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# REMOTE WORK MANAGEMENT AND OPERATIONAL PERFORMANCE: A CROSS-SECTIONAL ANALYSIS OF TELECOMMUNICATION FIRMS

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## ABSTRACT

Disruptive times happen, and there is a chance of unpreparedness confronting the populace. However, it offers opportunities to adopt new methods or reinforce alternative processes in delivering value to customers. Remote work has always been practised globally, but the outbreak of the COVID-19 pandemic reinforced its practice. This study examined the connection between remote work management practices (RWMPs) and the operational performance of companies in the Nigerian telecommunication industry. The study's population comprised the workers of the four (4) prominent telecommunication firms in Nigeria. The telecommunication firms in Nigeria at the point of time of this study were GLO, MTN, AIRTEL, and 9Mobile. A well-structured questionnaire was administered to 400 randomly selected respondents from a target population of 7,756, with 340 participants completing the survey, providing valuable primary data for this study. Descriptive statistical tools and structural equation modelling (SEM) were employed to analyze the data collected. Findings from the empirical study showed that RWMPs significantly and positively influence companies' operational performance in the Nigerian telecommunication industry. It was found that RWMPs substantially improve the operational performance of telecommunication companies in a developing economy like Nigeria. Consequently, it was recommended that the management of the companies in the Nigeria telecommunication industry provide more ICT facilities and other resources to sustain their RWMPs. To ensure that the operational performances of these firms will continue to improve at a geometrical rate management should not allow their staff to waste productive hours in their daily commute to work. The study was limited to telecommunication firms in Nigeria, therefore future studies could expand the

scope to include other countries or regions, enabling a more comprehensive understanding of the phenomenon.

**Keywords:** Remote work management, operational performance, telecommunication firms, quality of service.

## INTRODUCTION

A critical analysis of the previous empirical investigations conducted in both developed and developing economies of the world by Grant et al. (2013), Martin and MacDonnell (2012), Shockley and Allen (2007), Singh et el. (2017), Gajendran and Harrison (2007), Allen et al. (2015), Kossel et al. (2006) and Tamunomiebi et al. (2018), Bai, and Liu (2021), Cascio and Shurygailo (2003), Gajendran and Harrison (2007) Kramer and Kramer (2020), Morgeson and Humphrey (2008), Mulki et al. (2006), Parker et al. (2001) and Shockley and Allen (2012), among others revealed that they paid close attention to the influence of remote work management practices (RWMPs) on performance metrics like employee performance, productivity, financial performance, business performance, work-life symmetry, isolation, and family life, but failed to provide specific information on the influence of the RWMPs on operational performance metrics like the quality of product, customer satisfaction, delivery speed, flexibility, innovativeness and efficiency, among others. Although some empirical investigations had been conducted in Nigeria on remote work management like the studies by Ovharhe et al. (2021), which discovered that both strategic and operational risks had positive and substantial impacts on Micro firms' entrepreneurial survival in Nigeria; Edoseghe (2022) who submitted that dimensions of corporate governance had varied influences in a remote work arrangement, while Aladejebi (2021) provided information on the implications of the RWMPs on performance, work-life symmetry, isolation, and family life. It was evident that the influence of the RWMPs on operational performance in a developing economy like Nigeria could be more adequately explored, as was observed in studies conducted globally on the issue.

Applying job characteristics theory (JCT) to examine remote work-operational performance relationships would allow investigators to recognize the specific features of job design and practices of an organization that can enable or hamper the efficiency of the RWMPs. A significant contribution of this study to the body of knowledge has been the use of the job characteristics theory (JCT) to explain the relationship between remote work and operational performance. This theory is also known as the job characteristics model. It provides a robust framework for the explanation of the association between remote work and operational performance. Hackman and Oldham (1976) propounded the JCT, which postulated that certain characteristics of a job resulted in a high level of motivation, job satisfaction, and performance. They listed some of the core job characteristics as follows: skill, task significance, feedback, autonomy, and identity.

Following the outbreak of the coronavirus pandemic, popularly called COVID-19 (Özoran et al., 2023), the issue of remote work became more prominent globally due to government-imposed lockdowns and restrictions on movement to curb the virus's spread to other safe areas. Implementing remote work in the telecommunication industry has become crucial to all telecom firms operating within Nigeria. Under lockdown conditions it became even more necessary to maintain satisfactory performance so as to achieve global competitiveness. In a country making vigorous efforts to diversify from oil and gas, which is the primary source of revenue, the crucial role of the telecommunications industry through the

adoption of a knowledge economy driven by Information and Communications Technology (ICT) cannot be overlooked (Danbatta, 2017, Akinola & Odesola, 2018).

Proof from the records of the Nigerian Communication Commission (NCC), the regulatory authority for the telecommunication industry in Nigeria, showed that the telecom industry's contribution to the 2nd quarter of the 2023 country's Gross Domestic Product (GDP) was 16. 60%. The contribution showed an upward growth as it increased by 9.7% of the contribution made in the first quarter of 2023. It was reported that the telecommunication sector contributions to the 2nd quarter of the 2023 country's GDP were more significant than the contribution from the Oil and Gas sector, Nigeria's primary source of income. However, Umeh (202) discovered that most Nigerians were dissatisfied with the services they were getting from the global mobile communication providers in the country despite the contributions made to the country's GDP.

