

INTELLIGENT TECHNIQUE SYSTEMS; ORGANIZATIONAL SUSTAINABILITY INDEX OF OIL AND GAS COMPANIES IN SOUTH-SOUTH, NIGERIA

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ABSTRACT

This study examines the relationship between intelligent technique systems and organizational sustainability of oil and gas companies in south-south Nigeria. The study adopted the exploratory approach in drawing the study conclusion based on result of previous studied reviewed literature. Our review of literature was conducted on the predictor variable (intelligent technique systems) and the criterion variable (organizational sustainability) with the two measures of profitability and growth. From the results of our reviewed, we saw evidence that intelligent technique systems have strong positive significant influence on the measures of organizational sustainability of profitability and growth. Relying on the result, we concluded that, there is a strong positive significant relationship between intelligent technique systems and organizational sustainability.

Keywords: Intelligent technique systems, organizational sustainability, profitability, customers' satisfaction, growth.

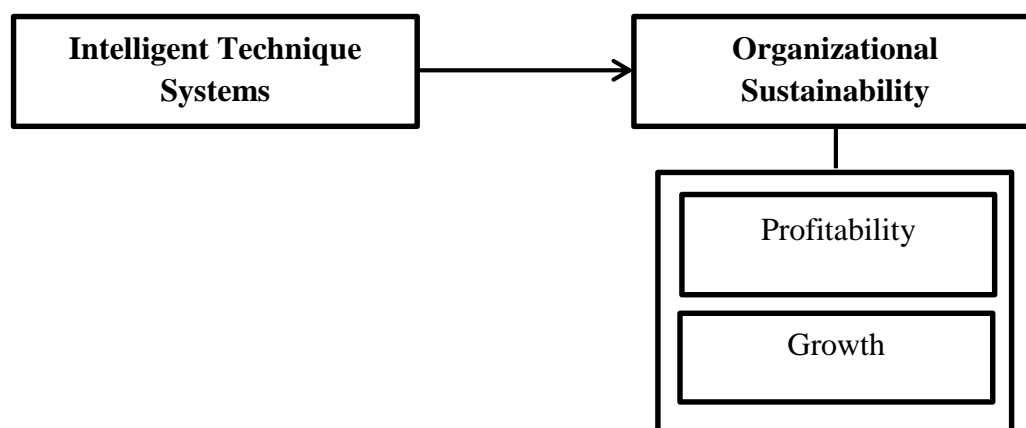
INTRODUCTION

One of the greatest challenges before the oil and gas companies today in the south-south region is the issue of environmental sustainability. For decade of oil exploration in Nigeria and south-south in particular, the oil and gas companies constantly face with the negative impact of environmental sustainability. This issue occur as a result of the company's negligence of environmental sustainable development as their operation pitted against sustainable ecosystem. The result of this negligence saw oil and gas companies in the south-south region consistently face series of attacks on their facilities, leading to oil spillage in the region and create more tension on the sustainability of the organization. In developed world, the operation of oil and gas companies have change drastically as leading oil companies are using technology in their operations and source for more eco-friendly operations that will sustain the business environment which have direct impact on organizational sustainability. Fortunately, no organization can perform at its peak level unless each employee is committed to the organizations goal achievements. The tools deployed by organizational leaders to its workforce dictate the pace of organizational sustainability. To get at those hard-to-find, difficult-to-develop resources, companies built large, complex intelligent system with strong centralized functions. This model allowed them to tackle terrific technical challenges, manage great political and operational risks, and deploy scarce talent across the world as needed. While these reasons were all valid during a decade of high growth, this organizational journey also led to substantial complexity for large players adding cost, stifling innovation, and slowing down decision making.

It is clear that the context in which oil and gas organizations exist has change with a lot of new innovation for the sector operation. Trends such as climate change, globalization, demographic change, technological change and social inequality have created significant challenges to the traditional model of business with its focus on shareholder value. The credit crisis and corporate scandals have led to a loss of trust in business; especially the oil and gas businesses and companies are facing pressures from governments, consumers, hosts communities, employees and investors to demonstrate that they are adopting sustainable approach in the operation of oil

and gas production that suit international business best practices. According to Colbert and Kurucz (2007) for many years' business owners, academics and activists have debated the role of business in society, with those calling for social justice pitted against those arguing for unregulated managerial capitalism. As a result of this, Porter and Kramer (2011) stated that, the capitalist system is under siege.

