European Journal of Business and Management
ISSN 2222-1905 (Paper) ISSN 2222-2839 (Online)
Vol.8, No.18, 2016

Workplace Safety Practices and Organisational Adaptation in the Nigerian Petroleum Industry

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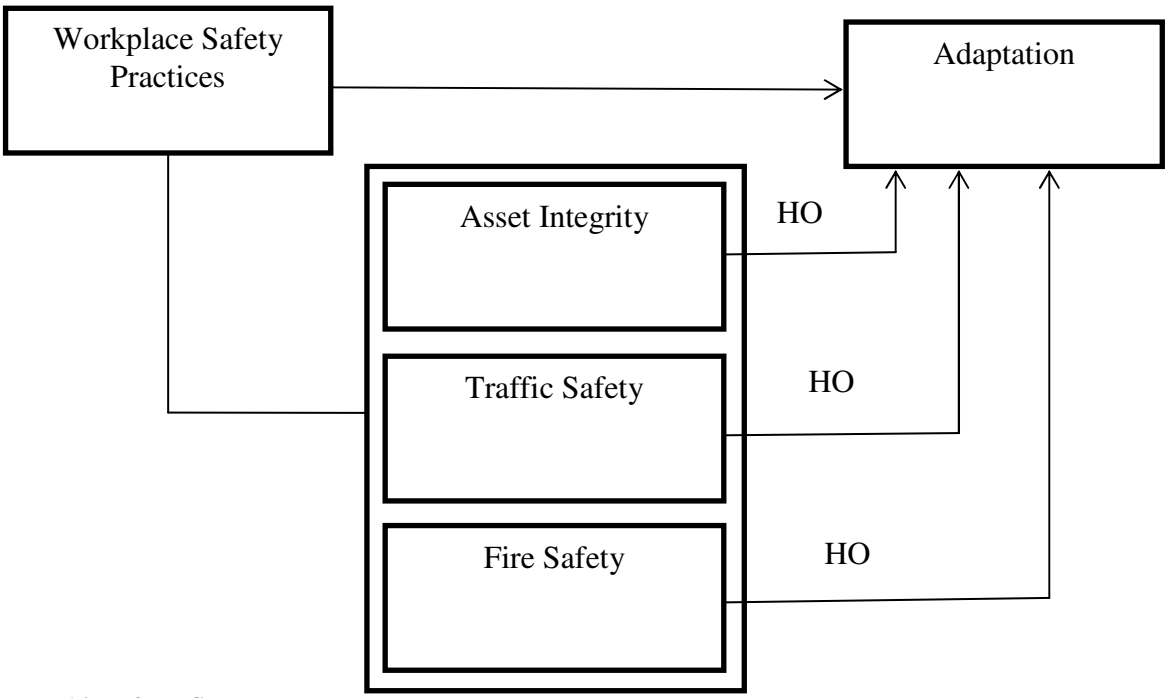
Abstract
This study investigated the relationship between workplace safety practices and organisational adaptability in the Nigerian Petroleum Industry. The research design adopted the cross sectional survey and utilized the non-probability purposive sampling technique in selecting the sample of 130 managers that responded to the statistical questionnaire survey. The study employed the self-administered questionnaire to obtain primary data, while secondary data were collected from the Department of Petroleum Resources (DPR) and the HSE Departments of the sampled companies. The SPSS Version 20 was used in analysing the data. Results show that workplace safety practices (WSP) has a positive and significant relationship with organisational adaptability, as the null hypotheses were virtually rejected. Therefore, based on the findings, it is recommended that the sector/industry management should adhere more strictly to benchmarked HSE compliance injunctions for corporate business continuity and environmental sustainability.
Keywords: Workplace Safety Practices, Adaptability, Asset Integrity, Traffic Safety, Fire Safety.

