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MODERATING ROLE OF TECHNOLOGY ON THE RELATIONSHIP BETWEEN LEADERSHIP AND ORGANIZATIONAL PERFORMANCE

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ABSTRACT

Statement of the Problem: Leadership plays a critical role in developing interactions and relationships towards more effective performance at the organizational level. Organizations competing in the modern environment are focusing on the factors that increase performance and their competitive edge. Increased global and regional competitions have led firms to determine to create or sustain competitive edge by adopting breakthrough modern technologies. A fast-changing environment with constant abrupt changes makes it indispensable for firms to build up their technological ambidexterity by embracing the digital technologies. Today governmental and private organizations intend to enhance their service quality and this can only be achieved by adopting a suitable leadership in moving towards knowledge and technology advancement. Energy sector has also benefited immensely from the emerging digital technologies to facilitating efficiency in grid operation in the renewable energy.

Methodology: The study was anchored on the contingency theory and supported by Diffusion of innovation (DOI) theory. This study employed a cross-sectional survey design. The study population consisted of 68 institutions under the energy sector. These 68 institutions formed the target population for the study. The study used primary data. Primary data was obtained from the selected respondents using structured questionnaires. Descriptive analysis was used to analyze quantitative data through tabulations, percentages, and measure of central tendency.

Results: The study revealed a statistically significant relationship between leadership and organizational performance. Technology was found to moderate the relationship between

leadership and organizational performance. The introduction of technology had an enhancing moderating effect on the relationship between leadership and performance.

Conclusion and Recommendation: The study concluded that managers in the energy sector should consider adoption of digital technology since they are very instrumental in optimization of the operations of an increasingly complex power system based on renewable energy. The paper recommends that managers in the energy sector should consider adoption of emerging technologies and digital technology since they are instrumental in optimization of efficiency in the operations and maintenance process and increasingly complex power system based on renewable energy.

Keywords: *Leadership, Organizational Performance, Technology, Innovation, Digital Technology*

INTRODUCTION

The goal of any organization is not only to survive, but also to sustain its existence by improving performance (Arslan & Staub 2013). In order to meet the needs of the highly competitive markets, organizations must continually increase performance (Arslan & Staub 2013). Consequently, in this changing and competitive global environment, human resources can enable an organization gain a competitive edge if managed effectively (Habes, Alghizzawi, Salloum, et al. 2020). Leadership is also viewed as manager's ability for inducing the subordinates for working with zeal and confidence (Braun, Peus, Weisweiler & Frey, 2013). Leadership is considered a major axis of the relationship between superiors and subordinates and it is also one of the aspects of mutual influence between individuals and the group (Mirkamali, Thani, & Alami 2011). According to Atmojo (2015), leadership is known as the ability for persuading others for seeking objectives quite enthusiastically. Leaders have the most effective role to perform in organisational development. Modern organisations are characterised by globalisation, which means change is an inevitable factor in organisational determent. Leaders are the individuals responsible for facilitating changes (Chen, Eberly, Chiang, Farh, & Cheng, 2014).

Leadership is linked to organizational performance in an effective and strong way under the name of administrative leadership (Karada, 2015). Leadership, no matter which form it assumes, be it transformational, transactional, autocratic, charismatic, bureaucratic, servant, laissez-faire, democratic or situational is paramount in almost every industry (Hunt & Fitzgerald, 2018). However, two common types of leadership style are commonly used by managers in the organization. These include; transformational and transactional leadership style. Transformational leadership is presently perceived in every organisation, in departments, teams, as well as divisions. Transactional leadership emphasises on basic processor management like organising, controlling along with short-term planning. Unlike transformational leaders, leaders driven by transactional theory consider directing and motivating their followers through catering to their personal self-interest. This leadership theory has faith in system of punishment and rewards for facilitating motivation (Maharani, Troena & Noermijati, 2013). Due to measurable nature of this leadership job satisfaction and performance of employees can be accomplished (Wallace, de Chernatony, & Buil, 2013).

Leaders in organisations need to also keep balance and symmetry between technologies and labor for them to accomplish set goals in the organisation (Saks & Gruman, 2014).

