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Employee Perception of the Impact of Management Commitment to Safety on Innovation in Oil and Gas Firms in Nigerian Petroleum Industry

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Abstract:** This study examined the impact of management commitment to safety on organizational innovation with focus on the oil and gas companies in the Nigerian Petroleum Industry. A cross sectional design was adopted in the study. A total of 373 employees from the upstream, midstream and downstream industries were sampled as participants. A structured questionnaire served as the main instrument for data collection. The copies of the questionnaire were administered using systematic sampling. A 5-point likert scale of strongly agree (SA), Agree (A), disagree (D), strongly disagree (SD) and undecided (U), was adopted in the present study. IBM Statistical Package for Social Sciences was employed in analysis of the data. The result showed that 373 (96.38%) employees participated in the study. The gender distribution showed that of the entire employees, 223 (60%) were males while 150 (40%) were females. The age distribution revealed that most employees were aged 31 – Above 45 years (82%). On the responses to management commitment to safety, Management coordinates its health and safety policies with other policies to ensure commitment and well-being of workers ranked 1st followed by Written declaration is available to all workers reflecting management's concern for safety, principles of action and objectives to achieve which ranked 2nd. Notably, Management acts only after accidents have occurred ranked 5th. On responses to innovation, we work closely with our clients in exploring and developing new concepts, we use measurement to help identify where and when we can improve our innovation management and the innovation projects undertaken by the company aligns with the strategic goals ranked 1st, 2nd and 3rd respectively. Statistical computation using Spearman's Rank Order Correlation Coefficient revealed that there is a strong positive correlation (r=.900)) between management commitment and innovation. It is recommended that routine safety assessment of the management commitments to safety in these industries should be carried out with a view to improving safety management practices.

***Keywords:** Management commitment, Innovation, Petroleum Industries, Safety.*

I. INTRODUCTION

Most oil and gas industries elsewhere and in Nigeria are currently evolving in their drive towards innovation and modernization (Khdair, Shamsudin, & Subramanim, 2011). The rapid growth of these industries raises serious safety concerns. Drilling and the production of oil and gas are intrinsically extremely hazardous activities. Mishaps can result to accidents, destruction of assets, injuries and even death (National Academies of Sciences & Medicine, 2016). The oil industries in Nigeria are prone to safety issues. Nigeria is the largest producer of oil in Africa with one of the largest natural gas reserve in Africa (EIA, 2016). Operations in the oil and gas industry in Nigeria is generally grouped into 3 – upstream, midstream and downstream sectors (Tsegha, 2013). Safety and security issues are serious challenges affecting these firms in Nigeria. Sincere commitment on the part of the management can serve as a key driver of innovations in these oil and gas firms. Lack of attention to safety performance, procedures and reduction of accidents in the oil and gas industries of Nigeria can result to destructive consequences hence, the need for deliberate leadership and management commitment to safety (Jiang, Yu, Li, & Li, 2010). Management commitment to safety is one of the drivers of employee safety performance (Stewart, 2001). This sub-framework is a part of the total organizational management system (Labodová, 2004). The commitment of management to safety is one of the main considerations adding to a fruitful safety system in an organization and can bring down accident rate by steady and updated training of employees (Zohar, 1980). Leadership commitment strengthens safety culture resulting to productivity and organizational performance (National Academies of Sciences & Medicine, 2016). Previous researchers recognized the significance of the management commitment in lessening employee accidents and injuries (Zohar & Polachek, 2014). The managements' commitment to safety is a fundamental factor which prompts the fulfillment of an organizations safety programs. Michael, Evans, Jansen, & Haight (2005) reported that management commitment to

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safety not only reduces safety related effects but inspires and inceases desirable employee attitudes and behaviors in employees. The commitment exhibited by management can impact a variety of areas, including employee attitudes and innovation (Michael et al., 2005). Innovation is seen to be one of the major competencies of an effective firm (Chen, Lee, Tsui, & Yu, 2012). The term innovation is characterized as another issue that creates value for a firm (Saunila & Ukko, 2012). Innovation can be 'steady' or 'radical'. Gradual innovation expand on existing abilities and is identified with minor upgrades to existing facilities or services (Inauen & Schenker-Wicki, 2012). Conversely, radical innovation is the improvement of new services or in a general sense better approach for sorting out and conveying service delivery (Mustafid & Anggadwita, 2013). The degree of novelty in the innovation process is characterized by the increamental (staeady) or radical nature of the innovation process (Un, 2010). Research shows that organizational performance is impacted by innovation (Durán-Vázquez, Lorenzo-Valdés, & Moreno-Quezada, 2012; Likar, Kopač, & Fatur, 2014; Nybakk, 2012). For instance, improved innovation is a significant management responsibility that can be legitimately related to organizational performance. Since innovation and drive towards technological improvements are currently the watch wards of oil and gas firms, the present study seeks to determine how management commitment to safety can impact innovation in the oil and gas industries in Nigeria. The paucity of available literatures on the subject matter has also necessitated this study. The objective of this study was to examine the relationship between management commitment to safety and innovation in the oil and gas industries of the Nigerian petroleum sector.