Even before the adoption of the strategy of social distancing by the three tiers of government in Nigeria to curb COVID-19 cases (Qian & Jiang, 2020; Özoran et al., 2023), telecom firms have been deploying various technological tools to aid working remotely and still achieve better customer service delivery that guarantees a continuous increase in profitability and a higher return on investment. Remote work with the aid of intelligent technologies gives employees room to work from different locations without necessarily converging in a physical office building. Mulki et al. (2009) revealed that remote work has become increasingly prevalent as organizations seek to provide a flexible working environment for their employees. Allen et al. (2015) also defined the RWMPs as how employees engage in their job responsibilities in a location (home, field, or satellite office) different from the conventional office space.

According to Voss et al. (1997), operational performance was obtained when different portions of an organization's outcomes from processes like inventory turn reliability and production cycle time were measured. According to Liu et al. (2020), it was linked to the strategy firms chose to use as a competitive advantage to compete for more market share, supplying products and offering services that were of high quality in a short time to ensure that customers were satisfied. Slack, Chambers and Johnston (2010) opined that every firm had a standard by which they operate, and this was reflected in indicators such as cycle time, efficiency, the perceived value of offerings, productivity, capacity utilization, waste reduction, effectiveness, and regulatory compliance. A measure of all these standards is known as operational performance, comprising the following five fundamental objectives: speed, quality, reliability, cost, and flexibility, as critical competitive priorities.

Although the telecom industry is people-oriented and contributes to economic development, issues raised by Umeh (202) need to be investigated vis-a-vis the adoption of the RWMPs and its impact on operational performance so as to ensure that customers get value for their money. Many studies on remote work have focused on different contexts. For instance, Martınez-Sanchez et al. (2007) evaluated the relationship connecting telework, human resource flexibility and firm performance. Martin and MacDonnell (2012) conducted an empirical investigation on the perceptions of telework and organizational outcomes. Grant et al. (2013) explored the effect of the RWMPs on work-life symmetry, job effectiveness, and well-being. In developing economies, for example, in Nigeria, Ovharhe et al. (2021) discovered from their empirical study that strategic and operational risks positively and substantially impacted microfirms' entrepreneurial survival. Edoseghe (2022) also submitted that dimensions of corporate governance had varied influences in a remote work arrangement, while Aladejebi (2021) provided information on the implications of the RWMPs on performance, work-life symmetry, isolation, and family life.

Despite all these studies, there is still a gap in investigating the influence of the RWMPs on telecommunication firms' operational performance in Nigeria, which justifies the need for the present study. To resolve this, the four leading firms in the Nigerian telecommunication Industry—MTN, Airtel, Globacom, and 9Mobile—constitute the sample for this research. Statistics reported by the Nigerian Communication Commission (NCC), which listed the number of subscribers active for telephony services for each service provider licensed to utilize the Global System of Communication (GSM) technology, identified these four telecom companies as the major players in the industry.

The present study has made a significant contribution to the growing body of research on remote work management practices (RWMPs) by exploring its effects on operational performance in the Nigerian telecommunication industry. Through a survey approach, the investigation has provided fresh insights into the benefits of the RWMPs in a developing economy. The findings have demonstrated a strong positive correlation between the RWMPs and operational performance, emphasizing the critical role of remote work in driving productivity and efficiency. By highlighting the importance of ICT infrastructure and resource allocation, this study was able to offer actionable recommendations for telecommunication companies in Nigeria seeking to optimize their operational performance. Ultimately, the present research will inform evidence-based strategies for management and policymakers which can help to harness the potential of the RWMPs and foster growth in the telecommunication sector.

## LITERATURE REVIEW

### Conceptualization of Remote Work

The terms used in literature to explain the RWMPs included telecommuting, telework, and virtual work. These terms were often used interchangeably as an acceptable norm in social and management research (Martin & MacDonnell, 2012). Remote work has been explained differently by different authors. For instance, in a study by Shockley and Allen (2007), the RWMPs was defined as a work option that permitted employees to accomplish work outside of the traditional boundaries of the work site. In this definition, remote work was identified as a flexible schedule for work completion, with no recourse to information and communication technology (ICT) as an enabler of remote work.

Singh et al. (2017) defined remote work as an alternative work arrangement where employees have been offered the opportunity to work from their residence or any other location different from the usual office location using ICT. A similar definition was put forward by Gajendran and Harrison (2007), who viewed remote work as an alternate work procedure that allowed workers to execute their job functions outside of the generally known workplace, to carry out some parts, if not all of the work assigned to them. This arrangement has been made possible through the deployment and application of ICT to communicate with co-workers within and without the organization.

Gajendran and Harrison's (2007) conceptualization of remote work has been considered a significant step forward. It holistically examined remote work as a paradigm shift in how firms historically conducted their businesses, which mandated employees to be physically present to do their work. Furthermore, they had considered the possibility of having employees telecommute partially or totally and, most importantly, the recognition of the place of ICT in remote work arrangements. Hence, this definition has been adopted for this study.

**Remote Work Adoption**

Researchers have attributed the prevalent use of the RWMPs to several reasons. Prominent among these factors were technological advancement, traffic problem mitigation, and energy consumption reduction (Ovharhe et al., 2021; Edoseghe, 2022; Allen et al., 2015; Bai & Liu, 2021; Cascio & Shurygailo, 2003; Gajendran & Harrison, 2007; Kramer & Kramer, 2020; Morgeson & Humphrey, 2008; Mulki et al., 2006; Parker et al., 2001; Shockley & Allen, 2012). Additionally, the outbreak of COVID-19 in late 2019 has given rise to the adoption of remote work by organizations across the globe, as maintenance of physical distancing was required to curtail the deadly virus from spreading to other safe locations.