Leadership and Organizational Performance

Prior literature suggests that role of leadership is critically important for achieving the performance of organizations (Boal & Hooijberg 2000; Peterson, Smith, Martorana & Owens 2003). However, the findings of prior studies about the role of leadership in increasing organizational performance are mixed. Some studies (Finkelstein & Hambrick, 1996; Katz & Kahn, 1978; Peterson, Smith, Martorana, & Owens 2003) suggest that the role of leadership is critically important for an organization to achieve a high level of performance. However, some other studies suggest that role of leadership is not so important in achieving the organizational performance ((Pfeffer 1977; Meindl, Ehrlich & Dukerich 1985) . Therefore, these contradictory findings about the role of leadership in organizational performance suggest that there is more need to study the role of leadership in organizational performance. Wang Tsui and Xin (2011) suggest that there is need to study more the role of leadership in organizational performance because of the limited but contradictory results from previous studies. Further, much of prior research has focused on the role of leadership public institutions (Youngs & King 2002). Therefore, there is a limited understanding about the role of leadership on organizational performance in the context of customer service sector.

Ibrahim and Daniel (2019) examined the impact of leadership on organisational performance. The study used secondary data, which was collected from books, journals and other previous empirical works. The sample size was obtained using the Yamane's formula. Regression test were used to analyse the relationship between the study variables. The study revealed that the type of leadership adopted by the manager has a direct and a positive influence on the employee and organizational performance.

Using a meta-analysis approach, Danişman, Tosuntaş and Karadağ (2015) examined the effect of leadership on organizational performance. The study findings revealed that leadership has a medium-level effect on organizational performance. Serfontein (2010) found in his study that the impact of strategic leadership is positively affecting the business organizations performance in both ways directly and indirectly. While Wang (2011) found in their study that leader's behavior is directly related to organizational performance. Lear (2012) study revealed that strategic leadership influenced positively the strategic alignment of the organization. Finally, the role of leader's behavior is related directly to organization performance. Cheng, Yang and Sheu (2014) avers that leadership play a main and critical role on the organization's success.

Organisational Performance

Organisational performance has been identified as the central determinant of firms' competency in retaining customers (Yee, Yeung & Cheng, 2010). Organization performance is a very important factor that is used to measure the organization success (Vessey, Barrett, Mumford, Johnson & Litwiller, 2014). Performance is defined as the record of outcomes produced on a specified job function or activity during a specified period of time (Armstrong & Taylor, 2020). Therefore, the measurement of performance is the output and outcome,

profit, internal processes and procedures, employee attitudes, organizational structures, and organizational responsiveness to the environment (Wang, Tsui & Xin, 2011). Organizational performance is measured in different aspects like market share, profitability, sales, growth, and competitive advantage (Wang *et al*., 2011). Additionally, Ryan and Tipu (2013) measured organization performance as innovation propensity. On the other hand, a good way to measure performance is through market share, return on investment (ROI), profit and sales. Organization performance can also be measured through positioning for the future growth, sustainability, profitability, and consistent performance.

Firm's performance measurement can be divided into two components namely financial performance (Kaplan & Norton, 2001) and nonfinancial performance, which respectively evaluates firms' monetary and non-monetary dimensions (Avci, Madanoglu, & Okumus, 2011). Financial performance reflects the firm's financial situation which can be evaluated using indicators such as profit margin, return on assets (ROA), returns on sales (ROS), return on investment (ROI) and others (Yee *et al*., 2010). Firm performance comprises the actual output or results of a firm as measured against its intended outputs. Non-financial performance measures inherently focus on the long-term achievement of firms by concentrating on customer gratification, internal business process, productivity, invention, and employee fulfilment. Furthermore, dimensions such as quality of service, resource consumption, and invention are also influencing firm's non-financial performance (Zigan & Zeglat, 2010).

