

Descriptive Analytics and Organizational Innovativeness of Downstream Oil and Gas Firms in South-South, Nigeria

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Abstract: *This paper investigated the relationship between descriptive analytics and organizational innovativeness of downstream oil and gas firms in South-South, Nigeria. The paper adopted a cross sectional research design. The population of the study comprises a total of sixty (60) managers selected from twenty downstream oil and gas firms and sixty questionnaires were administered but fifty-seven were returned representing 95% of the total questionnaire. Three questionnaires were not returned representing 5% of the total questionnaire distributed. Out of the fifty-seven that were returned, fifty-four (54) of the questionnaires representing 90% were properly filled and acceptable for analysis while three copies of the questionnaire were rejected for failure to meet acceptable standard in order to minimize errors in the analysis hence a total of six (6) questionnaire representing 10% were not included in the analysis. The paper adopted a census sampling technique due to the smallness of the population. Tables, percentages, Spearman's Rank Order Correlation Coefficients and Statistical Package for Social Science version 21 were used for data presentation, analysis and testing of hypotheses to determine the relationship between descriptive analytics and organizational innovativeness of downstream oil and gas firms in South-South, Nigeria. The study discovered that there is positive and significant relationship between descriptive analytics and organizational innovativeness of downstream oil and gas firms in South-South, Nigeria. Every employee has record either performance or personal that suggest their attitudes, skill-sets, approach to work and level of creativity and commitment. These past records of employees are lead way to ascertaining the innovativeness of employees in their current and future roles hence this study concludes that effective records keeping and data management of employees play a crucial role in encouraging and enhancing employee creativity and innovativeness. The study therefore recommended that there is need for the management of down streams oil & gas firms to "Strategically implement descriptive analytics to drive innovation by encouraging a culture of data-driven decision-making at all levels of the organization.*

Keywords: *Administrative Innovativeness, Descriptive analytics, Downstream oil and gas firms, Product Innovativeness, Process Innovativeness*

INTRODUCTION

The technology revolution of the 21st century has increased the competition among organizations around the globe. According to Gareth (2018), today's organizations are under increasing pressure to survive the challenges of technological innovations, rapid environmental changes and globalization that has resulted to high level of competition in the business environment. In order to prevail the stiff competition necessitated or posed by technology and globalization amidst the

conundrum of the ever-changing complex, unpredictable, globalized and highly competitive business environment, organizations need highly skilled, knowledgeable and technology savvy employees with the right attitudes and motivation to effectively and efficiently perform their functions in order to achieve the goals of the organization. Human resource is the most dynamic of all the organizations resources and it is imperative that an employee's potentials be harnessed to the best for organizational success. Employees full potentials may be effectively harnessed when decisions about them are data driven and they are mutually engaged.

Interestingly, the need for effective decision-making process, work flow and utilization of skills to enhance employee performance has caused a shift in the traditional Human resource practice in this contemporary time. The need for such a shift in HR was argued by Boudreau and Ramstad (2005) who maintained that, the traditional service-oriented HR functions must be extended to a decision science and scientific approach that enhances effective decisions making about human capital and work process management. Effective HR decision making in an age of technology revolution could be effective with the use of a robust HR data management framework. Good data management system has away to facilitate employee innovation and creativity. According to Wolf (2006), innovativeness enhances business performance because the services rendered or improved product increases firm competitiveness and transform its internal capacity and capability to survive and adapt to changes posed by the environment. Innovativeness is the key to competitive advantage in this unpredictable, unfathomable and ever dynamic business environment (Ofor, 2020). The value created by innovativeness are often noticed in new ways of doing things or processes that contribute to the organization's effectiveness and efficiency (Voss, 2008). Despite the fact that descriptive analytics enhances employees innovation, there seems to be little or no empirical investigations on the relationship between descriptive analytics and organizational innovativeness especially as it relate to the oil and gas sector in South-South, Nigeria.

The purpose of this study was therefore to empirically examine the relationship between descriptive analytics and organizational innovativeness of downstream oil and gas firms in South-South, Nigeria.

The specific objectives of this study includes.