1. INTRODUCTION

Nwankwo (1982) has observed that the Nigerian Petroleum and Natural Gas Industry and the Nigerian economy exist, to a considerable extent, in a symbiotic relationship. This strategic relationship manifests in various aspects or perspectives. It is symbolized by the fact that this industry has almost single-handedly been sustaining the country's economic growth profile; namely, her gross national product (GNP) from the perspective of its consecutive contribution of more than eighty per cent (80%) of the national budget revenue sources up to now, for upwards of over twenty years. Furthermore, it has become apparent that the political fabric of this nation has virtually rotated around the effectual control and distribution of the output of this industry alone, in the real sense of it. Also, Jain & Rao (2009) aptly observed that the present day industrial environment demands increased production, high efficiency, control of costs, stringent quality controls, etc. The production processes have become complex and capital intensive, especially in the referent industry. Outages in plants can hardly be tolerated. To meet such needs of industries, the subject of Safety, adaptability and Environment has attained significant importance because any neglect in these aspects can prove very costly. Thus, the importance of this industry to our national life in terms of our aggregate survival, growth indices and continuity dynamics, obviously cannot be overemphasized at this juncture; at least, in the short run (Kubitscheck, 2000).
Contemporary researches have been conducted in other aspects of organisational workplace safety issues, including but not limited to the following: Neal et al (2000) investigated "The impact of organisational climate and individual behaviour"; Kaminski (2001) worked on "Organisational practices and their impact on workplace safety and productivity"; Zacharatos et al (2005) researched on the relationship between "High-performance work systems and occupational safety", while Hesapro (2013) looked at "The link between productivity and safety at work". However, limited attention has been given to the transfer of safety knowledge to the various levels of the organisation vis-à-vis religious compliance strategies and also limited literature exist with reference to the Safety stream of the global concept of the workplace health, safety and environment (HSE) practices or practice measures. Prevalent incidences of corporate failure presuppose organisational illness; therefore, their resilience capacity becomes impaired. The outcome of organisational illness tends to be so serious that if not mitigated, corporate maladjustment and mortality may abound. The report by Organisational Health Diagnostics and Development Corporation (OHDDC, 2008) shows that over 80% of corporations in the world is ill in one way or the other. Although, the threat to one organization may be the opportunity or strength of another (Kazmi, 2008), it is critical that genuine consideration is paid to the organizational well-being issues to spare firms from pending misfortunes.
The Petroleum Industry in Nigeria is confronted with numerous reactions with regards to adaptability, Safety and Environment (HSE) context issues, tracking and management. This, inadvertently, contests the context organisational adaptability and conceptual effective management of its industry firms. This is due to the major criticism that the numerous operational activities within the industry are not proactively managed to facilitate critical improvement on its service delivery schedules vis-à-vis its organizational health status. It is also argued

that the occupational threats of contact to these operatives have gotten practically no consideration, including the sorts of HSE systems and their viability that Oil and Gas Companies implement to posit combat mitigating measures in the prosecution of their intrinsic risk-laden operations. Research findings (Cottle & Guidotti, 1990; Captain-Briggs, 1994; Chevron Nigeria Limited (CNL), 1997; Charles, 1999; Aguh, 2006 and Jain and Rao, 2009) have shown that, although the industry organisations in Nigeria have adapted and adopted some actions and measures to stay afloat, more strategic attention by means of specific compliance mitigating actions and measures, is required in the peculiar operational areas ranging from and including the introduction of new technologies, decentralization of strategic operational decision making, revision of operational structures for effectiveness, to strategic redefinition and consequent target/high momentum marketing of their peculiar organisational cultures, etc., in order to address its corporate sustainability. Indeed, by its context evangelism, this research obviously buys into this prescription; hence, the necessity and importance of this study. Consequently, this study will assess the relationship between Workplace Safety Practices (among the Health, Safety and Environment Integrated Management Systems - HSE-IMS Practices) and Organizational adaptability. In doing so, it will focus on peculiarly context organisational adaptability issues from the perspectives of operational adaptation and integration of its essences, to investigate how effectively firms have relatively bought into dynamic workplace Safety Practices evangelism by its industry management in order to address the queries of public opinion in managing the Nigerian Petroleum Industry, in the effort to sustain continuity.

Figure 1: Operational Framework for the study



1.2 Aim of the Study

The main purpose of this study is to examine the relationship between Workplace Safety Practices and Organisational Adaptation.

1.3 Research Question

The following research question is therefore pertinent to this study: -

What is the relationship between workplace safety practices and organizational adaptation?

2. REVIEW OF RELATED LITERATURE

2.1 Workplace Safety Practises

Workplace Safety Practices is obviously one of the contemporary enactments of recent research undertakings in safety engineering and operations management of industrial concerns (Jain & Rao, 2009). From literature search, the predictor variable, Workplace Safety Practises, has not been specifically worked on directly by this

nomenclature. However, the term "Workplace Safety Practises" (used interchangeably with "Statutory Safety Services"), constitutes one of the recent derivatives from modern strategic safety engineering nomenclature review. It therefore replaces (in synonym) the erstwhile "Industrial Safety Practises". The latter has been variously used by professionals and academics in various works in the area of Health, Safety and Environment research, discusses and presentations, etc. Indeed, contemporary authors, including De Smet et al (2006) and Jain & Rao (2009), have specifically used the term ''workplace safety practices'' in their works; with the latter, extensively referring to it in his presentations on Health, Safety and Environment Integrated Management Systems (HSE-IMS). In the same vein, the selected dimensions of the predictor variable, Asset Integrity Safety practises, Traffic Safety practises and Fire Safety practises respectively, have also been used variously other than as grouped in this study. Consequently, their usage characteristics also follow that of their principal predictor variable. Nevertheless, the term "knowledge" as impliedly used herein, is rather unique to this work. It is intended and hence adopted to emphasize the academic content, consistent with the intent of this research as domiciled in the realm of OB, rather than in the operations management segment. It is used to bridge the gap in nomenclature in order to demonstrate the value as well as the critical necessity of translating operational knowledge into the managerial realm to enable organisational managers appreciate the beauty in synergy and consequently buy into the reality of understanding the import of operational workings of the average technical organisation they are charged to manage.