Technology and Organizational Performance

There has been an increased focus on digital technology with practitioners and scholars aiming to understand how firms can take advantage of modern technology to improve efficiency and organizational performance (Markus & Loebbecke 2013; Westerman, Bonnet & McAfee, 2014; Pagani, 2013). Digital technologies such as big data, cloud computing, Internet of things (IOT), blockchain, Artificial Intelligence (AI), intelligent solutions and cyber security are driving innovations reshaping business models and reinventing the way organizations are running business operations (Markus & Loebbecke 2013; Westerman et al., 2014; Pagani, 2013). Whereas organizations are constantly transforming and evolving in response to changing business landscape, digital transformation are the changes built on the foundation of digital technologies, ushering unique changes in business operations, business processes and value creation (Libert, Beck, & Wind, 2016). For instance, Libert et al. (2016) distinguished between digital upgrade, which is the use of digital technologies to increase efficiency and effectiveness in a firm's business processes, and digital transformation, which occurs when digital technologies are used to radically change the overall business operations, value creation and in some case new digital product offerings. Through digital transformation, organizations are able to integrate digital technologies in many facets of their operations and are also able to engage customers with emerging digital innovations (Aral & Weill, 2007).

The adoption of digital technologies has been of great influence on the performance of many organizations, energy sector included. Investing in such digital technologies are expected to enhance employment, economic performance (Hjort & Poulsen, 2019) and promote sustainable-friendly business model innovations (Ranta, Aarikka-Stenroos & Väisänen, 2021). The energy sector is a complex system with massive automatic, interconnected, and long-term

assets. The megatrend of decarbonization with variable renewable energy, energy storage, decentralization, and electrification provide a strong need for the energy sector to transit toward a multi-dimension sustainable system (Arachchi & Managi, 2021). Booming data call for assistance by digital technology to prevent incomplete information and decision uncertainty. For the complex energy system of the future to function, the integration of all actors is of decisive importance and digital technology is key. Digital technologies can improve the productivity and sustainability of energy systems.

The recent advances in digital technologies are reshaping the energy end-use pattern; transport, buildings and industry, transforming the supply-side business model (coal, oil, gas, power, etc.), and creating greater market integration across various energy boundaries (renewable vs. grid, resident vs. utilities, etc.) (IEA, 2017). As digital technology increasingly becomes an integral part of the energy system, systematically assessing these diverse, dynamic, and subtle effects in the context of sustainability is particularly important to add new knowledge to existing literature. Hence, this paper sought to solve the jigsaw puzzle by establishing the moderating effect of technology on the relationship between leadership and organizational performance.

Theoretical Literature Review

The study was anchored on the contingency theory and supported by Diffusion of Innovation (DOI) theory.

Contingency Theory

This theory was developed by Fiedler in 1964. The proponents of this theory hold that different situations and circumstances require different leadership styles. Because of ignoring environmental factors in explaining what effective leadership is, criticisms addressed to great men, trait and behavioral theories have provided the basis for the emergence of contingency theory. In the emergence of contingency leadership theory factors such as lack of emphasis on conditions and environment affecting leadership (Harrison, 2018), insufficiency of universal leadership theories (Flocy, 2017) and the view that leadership cannot be explained by purely traits and behaviors have been effective.

According to contingency leadership theory, the person may be an effective leader in certain conditions or environments, but the same person may not be the leader in other conditions or environments. Similarly, a leadership style that has been effective in the past may not be effective today (Fiedler, 2006). In fact, all this shows that there is no optimum leadership style in all cases and circumstances. In time, people's income status, understandings, culture or expectations may change. According to the theory, it is possible to talk about many factors that make the leadership style effective (Kraft, 2018).

Contingency theories of leadership focus on particular variables related to the environment that might determine which style of leadership is best suited for a particular work situation. According to this theory, no single leadership style is appropriate in all situations. Success depends upon a number of variables, including leadership style, qualities of followers and situational features (Charry, 2012). A contingency factor is thus any condition in any relevant

environment to be considered when designing an organization or one of its elements (Naylor, 1999). Contingency theory states that effective leadership depends on the degree of fit between a leader's qualities and leadership style and that is demanded by a specific situation (Lamb, 2013). This study will apply the theory of constraints (TOC) principles to the management of information technology (IT) in the organization. Management practices in industry as a whole are undergoing profound changes as the methodologies of total quality management (TQM), just in-time (JIT), and the theory of constraints (TOC) are being absorbed.

