Drivers of Telecommuting Policy in Nigerian Organisations

Koleayo Omoyajowo[*1]**, Susan Ebosiem**[2]**, Adeyemi Akinola**[3]**, Sunday Amiolemen**[4]**,**
Kolawole Omoyajowo[5]**, Andrew Oriola**[6]**, Olapeju Adenekan**[7]**, Aziba-anyam Gift Raimi**[8]

[1,2,4,6,7]*National Centre for Technology Management, Lagos Study Centre, Victoria Island, Lagos*
[3]*Mountain Top University, Lagos-Ibadan Expressway, Ogun State, Nigeria*
[5]*Faculty of Law, Ekiti State University, Ado-Ekiti, Nigeria.*
[8]*Office of the Vice-Chancellor, Federal University Otuoke, Bayelsa State, Nigeria.*

Correspondence: giftwithchrist@gmail.com; akinolaadeyemi@yahoo.com.

Abstract

This study evaluates factors influencing the adoption of telecommuting among the selected organisations in Nigeria. A questionnaire research tool was used basically to capture the level of awareness, interest, readiness, and perception of Nigerian organisations towards telecommuting. A total of 180 questionnaires was administered to 180 Nigerian firms in Lagos, 120 questionnaires were counted valid for analysis. This study observed high level of awareness among Nigerian organisations but paradoxically, this high level of awareness does not engender the adoption of telecommuting by those organisations. Findings revealed that the fright of difficulty in assessing employees' performance, inadequacy of ICT infrastructures and the fear of corporate data theft are the key factors inhibiting the adoption of telecommuting by organisations. This study concluded there is a need for organisations to be aware of the benefits of telecommuting and how telecommuting policy can be devised to strategically fit into the work culture for productivity.

Keywords: *Telecommuting; Public Research Institutes, Adoption, Factors, Lagos.*

1. Introduction

Traffic congestion in Lagos is a serious problem that cannot be overlooked. It has reached a critical stage in Lagos and many other urban cities in Nigeria where some low-income dwellers explore traffic time to hawk goods to commuters held in traffic gridlock, the downtrodden and physically challenged people also use such opportunity to beg for alms while some other idle notorious youths commit several atrocities like robberies, pickpockets etc. to commuters. All of these scenarios have become so popular and has even exacerbated the issue of traffic congestion in recent times. Nevertheless, commuters suffer from poor air quality from built-up exhaust of vehicle emission as they commute, making them uncomfortable and restless even after getting to their various destinations. Although some studies after the passage of the "1999 National Telecommuting and Air Quality Act" have reported supporting evidences for telecommuting programs in the United State of America. However, recent international researches have cautioned policymakers that travel impact of telecommuting in past years might be overly optimistic (Kim, 2017). In order words, commuting stress obviously leave workers disengaged, unfocused or frustrated. Lagos state, being the commercial nerve of Nigeria with an estimate population of over 11 million people (United Nation, 2011) has been grasped as land of opportunity to many people, hence the reason for the heightened rural-urban migration and massive urbanization. Knowing fully that the effectiveness of telecommuting programs and policies can reduce travel demand. The overwhelming population coupled with busy commercial activities of major urban markets, multinational, public and private firms unevenly concentrated

on one part of city than the other might have contributed to the increased vehicle use hence, resulting to disturbance and increased traffic volume along major arterial routes majorly during rush hours when employees leave after office hours. As a result, most workers or employees in Lagos often leave home for work before dawn and come back home after dusk throughout the week with little or no time for family life or other endeavors.

Information and communication technologies (ICT) are changing our way of life through character building and sustainable development in our society (Bris *et al*. 2017; Raimi *et al.,* 2019). The application of science and technology towards meeting present needs of the society since the second half of the 20th century has been unprecedented. In line with this, advanced technologies in telecommunication and transport have created a global village to enhance convenience and increased productivity leading towards higher levels of innovation and creativity. In this age of globalization and market liberalization, information technology (IT) has made it possible for organization's workforce to transact from anywhere in the world. The flexible work culture or workplace innovation that allows employee to work from their base either through satellite office or neighborhood work centres with the aid of telecommunication infrastructures is called telecommuting. Telecommuting is however virtually new in Lagos and even in cities of most developing countries unlike the western world. Telecommuting seeks to improve health and decreased stress, minimize traffic congestion and its related pollution problems (Raimi *et al.,* 2018; Ebuete *et al.,* 2019; Raimi, 2019; Suleiman *et al.,* 2019; Raimi *et al.,* 2019; Raimi *et al.,* 2020; Ajayi *et al.,* 2020; Morufu *et al.,* 2021). Indeed, previous study by scholars indicates that telecommuting benefits the personal lives of employees and ultimately leads to improved job performance (Pinsonneault, 1999; Greenberg and Nilssen, 2008). Few organizations such as marketing firms, Information technology (IT) firms and higher learning institutions are now decentralizing their work arrangements, in order words, making workplace flexible for employees in order to increase productivity and reach out to target audience easily. Several literatures have examined the importance and effects of telecommuting to organizations growth and development and its employees.

