and health in United States led to the passage in 1970 of the most comprehensive law regarding worker safety. This act is known as the Occupational Safety and Health Act of 1970 but is frequently referred to simply by its initials: OSHA. At the time OSHA was passed, approximately 15,000 work-related deaths occurred in the United States every year (Denisi & Griffin, 2005).

Incorporating safety management systems into normal business operations does appear to reduce accidents and improve safety in high-risk industries.

There exists more accident rate in the manufacturing industry compared to other industry. The health and safety (H&S) of employees is a very significant issue to consider with relation to the attainment of organizational goals. Health and safety policies and programs are concerned with protecting employees and other people affected by an organisation's activities, products and services against hazards.

Formal organizations are consciously directed toward attainment of set goals. Goal accomplishment is a function of the coordinated and interactive effort of organizational resources (human, material, financial, informational, etc).

The realization of human resource as the most important of all the assets, in contemporary management, may be based on its inevitable role in the manipulation of all other organizational assets or resources for productivity.

Management perception of human importance in the organizational setting has been exhibited through deliberate strategic decisions directed at the attraction of desired labour, to the verge of exit. One of such strategic decisions can be epitomized by effort to provide safe work environment.

In Nigeria, the average annual fatal accident rate is likely to be higher than the European Union average due to the prevailing weak safety management legislation and the absence of a central safety council charged with the responsibility of monitoring safety management compliance of organizations (Agwu, 2011).

There are two approaches to safety management, namely; reactive safety management and proactive safety management. ICAO Safety Management Manual (Doc, 9859) reactive safety management approach is useful when dealing with technological failures, or unusual events. While the proactive approach in the safety management is based on the following risk management strategy that includes identifying hazards before they materialise into incidents or accidents and taking the necessary actions to reduce the safety risks.

Safety management is commonly understood as applying a set of principles, framework, injuries and other adverse consequences that may be caused by using a service or a product. It is that function which exists to assist managers in better discharging their responsibilities for operational system design and implementation through either the prediction of system's deficiencies before errors occur or the identification and correction of system's deficiencies by professional analysis of safety occurrence. Safety management is an organizational function, which ensures that all safety risks have been identified, assessed and satisfactorily mitigated.

Effort of OSHA notwithstanding, Denisi & Griffin (2005) admonished organizations to take several precautions in its effort to create a safer work environment, especially regarding accidents at work. According to them, one important approach is to employ the services of safety engineers to carefully study the workplace, identify and isolate dangerous situations, and recommend solutions for dealing with those situations. Other steps to minimize the rate of accidents at work may include the use of relevant protective clothing and devices such as helmets, ear protectors in environment with loud noise, eye goggles and face masks in welding rooms, hand gloves, boots and other safety shoes, waist support belts, wrist and elbow supports and screen filters, appropriate chairs and desks, etc.

ISHA (1970), A safety management system is a series of defined, organization-wide processes that provide for effective risk-based decision-making related to your daily business. It focuses on maximizing opportunities to continuously improve the overall safety system of an industry, where the key processes are : Hazard Identification – a method for identifying hazards related to an organization; Occurrence Reporting – a process for the acquisition of safety data; Risk Management – a standard approach for assessing risks and for applying risk controls; Performance Measurement – management tools for analyzing whether the organization's safety goals are being achieved; and Quality/Safety Assurance – processes based on quality management principles that support continuous improvement of the organization's safety performance.

The importance of risk and safety management is increasingly emphasized in enterprises, and the importance of overall safety in the company's profitability, business and competitiveness is significant. The world's leading companies have started to increasingly invest in different sectors of safety, and safety is a central precondition of competitiveness, as well as an integral part of high-quality business operations (Pekka, 2009). This study focuses on safety management and organizational performance.

New Millennium Industry Awka is located at No 1 – 12, millennium drive, Enugu- Onitsha express way in Awka south, Anambra state Nigeria. The industry was established in 2005. They provide quality and affordable plastic products such as chairs, cups tables, buckets etc, with over eighty factory workers working with them.