1. To examine the relationship between descriptive analytics and product innovativeness of downstream oil and gas firms in South-South, Nigeria
2. To investigate the relationship between descriptive analytics and process innovativeness of downstream oil and gas firms in South-South, Nigeria
3. To determine the relationship between descriptive analytics and administrative innovativeness of downstream oil and gas firms in South-South, Nigeria

The research questions are as follows

- i. How does descriptive analytics relate to product innovativeness of downstream oil and gas firms in South-South, Nigeria?
- ii. What is the relationship between descriptive analytics and process innovativeness of downstream oil and gas firms in South-South, Nigeria?
- iii. What is the relationship between descriptive analytics and administrative innovativeness of downstream oil and gas firms in South-South, Nigeria?

LITERATURE REVIEW

Theoretical Foundation

Social Learning Theory

The social learning theory was propounded by Albert Bandura in 1977. In explaining Bandura's position on social learning, White (2006) opined, Bandura added a social element to the learning process by arguing that people learn new behaviors by watching other people within the environment they live or operate. After observing the behavior of others, people assimilate, imitate that behavior, and through interaction they imbibe and internalized the behavior particularly if the behavior is positive. According to Bandura (1977), imitation involves the actual reproduction of an observed action activities. This similar process happens in the workplace. Employees may observe how other employees carry out their work and may learn from them. Inyang (2004) explained that, an individual can learn to do a job by observing another person doing the job. Secondly, employees learn from other colleagues through the mediums of interactions and observation. Social learning theory explains behavior in terms of a continuous interaction between cognitive, behavioral and environmental determinants. Organization learns and constant learning promotes new ideas, innovation and creativity. Learning enhances flexibility and adaptability. Ahiauzu and Asawo (2016) explains that, social learning theory is of prime importance to organizational learning.

Learning, according to Wang and Ahmed (2002) starts from individuals and as such a learning organization is founded on the learning process of individuals in the organization. The concept of learning is understood from various perspectives and has long evolutionary history (Wang & Ahmed 2002). This, notwithstanding, scholars (Wang & Ahmed 2002, Rollinson *et al*, 1998) all subscribe to the view that theories of learning have their roots in the history of psychology and sociology, and have become an important issue in the understanding of human behavior and organizational creativity. Learning according to Thompson and McHugh (1995), is a relatively persistent change in an individual's possible behavior and this according to them is due to experience and observation. Thompson and McHugh (1990) added that, cognitive models are usually given as the main explanation of the learning process. Learning occurred where there is a change in behavior of individual or organization. Descriptive analytics demonstrates the importance of good data management and using such data particularly past records to pipe into what the future holds. The learning theory helps organizations to manage that process between the past and the future for the good of the organization.

Concept of Descriptive Analytics

Descriptive analytics focuses on the past to make an informed decision (Naasz & Nadel, 2015), and it is more concerned with differences and relationships between different parts. According to Ranjan and Basak (2013), the most accessible type of analytics is descriptive analytics. Ikegwuru and Acee-Eke (2020) noted that, descriptive data analytics is originated on the analysis of data re-counting previous business state of affairs, predispositions, archetype, and expostulations. It uses raw data that can be derived from various sources to give a good insight into past events drawing from the organization memory. The question of what happened? is the question that is tried to be answered by this type of analytics (Oladipupo & Olubusayo, 2020). Meanwhile, Ruohonen (2015) stated that the main characteristics of descriptive analytics are describing the historical and current patterns of data and events, scorecards and dashboards. Mohammed (2019) opined that, descriptive analytics

is the first dimension of HRA which entails first level of analysis includes understanding historical data, behavior and outcomes and it only describe the relationship. Descriptive analytics involves the use of data picturing, drilling-down, dashboards/score cards, SQL Queries. Descriptive analytics focuses on the past to make an informed decision (Naasz & Nadel, 2015), and it is more concerned with differences and relationships between different groups, personalities or departments.