"Some of the merits for organizations include lower levels of absenteeism, increased levels of employee loyalty, a better retention of skilled employee, reduced energy usage and carbon footprints, increased productivity, cost savings, increased flexibility, and the potential to quickly recover from interruptions due to unexpected events such as natural disasters (Pinsonneault, 1999; Greenberg and Nilssen, 2008; Raimi *et al.,* 2021).

While from the employee's perspective, improved work–life balance or job satisfaction, heightened morale, reduced travel cost and increased productivity are the merits (Gajendran and Harrison, 2007; Greenberg and Nilssen, 2008; Gift & Obindah, 2020). As earlier reported in literatures, some of the ways in which telecommuting negatively impacts the organization are absence of resourceful workforce from their place of work, low or non-existence level of interactions in the organization, lack of focus by employees involved in telecommuting and inability to evaluate the financial benefits of telecommuting (Pinsonneault, 1999). The merits of telecommuting have thus far-outweighed its demerits and even some demerits could be accommodated through having adequate policies that guides human resources (Gajendran and Harrison, 2007). Hence it has caught the attention of practitioners and policy makers while policy scholars are making attempt to recognized the nature and the factors that may likely impede or encourage telecommuting implementation in the public service. Given the importance of telecommuting in both organizations and employee's perspective, further studies could make attempt to explore the validity of these previous findings particularly in the area of

implementation. The primary aim of this paper is therefore to understand the factors or conditions that influence the implementation of telecommuting in Nigerian public research institutes Lagos State, Nigeria.

2. Literature Review

As rapid advances in information and telecommunication technologies diffuse into workplace, teleworking or telecommuting have become quite prevalent and are often discussed in this context. Telecommuting is first coined by a U.S. Air Force rocket scientist, Jack Nilles in 1973 to mean working away from the conventional office and communicating via telecommunication devices (Olorunfemi, 2013). The terms telecommuting, remote work or telework are interlinked and often used interchangeably. Telecommuting refers to work undertaken at a location other than your 'official duty station', on a routine, regular and recurring basis' one or more days in a week (Woog, 2013). While telework encompasses all types of technology-assisted work conducted outside of a centrally located work space, which includes works undertaken in the home (Olorunfemi, 2013). The availability of residential broadband internet access (fast and secure), phones, faxes, emails and instant messaging (IM) and the webcams all make it easier for employee to work from home effectively and efficiently (Doyle, 2019; Manker, 2019). Modern technological breakthroughs have positively impacted the corporate business world and even the transportation sector with applications such as e-payments, e-commerce, e-government, teleconferencing, telemedicine and e-learning etc. The fact that organizations will be saving so much cost in terms of office space and those public policy goals such as, containment of traffic congestion which could cause outdoor air pollution (Raimi *et al.,* 2018; Raimi *et al.,* 2020; Morufu *et al.,* 2021), reducing inequalities or stereotyping by employing the physically challenged persons could be easily achieved thus, makes it attracts managers, private owners and policy makers.

It has also become an opportunity or solution for people at different stages in their life by simply matching their individual preferences (e.g., to improve their study, work, family and social life etc.) and decreasing work constraints while gaining autonomy over their own affairs (Tavares, 2017). Literatures have acknowledged that telecommuting is not constrained by time and space unlike the traditional workplace. However, telecommuting is more often found in certain professions and usually associated with highly skilled white-collar jobs (Tavares, 2017). The empirical literature on telecommuting has gained so much ground over the last decade with most studies reported from developed countries and has provided models and theories on telecommuter's experiences and perspective. Earlier empirical study infer that the accessibility of the telecommuter is key, even if they are working offsite and that job type/position plays an important role in the selection process or in some non-telecommuters' decision to opt out of telecommuting while dearth of information on a formal telecommuting policy could influence employers' perspectives on job satisfaction (Gift & Obindah, 2020). Also, some non-telecommuters experienced envy and jealousy, frustration, resentment, anxiety, unfairness and anger towards telecommuting colleagues.