Fino Plastika industry located at plot 1 and 2 Ikenga Industrial Layout, Agu Awka, Anambra, Nigeria was established twenty five years ago. They engaged in producing different plastic Bowls and Pressure Pipes with over fifty staff working for them.

The influence of an enduring employee's safety culture on organisational productivity and loss control in the Nigerian manufacturing industry cannot be over emphasized, especially in the areas of setting minimum safety management standards, safe work procedures and environmental management standards. It is assumed that an organization's employees safety culture have a direct relationship with employees' productivity in view of the fact that assigned tasks can only be safely accomplished when the work environment is safe and conducive for the execution of the assigned duties, be it manufacturing, construction or servicing industries, thus, any

phenomenon that affects human production capacity will invariably affect organizational productivity hence improving workers wellbeing offers a company the opportunity of enhancing its performance(Galliker,2000). And the purpose of this study is to find out the extent of relationship between safety management and organizational performance.

### Statement of problem

Often times, employees working with manufacturing firms sustain one injury or another which result in loss of hands, legs, any other part of their body or even lost of lives. Technology pressure and intense global competition not only bring tremendous changes in organizational safety but also threatens it (Rollah, 2010).There are dangers and threats in every occupation and it is imperative that managers and workers alike become aware of the hazards associated with their jobs, as well as the preventive measure necessary for minimizing them. It is against this backdrop that the researcher wants to find out the level of the relationship between safety management system and organizational performance.

### Objectives of the study

The broad objective of the study is to examine the level of relationship between safety management system and organizational performance, while the study specifically seeks:

1. To examines the extent to which safety management will lead to profitability of firms in Anambra state.
2. To determine the extent to which safety management will lead to customer satisfaction.
3. To determine the extent to which safety management influences employee commitment.

### Research questions

The following research questions are designed in an attempt to achieve the objective of the study. They are:-

1. What is the extent of relationship between safety management and firm's profitability?
2. To what extent will safety management lead to customer satisfaction?
3. What is extent of relationship between safety management and employee commitment?

### Hypotheses

H1. Safety management has influence on firm's profitability.

Ho. Safety management has no significant influence on firms profitability.

H1. There is a relationship between safety management and customer satisfaction.

Ho. There is no significant relationship between safety management and customer satisfaction.

H1.Safety management has influence on employee commitment.

Ho. Safety management has no significant influence on employee commitment.

## II. REVIEW OF RELATED LITERATURE

### Conceptual Review

The realization of human resource as the most important of all the assets, in contemporary management, may be based on its inevitable role in the manipulation of all other organizational assets or resources for productivity. Improving performance in organization may be demonstrated by way of intensifying effort towards increasing output level and quality. To accomplish this goal means that efforts of employees are required in task performance. Effective execution of such essential employee responsibility, to a great extent, depends on the level of health and safety in the workplace.

Under work environment, Hall and Goodale (2006) describe employee health as the absence of illness or disease resulting from the interaction of employee and the work environment. In general term, health means a state of complete physical, emotional, mental, and social ability of an individual to cope with his environment, and not merely the absence of disease or infirmity (Hippocrate, 1981). Health is the art and science of preventing disease, prolonging life, promoting physical and mental health, sanitation and personal hygiene, control of infections and organization of health services (Lucas, 2001).

On the other hand, safety means freedom from the occurrence or risk of injury or loss (Aswathappa, 2004). He described industrial or employee safety as the protection of workers from the danger of industrial accidents. Safety can as well be referred to as the absence of injuries due to the interaction of the employee and the work environment.

Safety constitutes one of the essential human needs, as postulated by Abraham Maslow in his theory of needs hierarchy. Feeling safe at work ranks as a very important factor in job satisfaction (Kreitner, 2007). In attempt to satisfy this need certain organizations incorporate into their policy thrusts, guaranteeing workers' safe work

execution under a climate capable of enhancing the physical, mental, and emotional conditions. Organizational policy of this nature is often categorized under health and safety.