Concept of Organizational Innovativeness

In the face of this changes in the economic, social, demographic and environmental conditions of business environment occasioned by technology advancement, organizations cannot afford not to improve its products, processes and administrative philosophy and practices in order to gain competitive edge. It is important to note unequivocally that organizations are embracing innovation to succeed in this contemporary dispensation and that requires innovation. Innovation is key to the survival and success of any organization. Many organizations have gone into extinction because of their inability to innovate or be creative in their operations and activities. Innovation is the practical implementation of ideas that result in the introduction of new goods or services or improvement in offering goods or services (Damanpour, 1999) while Innovativeness may be defined as **the degree to which an individual is relatively earlier in adopting an innovation than other members of his system** (Rogers & Shoemaker, 1971). They further explained that, where “relatively earlier” refers to actual, rather than perceived time of adoption. Innovativeness is critical in achieving competitive advantages and quality satisfaction of customers (Noefer *et al.*, 2009). Without innovation, organizations will fail to create the conditions for sustainable growth. Thus, it is highly valued and imperative for organizations to prioritize innovation for their long-term success (Anderson *et al.*, 2014). According to Fubara (2019), the word innovativeness is derived from the Latin word ‘innovare’ which means to make something new in a complex construct. Innovativeness literature has emanated from different fields of knowledge including management, psychology, economics, sociology and science. Within these and other disciplines, researchers tend to conceptualized innovativeness in different ways (Gopalakrishnan & Demanpour 1997; Tang 1998). Mcfadzean and Shaw (2005) defined innovativeness as a process that provides added value and novelty to the organization through the development of new procedures, solution and product. The process between input and output is most importantly a core attraction to organizational innovative endeavors

Measures of Organizational Innovativeness

Product Innovativeness

Product innovativeness might be the most commonly known form of innovation and it consists in the creation or improvement of an existing product or service. We should note that not every business can improve product innovation if they are conscious of the time and customers sensibility. From the creation of product and conception of ideas for future improvement and the commercialization of such product/service, every stage shall require innovation. Product refers to a commodity that satisfies customers’ need or want. The final output from the conversion process of an organization is called product or service (Kotler & Armstrong 2013). Human needs are the primary reason for why goods are produced. Goods are produced either for consumption or further production as the case might be. Product innovations involve the production of quality goods or products that satisfy the needs of customers. Kotler and Armstrong (2013) argued that product innovation start with knowing what consumers want and initiating the process to satisfying those

needs at affordable prices. According to Jeff (2012), product innovation is necessitated by the changing nature of customers' desire and the need to comply with best practices.

Product innovativeness involves either a new or improved product, which is distinguished significantly from previous products. Technological product-oriented innovativeness targets quality improvement of products. It offers potential protection to firms from market threats and competitors. It is the creation of new products or modification of existing products, technological newness in product and product differentiation to meet customers and market equilibrium. It is the result of producing and commercialization of new products/ services or imitating foreign or competitors' product. It involves radical product which can be new to the firm or new in the market. The dimension of technological product innovativeness of firms includes, cost effective, quality improved or improved versions of existing products or altogether new products, creating varieties of products, creating demands in the new markets leading to production and income growth and to employment growth. Ibidunmi, Iyiola, and Ibidunni, (2014) established a positive relationship between product innovation and an increase in sales volume, while Braunerhjelm, Ding, and Thulin (2016) conclude that it boosts the growth of firms more than process innovativeness.

There are different kinds of products that organization can offer ranging from consumable to capital good and others. Product innovation in organizations represents a crucial point for maintaining a sustainable competitive advantage and survival (Okwandu, 2008). In a world of continuous change, globalization and technology advancement where customers are more demanding for quality services/products than ever and expecting better products at a lower price it become imperative for organizations to improve their products and offerings.

Process Innovativeness

Process innovativeness facilitates methods, procedures, designs and techniques to produce quality goods (output) from inputs resources. Norman (2012) noted that there is no product that is produce that will not follow an established standard. This standard could be the method, design or specification that the raw materials will go through before it finally comes out as products. It is important to noted that the outcome of any product is determined by the process adopted in order to ensure it conform to quality expectations. Kotler (2011) argued, the process that brings a product should be robust enough to ensure quality products at the final production stage. In between the raw materials and final products is the process which requires diligent planning and control. The ability of the organizations to produce goods that will appeal to customers remains a very fundamental challenge. Organizations can thrive or fail at this point should there be uncontrollable failure in the production process (Gabriel, 2017). A typical production process involves three elements of inputs, transformation and output. The inputs may comprise men, machine, materials, money and information. The transportation may comprise conversion methods, techniques and factory configuration and packaging (Gabriel, 2017).

Process-oriented innovativeness is a set of activities involving novel production methods or techniques in production operations that lead to the introduction of new or modified products. It involves creativity and ideas management. Lendel, Hittmara and Siantova (2015) defines it as a process of recognizing customer needs and innovation opportunities, generating innovative ideas and their elaboration, working with information and knowledge regarding innovation, realization of innovation activities and ensuring successful extension of innovation among customers. It involves the process of carrying out sequential activities or task of transforming creative ideas to products/services. The process-oriented innovativeness takes the form of material replacement,

application of new technology, R&D and new combination of materials in production, redesign core operating processes, and change in technical process of manufacturing, imitating the methods of production/processes used by other firms, etc. to achieve cost reduction or quality improvement.