Most frequently cited problems of implementing telecommuting are difficulties in supervising and managing remote workers, feelings of isolation on the part of the employees, collaboration inefficiencies due to a lack of proximity among workers, and increased security risks (Ye, 2012). Managerial resistance or reluctance has been the biggest hurdle to telecommuting implementation (Bailey and Kurland, 2002; Karnowski and White, 2002). Professionally, employees fear that telecommuting may limit opportunities for promotions and

organizational rewards (Cooper and Kurland, 2002). Technology infrastructure support is another important factor that may influence telecommuting programs. The best choice for telecommuting program is the use of virtual private network (VPN) technologies over an inexpensive, broadband public Internet access service. Though this depends on whether the telecommuter is stationary or on the move, such services can be digital subscriber lines (DSL), cable modems, public Wi-Fi hotspots, 3G/4G cellular networks (Ye, 2012). In order to improve communications with other telecommuters and employees in traditional offices, the use of online collaboration tools, web-based "presentation rooms," and desktop video conferencing should be considered and managers should also be familiar with the current technology available to telecommuters (Ye, 2012). The level or quality of training forms the fulcrum of a successful telecommuting program. For telecommuting program, a basic level of knowledge in the operation of computer and network applications is important and should be required for employees (Ye, 2012). Telecommuting workers and managers must be trained to use the technologies necessary to perform their job functions from home or a remote location while IT personnel must also be trained to provide the telecommuting workers with the technical support services whenever and wherever needed.

Mokhtarian and Salomon (1996) had suggested telecommuting would be of particular interest to women employees than male counterparts. Mokhtarian and Salomon (1996) have indicated that young adults were more inclined towards telecommuting and that people who travelled for long commute time were more likely prefer to telecommute. Well-educated employees were found to be more likely to practice telecommuting (Peters *et al.,* 2004). Walls *et al.* (2010) claimed that the choice of telecommuting was found to be substantial influenced by work-related factors. In order words, professions that rely on telephones, computers and other communication technology devices are strongly related to the potential performance by telecommuting. Blurring of boundaries between work and home time and overwork, presenteeism*,* social isolation, lack of support, inadequate equipment, career progression or promotions and resentment from colleagues are disadvantages of telecommuting from the employee's perspective (Tavares, 2017).

2.1 Types of telework

The following are the ways telecommuting can be executed. They are:
Hot desking: hot desking denotes working from a place not closer to the main organization, and sometimes from the main office. Telecommuting employees use a non-assigned, non-permanent workspace or office in the organization.
Hoteling: this is one way or other related to hot desking by preserving a reserve space for employees ahead of time.
Telecommuting centres: these are offices equipped with workstations provided by organizations that employees from several organizations who are involved in telecommuting can use. This type of telecommuting provides avenue for employees of different organizations to interacts. Also, telecommuting centre are equipped with enable information to fast track their day activities.
Collaborative offices: they are cybernetic work space telecommuters can work from various locations with the aid of a computer network.
Mobile telecommuters: these are employees who spend over ten hours in the cause of the week working while away from the office, including via their mobile phone while on the move.
Day extenders: they work from home in the cause of the evenings or weekends on an ad hoc basis to meet deadlines.

2.2 Telecommuting around the world

United States
Telecommuting in the US for different categories of workforce in both public and private sectors of the economy for the years 2005 to 2014. The survey was carried out by Global Workplace Analytics in the United State of America (Lister, 2015). They derived their questions from: "What was your primary means of transport to work during the survey week?" They add that "worked at home" "is one of the choices and conclude that if that population responded that they worked primarily at home during the survey week, then the assumption is that they worked there, meaning that they telecommuted" (Global Workplace Analytics, 2016). However, telecommuting trends in the USA among employees of organizations population grew by "102 per cent from 2005 to 2014, with 3.7 million employees, this represents 2.8percent of the labour force, working directly from home by 2014. From 2013 to 2014 the telecommuting population grew respectively by 5.6 per cent and 1.9 per cent."