The enactment of the Americans with Disabilities Act (ADA) in 1990 had lend further credence to the prevalent use of remote work in the US (U.S. Equal Employment Opportunity Commission, 2015). This law provided the opportunity for employees with a disability to work from home. Furthermore, it was estimated that 50% of U.S. organizations offered telecommuting options to their employees (Society for Human Resources Management, 2014). About 75% of the workforce in Europe enjoy a reasonable level of flexibility in their work schedule and have the opportunity to work from any convenient location of their choice. This is necessary to balance work and family life (Ovharhe et al., 2021; Edoseghe, 2022; Eurofound, 2017). The practice of remote working was also reported to be adopted in Mexico, India, and Indonesia (Allen et al., 2015). In Africa, the literature on remote work adoption is still evolving.

Substantial numbers of empirical research support the proposition that remote work has positively benefitted organizations (Lewis & Coper, 2005; Hunton & Norman, 2010; Bloom et al., 2014; Özoran et al., 2023). However, scholars have argued that its scale of adoption among organizations needs to be higher (Welz & Wolf, 2010; Martin & MacDonnell, 2012; Allen et al., 2015). Indeed, remote work may only be practicable in some industries, but managers' reluctance may be due to the fear of losing control over their employees. Meanwhile, as a response to a highly competitive market environment, ever-increasing globalization of work, high cost/time of commuting, and the disruptive influence of COVID-19, the feasibility of the RWMPs would escalate in the years ahead.

**Operational Performance**

Operational performance (OP) has been described in various ways. Nevertheless, Voss, Åhlström and Blackmon (1997) has defined it as the result obtained when different portions of an organization's outcomes from processes like inventory turn reliability and production cycle time were measured. According to Liu et al. (2020), it is linked to the strategy firms adopt to use as a competitive advantage to compete for more market share, supplying products and offering services that are of a high quality in a short time to ensure that customers are satisfied. Slack, Chambers and Johnston (2010) opined that every firm has a standard by which they operate, and this is reflected in indicators such as cycle time, efficiency, the perceived value of offerings, productivity, capacity utilization, waste reduction, effectiveness, and regulatory compliance. A measure of all these standards is known as operational performance, having the following five fundamental objectives: speed, quality, reliability, cost, and flexibility as critical competitive priorities.

**Operational Performance Measures**

For every firm to improve its operations processes, management of services, and meet set objectives and performance targets, operational performance measures are provided for evaluation, control, and improvement. Operational Performance measurement is considered multidimensional. For instance,

researchers like Frohlich and Westbrook (2001), Swink, Narasimhan and Wang (2007), Danese (2013), Weingarten, Humphreys, McKittrick and Fynes (2013), and Rosenzweig, Roth and Dean (2003) which from their empirical investigations had discovered varied performance indicators to proxy operational performance. According to Moyano-Fuentes, Sacrist_an-D_ıaz and Garrido-Vega (2016), Fawcett, Wallin, Allred, Fawcett and Magnan (2011), and Devaraj, Krajewski and Wei (2007), operational performance can be measured as a single construct with varied performance dimensions. However, Ganbold, Matsui and Rotaru (2020) suggested that separating the constructs would aid in studying different parts of operational performance under various contexts by aligning and mapping other dimensions. Considering previous studies and focusing on telecommunication firms, the present study has adopted quality of service, innovativeness, and flexibility as critical indicators of operational performance in the Nigerian telecommunication industry.

According to the Nigerian Communications Commission (NCC), Quality of service, QoS is a significant factor in determining the level of satisfaction of customers and loyalty. They are standards comprising minimum measures enforced for all operators so subscribers can continuously access high-quality telecommunications services. Technical and consumer issues like error rates, transmission rates, call completion rates, the integrity of billing, and customer centre issues, among other characteristics, are standards that define upper and lower limits of acceptability.

**Remote Work and Operational Performance**

Firms have increasingly embraced remote work as a way to achieve operational efficiency. A study by Bloom et al. (2014) at Ctrip, a Chinese travel website company, on remote work's effect on organizational performance was phenomenal. Their study allowed staff to work remotely from home for nine months. Half of those interested in this flexible work arrangement were assigned to work in the office, while the remaining half could work from home. This study showed that, compared to staff who had to work in the office, those working from home were more productive, contented, and willing to continue with the organization. The same study estimated that an amount to the tune of $1,900 per employee was saved for a period of nine months.

Similarly, Global Workplace Analytics (2023) reported that IBM’s recent real estate savings of approximately $50 million annually were attributed to its remote work strategies, allowing for a significant reduction in office space requirements. This reflects a broader trend among companies optimizing costs through telecommuting and flexible work arrangements, which often resulted in savings of around $10,000 per employee annually on real estate and associated operational expenses.

Barrero et al. (2023) observed that hybrid work arrangements tend to maintain or even improve productivity, whereas fully remote setups can reduce productivity by about 10% due to communication challenges, mentorship barriers, and difficulties in fostering team culture in complex roles. Additionally, the U.S. Bureau of Labor Statistics (2023) reported that industries adaptable to telework saw productivity gains during the COVID-19 pandemic, with sectors like professional services benefiting the most, though productivity effects varied significantly by industry. A study by Fernald, Goode and Meisenbacher (2024) at the Federal Reserve Bank of San Francisco found similar mixed outcomes, where productivity benefits initially favored telework-friendly industries, but impacts levelled out as companies adjusted to remote work dynamics. Remote work has been associated with improved productivity of employees and organizational performance (Kossel et al., 2006; Tamunomiebi et al., 2018).