Organizational safety policy, Aswathappa (2004), specifies the company's safety goals and designates the responsibilities and authority for their achievement. According to him, such policy statement must emphatically declare four fundamental points- (i) the safety of employees and the public: (ii) safety taking precedence over expediency: (iii) every effort made to involve all managers, supervisors and employees in the development and implementation of safety procedures: (iv) safety legislation to be complied with.

In a general perspective, safety means a condition of being safe from undergoing or causing hurt, injuries or loss. Hence, safety management may encompass activities directed at either reducing or complete removal of hazardous conditions capable of causing bodily injuries (Lucas, 2001).

ILO (2005), organizational health and safety focuses on the development of specific measures and programmes, aimed at protecting employees in the course of performing their duties to maximize productivity and improve the overall organizational performance. Organizational health and safety is concerned with the health and safety of workers, which Annah (2004) described as part and parcel of human security and as a basic human right.

A safety management system (SMS) can be defined simply as a planned, documented and verifiable method of managing hazards and associated risks (Bottomley, 1999). Further, as the International Civil Aviation Organization (ICAO) defines in a little more detail, a safety management system (SMS) is a systematic approach to managing safety, including the necessary organizational structures, accountabilities, policies, and procedures. (ICAO, 2009).

The basic common attributes of an SMS include: 1. identification of safety hazards 2. remedial action to maintain safety performance 3. Continuous monitoring and regular assessment of safety performance 4. Continuous improvement of the overall performance of the SMS (ICAO, 2009). Wikipedia viewed safety management system as a term used to refer to a comprehensive business management system designed to manage safety elements in the workplace.

Perezynozalez, (2005) opines that safety management is the reduction of risk to a level that is as low as is reasonably practicable.

Shell (1998) views safety management system as an integrated quality management system designed for managing risks within the organization, so as to ensure the protection of people, assets, reputation and the environment from the hazards of the operating organization. This system consists of eight subsystems namely: management leadership and commitment, policies and strategic objectives, system organization, hazards and effects management process, planning and procedures, implementation and performance monitoring, audit and management review.

Goetzel (2000), inculcating safety culture in employees, is directly related to the productivity and profitability of organizations. Further, he identified some interesting common success factors that are peculiar to the inculcation of safety culture in employees: Companies that inculcate safety culture in their employees focus on safety/productivity management, not because it is a human resource activity, because of its alignment with the business purpose of the organisation. Companies that inculcate safety culture in their employees consider many factors that may impact on workers' productivity in addition to those associated with specific safe work procedure. Safety professionals are the primary drivers and champions of employees' safety culture in industrial activities. Companies that inculcate safety culture in their employees emphasize safety/productivity management not just because it is cost-effective, because it means an improvement of the quality of industrial life. Safety data measurement and evaluation are vital for organizations that inculcate safety culture in their employees. Organisations that inculcate safety culture in their employees act on the belief that internal benchmarking is as important as external benchmarking. To support investments over time, safety culture oriented organisations should be able to demonstrate return on investments for specific programmes related to safety management, both prospectively and retrospectively.

### **The Origin of Health and Safety Management System**

Health and safety management systems emerged as a key prevention strategy in the mid-1980s. The Bhopal disaster is credited as the catalyst for attention to management systems in the process industries (Sweeney, 1992), although the concept of a systems approach had been evident since the 1960s (Lees, 1980). An estimated

2500 people were killed and ten times as many injured by leaking methyl isocyanine at Bhopal in December 1984. Issues identified as contributing to the disaster were inadequate attention to design of plant and process, maintenance and testing of plant and protective equipment, training and emergency planning, as well as the failure to implement safety audit recommendations and a lack of attention to the broader planning issues associated with the location of hazardous plants in residential areas (Kletz, 1985). Following the Bhopal disaster, many enterprises in the high risk process industries extended the focus of health and safety activity beyond the traditional emphasis on process technology and technical safeguards towards management practices, procedures and methods, while attention was directed at industry level to models for system development and performance measurement (Sweeney, 1992).