Australia
According to a research carried out by the Australian Bureau of Statistics, six (6) percent of all Australian employees went into telecommuting agreements with their various organizations in 2006, extending from regular telecommuting to occasional arrangements ABS (2008). Another study by Household, Income and Labour Dynamics in Australia (HILDA) identify telecommuting activities among employees in Australia has slightly decreased. Though, the overall rate at which employees involves in telecommuting is high, with 18percent of all telecommuting research carried out in Australia show that employees involved themselves in working directly from home in 2009 (Deloitte Access Economics, 2011). Deloitte Access Economics further explained that most employees telecommuting on a casual basis, rather than through formal arrangements with their organization. The study also reports most telecommuters on informal basis are likely to mostly be "day extenders" who were unable to complete their day from home undertake some additional work from their place of residence that could not be completed during assigned hours in the office, or employees who telecommute on an ad hoc basis around family needs.

Canada
The International Data Corporation's Canadian Mobile Worker 2012–2016 Predicted that 68.9percent of the Canadians workforce were involved in telecommuting as at 2012, which is expected to rise to 73percent by 2016. However, factors driving this trend were spending long hour telecommuting and the injection of technology in the system (Deloitte Access Economics, 2011). Deloitte Access Economics reported that in 2006, seven (7) percent of employees working in Canada, including private business owners, considered their home as their primary place of work (Deloitte Access Economics, 2011). When the private business owners were excluded, the figure dropped to about 3.5 percent. However, 11.2 percent of the workforce agreed that they worked from home in 2018.

United Kingdom
As emphasised by Deloitte in 2009, they reported that the estimates for telecommuting in the UK as 12.8percent of their employees, indicating that more than 3.7 million employees telecommute from their home (Deloitte Access Economics, 2011). This report emphasised that two-thirds of those counted as telecommuters were private business owners which shows that employees who telecommuted more than three days a week was around 4.3 percent, which double the data presented in the 2005 Fourth European Working Conditions Survey report.

Switzerland
The Swiss Federal Statistical Office's from 2001 to 2015 employees in a study shows that the number of employees with either full-time or part-time home-based telecommuter rose from 248,000 to 831,000 (Office fédéral de la statistique, 2016). They further appropriate that 21 percent of the active workforce participated in home-based telecommuting as at 2015. The number of full-time telecommuters remained uncertain, despite also quadrupling from 31,000 in 2001 to 120,000 in 2015. The proportion of telecommuting significantly depending on most importantly the economic sector and invariably other sectors, with the highest occurrence found in the information and telecommunication communication sector. This assertion shows over 50 percent of employees rarely telecommuted in 2015. The ICTs sector also shows the highest percentage of regular home-based telecommuters with 7.2 percent. This was followed by the Educational sector with 45 percent of employees participating in home-based telecommuting. Professional, scientific, technical activities, and financial services follows respectively.

Japan
In Japan, "Worldwide Mobile Worker 2007–2011 Forecast and Analysis" estimated that 53 percent of Japanese employees involved in telecommuting in 2006. They forecast that the data may rise to 80 percent of the employees by 2011, making the country telecommuters in the world. In 2003, a study by the IT Japan Strategy Committee of the Government of Japan estimated that the 2002 telecommuting population in Japan spent at least eight hours per week telecommuting which consist about 3.11 million workforce and 970,000 private owners' telecommuters. The total telecommuters to all workers was 6.1 per cent which indicated 20 percent of all Japanese workers telecommuting by 2010 (Kaupins and Usui, 2008).

Latin America
The University of Costa Rica's Information and Knowledge Programme (PROSIC), annual report in 2009 emphasised that telecommuting has not been adequately put to use in both Latin America and the Caribbean (University of Costa Rica, 2009). Most importantly, countries such as Brazil, Argentina and Chile are at the leading edge in ICTs and in promoting telecommuting in Latin America.

3. Research Methodology
Data Collection
A structured questionnaire and guided dialogue technique encompassing several statements on the level of awareness, interest, readiness and perceptions of Chief Executive Officers (CEO) and/or management staffs of Nigerian organisations around Lagos Island, Nigeria (see Table 1) towards telecommuting was developed to measure the research constructs. Some of the questions that formed the integral part of the questionnaire were opinions or suggestions well-communicated *via* earlier studies on the subject matter and the questions in particular were framed to gratify the objectives for which this study is performed. A simple random sampling method was applied to select samples from each sub-population strata. A total of 180 questionnaires were administered; 146 questionnaires were retrieved but only 120 questionnaires were counted valid for analysis. Basic Descriptive Statistics and Pearson's moment Correlation was used with respect to specific objectives on SPSS 21.