On the other hand, an assessment of the causal productivity effect of remote work by Monteiro, Straume and Valente (2019) indicated that telework had a significantly negative impact on productivity. Hartman, Stoner and Arora (1991) also reported a significantly negative correlation between telecommuting and productivity. Overall, the findings of the previous studies on remote work's impact on employees and organizational outcomes have been contradictory. In Nigeria, the relationship between the RWMPs and the performance of organizations should be given more adequate attention.

Additionally, most of the earlier research involving remote work focused on the impact on individual employees and overall organizational outcomes. However, the study has examined the influence of the RWMPs on operational performance, specifically for companies in the Nigerian telecommunication sector. This study will add further insights to the body of literature on remote work. It helps us take a position on the relationship between the RWMPs and the firm's performance, primarily within the context of operational performance in Nigeria's telecommunication industry. The outcome of this empirical investigation for Nigeria is critical because of the country's position in the economic ranking of African countries.

## HYPOTHESES DEVELOPMENT

This section discusses the formation of the hypotheses for the current study as follows.

### Remote Work and Quality of Service

Adegoke and Babalola (2011) posited that quality of service was a crucial measurement for evaluating the efficiency of an industry based on the type of service offerings. They suggested that three major factors which could contribute to an operator's service quality were as follows: accessibility, retainability, and (voice) quality. Consumers in the industry expect to get the best from the service providers. In a study by Parasuraman et al. (1988) it was suggested that quality of service was a concept that could be used for measuring service performance, identifying service problems, managing service delivery, and also a basis for corporate and employee rewards. However, Abd-Elrahman (2018) suggested that the concept needs a new interpretation in the telecommunication industry.

Although firms have increasingly embraced remote work to achieve operational efficiency, empirical evidence concerning the relationship between it and quality of service still needs to be provided. More investigative studies are required to assess the influence of the RWMPs on service quality in the Nigerian telecommunication industry. Consequently, this research has hypothesized that:

$H_{01}$: RWMPs do not significantly influence Nigerian telecommunication firms' service quality.

### Remote Work and Flexibility

Flexibility in the workplace is defined as an arrangement that gives employees the room to choose when, where, and how they work (Ogueyungbo et al., 2019). It has become more popular because it can increase an employee's quality of life.

The introduction of remote work, as opposed to the traditional way of carrying out job functions in developed and developing economies in business organizations, can be associated with flexibility in such organizations. Ogueyungbo et al. (2019) in their study indicated that rapid technological

development has contributed immensely to flexibility in the telecommunication industry, yet its implementation needs to be improved. The recent COVID-19 pandemic, however, disrupted the norm and could serve as a lever for change. Meanwhile, Altindag and Siller (2014), from their empirical investigation, discovered that employee performance was determined by flexibility factors that included job loyalty, attitude towards flexibility in working hours, and suitability of the job for flexibility. However, the relationship between remote work practices and the flexibility of firms deploying the practice has yet to be adequately explored. Hence, this research has hypothesized that:

$H_{02}$: RWMPs have no significant effect on flexibility in Nigerian telecommunication firms.

**Remote Work and Innovativeness**

Doyle (1998) and Quinn (2000) posited that innovation has been extensively studied and that any organization's ability to innovate is well-documented as a critical factor for it to survive, thrive, and succeed in a competitive market. For Schumpeter (1934), innovative alternatives included evolving novel production methods, developing new products or services, discovering new markets, evolving new organizational forms, and discovering new sources of supply. However, empirical evidence on the association between the RWMPs and innovativeness needs to be empirically demonstrated. Hence, this research has hypothesized that:

$H_{03}$: RWMPs have no significant effect on innovativeness.

## THEORETICAL FRAMEWORK

A significant contribution of this study to the body of existing knowledge was the use of the job characteristics theory (JCT) to explain the relationship between remote work and operational performance. The job characteristics model provided a robust framework for the explanation of the association between remote work and operational performance. Hackman and Oldham (1976) developed the Job Characteristics Theory (JCT), which posits that five core job characteristics—skill variety, task identity, task significance, autonomy, and feedback—contribute to critical psychological states that lead to higher levels of employee motivation, job satisfaction, and performance.

**Application of the JCT to Remote Work Management Practices and Operational Performance**

Remote work frequently includes responsibilities and everyday jobs, offering workers opportunities for task ownership and skill development. The JCT proposes that occupations with higher task identity and skill variety are connected with superior performance and motivation levels. Also, the RWMPs typically provide exceptional flexibility and autonomy in accomplishing responsibilities, permitting workers to control their work schedules and approaches. The JCT has also suggested that autonomy is a significant determinant of performance and job satisfaction because it allows people to align their work with individual goals and preferences.

Applying Job Characteristics Theory (JCT) to remote work contexts, RWMPs can enhance employees' perception of task significance by enabling them to engage with meaningful and impactful goals and projects, thereby sustaining motivation and operational performance despite physical distance. The JCT has stated that when jobs are perceived to be impactful and meaningful, such jobs are more likely to produce higher levels of performance and engagement. Effective feedback mechanisms are

indispensable for workers working remotely. The JCT has also proposed that regular feedback would improve the understanding of individuals' roles and performance expectations, thereby improving the performance results. The theory has focused on the role of situational factors and individual differences in determining the association between job characteristics and results. For the RWMPs, issues such as organizational support systems, communication protocols, and technological infrastructure can restrain the influence of job characteristics on operational performance.