Recent discussions among contemporary Health, Safety and Environment (HSE) scientists and practitioners alike have also zeroed in on strategic workplace safety practices/activities, including the place of HSE culture in the field of strategic management processes theorizing (Peters & Waterman, 1982; Osuku, 1991; Oyolu, 1993; Osinuga, 1994; Peters, 1999; Jain & Rao, 2009; Pittorino, 2009; Price, 2010; Paul & Paul, 2011). Given its strategic industry positioning, there is credible evidence that businesses are unequivocally ready (indeed, a number of them have tacitly acquiesced) to face the apparent or bare-faced reality that 'organisational profit has inevitably commuted into a function of the aggregate safety of its operations' vis-à-vis its organisational health dynamic characteristics. HSE engineering and management researchers have thus, spontaneously, equally responded with constant re-evaluation of its place in the emerging scenario, in the quest to posit a characteristic dogmatic legitimacy. Indeed, contemporary evaluators seem convinced and have already settled on the conclusion of their recent assessment, in agreement with Busenitz et al. (2003), that "in establishing legitimacy, theory development and method are inextricably intertwined. Whereas it is theory that determines the discipline's boundaries, it is method that facilitates the testing of such theories and enables communication within the discipline and across related disciplines".

2.1.1 Asset Integrity Safety (AIS)

The term 'Industrial Safety' refers to the safety activities and measures designed and employed in 'accessing, processing and checking' (*apc*) installed asset integrity, tracking operational deviations or non-conformances/noncompliance thereof, with a view to enforcing statutory compliance to standards and benchmarks. Asset Integrity Safety can thus be appreciated as a set of safety assurance practices tracking measures detailing HSE activities that are designed to track the integrity of installed industrial assets and facilities' operations/operational health to ensure compliance with statutory safety benchmarks as well as relative investment sustainability. Asset integrity safety knowledge is concerned with ensuring that the people, systems, processes and resources that deliver/sustain integrity are in place, in use and will perform when required over the whole lifecycle of the asset (Centre for Chemical Process Safety, 2007). Baker (2007) maintained that, effective asset integrity management programme is a prerequisite for continued safe operation of any chemical process plant. However, the challenge is not only to ensure that containment systems remain intact through the use of appropriate inspection, testing, maintenance and repair strategies but that those strategies are implemented by competent and motivated personnel; and that, they remain suited to the equipment age and condition, over time. Obviously, such competent or knowledgeable personnel, appropriate professional competence and enduring motivation can of course be achieved only through adequate and appropriate knowledge transfer strategy, whereby the organisational systems/subsystems, processes and operating modus operandi are duly and diligently conveyed to the operatives using formal modes. In other words, the emphasis here is in appreciating cum delivering adequate knowledge of the appropriateness of the organisation's asset integrity safety practices or measures to the ordinary operative such that Top-Management shall be convinced to buy into the necessity and value for integrating this strategy in the corporate managerial undertaking as a strategic critical corporate cost saving venture and; by lateral extrapolation, an implicitly recommended good organisational health practice for the organisation. As managers, the aptness of the knowledge transfer project with respect to consequences for brute neglect and/or benefits for the organisation appropriately imbibing and internalising them is certainly the point of departure from routine operational activities tracking consideration that makes sense for managing and thus underlines the importance of this dimension.

2.1.2 Traffic Safety (TS)

Traffic Safety management discipline has its origin in the Haddon matrix developed in 1970 as a framework for analysing the causes of injuries and ways to prevent them. Knowledge of Traffic Safety activities profile is inevitably a strategic *sine qua non*; rather indispensable for the proper consumption of the disciplinary traits. The framework is based on the host (the person at risk of injury), the agent (the energy causing the injury) and the environment (the physical and social context in which the injury occurs). These aspects of the injury event are then considered over three time periods: the time leading up to the event, the event itself and the time immediately after the event. In the road safety context, the host is the road user; the agent, the vehicle and the environment, the road and social environment in which the crash occurs (Haddon, 1972). Traffic Safety, and hence its knowledge, is an important responsibility that every industry must consider. Traffic or transportation Safety activities are serious risks that companies face in their respective haulage business undertakings. These risks are intrinsically laden and thus affect haulage business operations both directly and indirectly. For organizations in the Petroleum Industry particularly, where strategic routine production operations are mostly prosecuted round the clock by virtue of their characteristic nature, this risk basket persists on a continuous basis (that is, 24/7) and consequently threaten routine operational activities thereof.