1. Results and Discussions
Table 1. Socio-demographic information of respondents

Factor		Frequency	Percent (%)
1. **Gender**	Male	77	64.2
	Female	43	35.8
2. **Age (years)**	18-25	6	5.0
	26-35	72	60.0
	36-45	18	15.0
	46-55	24	20.0
3. **Religion**	Christianity	78	65.0
	Islam	40	33.3
	Others	2	1.7
4. **Marital Status**	Single	7	5.8
	Married	109	90.8
	Divorced	4	3.3
5. **Level of Education**	Bachelor's degree	50	41.7
	Master's degree	60	50.0
	PhD	10	8.3
6. **Sector**	Multinational	4	3.3
	Private	102	85.0
	Public	14	11.7

Table 1. show that about 64% of respondents were male while 36% were female. The reason why women at management level were outnumbered may perhaps be attributed to gender discrimination and the fact that women are more likely to take breaks from their careers to raise children. The age group distribution of respondents followed an order: 26-35 years (60%)>45-55 years (20%)>18-25 years (5%) while the distribution of religious group followed an order: Christianity (65%) > Islam (33.3%) > others (1.7%). Similarly, marital status distribution followed an order: married (90.8%) > single (5.8%) > divorced (3.3%) while for education, it followed an order, master's degree (50%) bachelor's degree or equivalents (41.7%) > PhD (8.3%). Most of the respondents also have at least a degree program and a good number were post graduates and this gave some level of certainty that responses gotten from them will be true representation of their corporate structure and function. The sector that these respondents represent followed an order thus: Private enterprises (85%) > Public enterprises (11.7%) > Multinational enterprises (3.3%).

Table 2. Factors influencing the implementation of telecommuting in Nigerian organisations

Factors	Yes	No	Not Sure
Awareness of Telecommuting and related benefits	75 (62.5)	38 (31.7)	7(5.8)
Adoption of Telecommuting policy	21 (17.5)	99 (82.5)	-
Tendency to adopt or sustain Telecommuting policy	104(86.7)	14(6.3)	-
Telecommuting as a threat to corporate structure	27(22.5)	91(75.8)	2(1.7)
Difficulty in appraising employees' performance	30(25.0)	81(67.5)	9(7.5)
Adequate technology for Telecommuting policy	8(6.7)	110(91.7)	2(1.7)
Fear of corporate data theft	31(25.8)	80(66.7)	9(7.5)
Adequate funds to support or sustain Telecommuting policy	27(22.5)	82(68.3)	10(8.3)
Telecommuting not appropriate for firm's operation	9(7.5)	105(87.5)	6(5.0)
Physical absence of key employees likely to cause loss of synergy	12(10.0)	105(87.5)	3(2.5)

Figures in parenthesis is given in percentages (%)

Table 2. shows vividly the potential factors that may hinder or promote telecommuting among organisations. As shown in the table 2, a high number of organisations (62.5%) were aware of the concept of telecommuting and its related benefits. However, only few (17.5%) have been able to adopt telecommuting policy. Managerial reluctance has been the biggest hurdle to telecommuting implementation (Bailey and Kurland, 2002; Karnowski and White, 2002). As presented in table 2, only few organisations (22.5%) regarded telecommuting as a threat to corporate structure; majority (75.8%) gave a contrary view. Similarly, majority (67.5%) do not consider "difficulty in appraising employees' performance" as a barrier to the telecommuting policy implementation. In terms of adequacy of technology support or sustain telecommuting policy, majority (91.7%) expressed concerns on inadequacy of technological infrastructures (smart computers, fast and reliable internet access etc.) as a constraint for effective telecommuting policy. Baruch (2000) expounded that provision of necessary technologies by employers is critical for telecommuting. But earlier studies have emphasized more on employees' IT self-efficacy and other personality traits being a positive influence on telecommuting success (Staples *et al*., 1998). However, the fear of corporate data theft by third party during transmission via telecommunication networks, work-unsuitability of telecommuting policy, physical absence of key employees likely to cause loss of synergy were majorly expressed in this study as represented vividly in table 2.