Applying the JCT to examine the remote work-operational performance relationship would allow investigators to recognize specific features of job design and organizational practices that can enable or hamper the efficiency of the RWMPs.

## METHODOLOGY

A survey research design was employed as it helped the researchers collect primary data by administering a well-structured questionnaire. The study was conducted in Nigeria. Nigeria is a significant player as it accounts for about 50% (fifty per cent) of the population of West African countries, having a population close to 206 million. The number of Nigerian youths is the largest in the world. It has many natural resources, including of the largest oil and natural gas reserves in Africa. The study is based on four major telecommunication firms operating in Nigeria.

The study is conducted within the Nigerian telecommunications industry. The four major telecommunication firms at the time of this study were MTN, GLO, AIRTEL and 9MOBILE. The Nigerian telecommunication industry has recently demonstrated its capabilities by adapting to unpredictable working environments. These four firms are the dominant players in the Nigerian telecommunications industry, collectively accounting for the largest market share. Insights gathered from respondents representing these companies have contributed significantly to the expanding knowledge of remote work management practices within the sector.

The design of the research instrument in the present study had benefited from the previous empirical studies conducted by Aladejebi (2021), in terms of constructs on remote work management practices and Campbell and McDonald (2009), in terms of constructs on service quality, innovativeness, and flexibility. The research tool (questionnaire) was first distributed to the head offices of the participating firms where they were handed out to the concerned departments and employees as per the design of the research. To ensure the high reaction rates and receive full filled survey forms, there were repeated visits to the offices of the firms to collect the questionnaires. A total of 340 correctly filled in questionnaires were recovered and thus the sample size may be considered as sufficient and adequate in providing an empirical analysis. The questionnaire was put under a high degree of test to check it was valid and reliable before going into the field. Face validity was determined by panel of experts, including scholarly researchers focused on the area of organisational behaviour or the aspect of human resource management, along with practice-oriented personnel with many years of experience in the areas of employee well-being and retention strategies. They were used to improve the instrument in an effort to make it clear, relevant and comprehensive. Reliability was determined by the Cronbach alpha which is used as a measure of internal consistency of the scales used to measure the key constructs. Also, exploratory factor analysis (EFA) was done to confirm the factor structure and dimensionality of the survey questions. The statistical tests and pilot testing on a sample of the instrument helped test the psychometric and practicability aspects of the instrument to be used in the study context. Data was therefore collected on a well-designed and administered instrument and aided by the internal data

collection coordinators in the firms to ensure that such data would be representational and accurate. The proposed approach to methodology was an excellent starting point to later theoretical study.

The study relied on data collected directly from primary sources. According to data cited by Akintaro (2021) in New Telegraph, the study's population stood at 7,756. A formula developed by Slovin was used to obtain the sample size for the study. The formula is as expressed in Equation (1) below:

$$n = \frac{N}{(1 + Ne^2)} \qquad (1)$$

N is the study population, e is the error margin, and n is the sample size. For this study, the value of N is 7,756, while the commonly used confidence level of 95% (0.05) was employed. Thus, the study's sample size was calculated as follows:

$$7{,}756/\ 1+ (7{,}756)\ (0.05)2 = 380.38 = 380 \text{ respondents}$$

Four hundred respondents were used as the sample size to increase the study's statistical power and show the significant connections among the variables. The study's sample comprised the top management team, line managers, supervisors, and customer relationship officers of each of the four telecommunication firms selected for the study. The timeframe for the data collection was two months. Harman's single-factor test was carried out to verify the standard factor error.

The questionnaire used for the study was separated into segments A, B, and C. Segment A sought input on the socio-demographic information of the study's respondents. In contrast, segments B and C included constructs on specific measures of the RWMPs and the operational performance of the telecommunication firms in Nigeria. The response options of sections B and C were based on a 5-point Likert scale, with 5- as Strongly agree, 4- Agree, 3-Neutral, 2- Disagree, and 1- Strongly Disagree. The Cronbach Alpha reliability test was conducted for the research instrument before its administration. Partial Least Squares Structural Equation Modeling (PLS-SEM) was employed to analyze the data obtained through the administration of the research instrument, in order to gain deeper insights into the relationship between Risk-Weighted Management Practices (RWMPs) and the various proxies of operational performance.

## RESULTS

### Response Rate

A total of 400 copies of the study questionnaire were distributed to respondents who were staff of the four telecommunication firms in Nigeria, but only 340 (three hundred and forty) copies of the instrument were correctly filled out and returned. The properly filled and returned copies of the questionnaire represented 85% of the administered instrument, which was considered valid for the study.