Process-oriented innovativeness involves reengineering and improving internal operations of firms. It concerned with the creation of or improvement in techniques and the development in process or system. Its dimensions involve innovativeness in technology, skill, techniques, systems and procedures, which are used in the process of transforming inputs into outputs. It reduces the cost of labor and capital, determines productivity growth. Process failure may be due to lack of innovative expertise, failure to secure the flow of information in a firm, insufficient training and motivation of employees (Lendel, Hittmara, & Siantova, 2015).

Administrative Innovativeness

Administrative Innovativeness comes in different ways because it relates to the structure and processes an organization adopts. No two organizations adopt the same structure and policies. The size and nature of the organization's business has a way of influencing the structure and policies the organization adopts in line with the existing laws in Nigeria. When we talk about administrative innovativeness, we refer to structure, human resource policies, marketing strategies and programmes and accounting systems that an organization favour (Ofor, 2020). According to Sola (2014) management or administrative innovativeness refers to innovation in management principles, corporate practices, strategic intent and processes that influence the practice of what managers do and how they do it. How managers do their job has a fundamental bearing in the dominant and prevailing management philosophy and organizational goals that employee and customers-oriented policies are practiced (Bature, 2020). Damanpour *et al.* (2009) sees administrative innovativeness as novel changes in the organization' structure, processes, administrative systems and knowledge utilized in performing the work of management, skills that enable an organization to function effectively and efficiently and performance management. In view of technology advancement in contemporary times, some organizations have adopted technology to improve their performance and operations efficiency. The traditional methods of administration and distribution of goods and services have been replaced with technology driven methods in this 21st century. Management innovation is a must for organizations to survive and compete favorably in the industry (Fubara, 2019).

Descriptive Analytics and Organizational Innovativeness of Downstream Oil and Gas firms

The question of what happened? is the question that descriptive analytics seek to answer (Oladipupo & Olubusayo, 2020). Meanwhile, Ruohonen (2015) stated that the main characteristics of descriptive analytics are describing the historical and current patterns of data and events, scorecards and dashboards as it applies to data collection and analysis to ascertain the current happenings of events in the organization. Mohammed (2019) opined that, descriptive analytics is the first dimension of HRA which entails first level of analysis includes understanding historical data, behavior and outcomes. Descriptive analytics involves the use of data picturing, drilling-down, dashboards/score cards, SQL Queries. Descriptive analytics focuses on the past to make an informed decision (Naasz & Nadel, 2015). These data concerns products, processes and administrative systems of the organization. Kotler and Armstrong (2013) argued that product innovation start with knowing what consumers want and initiating the process to satisfying those

needs at affordable prices. According to Jeff (2012), product innovation is necessitated by the changing nature of customers' desire and the need to comply with best practices. There are different kinds of products that organization can offer ranging from consumable to capital good and others. Interestingly, a process is always followed to produce the particular quality of product that meets customers' satisfaction. This has to be innovative as much as the administrative side of the organization in order to achieve intended goal but there are no empirical studies to indicate the relationship between descriptive analytics and organizational innovativeness. Some scholars had carried out empirical studies with variables of interest and a few are presented below:

Fubara and Asawo (2020) carried out a study on Self Awareness and Organizational Innovativeness of Manufacturing Firms in Rivers State. This study investigated the relationship between self-awareness and organizational innovativeness in the manufacturing sector in Rivers State. The study adopted a cross sectional research design. A total of ninety-seven (97) management personnel comprise Chief Executive Officers and heads of departments of the twenty (20) registered and functional manufacturing firms in Rivers State constituted the population of the research. Census sampling method was adopted due to the fact that the sample size is small. The main data collection instrument for this paper was structured questionnaire. A total of ninety-seven (97) copies of the questionnaire were distributed and ninety-one (91) was retrieved while six (6) were not returned. Tables, percentages, Spearman's Rank Order Correlation Coefficients and Statistical Package for Social Science version 23 were used for data presentation, analysis and testing of hypotheses to determine the relationship between self-awareness and organizational innovativeness. The paper revealed that there is positive and significant relationship between self-awareness and organizational innovativeness. The study concluded that understanding ones emotional stability, feelings of others as it relate to their job performance and awareness of organizational processes, skills and product performance could spur the organizations to be innovative, produce goods and services that meet customers' satisfaction at profit. The study therefore recommended that top managers should develop the skills to understand what drives their employees in the workplace, initiate and drive innovativeness with input from employees to create that sense of belongingness