The mid-1980s also saw the appearance of health and safety management systems beyond the process industries. In Australia, manuals on health and safety management systems were published by consultancy companies, employer organisations and governments (Chisholm 1987, Confederation of Australian Industry, 1988, Department of Labour (Vic), 1988, Work Cover (SA), 1989). However, while the 'systems' terminology in these manuals was new, the system elements were consistent with the health and safety programs of previous years. Just how similar or different the new approach to health and safety was in relation to its antecedents might be tested by tracing the development of health and safety management systems and exploring the influences which have shaped them.

The United States literature places the formative period for health and safety management programs as the 1950s and the 1960s. At this time the concept of health and safety was presented as being as much a part of the discipline of management as of engineering (Smith and Larson, 1991). Indeed, Petersen (1988) refers to the 1950s and 1960s as the 'safety management era', characterised by the incorporation of concepts and techniques from a number of other disciplines. Management and personnel techniques included policy setting, definition of responsibilities, and employee selection and placement. Statistical techniques used in the quality control field were introduced. Ergonomics, or human factors engineering, was incorporated also into the role of the health and safety professional, alongside new responsibilities relating to fleet safety, property damage control and off-the-job safety. Occupational hygiene duties had already filtered into the role of the health and safety professional following changes in workers compensation law defining compensable industrial diseases (Petersen, 1988).

The developments in health and safety management outlined above are only part of the story. The changes described may have broadened the role of the health and safety professional, but at a deeper level there appears to have been little change in the basic elements of a health and safety program. The genesis of health and safety programs in the workplace is placed earlier in the century as a response to the need for health and safety organisation following the introduction of workers compensation legislation (Grimaldi and Simonds, 1989). The three organising principles of the early health and safety programs, engineering, education and enforcement of rules (Colling, 1990) provided the framework for a seminal work on safety management by H. W. Heinrich (1959) first published in 1931.

### **Organizational Performance**

Organizational performance alone could be gauged in many different ways, with financial or non-financial indicators. There are several approaches to organizational performance measurement which include different stakeholders' perspectives. The Balanced Scorecard (BSC) is a performance management tool for measuring whether small-scale operational activities of a company are aligned with its large-scale objectives in terms of vision and strategy. (Chen, M, Hung, M, & Cheng Y. (2009) include four perspectives: financial, customer, internal process and innovation and learning perspective. The financial perspective examines if company's implementation and execution of its strategy contributes to bottom-line improvement (Robinson, H. S. Et al; 2006) some of the commonly used financial measures are economic value added, revenue growth, costs, profit margins, cash flow, net operating income etc. The customer perspective defines the value proposition that an organization will apply to satisfy customers and generate more sales to the most desired customer groups (Chen/ et al, 2009; Robinson, et al, 2006).

The measures should cover both the value that is delivered to the customer which may involve time, quality, performance and service, and the outcomes that as a result of this value proposition, such as customer satisfaction and market share. The internal process perspective focuses on all the activities and key processes required in order for the company to excel at providing the value expected by the customers (Robinson, H. S. Et al; 2006). The clusters for the internal process perspective are operation management (by improving asset utilization, supply chain management), customer management (by expanding and deepening relations),

innovation (by new products and services) and regulatory & social (by establishing good relations with external stakeholders). The innovation and learning perspective focuses on the intangible assets of an organization, mainly on the internal skills and capabilities that required to support the value creating internal processes (Robinson, H. S. Et al; 2006). In addition to these four perspectives, some researchers (Robinson, H.S. et al; 2006) include the supplier perspective, which is also important in assessing non-financial performance.

Organizational performance reflects an organization's understanding and knowledge regarding customer needs and expectations (Slater & Narver, 1995). Razalli, (2008) found that hotel performance could be improved through good leadership practice and provision of customized service design for select clientele in the service sector. Hence, business organization can maximize their customer satisfaction for better profitability, increased sales volume, which ultimately improves overall performance benefit (Baker & Sinkula 1999). Generally, organizational performance is assessed by the application of financial or both financial and non-financial measures. There are number of studies in the Literature that used non-financial measures to evaluate the effectiveness and performance of organization (Quinn & Rohrbaugh, 1983; Venkatraman & Ramanujam, 1986). It is suggested that four models i.e human relations; internal process; open system and rationale goal model could represent the organizational performance (Quinn & Rohrbaugh, 1983). Wheelen and Hunger (1998) argued that appropriate performance measures depend on the organizations and their objectives i.e. profitability, market share and cost reduction.