In introducing the subject of "safety in transportation and automotive equipment", Jain & Rao (2009) observed that no person should drive a vehicle belonging to the undertaking unless he has a proper license and is duly authorized. Further, that only authorized person should drive a vehicle after familiarizing himself with the traffic and other relevant laws prevailing in the area. Still, they counselled that before operating any vehicle, the driver should check and test the brakes, check steering gear, clutch, tie-rods, horn and lights; Stepney *(spare wheel or tyre)* and that the tyres are in a good condition and properly inflated, complying with recommended tyre pressures; generally, that all are in proper operating condition (i.e. complying with statutory safety recommendations); ensure that emergency equipment, e.g. fire extinguishers, first-aid kit, torchlight, jacks and tools, are in place; ensure that requisite quantity of petrol, lubricating oils and water are available in the vehicle; check levels in the battery cells and add distilled water to make up, if necessary; ensure that the headlamps and tail-lights are functionally okay before undertaking night driving and tyres of a vehicle should be periodically inter-changed to ensure uniform wear. They finally insisted that all vehicles should be inspected by an "authorized person", at least every six months, and reports of such inspections be entered in a register to be maintained for this purpose. These represent a scrip summary of one strategic HSE aspect of the Traffic Safety Practices. As earlier on clarified, organisational Health, Safety and Environment Integrated Management Systems (HSE-IMS) practices vis-à-vis Industrial Safety Management Systems (ISMS) Practices or indeed, Workplace Safety Practices, have been fractionated or distilled into professional compartments to encourage detail investigation, aid conceptual appreciation and understanding and facilitate professionalism intents, in order to assist relative organisational health in firms, etc.

2.1.3 Fire Safety (FS)

Fire Safety Practises (FSP), is a special aspect of the industrial *Safe Working Practices* (SWP), within the context of Industrial Safety Practices vis-à-vis Statutory Safety Services aka Workplace Safety Practices. The strategic focus hereby, is basically prevention and active fire-fighting activities. Whereas preventive measures focus strategic proactive elimination of occurrences, intervention measures are simultaneously active and reactive approaches, designed to avoid escalation and limit outcome damages or losses in the event of an inevitable occurrence. Fires and outbursts in industries, gas plants, flow stations, pipelines, generating stations, substations and other plants are not uncommon. Fires kill several hundred persons and destroy property worth several millions (if not billions) of Naira every year in various industrial sectors, as well as domestic establishments. Statistics has it that more than 85% of fires in various types of plants, buildings, hotels, etc., are caused by electrical sparks or short circuits. While hazards due to electric shocks are limited at a time, to one or two persons and one or two equipment, industrial fires simultaneously kill several hundred persons and destroy many items of equipment and plants simultaneously (Jain & Rao, 2009).

Fire accidents can be minimized by adopting scientific engineering mitigation approach. Indeed, the principles of Safety Management classify and rates danger resulting from fire incidents to the life of persons working in the plant higher than fire hazards to property. Consequently, construction, operation and maintenance personnel should be fully abreast of the dangers of fire, including the mitigating methods i.e. prevention and actions in case of an outbreak of fire. Fire Safety (FS) practices knowledge is designed to teach and inculcate in the employee preventive measures that will eliminate or minimize causes of fire or fire hazards in the workplace; and to teach proper emergency and evacuation procedures, in the event of a fire outbreak. It is geared towards facilitating the understanding of the major causes of fires in the workplace, learn how to prevent fires, look for possible fire hazards (hazard spotting) and report them; be aware of fire safety devices in their offices, buildings and plants; become familiar with the building's emergency procedures; know what to do if a fire outbreak occurs and learn how to evacuate quietly and calmly without causing panic. These constitute the kernel of the Fire Safety

activities campaign for which Top-Management must buy into and translate into one of its strategic organisational managerial roles and responsibility quotient. Accordingly, this is the point of department wherein operational tracking essences translate into managerial essence to address organisational management necessity for a healthy and successful sustenance of the organisation, in tandem with the basic and strategic objectives of this research undertaking.

2.2 Relationship between Asset Integrity Safety and Adaptation

The context research question for discussion under this subtheme is: "What is the relationship between Asset Integrity Safety and Organizational Adaptation in the Nigerian Petroleum Industry?" An organisation's productivity is considered along strategic cost effective designs and measured relative to its resources. Organisational productivity, according to the Medical Dictionary of the American National Institute of Health, is "the capacity of an organisation, institution or business to produce desired results with a minimum expenditure of energy, time, money, personnel, material, etc." The organisation must first adapt its productive mechanism through its ability to tolerate stress and maintain stability while coping with its organisational challenges (OHDDC, 2008). And as already argued, this must be through the ability of the managerial leadership representing the organisational members and the organisation itself to 'mutually tolerate each other' and still carry on the organisation's business to sustain its focus, while simultaneously addressing the challenges of the organisation that may arise from both internal and external demands; in other words, endogenous and exogenous factors.