Table 3: Correlation matrix of Firm's size against Awareness and Adoption of Telecommuting

	Firm's size	Telecommuting Awareness	Telecommuting Adoption
Firm's size	1	.058	-.133
Telecommuting Awareness	.058	1	-.324[**]
Telecommuting Adoption	-.133	-.324[**]	1

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

Table 3. vividly answers a question of whether there is a relationship between firm's size and the awareness and adoption of telecommuting. It was clear that there was no relationship between firm's size and telecommuting awareness and adoption level. However, there was a weak but negative relationship between the awareness of telecommuting and the adoption of telecommuting (P<0.05). This succinctly explains that awareness of telecommuting does not translate to its adoption.

Table 4: Cross-tabulation of Telecommuting Awareness and its Adoption

		Telecommuting Adoption			Total
		Yes	**No**	**Not Sure**	
Telecommuting Awareness	**Yes**	8 (38.1)	67 (67.6)	-	75 (100)
	No	-	8 (38.1)	2 (2.02)	10(100)
	Not Sure	-	5 (23.8)	30(30.3)	35(100)
Total		8	80	32	117

Note: Figures in parenthesis are row percentage, **1**– Yes, **2**– No, **3**– Not Sure

Table 4. further illustrates the level of awareness of telecommuting and how far organisations

have adopted telecommuting via a cross-tabulation matrix. Relatively fewer respondents (38.1%)

expressed that their organisations are well informed about telecommuting and have adopted

telecommuting policy. However, majority of organisations (67.6%) were aware of telecommuting

and never adopted it.

Table 5: Company's Profile

	Frequency (Percent)
Firm's size	
1-10	68 (56.7)
11-30	37 (30.8)
31-50	15 (6.8)
Above 50	--
Sector	
Private	102(85.0)
Public	14 (11.7)
Multinational	4 (3.3)

Figures in parenthesis is given in percentages (%)
The distribution of firms according to size of employees followed an order thus, 1-10 employees (56.7%)> 11-30 employees (30.8%) > 31-50 employees (6.8%) while the categories of firms sampled followed an order thus: Private enterprises (85%) > Public enterprises (11.7%) > Multinational enterprises (3.3%).

2. Conclusion and Recommendations

It therefore cannot be overemphasized that the rapid advances in information technology coupled up with the increasing speed of information exchange have tremendous influence on business such that it heralds the emergence of telecommuting as innovative work culture. Hence, in such an age as this where technology is the catalyst for business growth, organisations must be equipped with all necessary ICT infrastructures that will enable organisations to adopt telecommuting as their work culture. There is a need for organisations to arrange intense ICT trainings for both the management staff and other employees in order to develop skills that will enable them to maximally utilize the benefits of telecommuting. However, organisations need to recognize that the existence of viable telecommuting policy is central to an effective telecommuting work culture. Thus, employers should devise or engage the service of expertise to develop telecommuting policies that best suit their work culture as well as adapt their internal organisational structure to the workings of telecommuting, so that all the lofty benefits of telecommuting can be creatively harnessed to stimulate appreciable business growth. Moreover, this study reasoned that the fear of corporate data theft can be properly allayed when there is a standardized telecommuting agreement with employees which will make them liable and culpable for data theft and such other intellectual violations which telecommuting can be prone to. Also, organisations can devise or purchase software with automated monitoring features that

will serves as surveillance on the activities of employees on the organisation database so that any attempt to steal data can be restricted or detected, at least. But much more important, creating precise goals and objectives and building strong relationship of confidence and good communications with managers on a regular basis and establishing policies concerning eligibility to the program and its duration, considering appropriate IT tools that will be required will enhance effective telecommuting work policy.

Acknowledgements

Authors' contributions
All authors included in the manuscript provided substantial contribution to (i) conception and design, (ii) drafting the article or revising it critically for important intellectual content and (iii) final approval of the completed manuscript.

Declaration of competing interests
We affirm that we have no conflict of interest that may be alleged as prejudicing the impartiality of the study reported. This researcher did not receive special assistance from government, not-for-profit sectors or commercial institutions.

REFERENCE

ABS (2008). Household Use of Information Technology, Australia, 2007-08. Canberra.