Diffusion of Innovation Theory (DOI)

This theory was propounded by Everett Rogers in 1962. The proponents of this theory explain how, why, and at what rate new ideas and technology spread (Christensen & Raynor, 2003). The theory considers a number of attributes associated with technological innovations and which are believed to influence the rate of adoption of the innovations. Rogers (2003) supports the leadership literature by highlighting that opinion leadership may be influential. Opinion leaders may act as change agents and assist with the innovation diffusion process (Rogers, 2003). This consensus usually stems from a charismatic leader (Hitt, Ireland & Hoskisson, 2001) or an opinion leader (Rogers, 2003).

At firm level, innovativeness is related to such independent variables in this study as Financial information system, technologies adoption, communication technologies, human resources information system and Product Processing technologies adoption. These are linked to organization performance using Diffusion of innovation (DOI) theory, which Rogers linked initial adoption decision to five specific management attributes: relative advantage, complexity, compatibility, trialability and observability (Rogers, 2003). Moore and Benbasat (1991) identified eight Perceived characteristic of innovation (PCI) factors: relative advantage, compatibility, ease of use, result demonstrability, image, visibility, trialability and voluntariness.

Notably both types of leaders may be categorized transformational leaders. The theory however has its down side as it holds that while authority innovation-decisions may yield compliance, those with power may also be opposed to the diffusion of a particular innovation. This again magnifies the importance of leadership in the innovation diffusion discourse. This theory was applicable to the study because innovations generated through research and development would need to be integrated with other business process to create a competitive advantage for the business in the market.

Empirical Literature Review

Leadership, Technology and Organizational Performance

Ossai (2021) assessed the relationship between leadership style and innovation performance in Small-to-Medium-Scale Enterprises in Nigeria. The study was anchored on the full range leadership theory and organizational learning theory. The study employed the cross-sectional, survey study to examine the relationship between leadership style and innovation performance. Multi-Factor Leadership Questionnaire (MLQ-Form 5X) was used to address the questions on leadership styles. Data was collected using online survey. Data was analyzed using Pearson

correlation coefficient and multiple linear regression techniques. The study results revealed that leadership styles was positively correlated with innovation performance.

Nyambura (2018) examined the moderating effect of information communication technology on supply chain risks and firm performance among manufacturing firms in Kenya. Cross-sectional survey design was adopted as the research design for this study using both qualitative and quantitative approaches. The study used stratified random sampling to pick a sample size of 76 manufacturing firms, which represented 12 industrial sectors in manufacturing firms. Data was collected using questionnaires. Descriptive and inferential statistics was used. The study results indicated that ICT use moderated the relationship between information communication technology and supply chain risks and firm performance. The findings revealed that there was a significant joint moderation effect of ICT use on the relationship between supply chain risks and firm performance.

García-Sánchez, García-Morales and Martín-Rojas (2018) studied the influence of technological assets on organizational performance through absorptive capacity, organizational innovation and internal labour flexibility. The study was guided by the theory of resources and capabilities and adopted the structural equation model. The results show that support for technology and improvement of technological skills and technological distinctive competencies promote improvement in organizational performance through their positive influence on the processes of potential and realized absorption capacity.