Strategic measurement of organisational productivity in terms of its aggregate health, relative to its asset integrity safety practices would be a characteristic review and rating of the content validity and reliability of its occupational health schemes, consistent with tracked operational compliance of the sustained integrity of installed production assets. Simonds & Grimaldi (1963), Captain-Briggs (1994), Harrison (1994), Charles (1999), Geoff, Kellie & Roy (2004) and Arora (2007) are all in agreement that such review will be undertaken relative to the designed (i.e. adapted) organisational safety management standards, in order to verify how effectively they have contended with the foreseen organisational health and safety risks vis-à-vis occupational health risks' mitigation and strategic 'at risk behaviour/tracking of near misses, among others, which are intrinsic in its operations. Jain & Rao (2009) had observed that "the occupational health risks involved in modern industries are mechanical injuries, physical factors, chemical hazards, biological risks, psychological stress, fear factors, radiation cancer, inhaling dusts and fibres and noise deafness". Complimentary or associated safety concerns are many and varied. How an organisation braces to measure and subsequently contend with the associated risk measures to sustain, is a direct quantification of its organisational health. Thus, in the effort to resolve this contemplated activities' relationship and/or impact and hence, affirm the context relationship between workplace safety practises and adaptation (as viewed from the perspective of asset integrity safety practices' knowledge transfer and operational assimilation emphases), we proposed the following hypothesis:

H_{O1} There is no significant relationship between Asset Integrity Safety and Adaptation in the Nigerian Petroleum Industry.

2.3 Relationship between Traffic Safety and Adaptation

The task here is to address the research question: "What is the relationship between Traffic Safety and Organizational Adaption in the Nigerian Petroleum Industry?" To facilitate common place appreciation, adapted productivity in this perspective has to be tangible. This process entails the determination and measurement of productivity as a tangible entity, utilizing appropriate key performance indicators, specifically referred to as positive performance indicators (PPIs). The Australian Government Safety Review Commission (SRC), COMCARE, prescribes some critical Workplace Safety Practices measures vis-à-vis awareness practices, PPIs, in the implementation of statutory transportation safety assurance activities to promote and thus sustain organisational productivity and astute organisational health. This prescription, covering PPIs relative to five basic organizational management issues in the Petroleum Industry, is both recommended and adopted. As already stated, transport safety services are the HSE assurance activities designed to track organisational performances in order to determine total healthiness from the perspective of either the organization's transportation investments, or as complimentary operations facilitating measures, or both. A healthy organisation certainly must be productive. In order to determine tangible productivity hereby, appropriate key performance indicators, as positive performance indicators (PPIs), must be identified and relatively measured. The implementation of statutory transport safety assurance activities to promote and sustain organisational productivity and astute organisational health shall surely follow the prescription of SRC, as already categorized by COMCARE.

Consequently, Workplace Safety Practises' positive performance indicators (PPIs), envisaged for this phase of activity to measure the actions which the organisation has taken to achieve targets vis-à-vis adaptive productivity and consequent organisational health, include risk management of transportation safety hazards;

management of work processes, such as transport safety systems of work and operations tracking tools (e.g. statutory journey management, fleet management implementation, including strategic tracking of statutory certifications, pre-mobilization, status check and statutory vehicle/other transportation equipment inspections and effective non-conformance management practices); participation; communication and skills, whereby occupational health and safety (OHS) is addressed in the design, planning and procurement phases and activities of projects; Planning, design and procurement (where OHS is also addressed in the design, planning and procurement phases and activities of projects); monitoring and review (OHS and injury management is self-assessed and/or independently audited for the health and effectiveness of systems and practices; and periodic management reviews undertaken to facilitate Top-Management action). To attempt a positive measure of the relative health and hence the productivity of statutory transportation safety services/activities in the Petroleum Industry would entail a critical examination of PPIs addressing the above identified organizational management issues. Obviously, senior managers and indeed, Top-Management need key PPIs to confirm that systems are healthy and working effectively, just as they also employ them to sustain continual improvement of the organisational systems. Accordingly, to assist this characteristic employment of identified requisite PPIs, and consequently, use same to affirm the presumed relative relationship, we proposed the following hypothesis that:

H_{O2} There is no significant relationship between Traffic Safety and Adaptation in the Nigerian Petroleum Industry.

2.4 Relationship between Fire Safety and Adaptation

In this case, the context research question posed to guide discussion under this subtheme, seeks answers as: "What is the relationship between Fire Safety and Organizational Adaptation in the Nigerian Petroleum Industry?" Oil Companies need to proactively manage their investments as well as resources against tragic disasters rather efficiently through strategically effective Workplace Safety Practises or practice measures, to also protect the environment in order to reach agreed corporate socially responsible goals which, inadvertently, refluxes on the productivity of their individual organisations. In this perspective, productivity consideration as a function of organisational health indicators shall focus the harmony between the Petroleum Industry (conducting her operations) and stakeholders (assisting in synergy), in line with environment-friendly advocacies, which will promote sector productivity through strategic business undertakings e.g. installation of proactive fire safety gadgets, etc. In this perspective, in order to assist the statutory affirmation of this presumed **operational** relationship, the necessity arose for the proposed hypothesis:

H_{O3} There is no significant relationship between Fire Safety and Adaptation in the Nigerian Petroleum Industry.