Oladipupo and Olubusayo (2020) carried out a study on Human Resource Analytics dimensions and Employee engagement in manufacturing industry in Nigeria: a conceptual review. Every organization is interested in the contribution of the employee to the bottom line of the organization. Therefore, the level of employee engagement becomes paramount in driving organizational overall performance. The objective of this study was to assess different dimensions of HR analytics and how they can be leveraged for better-quality engagement of the employee in the manufacturing industry. The study adopted secondary data as published in reputable journals. Information gathered within the scope of the study was theoretically analyzed and discussed in line with the objective of the study. The purpose was to find out if HR analytics dimensions adopted in manufacturing firms contribute to employees' engagement. The findings revealed that HR analytics contribute considerably to the level at which employees are engaged. Therefore, it was recommended that, organizations should leverage on HR analytics dimension for improved job engagement.

Mohammed (2019) carried out a study on HR analytics: a modern tool in HR for predictive decision making. Developments in Human Resources Management (HRM) are fast being integrated with corresponding changes in data and information processing, which are restructuring our environments. The domain of human resource analytics, which can be understood as a data and analytical thinking-centered approach to Human Resources Management, is fast becoming an indispensable part of organizational setups. This study adopted a theoretical and conceptual review

of existing literature on HR analytics and their implications for predictive decision-making in organizations. The study discovered that HR Analytics is crucial and critical in the success and growth of organization in this era of technology advancement. Therefore, the study recommended that, organizations should effectively and properly integrate the framework of Human Resource Analytics to enable them take inform decision about employees and organizational performance.

In view of the foregoing review, the following hypotheses were drawn.

- H01:** There is no relationship between descriptive analytics and product innovativeness of downstream oil and gas firms in South-South, Nigeria
- H02:** There is no relationship between descriptive analytics and process innovativeness of downstream oil and gas firms in South-South, Nigeria
- H03:** There is no relationship between descriptive analytics and administrative innovativeness of downstream oil and gas firms in South-South, Nigeria

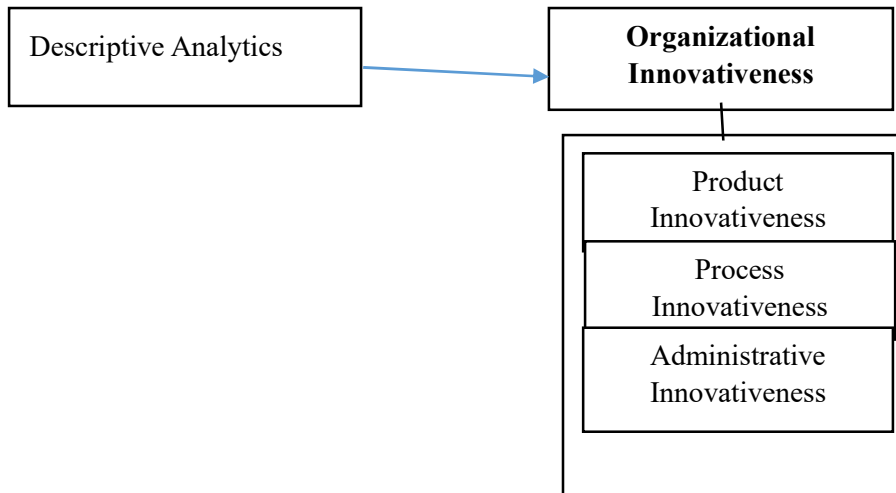


Fig. 1: Conceptual framework for the hypothesized relationship between descriptive analytics and organizational innovativeness of downstream oil and gas firms in South-South, Nigeria.