Financial indicators, such as return on investment (ROI), earnings per share (EPS) and return on equity (ROE) are used by the number of organizations to measure their progress. Return on investment is used to reflect the profitability while corporate performance was measured by operating cash flows and return on investment capital (hasnan, 2006; Sorenson, 2002). Rashid et al. (2003) measured firm's financial performance using the financial indicators, such as return on assets, return on investments and current ratios. Financial ratios reflect the financial performance of the organization by an examination of financial statements, as indicated by profitability, liquidity, leverage, asset utilization and growth ratios (Ho & Wu, 2006). In today's global dynamic and competitive environment, banks could improve and diversify their products and services to meet changing customers' demands and enhance their performance for successful survival.

### **Approaches to Safety Management**

There are two approaches to safety management, they are; reactive and proactive safety management. Reactive safety management: According to ICAO safety management manual (Doc 9859), reactive safety management approach is useful when dealing with technological failures, or unusual events.

Proactive safety management: the proactive approach in the safety management is based on the following risk management strategy that includes, identifying hazards before they materialise into incidents or accidents and taking the necessary actions to reduce the safety risks.

Components of proactive safety management strategy are:

Unambiguous safety policy ensuring the senior management commitment to safety;

1. Hazard identification and risk assessment using state-of-the-art risk assessment methods;
2. Safety reporting systems used to collect, analyze and share operational safety related data;
3. Component investigation of safety occurrences with sole purpose of identifying systemic safety deficiencies;
4. Safety monitoring and safety oversight aimed to assess safety performance and eliminate problem areas;
5. Dedicated safety training for personnel.

### **Health and safety at work**

According to the International Labour Organization (ILO) and the World Health Organization (WHO), health and safety at work is aimed at: the promotion and maintenance of the highest degree of physical, mental and social well-being of workers in all occupations; the prevention among workers of leaving work due to health problems caused by their working conditions; the protection of workers in their employment from risks resulting from factors adverse to health; the placing and maintenance of the worker in an occupational environment adapted to his or her physiological and psychological capabilities; and, the adaptation of work to the person and of each person to their job. Health and safety is given a wide definition in the European Union context, going beyond the avoidance of accidents and prevention of disease to include all aspects of the worker's well-being. The competence of the EU to intervene in the field of health and safety at work is defined by the provision in Article 153 of the European Treaty, which authorises the Council to adopt, by means of directives, minimum requirements as regards 'improvement in particular of the working environment to protect workers'

health and safety' (a provision originating in the Single European Act 1986). The significance of this broad scope of 'health and safety' is immense, as it underpins the potential of EU health and safety policy to prescribe minimum standards to protect all aspects of the worker's well-being.

### Cost of Safety

Safety comes at a price. All organizations have limited resources to devote to safety, and must deal continually with the conflicting goals of safety versus productivity, efficiency, or customer service objectives which ultimately determine profitability. Financial health in any business will be influenced not only by good management and internal efficiency, but by the external economic environment. A stated commitment to safety is necessary but not sufficient to enable safety improvements. The commitment must be supported by appropriate resourcing of technology and equipment, training and expertise, policies and systems that promote operational safety. The commitment to safety should be consistent and visible regardless of any financial pressure facing the organization, whether internally or externally generated. The extent to which an organization's financial health operates and is committed to safety will be apparent from information about the following decisions and practices:

What budgetary changes affecting safety are made when times are tough?

To what extent are productivity or efficiency pressures increased at these times?

Do management priorities, messages and most importantly their actions change from a focus on safety to other organizational goals, such as their bottom line?