Ajayi F. A, Raimi M. O, Steve-Awogbami O. C, Adeniji A. O, Adebayo P. A (2020) Policy Responses to Addressing the Issues of Environmental Health Impacts of Charcoal Factory in Nigeria: Necessity Today; Essentiality Tomorrow. *Communication, Society and Media*. Vol 3, No 3. DOI: https://doi.org/10.22158/csm.v3n3p1. http://www.scholink.org/ojs/index.php/csm/article/view/2940.

Bailey D. E., & Kurland N. B. (2002). A review of Telework Research: Findings, new directions, and lessons for the study of modern work. *Journal of Organizational Behavior 23*(4), 383-400.

Baruch Y. (2000). Teleworking: benefits and pitfalls as perceived by professionals and managers, *New Technology Work and Employment* 15 (1), pp. 34-48

Bris M., Pawlak J., & Polak, J.W. (2017). How is ICT use linked to household transport expenditure? A cross national macro analysis of the influence of home broadband access. *J. Transp. Geogr. 60*, 231–242.

Brown J. M. (2010). Telecommuting: The Affects and Effects on Non-Telecommuters. PhD Dissertation submitted to the Faculty of the Virginia Polytechnic Institute and State University.134pp

Cooper C. D & Kurland N. B. (2002). Telecommuting, professional isolation, and employee development in public and private organizations. *J. Organiz. Behav. 23*, 511–532

Deloitte Access Economics (2011). Next generation telework: A literature review, Department of Broadband, Communications and the Digital Economy.

Doyle, A. (2019). What is Telecommuting?. Retrieved from https://www.thebalancecareers.com/what-is-telecommuting-2062113 on 24th July 2019.

Ebuete A. W, Raimi M. O, Ebuete I. Y & Oshatunberu M (2019) Renewable Energy Sources for the Present and Future: An Alternative Power Supply for Nigeria. *Energy and Earth Science*. Vol. 2, No. 2, 2019. URL: http://dx.doi.org/10.22158/ees.v2n2p18. http://www.scholink.org/ojs/index.php/ees/article/view/2124.

Gajendran R. S., & Harrison D. A. (2007). The Good, the Bad, and the Unknown About Telecommuting: Meta- Analysis of Psychological Mediators and Individual Consequences. *Journal of Applied Psychology, 92*(6): 1524–1541.

Gift R.A, Obindah F (2020). Examining the influence of motivation on organizational productivity in Bayelsa state private hospitals. Open *Access Journal of Science.* 2020;4(3):94–108. DOI: 10.15406/oajs.2020.04.00157.

Global Workplace Analytics (2016). Latest telecommuting statistics, 2016. http://globalworkplaceanalytics.com/telecommuting-statistics.

Greenberg A., & Nilssen, A. (2008). Addressing 21st Century Challenges through Telework. Wainhouse Research

Karnowski S., & White B. J. (2002). The role of facility managers in the diffusion of organizational telecommuting. *Environment and Behavior 34*(3), 322-334.

Karnowski S., & White B. J. (2002). The role of facility managers in the diffusion of organizational telecommuting. *Environment and Behavior 34*(3), 322-334.

Kaupins G., & Usui K. (2008). Countervailing forces affecting Japanese telework behavior", in *Journal of Business and Leadership.* 4(2), pp. 60–67.

Kim S. N. (2017). Is telecommuting sustainable? An alternative approach to estimating the impact of home-based telecommuting on household travel. *Int. J. Sustain. Transp.* 11(2), 72–85.

Lister K. (2015). Global Workplace Analytics: Pros and Cons. http://globalworkplaceanalytics.com/pros-cons.

Manker A. D. (2019). What Is Telecommuting? - Definition, Advantages & Disadvantages. Retrieved from https://study.com/academy/lesson/what-is-telecommuting-definition-advantages-disadvantages.html on 26th August 2019.

Mokhtarian, P. L., & Salomon, I. (1996). Modeling the choice of telecommuting : A case of the preferred impossible alternative. *Environment and Planning 28*(10):1859-1876.

Morufu R, Timothy K. S, Ajayi B. S *et al* (2021). Air of Uncertainty from pollution profiteers: Status of ambient air quality of sawmill industry in Ilorin Metropolis, Kwara State, Nigeria, 25 February 2021, PREPRINT (Version 1) *available at Research Square* [https://doi.org/10.21203/rs.3.rs-270757/v1]

Office fédéral de la statistique. (2016). Le télétravail à domicile en Suisse, 2001–2015 (2016)

Olorunfemi, A. O. (2013). Telecommuting to Improve Quality-of-Worklife of Women Workers in Lagos State Tertiary Institutions. *Journal of Studies in Education 3*(2): 222-233

Peters, P., Tijdens, K. G., & Wetzels, C. (2004). Employees' opportunities, preferences, and practices in telecommuting adoption. *Information and Management 41:469-482.*

Pinsonneault, A. (1999). The Impacts of Telecommuting on Organizations and Individuals: A Review of the Literature. Cahier du GReSI no 99-09. 27pp.