Source: (Gokpalakrisna, S. (1999); Gartner, I.T (2013); Oladipupo O.O & Olubusayo, F.H (2020)

METHODOLOGY

Ahiauзу (2006) opined that, research design should be able to outline the type of research, unit of analysis and the time frame for the study. For the purpose of this study which was to examine the relationship between descriptive analytics and organizational innovativeness of downstream oil and gas firms in South-South, Nigeria, the study adopted a cross sectional research design. The population of the study comprises a total of sixty (60) managers selected from twenty downstream oil and gas firms and sixty questionnaire were administered but fifty-seven were returned representing 95% of the total questionnaire. Three questionnaires were not returned representing

5% of the total questionnaire distributed. Out of the fifty-seven that were returned, fifty-four (54) of the questionnaires representing 90% were properly filled and acceptable for analysis while three copies of the questionnaire were rejected for failure to meet acceptable standard in order to minimize errors in the analysis hence a total of six (6) questionnaire representing 10% were not included in the analysis. Tables, percentages, Spearman’s Rank Order Correlation Coefficients and Statistical Package for Social Science (SPSS version 21) were used for data presentation and analysis and hypotheses were tested to determine the relationship between descriptive analytics and organizational innovativeness.

Table 1: Reliability Coefficients of Variables

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha
Descriptive analytics	27.2593	25.733	.340	.507	.828
Product Innovativeness	28.0556	17.336	.699	.611	.793
Process Innovativeness	26.8935	25.506	.419	.629	.816
Administrative Innovativeness	27.1944	23.266	.699	.659	.780

Source: Research Data, 2024

DATA ANALYSIS AND RESULTS

Bivariate Analysis

Spearman’s rank order correlation coefficient technique at 95% confident level was used for data analysis. The tests examined hypotheses Ho₁, Ho₂ and Ho₃ which are bivariate and all stated in the null form. We tested hypotheses by using the Spearman’s Rank (rho) correlation and 0.005 significance level was adopted as the basis for accepting or rejecting the null hypotheses at (p0.005).

Table 2: Relationship between Descriptive Analytics and Product Innovativeness

		Descriptive analytics	Product Innovativeness
Descriptive analytics	Correlation Coefficient	1.000	.970**
	Sig. (2-tailed)	.	.000
Spearman's rho	N	54	54
	Correlation Coefficient	.970**	1.000
Product Innovativeness	Sig. (2-tailed)	.000	.
	N	54	54

** . Correlation is significant at the 0.01 level (2-tailed).

Source: Research Data, 2024

Table 2 showed the relationship between Descriptive Analytics and Product Innovativeness of downstream oil and gas firms in South-South, Nigeria. The correlation coefficient shows that there is a very strong relationship between descriptive analytics and product innovativeness of downstream oil and gas firms in South-South, Nigeria. The correlation coefficient of 0.970 confirms the magnitude and strength of this relationship and it is statistically significant at ($\rho = 0.01 < 0.05$). The correlation coefficient represents a very strong correlation between the variables. Based on the empirical findings, the null hypothesis **H₀₁** as stated earlier that; there is no relationship between Descriptive Analytics and Product Innovativeness in downstream oil and gas firms in South-South, Nigeria is hereby rejected and the alternate hypothesis accepted. Thus, there is a strong relationship between Descriptive Analytics and Product Innovativeness of downstream oil and gas firms in South-South, Nigeria.

Table 3: Descriptive Analytics and Process Innovativeness

		Descriptive Analytics	Process Innovativeness
Spearman's rho	Descriptive analytics	Correlation	1.000
		Coefficient	.706**
	Process Innovativeness	Sig. (2-tailed)	.
		N	54
	Descriptive analytics	Correlation	.706**
		Coefficient	1.000
Process Innovativeness	Sig. (2-tailed)	.000	
	N	54	

** . Correlation is significant at the 0.01 level (2-tailed).

Source: Research Data, 2024.

Table 3 above showed the relationship between Descriptive analytics and Process Innovativeness of downstream oil and gas firms in South-South, Nigeria. The correlation coefficient shows that there is a strong relationship between Descriptive Analytics and process Innovativeness of oil and Gas Firms in South-South, Nigeria. The correlation coefficient of 0.706 confirms the magnitude and strength of this relationship and it is statistically significant at ($\rho = 0.01 < 0.05$). The correlation coefficient represents a strong correlation between the variables. Based on the empirical findings, the null hypothesis **H₀₂** as stated earlier that; there is no relationship between Descriptive Analytics and Process Innovativeness in downstream oil and gas firms in South-South, Nigeria was rejected and the alternate hypothesis accepted. Thus, there is a strong relationship between Descriptive Analytics and Process Innovativeness of downstream oil and gas firms in South-South, Nigeria.