II. METHODOLOGY

The study focused on oil and gas firms in the upstream, midstream and downstream sectors of the industry. The cross sectional research design was adopted using the survey procedure. The main instrument for data collection was a structured questionnaire. A 5-point likert scale of strongly agree (SA), Agree (A), disagree (D), strongly disagree (SD) and undecided (U), was adopted in the present study. This modified likert scale was used to elicit responses from the respondents. Quantifiers were assigned to points in the continuum as; Strongly Agree (SA) = 5, Agree (A) = 4, Disagree (D) = 3, Strongly Disagree (SD) = 2 and Undecided (U) = 1. These scores were then multiplied by the number of responses to determine the weighted score and percentages calculated because those who strongly agree and agree are saying the same thing. Systematic sampling was adopted in the administration of the questionnaire. Taro-Yamane's equation was used in determining a sample size of 387. The IBM Statistical Package for Social Sciences (SPSS) version 21 was employed in the analysis of the data. Data were analyzed using descriptive (mean and ranks) and inferential statistical techniques (Spearman's Rank Correlation).

III. RESULT

The result of the study shown on Table 1 below revealed that out of the 387 questionnaires administered, 373 were retrieved. This gave a 96.38% response rate. Table 1 shows the gender distribution of the respondents. Of the 373 respondent, 223 were males while 150 were females. This gave a percentage distribution of 60% and 40% respectively for males and females.

Table 4.2: The Gender distribution of the Respondents

Gender	Respondents	Percentages
Male	223	60
Female	150	40
Total	373	100

Source: Field Survey, 2018

Table 2 below shows the age distribution of the respondents. Notably, majority of the respondents were aged 36 to 40 years. The data revealed that employees aged 20-25years accounted for 23 (6%) of the employees. Those aged 26-35 years accounted for 112 (30%) of the employees. Employees aged 36 – above 45years accounted the largest proportion of the employees.

Table 2: The Age distribution of the Respondents

Age	Frequency	Percentage (%)
20 - 25 years	23	6
26 - 30 years	46	12
31 - 35 years	66	18
36 – 40 years	88	24
41 - 45 years	82	22
Above 45 years	68	18
Total	373	100

Source: Field Survey, 2018

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Table 3 below revealed responses of respondents on management commitment in the Nigerian oil and gas sector. The statement Management coordinates its health and safety policies with other policies to ensure commitment and well-being of workers ranked 1st on a scale of 1-5 with majority of the respondents agreeing to the question. Similarly, written declaration is available to all workers reflecting management's concern for safety, principles of action and objectives to achieve ranked 2nd with a weighted mean of 3.06. On the other hand, the statement management operates an open door policy on safety issues ranked third while that of management clearly considers the safety of employees of great importance ranked 4th. Finally, majority of the respondents disagreed to the statement that management acts only after accidents have occurred as about 160 respondents disagreed on a mean scale of 2.95.

Table 3: Responses on Management Commitment

S/N	Management Commitment	**SA [5]**	**A [4]**	**D [3]**	**SD [2]**	**U [1]**	Total Respondents	Weighted Mean	Rank	Remark
1	Management coordinates its health and safety policies with other policies to ensure commitment and well-being of workers.	80 (21.4)	82 21.9)	79 (21.2)	56 (15.0)	76 (20.4)	373	3.09	1st	Agreed
2	Written declaration is available to all workers reflecting management's concern for safety, principles of action and objectives to achieve.	96 (25.7)	52 (13.9)	76 (20.4)	75 (20.1)	74 (19.8)	373	3.06	2nd	Agreed
3	Management operates an open door policy on safety issues	76 (20.4)	84 (22.5)	62 (16.6)	77 (20.6)	74 (19.8)	373	3.03	3rd	Agreed
4	Management clearly considers the safety of employees of great importance	70 (18.8)	88 (23.6)	71 (19.0)	65 (17.4)	79 (21.2)	373	3.01	4th	Agreed
5	Management acts only after accidents have occurred	63 (16.9)	80 21.4)	75 (20.1)	85 (22.8)	70 (18.8)	373	2.95	5th	Disagreed