**Table 1**

*Demographic Profile of Respondents*

| | Frequency | Per cent |
|---|---|---|
| Gender of the Respondents | | |
| M- Male | 200 | 58.80 |
| F- Female | 140 | 41.20 |
| Total | 340 | 100.00 |
| Age Bracket | | |
| Less than 20 Years | 33 | 9.70 |
| 20 - 39 Years | 212 | 62.40 |
| 40 - 59 Years | 93 | 27.40 |
| 60 Years and above | 2 | 0.6 |
| Total | 340 | 100.0 |
| Educational Qualification | | |
| School Certificate | 3 | 0.9 |
| OND/HSC/NCE | 93 | 27.4 |
| HND/B.Sc | 123 | 36.2 |
| MBA/MPA/Masters | 121 | 35.6 |
| Total | 340 | 100.0 |
| Year Spent in the Current Organisation | | |
| Less than one years | 52 | 15.3 |
| 1 - 4 Years | 89 | 26.2 |
| 5 - 9 Years | 149 | 43.8 |
| 10 - 14 Years | 43 | 12.6 |
| 15 Years and above | 7 | 2.1 |
| Total | 340 | 100.0 |

Table 1 indicates the distribution of gender of the respondents. Two hundred, representing 58.8%, were male, while 149, representing 41.2%, were female. Also, the age group distribution shows that 33 (9.7%) were less than 20 years, 212 (62.4%) were between 20- 39 years, 93 (27.4%) were within the age bracket of 40-59years, while only 2 (0.6%) were 60 years and above. This finding revealed that most respondents were youths or young adults within 20-39 years old. In addition, the finding shows that 3 (0.9%) of the respondents had SSCE, 93 (27.4%) had ND/HSC/NCE, 123 (36.2%) had HND/B.Sc., while 121 (35.6%) had postgraduate degrees. Therefore, 71.8% of the respondents were well-educated and had a minimum first degree or equivalent. Meanwhile, it was also discovered that 52 (15.3%), as at the time of filing this report, had spent less than one year with their current organization, 89 (26.2%) had spent between 1-4 years, 149 (43.8%) had spent between 5-9 years, 43 (12.6%) had spent between 10-14 years while only 7 (2.1%) has spent 15 years and above in their current organisation. However, most of the study's respondents who took part had spent between 5 and 9 years in their current organisation.

**Statistical Methods**

The content, constructs, and face validity of the study's items were correctly verified. The constructs' reliability test used Cronbach's Alpha, composite reliability, and average variance extracted (AVE)

estimate. Factor loadings, composite reliability, average variance extracted (AVE) estimate, and Cronbach's Alpha values are as shown in Table 2. As can be seen, the values of the scale reliabilities obtained exceeded the endorsed yardsticks.

The data was analysed using SmartPLS 3.0, a structural equation modelling application. According to Samani (2016), the requirements for utilizing PLS-SEM were satisfied if these involved, firstly, a review of the model for measurement in terms of models for formative and reflective measurements to get discriminant validity, internal consistency, collinearity, and construct validity, among other pointers. The second stage of evaluation of the structural model includes determining the path coefficients/tests of hypotheses, predictive relevance, the F-squared effect, and R-squared values.

The statistics contained information that assisted in determining the effect of the RWMPs on operational performance. The study employed a multivariate technique for the analysis. The three (3) hypotheses formulated in the manuscript underscored the study's objectives. Hypothesis number one verified whether the remote work management practices significantly impacted the quality of service. Meanwhile, the second hypothesis verified the probable consequences of the RWMPs on flexibility, whereas the third (3) hypothesis verified whether the RWMPs had any significant influence on innovativeness.

The algorithm model was also utilized to depict the regressions' structure in weight trajectories, which enabled one to determine the significance values, r-square values, and path coefficients. Bootstrapping, alternatively, defines the significance of the t-values and coefficients. The default subsample of bootstrapping 500 was extended to 5,000 to improve the relevance of the outcomes.

**Table 2**

*Construct Validity and Reliability*

| | Loading | VIF | t-statistics | P Value | AVE | Composite Reliability | Cronbach's Alpha |
|---|---|---|---|---|---|---|---|
| Constructs | $\geq$ 0.7 | <3.0 | >1.96 | <.05 | $\geq$0.5 | $\geq$ 0.8 | > 0.7 |
| Remote Work Mgt Practices (RWMPs) | | | | | 0.560 | 0.860 | 0.804 |
| WfH | 0.826 | 2.691 | 29.230 | 0.000 | | | |
| WfSO | 0.592 | 1.691 | 5.639 | 0.000 | | | |

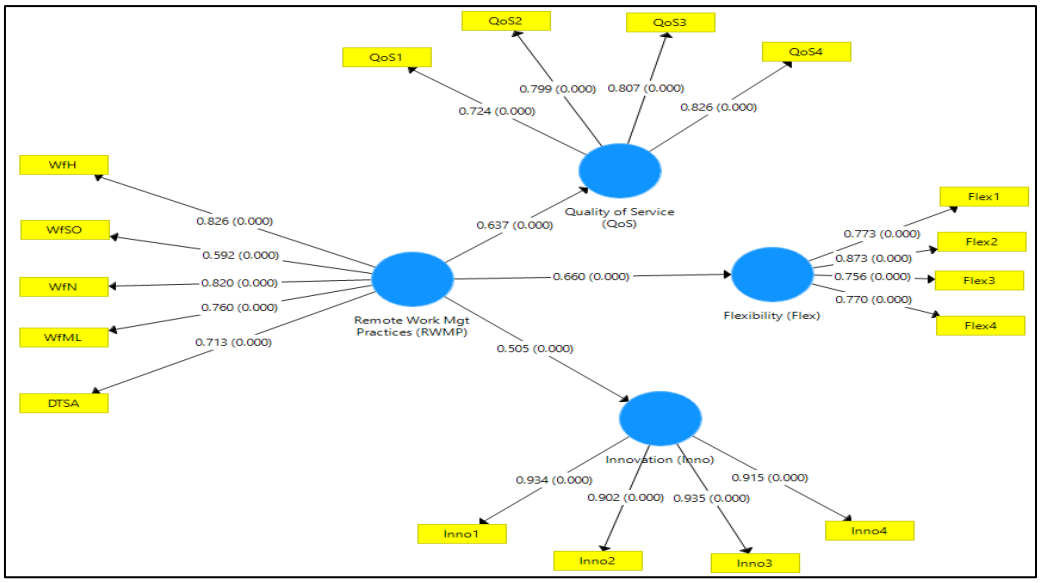
(continued)