Table 4: Descriptive Analytics and Administrative Innovativeness

		Descriptive Analytics	Administrative Innovativeness
Spearman's rho	Descriptive Analytics	Correlation	1.000
		Coefficient	.914**
		Sig. (2-tailed)	.000
	Administrative Innovativeness	N	54
		Correlation	.914**
		Coefficient	1.000
	Sig. (2-tailed)	.000	
	N	54	
		54	

** . Correlation is significant at the 0.01 level (2-tailed).

Source: Research Data, 2024

Table 4 above showed the relationship between Descriptive Analytics and Administrative innovativeness of Downstream Oil and Gas Firms in South-South, Nigeria. The correlation coefficient shows that there is a very strong relationship between Descriptive Analytics and Administrative Innovativeness of oil and Gas Firms in South-South, Nigeria. The correlation coefficient of 0.914 confirms the magnitude and strength of this relationship and it is statistically significant at ($\rho = 0.01 < 0.05$). The correlation coefficient represents a very strong correlation between the variables. Based on the empirical findings, the null hypothesis **H₀₃** as stated earlier that; there is no relationship between Descriptive Analytics and Administrative Innovativeness in downstream oil and gas firms in South-South, Nigeria was rejected and the alternate hypothesis accepted. Thus, there is a strong relationship between Descriptive Analytics and Administrative Innovativeness of downstream oil and gas firms in South-South, Nigeria.

DISCUSSION OF FINDINGS

The findings indicates that there is relationship between descriptive analytics and organizational innovativeness. The result demonstrated that the organizations are aware of the need of descriptive human resource analytics to enhance organizational innovativeness of downstream oil and gas firms in South-South, Nigeria. All the results were above the average of 3.00 for a 5-point Likert scale. The correlation coefficient of 0.970 between descriptive analytics and product innovativeness confirms the magnitude and strength of this relationship and it is statistically significant at ($\rho = 0.01 < 0.05$). The correlation coefficient of descriptive analytics and process innovation was 0.706, this confirmed the magnitude and strength of this relationship, it was statistically significant at ($\rho = 0.01 < 0.05$). The correlation coefficient between Descriptive Analytics and Administrative Innovativeness was 0.914 this was above the average of correlation; it confirms the magnitude and strength of this relationship and it is statistically significant at ($\rho = 0.01 < 0.05$).

This result aligned with the work of Oladipupo and Olubusayo (2020) that analytics contribute considerably to employees’ engagement. Also, it is in line with the work of Mohammed (2019) who carried out a study on HR analytics: a modern tool in HR for predictive decision making. That developments in Human resource management are being integrated into strategic changes in the environment by leveraging on HR analytics to enable organizations effectively manage their

employees and to maximize their potentials, talents and skills to advance innovative service and product delivery. Damanpour et al (2009) sees administrative innovativeness as novel changes in the organization' structure, processes, administrative systems and knowledge utilized in performing the work of management, skills that enable an organization to function effectively and efficiently and performance management. In view of technology advancement in contemporary times, some organizations have to adopt technology to improve their performance and operations efficiency.

CONCLUSION AND RECOMMENDATIONS

Descriptive analytics focuses on the past to make an informed decision (Naasz & Nadel, 2015), and it is more concerned with differences and relationships between different parts. Mohammed (2019) opined that, descriptive analytics is the first dimension of HRA which entails first level of analysis which includes understanding historical data, behavior and outcomes of employees and further describe the relationship that exist between the past and present. Every employee has record either performance or personal that suggest their attitudes, skill-sets, approach to work and level of creativity and commitment. These past records of employees are leadway to ascertaining the innovativeness of employees in their current and future roles hence this study concludes that effective records keeping and data management of employees play a crucial role in encouraging and enhancing employee creativity and innovativeness.

From the findings, we make the following recommendations:

- i. There is need for the management of down streams oil & gas firms to "Strategically implement descriptive analytics to drive innovation by encouraging a culture of data-driven decision-making at all levels of the organization.
- ii. Managers of Human resource should train employees to use descriptive analytics tools to enable them gain insights and foresights to enhance process and administrative choices, enabling more informed and efficient decisions to improve performance and increase productivity
- iii. Managers of Human resource should adopt technology in data management of employees
- iv. Managers should create an environment where organization' structure, processes, administrative systems and knowledge are utilized in line with contemporary skills that enable employees to function effectively and efficiently in order to achieve the goals of the organization.

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