### Theoretical Framework

The study is anchored on Heinrich Theory (1931), states that an injury are traced back to its causes. An injury, he reasoned, was caused by an accident, and an accident was caused by either an unsafe act on the part of the injured person or an unsafe condition in the environment. This was a major breakthrough in the safety profession because it removed some of the blame from an individual worker.

Heinrich theory emphasises that an accident might indeed be caused because a worker was "careless" but it might also have been caused because the machine the worker was given to work with was poorly designed or maintained and therefore made it likely that whoever worked with it would be injured.

## III. RESEARCH METHOD

### Research Design

The study employed survey research method. In this method, data will be collected directly from the respondents. Survey research is the systematic gathering of information from the participants for the purpose of understanding and/or predicting some aspect of the behaviour of the population of interest.

### Population of the Study

The total staff of 80 factory workers were chosen from the two plastic manufacturing industries in Awka Metropolis serves as the population of this study. The factory workers chosen were 50 those with at least one year experience at New Millennium industry. While 30 from FinoPlastika. Complete enumeration method was adopted, as the researcher made use of the entire population that acquired at least one year experience both in New Millennium and FinoPlastika industry.

#### Selected plastic manufacturing firms

New Millennium industry	50
Fino Plastika industry	30

### Method of Data Collection

Primary source of data were generated through the use of structured questionnaire. The questionnaire were structured to place the respondents on objective response for each statement on a five point Likert scale. The response scoring weight were 5 for strongly agreed (SA), 4 for Agree (A), 3 for Strongly Disagreed (SA), 2 for Disagreed (D), 1 for undecided (U). The researcher administrated copies of the questionnaire to 80 staff of the industry under study.

### Sources of Data

Primary data and structured questionnaire were the major tools used to get information from the staff of the two selected manufacturing firms. Questionnaire was used as appropriate research tools to reveal sensitive issues which respondents would otherwise feel uncomfortable to talk about in an interview. A pre- test survey will be conducted in order to evaluate the validity and reliability of the questionnaire. Question that proved to be

unclear to the respondents will be modified, rephrased. Edward (2003) posits that pretesting of instrument in the field can serve as a reality check indicating to the researcher how well conceptualization of the problem matches the actual experience of the practitioner.

### Validity of the Instrument

To ensure that the questionnaire measure what it is suppose to measure accurately, a copy of the instrument with a copy of the study containing statement of the problem, purpose of the study, research questions and hypothesis was sent out to some experts in the field of management, who looked at it to check the face validity by ensuring all words and items that will not confuse the respondent filling the questionnaire. They also checked the content validity to ensure that the instrument (questionnaire) contain all the aspect of the subject that should be included in the questionnaire.

### Reliability of the Instrument

This is the degree of a test to measure what it is purpose to measure consistently. The reliability for this research study will be determined using the test re- test method. The data generated were correlated using Rank-Order correlation formula. A reliability co-efficient of 0.7 was obtained which was considered high enough as a reliability of an instrument.

$$1 - \frac{6(d^2)}{N(N^2-1)} =$$

Test	Retest	D <sup>2</sup>
1.20	15	5 <sup>2</sup>
2.15	12	3 <sup>2</sup>
		34

$$\frac{1-6(34)}{20(20^2-1)} =$$

$$\frac{1-204}{20(20^2-1)20} = \frac{1-204}{(400-1)}$$

$$= \frac{1-204}{7,980}$$

$$1-0.0256 = 0.9744 = 0.9$$

### Method of Data Analysis

The Z-test will be used in analyzing the data were generated with the questionnaire to test the hypothesis; it is a statistical tool that is used to test the impact of one event over another.

$$\frac{Z^0 = (x-y)}{\frac{S_1^2 + S_2^2}{n_1 + n_2}}$$

Also, data from the research were collected from primary source. Copies of structured questionnaire were administered, and the participants were placed on objective response for each statement on a five point Likert scale. The response scoring weights of the structured questionnaire were:

Stronger Agreed	(SA)	5
Agreed	(A)	4
Strongly Disagreed	(SD)	3
Disagreed	(D)	2
Undecided	(U)	1

The scale was calculated using the formula below.

$$\text{Where } X = \frac{Fx}{N}$$

$$\text{Where } X = \frac{5+4+3+2+1}{5} = \frac{15}{5}$$

## IV. DATA PRESENTATION AND ANALYSIS

This covers the presentation and analyses of data collected from the field. The presentation covers test of hypothesis.