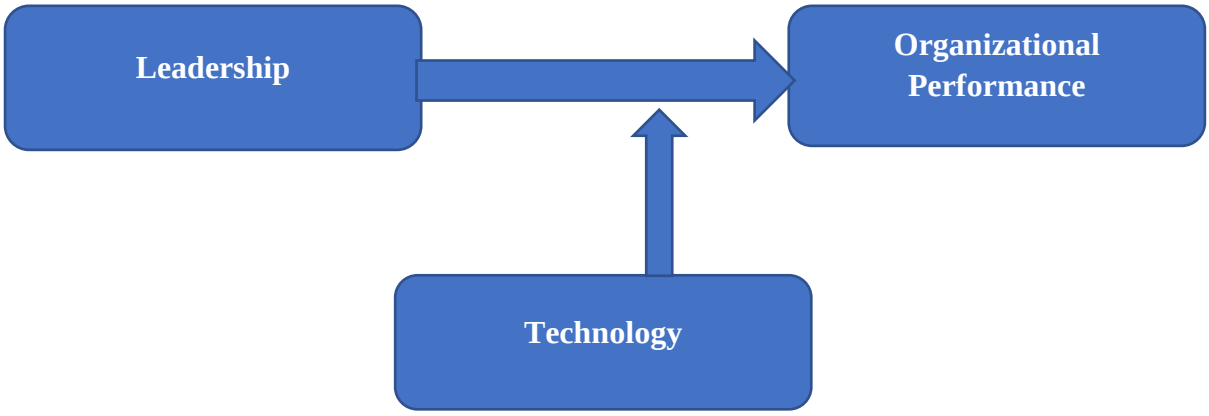
Harsh and Prasad (2020) looked at the moderating role of technological intensity on the relationship between employment relations and perceived organizational performance. The study attempted to establish the role of technological intensity in determining the employment approaches adopted by the firm. Survey method was used to collect data through interviews. The study revealed that technology intensity of the industry determined the way people are managed in the organization.

Asikhia, Magaji and Muritala (2019) examined the relationship between technological intelligence and organizational performance. The study adopted empirical literature review and employed secondary data. A significant relationship between the technological intelligence and firm performance was established. Mehrabi, Roozbehani, Naseri and Samangooei (2012) studied the impact of Leadership Development on Employees' Performance. Questionnaire was used to collect data. Findings reveal that there is a significant and positive relationship among leadership development and its dimensions with employees' performance.

Ebrahimi, Moosavi and Chirani (2016) examined the relationship between leadership styles and organizational performance by considering innovation in manufacturing companies of Guilan Province. The study adopted descriptive approach. The sample size was estimated to be 401 by using Cochran formula. Questionnaire was distributed among the managers of the manufacturing companies after confirming the validity and reliability of the research. In order to analyze the data and to test the hypotheses, the structural equation modeling was used by LISREL software. The study finding revealed that there is a relationship between transformational leadership and exploratory innovation. Addin (2020) examined the relationship between the leadership and organizational performance and realized that the most

effective leaders are leaders who are able to balance implementation-oriented behaviors with the personal skills required to build trust, cooperation and balance performance between their leadership and their employees as characteristic of leadership styles.

Conceptual Framework



Independent Variable **Moderating Variable** **Dependent Variable**

Figure 1: Conceptual Model

Methodology

The paper reviews literature on adoption of technology in the relationship between leadership and organizational performance. This study adopted a positivist paradigm. This study adopted positivism view with the aim of predicting and generalizing about the moderating role of technology on the relationship between leadership and organizational performance. This study employed a cross-sectional survey design. The adopted design enabled collection of data across different facilities and testing their relationships. The paper targeted 68 energy sector institutions. The study used primary data. Primary data was obtained from the selected respondents using structured questionnaires. Descriptive analysis was used to analyze quantitative data through tabulations, percentages and measure of central tendency.

Findings and Discussion

Descriptive

The study sought to establish the moderating role of technology on the relationship between leadership and organizational performance. The results from the survey are presented in table 1.

Table 1

Leadership				
My leader ensures that employees have adequate knowledge, experience and skills to perform their work	166	4.27	.443	10
The vision of our leaders is aligned to our strategy	166	4.27	.443	10
My organization gives adequate information, encourages employee feedback and participation before a new strategy is implemented	166	4.23	.421	10
Employees have annual performance targets linked to our strategic goals	166	4.18	.416	10
Adequate resources are allocated to support delivery of strategic goals	166	4.02	.373	9
My leader ensures that employees are rewarded equitably based on their work performance and achievement of set objectives.	166	4.01	.389	10
The leadership in my organization demonstrates commitment to strategy implementation in order to achieve the set strategic objectives	166	4.11	.355	9
Overall Mean	166	4.16	0.406	10
Technology				
My organization uses the most appropriate technology in the market to produce power or provide services	166	4.61	0.547	12
The level of technology in place has greatly assisted my organization to implement strategies	166	4.69	0.526	11
Our organization updates and improves our technology and systems to ensure they are the latest and most efficient	166	4.54	0.864	19
Our organization is keen to ensure that technology required is availed	166	4.73	0.494	10
Our organization is quick to respond to the changes in technology	166	4.64	0.698	15
My organization allocates funding for new technology, research and development	166	4.31	1.268	29
Overall Mean	166	4.59	0.733	16