Recently, business increasingly has been view as a major cause of social, environmental and economic problems. Companies are widely perceived to be prospering at the expense of the broader community. However, as Porter and Kramer (2006) pointed out in an earlier report, organizations may find themselves caught between the demand for a new more approach to business, and the continue desire of investors for maximum short-term profits; hence, the needs for organizational leaders to deploy intelligent technique systems to aid the operation of oil and gas business organization. To this end, intelligent technique systems are technologically advance machines that perceive and respond to the world around them. These systems reshape the way and nature of which the oil and gas drilling activities are conducted and reduce environmental effects for effective organizational sustainability. Furthermore, organization is an open and complex system that consists of many variables in its interactions with the external environment. It has been observed that many organizations are currently not as competitive as they were; due to an ever-changing business environment which demands efficiency and the application of innovation. Therefore, organizations have to look for new ways of doing things so that they can increase their effectiveness in achieving their goals and objectives. Silva and quell (2006) described organizational sustainability as a search for equilibrium between what is socially desirable, economically viable and ecologically sustainable. In same view, Sauitz and Weber (2007) stated that, a company is sustainable when it generates profits for shareholders, protects the environment, and improves the lives of the people with whom it interacts. The only way that oil and gas companies in south-south region in Nigeria can avoid issues and constant crisis between the organizations and it environment is to adopt positive changes. Changes in many organizations are always triggered by the continuous change of customer demands. Some also occur in organizations because of their want to be updated as possible and thus making them change according to the change of technology. It's not only the organization that is require to have changed, its employees also need to learn new and advanced skills as employee positions in the organization change with time. The best employees are the ones that are quick and flexible in adapting to the new advancements of the organization. Moreover, the evolution of information technology comes along with too much speed that organization desires modern day sustainability must embrace to stand changes in the business environment.



Researcher's conceptualization 2024

Purpose of the Study

The purpose of this study was to investigate the relationship between intelligent technique system and organizational sustainability of oil and gas companies in south-south, Nigeria. Specifically, the study will examine the relationship between intelligent technique systems and the measures of organizational sustainability of profitability and growth using literature review approach.

LITERATURE REVIEW

According to Eisenhart (1991) theoretical foundation is structure that guides research by relying on a formal theory constructed by using an established, coherent explanation of certain phenomena and relationships. This study is built on the Task Technology Fit theory (TTF).

The task technology fit theory was propounded by Goodhue and Thompson in 1995. The theory postulates the relationship between technology and the tasks it aims to support. The task technology fit theory is a variance theory describing the interrelationship between three components – technology functionality, tasks requirements and individual abilities at a specific point in time. Task technology fit theory was used to evaluate and seek the understanding on how the use of technology affects performance impacts. From this perspective, the task technology fit theory assumes that users can appropriately evaluate the level of technology as they use the technology in performing their work tasks, and that an evaluation of task technology fit may predict the performance. The assumption here is that users evaluate both functionality of the technology and the degree to which the technology assists them in task accomplishments and suits their abilities, (Dishaw, 1999).

Goodhue and Thompson (1995) stated that, a higher fit between technologies, task requirements, and individual abilities will contribute to a better performance, that is, will lead to more efficient task accomplishments. The important of the task technology fit theory in this paper is anchored on the fact that, as organization started adopting technology into their workforce and data management, the more the technology support the performance of the users on the tasks, the higher the performance of the organization, leading to increase adoption of technology into organization. This was also the submission of some scholars when they recently concluded in their research work and acknowledge that technology improves the execution of a task, it leads to higher adoption and use, in turn, to improved performance. The improved performance arises from an optimal task technology fit: when technology matches task characteristics it aims to support and the individual abilities of the users, users may execute their tasks more smoothly (Lee, Cheng & Cheng 2007; Spies, Grobbelaar & Botha, 2020).

INTELLIGENT TECHNIQUE SYSTEMS

Intelligent technique systems are computer technology application that operates as an agent, and perceives its environment, acts in the environment and interacts with the other agents, and exhibits rational behaviour (Molina & Pablo, 2021). These systems come in many different forms; examples range from autonomous cars, drones, speech and facial recognition programs and recommendation systems for online shopping. Intelligence technique system has become a strategic tool to help a company to lead, optimize, discover and innovate to change the landscape of its organization. Intelligent systems are useful to modern businesses because they have the ability to provide a continuous flow of information and the capabilities of such a system that implements the achievement of organizational goals. Intelligence system inform organizational leaders on the current trends of business challenges and allow to align day-to-day operations with overall goals and strategies; identify and understand the relationships

between business processes and their impact on performance; access relevant information for analytical responsibilities specific for the analysis; and analyse data from documents and to develop them very easily; monitor vital business indicators, such as the current financial reports, the effectiveness, and profitability of sales departments or other relevant measurement indicators.