3. MATERIALS AND METHODS

Research Design: The research design adopted in this study is the cross-sectional survey. This enabled the research vis-à-vis the researcher to collect data from a wide range of study elements that enhanced the generalization of the research outcome. This choice is also determined by the study setting, the nature and type of study (Okpu & Kpakol, 2015; Baridam, 2008). This study employed a combination of the technique of self-administered questionnaire and collection of incident statistics records from pertinent secondary sources to gather data on the phenomenon under investigation, including executive reviews with the management representatives of the Human Resources and the HSE departments of the sampled companies and the industry supervisor, the Department of Petroleum Resources (DPR).

The Population for the Study: The population for this study consists of all the firms within the four sectors in the Nigeria Petroleum Industry; namely: Exploration & Production, Drilling, Marketing and Services. From the 2011 edition of the directory of the Nigerian Oil and Gas Industry, a total of 565 companies have been listed. However, this population is hardly accessible; more so, because 84 **operators and partner** companies in the list were reportedly still in the **licensing rounds from 2005, 2006 and 2007 respectively, implying that they were not yet statutorily fully listed, but were only granted interim listing at the time.** In other words, the population for this study was eventually determined using the convenience sampling strategy employing the DPR standard of industry strategic activities' KPI rating.

Sample and Sampling Procedure: The study adopted the non-probability sampling procedure, employing the purposive sampling technique (Baridam, 2008). The sample size consequently consists of twenty-five (25) departments drawn from the study population of 5 companies in the Exploration and Production sector. One of the downsides of utilizing purposive sampling technique is that the population parameters cannot be estimated from the values of the characteristics obtained from the sample. Secondly, the results will not be generalized.

Data Collection Method: The data for this research was obtained from both primary and secondary sources, employing the strategies of questionnaire administration and incident statistics record. The primary source of

data was the self-administered questionnaire. The researcher designed questionnaire which was administered at the selected sample/study locations.

Reliability of the Measuring Instrument: The reliability of the instrument was determined using the test-retest method. The scores derived from the two administrations of the instrument were correlated using Pearson correlation statistical. Table 1 below, computed using the Statistical Package for Social Sciences (SPSS). Consistent with Barclay, Higgins and Thompson (1995), this result is considered high enough, to confirm the reliability of the instrument.

Table 1: Results of the Reliability Analysis

S/N	Variables	Number Of Items	R Coefficients
1.	Asset Integrity Safety	14	0.726
2.	Traffic Safety	5	0.781
3.	Fire Safety	5	0.791
4.	Adaptation	5	0.803

SOURCE: Survey data, 2016

4. RESULTS

The correlation analysis comprises the statistical tools used to describe vis-à-vis determine the degree to which one variable is associated with another (Levin & Rubin, 2001). The Spearman Rank Order Correlation Coefficient Statistic is the major statistical tool chosen for this research analysis. The three hypotheses, which dealt with the relationship characteristics between the respective dimensions of the predictor variable (Workplace Safety Practices) and the criterion variable (Organisational Adaptability), were thus analysed using the Spearman Rank Order Correlation Coefficient statistical tool. The Spearman Rank Correlation Coefficient Rho is computed at the 0.05 level of significance. The decision rule states that: "At the 0.05 level of significance,

1. Reject H_O if $P < 0.05$;
2. Accept H_O if $P \geq 0.05$.

The results for hypotheses 1 to 3 are hereby presented and results simultaneously interpreted, consistent with the decision rules.

Hypothesis 1, [H_{O1}]: There is no significant relationship between Asset Integrity Safety and Adaptation in the Nigerian Petroleum Industry.

Table 2: Showing computed relationship between Asset Integrity Safety and Adaptation in the Nigerian Petroleum Industry.

			Assetintegritysafety	Adaptation
Spearman's rho	Assetintegritysafety	Correlation Coefficient	1.000	0. 649
		Sig. (2-tailed)		0.040
		N	130	130
	Adaptation	Correlation Coefficient	0. 649	1.000
		Sig. (2-tailed)	0.040	
		N	130	130
Decision:		Reject H_{O1}		

SOURCE: Survey data, 2016

Table 2 shows the result of the correlation using the Spearman Rank Correlation Coefficient tool. From the result, it is shown that a significant relationship exists between asset integrity safety and adaptation. Asset integrity safety showed a strong relationship with adaptation, with Rho = 0.649. The relationship is significant at $p = 0.04 < 0.05$ significant level. From this outcome, the hypothesized statement, H_{O1}, from the Assetintegritysafety dimension, which states that "there is no significant relationship between Asset Integrity Safety and Adaptation", is rejected. This simply means that a significant relationship indeed exists between the two variables.