**Test of Hypothesis:**

The formulated hypotheses were tested with chi-square ( $X^2$ ) as shown below.

**Decision Rule:** Reject  $H_0$  if the calculated chi-square is less than the table value.

**Hypothesis 1**

$H_1$ : Safety management has influence on firm's profitability.

$H_0$ : Safety management has no significant influence on firms profitability.

Formula for expected frequency = Row total x column total

Grand total

S/N	SA	A	SD	D	U	TOTAL
1.	48 <sub>(34)</sub>	27 <sub>(36)</sub>	2 <sub>(4.3)</sub>	1 <sub>(3)</sub>	2 <sub>(2)</sub>	80
2.	30 <sub>(34)</sub>	40 <sub>(36)</sub>	7 <sub>(4.3)</sub>	3 <sub>(3)</sub>	0 <sub>(2)</sub>	80
3.	25 <sub>(34)</sub>	42 <sub>(36)</sub>	4 <sub>(4.3)</sub>	5 <sub>(3)</sub>	4 <sub>(2)</sub>	80
	<b>103</b>	<b>109</b>	<b>13</b>	<b>9</b>	<b>6</b>	<b>240</b>

$$X^2 = \sum \frac{(Of - ef)^2}{ef}$$

Where  $X^2$  = Chi square

Of=observed frequency

ef= expected frequency

$$X^2 = 10.57 + 4.6 + 6.73 + = 21.9$$

Degree of freedom at 0.05 level of significance

$$df = (r-1) (C-1)$$

$$(3-1) (5-1)$$

$$2 \times 4 = 8$$

Table value of df on 8 upon 0.05

$$X^2 \text{ critical value} = 15.507$$

Therefore since the calculated chi-square is greater than the critical table value we reject  $H_0$  and accept  $H_1$  which state that Safety management has influence on firm's profitability.

**Hypothesis II**

$H_1$ : There is a relationship between safety management and customer satisfaction.

$H_0$ : There is no significant relationship between safety management and customer satisfaction.

S/N	SA	A	SD	D	U	TOTAL
1.	50 <sub>(38.3)</sub>	28 <sub>(35)</sub>	1 <sub>(3)</sub>	1 <sub>(3)</sub>	0 <sub>(0.3)</sub>	80
2.	30 <sub>(38.3)</sub>	40 <sub>(35)</sub>	6 <sub>(3)</sub>	3 <sub>(3)</sub>	1 <sub>(0.3)</sub>	80
3.	35 <sub>(38.3)</sub>	38 <sub>(35)</sub>	2 <sub>(3)</sub>	5 <sub>(3)</sub>	0 <sub>(0.3)</sub>	80
	115	106	9	9	1	240

$$X^2 = 7.93 + 7.13 + 2.5 + = 17.56$$

Degree of freedom at 0.05 level of significance

$$df = df = (r-1) (C-1)$$

$$(3-1) (5-1)$$

$$= 2 \times 4 = 8 \text{ upon } 0.05 = 15.507$$

Therefore we reject the  $H_0$  since the calculated value is greater than the chi-square critical value. We then accept  $H_1$  which state that there is a relationship between safety management and customer satisfaction.

**Hypothesis III**

$H_1$ : Safety management has influence on employee commitment.

$H_0$ : Safety management has no significant influence on employee commitment.