Also, intelligence system represents the ability of an organization to think, plan, predict, solve problems, abstract thinking, understand, innovate, and learn in ways that enhance organizational knowledge, inform in the decision-making process, to allow effective actions and to help establish and achieve business goals. The role of intelligence systems is to create an informational environment in which operational data collected from transactional systems and external sources can be analysed to discover strategic business dimensions (IBM, 2019). Intelligence technique systems provide information that will helps in the achievement of organizational goals. This information should help organisations to respond to business key issues, make predictions, and act on real-time data to improve the quality and speed of the decision-making process that will give organization the enabling environment for rapid development. Expected benefits do not always justify investing in intelligence technology system. This means that the development of intelligence systems capabilities can only provide information-based decisions, but they cannot implement them. An analysis of the impact of intelligence should not focus on the impact at a given point in time, but it should be longitudinal to determine how and why it varies over time. This is because business intelligence clearly reduces decision-making risk and directs operational and marketing activities to generate real value and which can be capitalized, with minimal resources (Miller, 2011).

ORGANIZATIONAL SUSTAINABILITY

Dyllick and Hockets (2002) defined organizational sustainability as the capacity companies have for leveraging their economic, social and environmental capital for contributing towards sustainable development within their political domain. Munck and Borim- de-Souza (2009) argued that sustainable organizational actions are those responsible for causing the least environmental impact possible due to operational activities, while simultaneously paying attention to socio-economic development that will enable the survival of present and future generations. Such development, according to the authors, should occur in a manner completely dependent upon the people inserted within organizational and societal environments, because they are those ultimately responsible for the final decision and validation of all such propositions. By that, in order to enact their activities, companies consume not only financial resources, but also social and environmental ones. Elkington (1999) proposed a relationship between the three Pillars of sustainability (social, economic, and environmental), known in the literature as the Triple Bottom Line (TBL).

This has become a perspective that is ever move accepted by society and organizations. It is worth reinforcing the idea (Dullick & Hocketts 2002). These three elements have different properties and therefore require different approaches. They further asserted that, to match sustainability with corporate requirements, researchers in this area seek to discover how organizations can promote economic sustainability at the same time as they increase their social and environmental efficiency. In order for a company to truly become sustainable, it is necessary to integrate the economic, social and environmental pillars that composed organizational sustainability. This triple vision is the foundation for this current research, and ensures that economic development, environmental quality and social justice are all equally relevant for the total achievement of long standing organizational sustainability. Also, Lorenzetti, Cruz and Ricioli (2008) the economic pillar refers to organization's impacts on the economic conditions of stakeholders, as well as the economic system, at all levels. In other words, it represents the generation of wealth by and for society, by supplying and goods and services. According to Azapagic (2003) a venture's economic viability

is the central part of sustainable development, because only profit results in job growth, which in turn enables a community the possibility of improving living conditions. In a more direct approach, Dyllick and Hockerts (2002) assure that an organizations economic sustainability indicates that it has the capacity to realize its activities in a way that is both responsible and that results in considerable profits.

The environmental pillar refers to the conservation and management of natural resource. It is necessary that a company, by scrutinizing how its operations and products affect both living and inanimate natural systems, should seek to minimize negative and amplify positive impacts, in both inputs and outputs (Krenjcandclavic, 2005). Responsibility for the natural environment goes beyond legal requirements or generic initiatives, such as recycling, or the efficiency use of energy resources. It include, form the very beginning, a comprehensive approach towards organizational operations (Jamali, 2006). The social pillar, according to Lorenzetti *et al* (2008) concerns itself with the quest for equality and participation of all social groups in the construction and maintenance of a system's equilibrium, sharing the rights along with the responsibilities. The economic system joins with the social when investment and economic operational are analyzed part and Parcel with their possible society consequences; in other words, once the social and economic reach the same level of analytical relevance, corporate profits are legitimately gained through organizational activities based upon sustainable principles (Munck & Swca, 2009b).

Profitability

Profitability can be defined as the ability of firms or business to be able to make profit from all their business activities. Profitability determines the level or degree to which firms efficiently managed available resources to yield the maximum return on business. Profitability can be defined as the ability of a firm given investment to earn a return from its use. However, it is very important to note that the concept profitability can never be liken to efficiency, because it is just an index of efficiency. Though, profitability is an important indicator for determining the extent of efficiency, the level of profitability cannot be taken as a final proof of efficiency. Sometimes satisfactory profits can indicate inefficiency and conversely, a proper degree of efficiency can be accompanied by an absence of profit. Profitability on this ground works as indictors like gross domestic products, net operating profits and return on capital employed ratio. While profitability analysis from the standard point of shareholders includes net profit to net revenue ratio and return on owners' equity ratio. Profit and profitability are used interchangeably, but in real sense, differences exist between the two. Profit is a final term and profitability is to some extent relative, however, both of them are mutually interdependent, having different and unique roles in business. Profit refers to the total income got by a firm during her specific period of time while profitability refers to the operating efficiency of the enterprise. Profitability is the ability of the enterprise to make profit on sales; it is the ability of firms to get enough return on their capital and employees used in the business operation. It is important to notes that to the financial management, profits is the test of efficiency and a measure of control, to the owners a measure of the worth of their investment, to the creditors the margin of safety, to the government a measure of taxable capacity and a legislative action and to the country profit is an index of economic progress, national income generated and the rise in the standard of living while profitability is an outcome of profit.