The study findings on leadership indicated a highest mean of 4.27 and a CV of 10 revealing that leaders in institutions in the energy sector ensured that employees had adequate knowledge and skills to perform their duties, encouraged employee participation in formation and

implementation of strategy as well as provided adequate resources for strategy implementation, all these geared for better organization performance.

The study results revealed that statements depicting technology had the highest mean with an average mean of 4.59, standard deviation of 0.733 and coefficient of variation of 16 percent. Technological factors suggest possibility of new products, manufacturing and market techniques and hence it is important since it improves productivity of firms. Additionally, technological capability plays an important role in achieving competitive advantages. It also increases performance of firms, industries, and as well as for the countries. Statements on technology were Our organization is keen to ensure that technology required is availed (Mean=4.73, SD=0.494 and CV=10 percent), The level of technology in place has greatly assisted my organization to implement strategies (Mean=4.69, SD=0.526 and CV=11 percent), Our organization is quick to respond to the changes in technology(Mean=4.64, SD=0.698 and CV=15 percent), My organization uses the most appropriate technology in the market to produce power or provide services (Mean=4.61, SD=0.547 and CV=12 percent), Our organization updates and improves our technology and systems to ensure they are the latest and most efficient (Mean=4.54, SD=0.864 and CV=19 percent), My organization allocates funding for new technology, research and development (Mean=4.31, SD=1.268 and CV=29 percent).

The findings indicated that most of the surveyed institutions used appropriate technologies and constantly updated the technology and systems to the latest for efficiency and effective power generation and distribution. The results revealed that, the introduction of technology had an enhancing moderating effect on the relationship between leadership and organizational performance. Firms with higher technological capability are able to deliver their services effectively. Hence from the findings, it is evident that Technology infrastructure is an important factor in achieving business objectives and hence firms need to be technologically ready to take on the strategic challenges that can fuel growth. The implementation of strategy is affected by technological innovations, in that improved technology facilitates efficient communication and adoption of effective strategies for better firm performance.

Inferential Statistics

Moderating Effect of Technology on the Relationship between Leadership and Performance

Moderating effect was tested using two steps of stepwise regression analysis. The first step tested the influence of technology and leadership on performance. In the second step interaction term was introduced in the model. The results are presented in Table 2.

Table 2: Moderating Effect of Technology on the Relationship between Leadership and Performance

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.157[a]	.025	.013	.43608	.025	2.053	2	163	.002
2	.181[b]	.033	.015	.43561	.008	3.580	1	162	.006

a. Predictors: (Constant) Leadership, Technology

b. Predictors: (Constant) Leadership, Technology, Interaction

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.781	2	.390	2.053	.002[b]
	Residual	30.997	163	.190		
	Total	31.778	165			
2	Regression	2.038	3	.679	3.580	.006[c]
	Residual	29.740	162	.190		
	Total	31.778	165			

a. Dependent Variable: Performance

b. Predictors: (Constant) Leadership, Technology

c. Predictors: (Constant) Leadership, Technology, Interaction

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	.316	.034		9.333	.000	.311	.322
	Technology	.150	.040	.115	3.751	.002	.129	.171
	Leadership	.227	.051	.062	4.422	.005	.223	.231
2	(Constant)	.333	.137		2.434	.000	.328	.338
	Technology	.172	.044	-.163	3.899	.006	.158	.185
	Leadership	.154	.046	.123	3.335	.003	.149	.159
	Interaction	.133	.029	.132	4.667	.006	.123	.143