| | Loading | VIF | t-statistics | P Value | AVE | Composite Reliability | Cronbach's Alpha |
|---|---|---|---|---|---|---|---|
| WfN | 0.820 | 2.681 | 22.410 | 0.000 | | | |
| WfML | 0.760 | 2.044 | 10.976 | 0.000 | | | |
| DTSA | 0.713 | 1.432 | 10.540 | 0.000 | | | |
| Quality of Service (QoS) | | | | | 0.624 | 0.871 | 0.801 |
| QoS1 | 0.724 | 1.382 | 10.064 | 0.000 | | | |
| QoS2 | 0.799 | 1.632 | 20.966 | 0.000 | | | |
| QoS3 | 0.807 | 1.770 | 23.809 | 0.000 | | | |
| QoS4 | 0.826 | 1.873 | 25.944 | 0.000 | | | |
| Flexibility (Flex) | | | | | 0.632 | 0.874 | 0.802 |
| Flex1 | 0.773 | 1.834 | 17.598 | 0.000 | | | |
| Flex2 | 0.873 | 2.611 | 28.396 | 0.000 | | | |
| Flex3 | 0.756 | 1.931 | 12.791 | 0.000 | | | |
| Flex4 | 0.770 | 1.553 | 21.080 | 0.000 | | | |
| Innovativeness (Inno) | | | | | 0.850 | 0.963 | 0.944 |
| Inno1 | 0.934 | 2.521 | 50.248 | 0.000 | | | |
| Inno2 | 0.902 | 2.508 | 31.743 | 0.000 | | | |
| Inno3 | 0.935 | 2.523 | 34.421 | 0.000 | | | |
| Inno4 | 0.915 | 2.855 | 36.820 | 0.000 | | | |

Relevant statistics, such as the p-values, the R-square value, the structure path coefficient (value), and the t-statistic, were used to interpret the results at the multivariate level. A pictorial representation has been created (see Figure 1).

**Figure 1**

*Remote Work Management Practices and Operational Performance Model*



On the algorithm model of Partial Least Square (PLS) shown in Figure 1, the path's coefficient, which displays the level of association amongst the observed variables, showed that the RWMPs had a significant relationship with operational performance. The R-square value revealed the extent of variance of the RWMPs and the operational performance (see Table 3).

It is also worth noting that the f-squared values for quality of service, flexibility, and innovativeness, were at 0.682, 0.771, and 0.344, respectively, they were higher than 0.02, as Cohen (1988) had benchmarked. As a result, it can be seen that the RWMPs had significantly impacted the operational performance.

**Table 3**

*Path's Co-efficient of RWMPs and Operational Performance Model*

| Hypotheses | Path Co-efficient | $R^2$ | Standard Dev | T-Stat | P Values | Empirical Evidence |
|---|---|---|---|---|---|---|
| Remote work management practices have no significant influence on the quality of service | 0.637 | 0.406 | 0.051 | 13.951 | 0.000 | Null hypothesis Rejected |
| Remote work management practices have no significant influence on Flexibility | 0.660 | 0.436 | 0.062 | 10.848 | 0.000 | Null hypothesis Rejected |
| Remote work management practices have no significant influence on innovativeness | 0.505 | 0.255 | 0.055 | 7.063 | 0.000 | Null hypothesis Rejected |

The hypotheses for this study were stated in a null form. The outcomes of this empirical investigation supported the rejection of the three null hypotheses, as can be seen in Table 3. Unambiguously, the path's coefficient revealed that the RWMPs significantly influenced the quality of service ($\beta$=0.637, $R^2$ value = 0.406, t-value=13.951>1.96, p<0.05). This means that a substantial relationship existed between the RWMPs and the quality of service. The value of R-square (R2) of 0406), indicated the degree of variance of RWMPs and quality of service. Similarly, the path coefficient indicated that the RWMPs significantly influenced flexibility ($\beta$=0.660, $R^2$ value = 0.436, t-value=10.848>1.96, p-value <0.05). The path coefficient of 0.660 showed a high relationship between the RWMPs and flexibility. Meanwhile, the R-square value ($R^2$ = 0.436) showed the degree of variance of the RWMPs and flexibility. Also, the path co-efficient value of the RWMPs directly influenced innovativeness ($\beta$=0.505, $R^2$ = 0.255, T-value=7.063>1.96, P-value <0.05). The value of R-square ($R^2$ = 0.255) indicated the degree of variance of the RWMPs and innovativeness.