Raimi M. O, Adeolu A. T, Enabulele C. E, Awogbami S. O (2018) Assessment of Air Quality Indices and its Health Impacts in Ilorin Metropolis, Kwara State, Nigeria. *Science Park Journals of Scientific Research and Impact Vol. 4(4), pp. 060-074, September 2018 ISSN 2315-5396*, DOI: 10.14412/SRI2018.074.http://www.scienceparkjournals.org/sri/pdf/2018/September/Olalekan_et_al.pdf.

Raimi M. O, Raimi A. G, Raimi M. O (2019). How Universities Can Create Green Jobs for Students. *Peer Res Nest.* 2019 - 1(2). PNEST.19.07.003. https://peernest.org/article-in-press.php.

Raimi M. O (2019) 21st Century Emerging Issues in Pollution Control. 6th Global Summit and Expo on Pollution Control May 06-07, 2019 Amsterdam, Netherlands.

Raimi M. O, Bilewu O. O, Adio Z. O, Abdulrahman H (2019) Women Contributions to Sustainable Environments in Nigeria. *Journal of Scientific Research in Allied Sciences*. 5(4), 35-51. ISSN NO. 2455-5800. DOI No. 10.26838/JUSRES.2019.5.4.104.

Raimi M. O, Adio Z. O, Odipe O. E, Timothy K. S, Ajayi B. S & Ogunleye T. J (2020) Impact of Sawmill Industry on Ambient Air Quality: A Case Study of Ilorin Metropolis, Kwara State, Nigeria. *Energy and Earth Science* Vol. 3, No. 1, 2020. URL: http://dx.doi.org/10.22158/ees.v3n1p1. www.scholink.org/ojs/index.php/ees ISSN 2578-1359 (Print) ISSN 2578-1367 (Online).

Raimi M. O, Ayinla L. O, Ogah A (2021) First to Respond, Last to Leave: The Role of Para-Military Agencies in Disaster Management: Evidence from Nigeria. *Sumerianz Journal of Medical and*

Healthcare, 2021, Vol. 4, No. 2, pp. 96-100 ISSN(e): 2663-421X, ISSN(p): 2706-8404 Website: https://www.sumerianz.com DOI: https://doi.org/10.47752/sjmh.42.96.100. https://www.sumerianz.com/?ic=journal-home&journal=31&info=archive-detail&month=06-2021&issue=2&volume=4.

Staples, D. S., Hulland, J. S., & Higgins, C. A. (1998). A Self-Efficacy Theory Explanation for the Management of Remote Workers in Virtual Organizations, *JCMC, 3* (4): 34-58.

Suleiman R. M, Raimi M. O & Sawyerr H. O (2019) A Deep Dive into the Review of National Environmental Standards and Regulations Enforcement Agency (NESREA) Act. *International Research Journal of Applied Sciences.* pISSN: 2663-5577, eISSN: 2663-5585. DOI No. Irjas.2019.123.123. www.scirange.com. https://scirange.com/abstract/irjas.2019.108.125.

Tavares, A. I. (2017). Telework and health effects review. *International Journal of Healthcare 3*(2):30-36

University of Costa Rica (2009). "El teletrabajo en Costa Rica", in Hacia la Sociedad de la Información y el Conocimiento en Costa Rica, Programa de la Sociedad de la Información y el Conocimiento (PROSIC), Ch. 10, (San José de Costa Rica, 2009).

Walls M, Safirova E, and Jiang Y. (2010). What drives telecommuting? Relative impact of worker demographics, employer characteristics, and job types. *Transportation Research Record* 2007; 111-120.

Woog, D. (2013). Telecommuting options in government jobs. govcentral.monster.com/benefits/articles/1732-telecommuting-options-in-governmentjobs retrieved February 1. WR Paper.

Ye, L. R (2012). Telecommuting: Implementation for Success. *International Journal of Business and Social Science 3*(5): 20-29.