Growth

The existence of organization with the increasing competition in the business environment today is a major concern for organizational leaders. Growth is a word that means different thing to different people depending on the perspective in which the person observe

organizational growth. To some people, they will measure organizational growth base on the size of the organization while others will view growth from the profitability margin of organization. However, whichever perspective organizational growth is observed from, the main aim of growth is on the continual existence of the organization for a long time. The aim of every organization is to grow. Performance is also growth indicator.

Growth is an all organizational affairs. By this, we mean that, growth basically depends on the level of investment that the organization involves itself. Investment in the human resource of the organization play critical role in organizational growth. Organization comprises people who come together to achieve a goal through the utilization of organizational available resources. The people come into the organizations with different goal and skill, the ability to align the people goal and skills to connect with the organizational goal is directly proportional to the growth of the organization. According to Crosby, Samach, Klenz, Kohalmi, Risseuw and Haughn (1999) human resource should be reviewed and we stopped looking at what is happening in other strategies and start looking at best human resource practices in large corporations. The goals of the organizations are not drives by itself; rather it is the people that drive the organization goals. The better the human resources of the organization recruit competence skilled individual into the organization, the better chances of the organizational growth to be achieve.

Organizational growth starts from the internal component of the organization. It is like pregnancy of which its formation is invisible to the public except the persons involved. What the general public saw as growth is the outcome of the conceived plan through increase in size of the organization. As pregnancy, the people do not know what the outcome will be till such is delivered. Growths of organizations are conceived by the people inside the organization through plan design in which the execution of the plan outcome is visible to the people to ascertain if growth has taken place. By this nature, organizational growths are seeing not just by the size of the organization but the numbers of branches that the organization has been able to establish within the operational years. For instance, a new oil company that is just established and within a short period of time, the branches are scatter across the states is a sign of growth. Stagnation is the greatest disease that both small and large corporation try their utmost best to avoid. Stagnation is defined as a point where organization does not appreciate both in size and numbers.

EMPIRICAL REVIEW

Al-Jabri and Sadiq (2020) conducted a systematic review of intelligent systems in the oil and gas industry. They found that machine learning and artificial intelligence techniques improved operational efficiency, leading to increased profitability. For instance, predictive maintenance systems reduced downtime by 20-30% in offshore platforms. Also, Onyeizu and Eboh (2019) examined the impact of digital technologies on sustainability in Nigerian oil companies. Their study revealed that firms implementing intelligent systems experienced a 15% increase in production efficiency and a 10% reduction in environmental incidents, contributing to both profitability and sustainable growth. Similarly García-Sánchez et al. (2021) analyzed the relationship between intelligent techniques and sustainability performance in global oil and gas firms. They found that companies using advanced analytics and AI for decision-making showed a 12% higher return on assets compared to those not utilizing such systems (García-Sánchez et al., 2021). Furthermore, Okoye and Eze (2022) investigated the adoption of intelligent systems in Nigerian oil and gas companies. Their findings indicated that firms implementing smart technologies experienced an average of 8% annual growth in revenue and a 5% improvement in overall sustainability metrics (Okoye & Eze, 2022). These studies collectively suggest a positive relationship between intelligent technique systems and

organizational sustainability outcomes in the oil and gas sector, including improved profitability and growth.

CONCLUSION

This study has examined the relationship between intelligent technique systems and organizational sustainability. The emerging trends of intelligent technique systems create tension for organization as they go through waves of change. It created opportunities and also threats, and if the tensions are not managed well, they will result in dysfunction and minimized organizational outcomes of profitability and growth leading organizational failure during change process. Managers and leaders need to ensure that the organizational culture of the organization is built towards organizational sustainability which has direct impact on business profitability and growth. Moreover, intelligent technique systems success depends on the enthusiasm with which management and leadership team embrace the new methods and business models and their willingness to improve their own competence in their role. Therefore, this study concluded that, intelligent technique systems have positive significant relationship with the outcomes of organizational sustainability such as profitability and growth.

RECOMMENDATIONS

Relying on the study reviewed evidence on the study variable, we therefore, recommended that intelligent technique systems be utilized as it showed evidence of strong significant positive relationship with profitability and growth, the outcomes of organizational sustainability.

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