## DISCUSSION OF FINDINGS

The findings of the analysis revealed that RWMPs had a positive and significant influence on all the proxies of operational performance, i.e., RWMPs-quality of service relationship was both critical and positive ($\beta$=0.637, $R^2$ = 0.406, t-value=13.951>1.96, p-value <0.05), RWMPs-flexibility relationship was both positive and significant ($\beta$=0.660, $R^2$ = 0.436, T-value=10.848>1.96, P-value <0.05) and

RWMPs-innovativeness relationship was also positive and significant (β=0.505, $R^2$ = 0.255, T-value=7.063>1.96, P-value <0.05). As telecom firms adopt and improve their RWMPs, their operational performance will improve. This means that the firms' quality of service, flexibility, and innovativeness will improve tremendously. In a nutshell, the value of the R-squared of RWMPs-quality of service implies that 40.6% of the variance in the quality of service of firms in the telecommunication sector was explained by the RWMPs deployed. Also, the value of the R-squared of RWMPs-flexibility implies that 66 % of the variance in the flexibility of firms in the telecommunication sector was explained by the RWMPs deployed. Finally, the value of the R-squared of RWMPs-innovativeness has implied that 25.5 % of the variance in the innovativeness of the telecommunication firms was explained by the RWMPs deployed. This finding aligned with the previous empirical investigations conducted by Bai and Liu (2021), Cascio and Shurygailo (2003), Gajendran and Harrison (2007) Kramer and Kramer (2020), Morgeson and Humphrey (2008), Mulki et al. (2006), Parker et al. (2001), Shockley and Allen (2012), Kossel et al. (2006), Tamunomiebi et al. (2018), but differed completely via the adoption of the JCT to explain the RWMPs-operational performance relationship. Applying the JCT to examine the RWMPs-operational performance relationship enables investigators to recognize specific features of job design and practices of an organization. This can enable or hamper the efficiency of the RWMPs, thereby contributing to the body of knowledge on the relationship connecting the two variables of this study. The study also provided specific information on the influence of the RWMPs on operational performance metrics, unlike the findings in previous studies conducted in developed and developing economies.

## PRACTICAL IMPLICATIONS

Based on the findings, several key recommendations are proposed to enhance remote work management practices and optimize operational performance. Firstly, organizations should prioritize investment in and enhancement of their remote work management practices (RWMPs), focusing on elements that improve job characteristics such as autonomy, skill variety, and feedback. Research has shown that these factors positively impact operational performance. To support employees in adapting to remote work environments, comprehensive training and support programs should be developed. These programs should encompass training on effective communication, time management, and digital collaboration tools. Additionally, implementing systems for continuous monitoring and feedback is crucial to ensure that remote work practices effectively contribute to quality of service, flexibility, and innovativeness. Regular surveys and performance metrics can help identify areas for improvement. Flexible work arrangements that cater to employees' diverse needs can also enhance job satisfaction and productivity, ultimately improving overall operational performance. To facilitate this, organizations should invest in advanced technology and digital infrastructure, including reliable and secure communication platforms, project management tools, and data security measures. Fostering a positive remote work culture is vital to promote collaboration, trust, and accountability. Encouraging team-building activities and virtual social interactions can strengthen team cohesion and morale. Moreover, clear policies and guidelines for remote work should be developed and implemented to ensure consistency and fairness, addressing expectations, performance evaluation, and conflict resolution mechanisms.

Finally, further research on the impact of RWMPs across different industries and organizational contexts is essential to provide deeper insights and a more nuanced understanding of how remote work can be optimized for various operational outcomes. By adopting these recommendations, organizations

can effectively leverage RWMPs to enhance their operational performance, achieving better service quality, greater flexibility, and increased innovation.

## THEORETICAL IMPLICATIONS

This research has helped to increase existing knowledge by applying the Job Characteristics Theory to investigate the impact of Remote Work Management Practices (RWMPs) on operational performance. The findings provide empirical support for the theory's applicability in remote work contexts, highlighting the significance of core job characteristics in influencing remote work outcomes. By extending the theoretical framework to remote work settings, this study has demonstrated how well-designed job characteristics can enhance employee motivation and productivity in virtual environments. The research provides robust empirical evidence that RWMPs significantly improve various dimensions of operational performance, including quality of service, flexibility, and innovativeness. This underscores the importance of implementing structured remote work practices to achieve superior organizational outcomes. The study also identifies and empirically tests proxies of operational performance, highlighting the strategic potential of remote work in improving these critical areas. Quantitative insights from the study provide a better understanding of RWMPs' influence on operational performance. The findings have implications for organizations seeking to optimize remote work management for improved performance outcomes.

This research lays the groundwork for future studies, encouraging further empirical investigations into other dimensions of remote work and their impact on organizational performance metrics across various industries and regions. In conclusion, this study has underscored the critical role of RWMPs in enhancing operational performance through improved service quality, flexibility, and innovativeness. The research validates the applicability of the Job Characteristics Theory in remote work contexts, emphasizing the importance of structuring remote jobs to optimize employee motivation and efficiency. While this study contributes to the growing discourse on remote work, it has certain limitations. Future research could explore additional performance indicators, examine RWMPs across different industries and geographical contexts, and investigate the moderating or mediating effects of factors such as organizational culture and leadership styles.

## CONCLUSION

The findings have shown that RWMPs are major significant predictors, as the variables examined had a strong, positive, and significant connection. This seemed to imply that the management of the telecommunication firms should pay close attention to developing policies and programs that would improve the operational performance of the RWMPs. It would also be extremely beneficial if telecommunication firms focused on research and development as this would allow them to improve their understanding of the association between operational performance, ICT, and RWMPs. A significant contribution of this study to the existing body of knowledge is the use of job characteristics theory (JCT) to explain the remote work-operational performance relationship. The JCT recognizes specific features of job design and practices of an organisation that can enable or hamper the efficiency of RWMPs. Unlike previous studies conducted in developed and developing economies, the JCT has provided specific information on the influence of RWMPs on operational performance metrics.

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