Source: Researchers Field Work, 2018

Scale: 0 –1.99 = Undecided
2.00- 2.99 = Disagreed
3.00 – 5.00 = Agreed

N/B Values in Parenthesis () are percentages

Table 4 below showed that the statement "we work closely with our clients in exploring and developing new concepts" was top of the scale as it was ranked 1st according to the pool of opinions of the respondents; "we use measurement to help identify where and when we can improve our innovation management" was on 2nd with a weighted mean of 3.46. Also, the statement that "the innovation projects undertaken by the company aligns with the strategic goals" ranked 3rd whereas my organization systematically searches for new product ideas was 4th with a weighted mean of 3.15. Conclusively, "innovation has the tendency of making the organization to develop new or improved services" ranked 5th. Generally all the statements on innovation were accepted by the respondents as their mean rank was well above the mean criterion of 3.0.

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Table 4: Responses on Innovation

S/N	Innovation	**SA [5]**	**A [4]**	**D [3]**	**SD [2]**	**U [1]**	Total Respondents	Weighted Mean	Rank	Remark
1	We work closely with our clients in exploring and developing new concepts	122 (32.7)	110 (27.5)	43 (11.5)	48 (12.9)	50 (13.4)	373	3.55	1st	Agreed
2	We use measurement to help identify where and when we can improve our innovation management	106 (28.4)	93 (24.9)	78 (20.9)	60 (16.1)	36 (9.7)	373	3.46	2nd	Agreed
3	The innovation projects undertaken by the company aligns with the strategic goals.	100 (26.8)	75 (20.1)	85 (22.8)	68 (18.2)	45 (12.1)	373	3.31	3rd	Agreed
4	My organization systematically searches for new product ideas	86 (23.1)	77 (20.6)	77 (20.6)	74 (19.8)	59 (15.8)	373	3.15	4th	Agreed
5	Innovation has the tendency of making the organization to develop new or improved services	73 (19.6)	98 (26.3)	65 (17.4)	70 (18.8)	67 (17.9)	373	3.11	5th	Agreed

Source: Researchers Field Work, 2018

Scale: 0 –1.99 = Undecided
2.00- 2.99 = Disagreed
3.00 – 5.00 = Agreed

N/B Values in Parenthesis () are percentages

The result of the statistical computation using Spearman's Rank Correlation Coefficient revealed that there is a strong positive correlation between management commitment and innovation. The correlation co-eficient (r) was .900 which is significant at p = .05. The coefficient (r) determinatiral (r2X100) indicated that variation in management commitment explains 81% of the variance that affect the innovation of workers in the oil and gas sector.

IV. DISCUSSION

The socio demographic characteristics of the present study showed that 60% of the employees were males while 40% were females. This is similar to the findings earlier reported in Nigeria (Agwu, 2012). While most employees suggested that managers express concern when safety procedures are not followed the will to enforce the actual safety culture is not actually reported, which can result to serious hazards in the oil and gas industry. This finding agrees with studies and reports by Dorman (2000) and Mossink & de Greef, (2002). They emphasized in their study that most safety managers are aware of what to do but for some reasons either financial, or a lack of the will power to enforce both they just refuse to enforce actual safety procedures at work place. Management' commitment to safety has been re[ported as a key driver of innovations in oil and gas firms in Russia (Thurner & Proskuryakova, 2014). Safety Leadership is a key factor in creating and achieving an optimum safety culture in an organization. Management commitment as a leadership process to safety is reportedly the major controlling influence in obtaining organizations success in oil and gas firms (Rich, 2016). Managers in most industries are faced choices of commitment to different aspects of their firms and business thereby neglecting commitment to safety (Michael et al., 2005). Management commitment to safety ensures the adequate allocation of safety resources, monitoring and evaluation of safety practices and the demonstration of active safety leadership in firms (VibeThemes, 2018). Leadership commitment to safety from top management is a necessity to an organization's safety management system (Vongvitayapirom & Phusavat, 2013). To achieve an effective safety management system, adequate budget, management motivation and shared accountability must be implemented (Gibson, 2014).