S/N	SA	A	SD	D	U	TOTAL
1.	48 <sub>(35)</sub>	32 <sub>(38.3)</sub>	0 <sub>(1.7)</sub>	0 <sub>(3.3)</sub>	0 <sub>(1.7)</sub>	80
2.	37 <sub>(35)</sub>	43 <sub>(38.3)</sub>	0 <sub>(1.7)</sub>	0 <sub>(3.3)</sub>	0 <sub>(1.7)</sub>	80

3.	21 <sub>(35)</sub>	40 <sub>(38.3)</sub>	5 <sub>(1.7)</sub>	10 <sub>(3.3)</sub>	4 <sub>(1.7)</sub>	80
	106	115	5	10	4	240

$$X^2 = 11.27 + 7.39 + 28.8 = 47.46$$

Degree of freedom at 0.05 level of significance

$$df = df = (r-1) (C-1)$$

$$(3-1) (5-1)$$

$$= 2 \times 4 = 8 \text{ upon } 0.05 = 15.507$$

Therefore we reject the  $H_0$  since the calculated value is greater than the chi-square critical value. We then accept  $H_1$  which state that Safety management has influence on employee commitment.

### Findings:

The following findings were made in this study after subjecting the responses retrieved from the respondents to statistical analysis. From hypothesis I, the study revealed that Safety management has influence on firm's profitability. This is in line with the assertion of Goetzel (1999), which state that inculcating safety culture in employees, is directly related to the productivity and profitability of organizations.

Hypothesis II revealed that there is a relationship between safety management and customer satisfaction. This finding backed by other findings by Robinson, H. S. Et al (2006) & Chen, M et al (2009) sees customer perspective as one of the commonly used financial measures which defines the value proposition that an organization will apply to satisfy customers and generate more sales to the most desired customer groups. The measures should cover both the value that is delivered to the customer which may involve time, quality, performance and service, and the outcomes that as a result of this value proposition, such as customer satisfaction and market share. Hence, business organization can maximize their customer satisfaction for better profitability, increased sales volume, which ultimately improves overall performance benefit Baker & Sinkula (1999).

From the test of hypothesis III, the study revealed that Safety management has influence on employee commitment. Galliker (2000) opines that an organization's employees safety culture have a direct relationship with employees' commitment and productivity in view of the fact that assigned tasks can only be safely accomplished when the work environment is safe and conducive for the execution of the assigned duties, be it manufacturing, construction or servicing industries, thus, any phenomenon that affects human production capacity will invariably affect organizational productivity, hence improving workers wellbeing offers a company the opportunity of enhancing its performance.

From the test of hypothesis IV, the study revealed that Safety management reduces cost to the organization. This is in line with the assertion of (ILO,2005) which states that safety comes at a price and that in a business setting, the goal of employers is usually to decrease employee turnover, thereby decreasing training costs, recruitment costs and loss of talent and organizational knowledge. Many employee retention policies are aimed at addressing the various needs of employees to enhance their job satisfaction and reduce the substantial costs involved in hiring and training new staff.

## V. CONCLUSION

From the discussion of the findings, the following conclusions are drawn:- Safety management is an organizational function, which ensures that all safety risks have been identified, assessed and satisfactorily mitigated.

When an organizations safety management focuses on the development of specific measure and programmes, and also aimed at protecting employees in the course of performing their duties, it will help them maximize productivity and improve the overall organizational performance.

Business organization can maximize their customer satisfaction for better profitability, increased sales volume, which ultimately improves overall performance benefit.

An organization's employees safety culture have a direct relationship with employees' productivity and commitment in view of the fact that assigned tasks can only be safely accomplished when the work environment is safe and conducive for the execution of the assigned duties.

In a business setting, the goal of employers is usually to decrease employee turnover, thereby decreasing training costs, recruitment costs and loss of talent and organizational knowledge.

### Recommendation

Having discussed the findings and drawn conclusion, the study recommends that:

Safety in service provision demands management commitment to implementation of Safety Management Systems (SMS) which addresses safety in an explicit, formal and documented manner operated by trained personnel using dedicated methods, procedures and tools.

If organizations promptly inform their workers about the risks and hazards associated with their jobs, on the basis of such information, workers themselves could be seeking periodic medical attentions and checks and choose to use appropriate equipment and tools.

Management should imbibe the culture of Proactive safety management, which will help in identifying hazards before they materialise into incidents or accidents.

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