Hypothesis 2, [H_{O2}]: There is no significant relationship between Traffic Safety and Adaptation in the Nigerian Petroleum Industry

Table 3: Showing relationship between Traffic Safety and Adaptation in the Nigerian Petroleum Industry.

			Trafficsafety	Adaptation
Spearman's rho	Trafficsafety	Correlation Coefficient	1.000	0.174*
		Sig. (2-tailed)		0.048
		N	130	130
	Adaptation	Correlation Coefficient	0.174*	1.000
		Sig. (2-tailed)	0.048	
		N	130	130
Decision:		Accept $\mathbf{H_{O2}}$		

SOURCE: Survey data, 2016

Table 3 shows the result of the correlation using the Spearman Rank Correlation Coefficient tool. From the result, it is shown that a positive but insignificant relationship exists between traffic safety and adaptation. Traffic Safety showed a rather weak relationship with adaptation, with Rho = 0.174. The relationship is not significant at p = 0.048 ≅ 0.05 significant level. From this outcome, the hypothesized statement, $\mathbf{H_{O2}}$, from the Traffic safety dimension, which states that "there is no significant relationship between Traffic Safety and Adaptation", is accepted. This simply means that an insignificant relationship actually exists between the two variables, Traffic Safety and Adaptation in the Nigerian Petroleum Industry.

Hypothesis 3, [$\mathbf{H_{O3}}$]: There is no significant relationship between Fire Safety and Adaptation in the Nigerian Petroleum Industry

Table 4: Showing relationship between Fire Safety and Adaptation in the Nigerian Petroleum Industry.

			Firesafety	Adaptation
Spearman's rho	Firesafety	Correlation Coefficient	1.000	0.992
		Sig. (2-tailed)		0.001
		N	130	130
	Adaptation	Correlation Coefficient	0.992	1.000
		Sig. (2-tailed)	0.001	
		N	130	130
Decision:		Reject $\mathbf{H_{O3}}$		

SOURCE: Survey data, 2016

Table 4 shows the result of the correlation using the Spearman Rank Correlation Coefficient tool. From the result, it is shown that a significant relationship exists between fire safety and adaptation. Fire Safety showed a rather strong relationship with adaptation, with Rho = 0.992. The relationship is significant at p = 0.001 < 0.05 significant level. From this outcome, the hypothesized statement, $\mathbf{H_{O3}}$, from the Fire safety dimension, that "there is no significant relationship between Fire Safety and Adaptation", is rejected. This simply means that a significant relationship exists between the two variables, Fire Safety and Adaptation in the Nigerian Petroleum Industry.

5. DISCUSSION OF FINDINGS

This section deals with context discussions of the findings to shed more light and incisive exposition on their relative implications, in order to facilitate strategic context conclusions from the point of view of their respective research hypotheses.

5.1 Asset Integrity Safety and Adaptation

The result of the study on the relationship between Asset Integrity Safety and Adaptation showed that, there is indeed a significant relationship between Asset Integrity Safety and Adaptation in the Nigerian Petroleum Industry. As a matter of fact, an organisation's productivity is considered along strategic cost effective designs and measured relative to its resources. Asset Integrity Safety obviously seeks the strategic maintenance of the organisation's installed assets (by its resources) in a healthy state to facilitate the continuity of its business as a 'going concern'. Obviously, the result of this study supports the findings of an earlier study carried out by OHDDC (2008) which opined that, the organisation must first adapt its productive mechanism through its ability to tolerate stress and maintain stability while coping with its organisational challenges. And as already argued, this must be through the ability of the managerial leadership representing the organisational members and the organisation itself to 'mutually tolerate each other' and still carry on the organisation's business to sustain its

focus, while simultaneously addressing the challenges of the organisation that may arise from both internal and external demands; in other words, endogenous and exogenous factors. Supporting this view, Simonds & Grimaldi (1963), Captain-Briggs (1994), Harrison (1994), Charles (1999), Geoff, Kellie & Roy (2004) and Arora (2007) all maintained that strategic measurement of organisational productivity in terms of its aggregate health, relative to its asset integrity safety practices would be a characteristic review and rating of the content validity and reliability of its occupational health schemes, consistent with tracked operational compliance of the sustained integrity of installed production assets. They further explained that such review will be undertaken relative to the designed (i.e. adapted) organisational safety management standards, in order to verify how effectively they have contended with the foreseen organisational health and safety risks vis-à-vis occupational health risks' mitigation and strategic 'at risk behaviour/tracking of near misses', among others, which are intrinsic in its operations.