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V. CONCLUSION

This study determined the impact of management commitment to safety on innovation in the oil and gas industries of the upstream, midstream and downstream sectors of the Nigerian petroleum sector. Most employees opined that management is committed to safety in different ways, and it impacts on innovation in varying ways too. Management commitment to safety ensures improved safety culture, employee motivation, improved productivity, quality, and profitability and employee satisfaction. It is recommended that routine safety assessment of the management commitment to safety in these industries should be carried out with a view to improving safety management practices.

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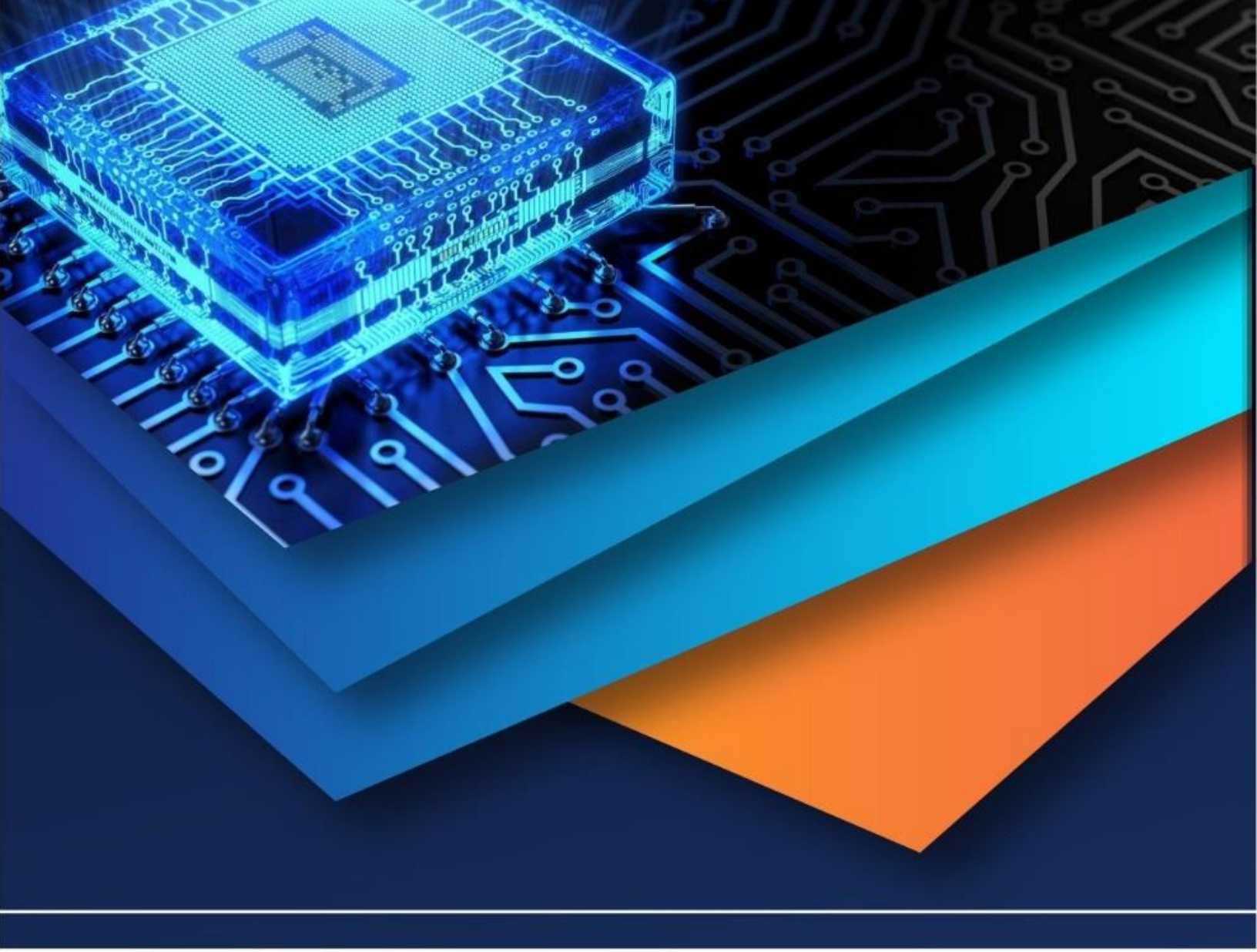

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