a. Dependent Variable: Performance

The study results on the moderating effect of technology on the relationship between leadership and performance are presented in Table 1. Model one revealed a moderate relationship between technology, leadership and performance (R= 0.157, R^2 = 0.025, P-value = 0.002<0.05). In

model two when interaction term (Technology*Leadership) was introduced the explanatory power (R^2) increased to 0.33. This shows that, technology, leadership and interaction term account for 3.3 percent of the variation in performance. The interaction term (leadership*technology) indicated a statistically significant moderating effect (β= 0.132, t = 4.667 p-value = 0.006<0.05, hence moderation has taken place. The findings rejected the hypothesis that there is no significant moderating effect of technology on the relationship between leadership and performance. It was concluded that the introduction of technology had an enhancing moderating effect on the relationship between leadership and performance. It was therefore concluded that there is a significant moderating effect of technology on the relationship between leadership and performance.

DISCUSSION AND CONCLUSION

The study finding established that leaders in organizations in the energy sector play a crucial role in steering the organizations for better performance. The study also found that most of the surveyed institutions used appropriate technologies and constantly updated the technology and systems to the latest for efficiency and effective power generation and distribution. It is also evident from the findings that technology infrastructure is an important factor in achieving business objectives and hence firms need to be technologically ready to take on the strategic challenges that can fuel growth. Additionally, firms with higher technological capability are able to deliver their services effectively. The implementation of strategy is affected by technological innovations, in that improved technology facilitates efficient communication and adoption of effective strategies for better firm performance.

The cohesive interrelationship between the modern technologies allows firms to achieve sustainability and improved organizational performance both from differentiation and cost leadership perspective. The result showed that technology has a significant positive effect on firm performance. Digital technology plays a more nuanced role by moderating the influence of leadership on organizational performance. Firms must recognize the importance of digital technology and how it leverages the effect of leadership in creating and fostering organizational performance. This finding is particularly interesting because it underscores the importance of technology in supporting and fostering organizational performance.

In addition, managers in the energy sector should consider adoption of emerging technologies like the Industrial Internet of things (IIOT), big data, robotics, databotics, cloud technology, blockchain, Artificial intelligence and cyber security, which are very instrumental in optimization of the operations of an increasingly complex power system driven by renewable energy. These digital technology solutions can play great role in the automation of billing of power, improving efficiency in operations and maintenance process (O&M), automating power lines thereby enhancing early detection of power faults. The IOT may assist in harvesting vast amounts of granular data captured with a network of smart devices that have sensors and can act. The artificial intelligence will be important in automation of data analysis, learning and decision making done by software and smart devices like the robotics and the drones. The blockchain could also help in creation of open and secure management of data and automatization of contract execution via smart contracts.

The findings also revealed that apart from significant positive effect on firm performance, technology had an enhancing moderating effect on the relationship between leadership and firm performance. The study concludes that there is need to examine the diverse and dynamic nexus between digital technology and performance which can then provide important policy insights for stakeholders worldwide. This paper aimed at establishing impact of the emerging digital technologies on the relationship between leadership and performance, and consequently the need for policy measures to provide an appropriate modern technology in order to improve efficiency, operation and maintenance in the energy sector.

RECOMMENDATION

This paper will be of practical importance to managers who endeavor to develop and integrate digital technologies with their leadership and business processes with focus on improving performance. This paper fills the void and reveals that adopting and blending modern technologies with leadership can drive organizational performance. Furthermore, this study underscores the need to be aware of the digital technology footprint in the energy sector.

On theoretical implications, this paper demonstrated that the effect of leadership on organizational performance may be moderated by technology. Extant studies have given empirical evidence on the mediating role of technology and how it influences the organizational performance. This paper concluded that technology had an enhancing moderating role on the relationship between leadership and performance and recommends that modern technology including digital technology be adopted for improved performance

The paper recommends that managers in the energy sector should consider adoption of emerging technologies and digital technology which is instrumental in optimization of operations and maintenance processes and practices of the increasingly complex power systems. Emerging digital Technology adoption will improve performance of energy sector institutions.

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