5.2 Traffic Safety and Adaptation

The result of the study on the relationship between Traffic Safety and Adaptation established that there is no significant relationship between Traffic Safety and Adaptation in the Nigerian Petroleum Industry. Traffic Safety Practices deals with industrial transportation challenges in order to assure safe haulage practices and operations, consistent with national and international regulations and benchmarks. The strategic target holistic coverage of Traffic Safety aspects includes air, land and marine safety measures of the organisation. From the result gathered above, the result of this study does not conform to the findings of an earlier study carried out by the Australian Government Safety Review Commission (SRC), COMCARE, which prescribes some critical Workplace Safety positive performance indicators (PPIs) in the implementation of statutory transportation safety assurance activities to promote and thus sustain organisational productivity and astute organisational health. This prescription, covering PPIs relative to five basic organizational management issues in the Petroleum Industry, is both recommended and adopted.

As already stated, transport safety services are the HSE assurance activities designed to track organisational performances in order to determine total healthiness from the perspective of either the organization's transportation investments, or as complimentary operations facilitating measures, or both. In order to determine tangible productivity hereby, appropriate key performance indicators, as positive performance indicators (PPIs), must be identified and relatively measured. The implementation of statutory transport safety assurance activities to promote and sustain organisational productivity and astute organisational health shall surely follow the prescription of SRC, as already categorized by COMCARE. The result of this analysis, when transposed and juxtaposed with the contemporary situation in the Nigerian Petroleum Industry, gives an insight into the practice modus operandi adopted by a number of companies in their managerial attitude towards operational emphases. Instances were observed and confirmed that adherence to strategic statutory HSE traffic safety injunctions were being disobeyed; indeed, neglected in the hope of amassing more organisational profit. For instance, a typical operational vehicle, from the HSE policy perspective, has been legislated to have four-year tenure in Company operations; after which, it must be released in order to assure a shock-free as well as environmentally friendly operation. The researcher found out that this injunction, in most instances, existed (and still does so), only in the books and rarely implemented. It is either disobeyed or out rightly neglected with the excuse of saving cost. The outcome results are that oftentimes, operational vehicles breakdown and are seldom available to address their strategic need. This is not forgetting the fact that vehicles turn over in the workshops take considerable man hours' losses/avoidable costs; and emergency mop up interventions, usually end up being more expensive than otherwise. Another contending example relates to their observed operational managerial strategy towards pipeline product transportation safety. Many Companies are yet to imbibe the scientific solution of acquiring/deploying high-tech surveillance equipment to monitor as to assure strategic pipeline safety, which should guarantee crude oil transportation without hitch, to their export terminals. The net effect is that, almost on routine basis, products are muzzled and bunkered on the way, including common cases of vandalization of the pipeline routes. The anticipated short term savings by way of avoiding strategic corporate investment for adequate tracking resources inadvertently turns "naira wise, dollar foolish", at the end of the day.

5.3 Fire Safety and Adaptation

The result of the study on the relationship between Fire Safety and Adaptation confirmed that there is a significant relationship between them in the Nigerian Petroleum Industry. It is apparent that while management may decide and, to some extent, even accept to tinker on the risk of compromising other safety injunctions, fire legislations are consciously "no go areas". It is the inconsistency in Management operational tracking modus operandi (based on their aggregate undue cost appreciation regarding provision of hi-tech modern tracking equipment) that accounts for the negative relationship outcome.

Fires and explosion are the most serious physical hazards faced in typical workplaces, especially in the petroleum industry as well as in other places e.g. laboratories and research and experiment settings, etc. Fire

Safety Practises (FSP), is a special aspect of the industrial *Safe Working Practices* (SWP), within the context of Industrial Safety Practices, aka Workplace Safety Practices (WSP). The organisation must first adapt its fire safety knowledge/tracking resources through its ability to strategically manage and guide against tragic disasters. The strategic target focus hereby, is basically prevention and active fire-fighting activities which everyone has to adapt to. Whereas preventive measures focus strategic proactive elimination of occurrences, intervention measures are simultaneously active and reactive approaches, designed to avoid escalation and limit outcome damages or losses in the event of an inevitable occurrence (Jain & Rao, 2009). Undoubtedly, these issues and aspects constitute very important components of organisational safety management, which functions include: issue of safety documentation for plant/equipment and for civil, storage, installation, commissioning and operational maintenance phases of the project; provisions of firefighting systems (including permanent installations and portable devices); provisions for fire prevention in civil design and works stage; provisions in electrical design and works; organisation, measures and training of personnel; precautions against fires, housekeeping and monitoring; first-aid facilities and insurance coverage during construction and operational phases. As a matter of fact, storage, main plant, auxiliary plant and control building, office building, etc. should be basically covered in the fire prevention/fire-fighting schemes during construction and operation. Consequently, Oil Companies need to proactively manage their investments against tragic disasters rather efficiently through strategically effective Workplace Safety Practises or HSE practices generally, to also protect the environment in order to reach agreed corporate socially responsible goals which, inadvertently, refluxes on the productivity of their individual organisations.

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