



## Transport and Telecommuting: Opportunities and Challenges Post COVID-19

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### ABSTRACT

Every viable business seeks to maintain its profiles of profit margins for sustainability and retention of competitive edge in the industry. However, the invasion of the nations of the world by the COVID-19 pandemic nearly sent all business goals in Nigeria to a perpetual sink. This is because many organizations could not adjust positively and timely to the stay-at-home order by the government which was made to curtail the spread and effects of the pandemic. It is noteworthy that only a few organizations have systematized telecommuting as an integral part of their organizations before the pandemic could retain their businesses and employees. However, many businesses were forced to adopt telecommuting as the work-from-home order persisted in order to set their organizations on balance. Hence, the impact of the pandemic has necessitated for a flexible business setting in both private and public organizations. This paper presents a parallel comparison of benefits and challenges of telecommuting and commuting in Nigerian in three time dimensions-before, during and after the COVID-19 pandemic.

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### INTRODUCTION

Transportation is an indispensable part of human activity and is essential for most socio-economic interactions. However, negotiating the roads in urban areas is one of the biggest challenges as high commuter traffic results in overcrowding and air pollution. As the world experiences global health and economic challenges as a result of the COVID-19 pandemic, questions arise as to what it means for the future of living in urban areas, its design and connectivity.

Urban cities in the post-COVID-19 era can observe a notable drop in demand for commuting and transport services due to changes in work habits (Koehl, 2020). The COVID-19 pandemic has forced organizations to find alternative means of running businesses and providing services by using online platforms (Chinedu *et al.*, 2020). This has been as a result of the restrictions in movement as most countries have imposed limits on mobility to curtail the spread of the pandemic. These measures have brought



urban transport systems to a near standstill and have led workers to resort to telecommuting.

In telecommuting, an employee works outside his office; this often means working from home. It involves the use of technology – internet, email and telephone – to do a job; thus, eliminating daily commuting. Telecommuting is also known as teleworking, e-commuting or working remotely. Telecommuting does not necessarily imply working from home, it also means working from remote locations.

The COVID-19 pandemic has affected mobility, transportation and the environment. **Figure 1** shows the global daily rise of the pandemic. An exponential rise in number of cases of the virus led to a worldwide adoption of social distancing as a measure to avert the spread of the virus. Consequently, governments have prioritized the health of their citizens by enforcing stay-at-home orders and directing the closure of nonessential businesses and public areas. This action has posed serious impacts on all sectors of the economy and it has drastically induced the transformation of the labour force with corresponding decrease in the

number of commuters. Numerous businesses and schools have suspended normal operations because of risks associated with health of their students and employees. In some countries, workers were seamlessly able to shift to remote work because it relies solely on the availability of ICT infrastructure (Daniel *et al.*, 2021). However, carrying out several businesses, schooling and activities from home has some unintended consequences. This has forced a lot of workers to lose their jobs and has made students to become inactive.

Hence, this paper provides a comprehensive analysis of the benefits and possible challenges of telecommuting vis-à-vis transportation. The remainder of the paper is organized as follows: Section 2 presents an overview of telecommuting; Section 3 compares transportation and telecommuting in Nigeria post-COVID. Section 4 presents the factors that may affect the adoption of telecommuting post-COVID. In Section 5, the paper is concluded with a perspective on the way forward for Nigeria between telecommuting and commuting.

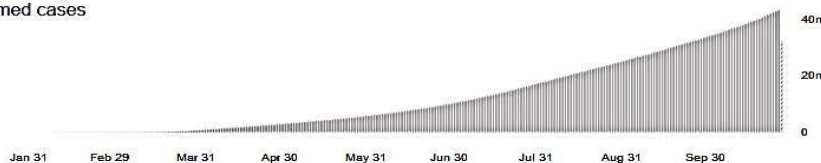
**WHO Coronavirus Disease (COVID-19) Dashboard**  
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**Global Situation**

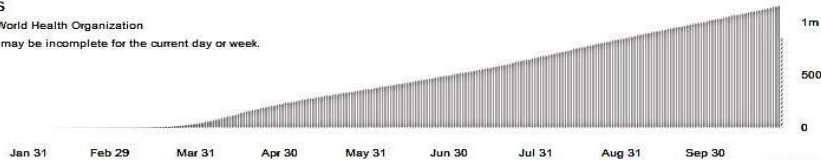
**Daily** **Weekly**

**44,002,003**  
confirmed cases



**1,167,988**  
deaths

Source: World Health Organization  
 Data may be incomplete for the current day or week.



**Figure 1: Global Rise in COVID-19 Cases January 2020 - 29 Oct 2020**

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### **Telecommuting: An Overview**

There are a number of social impacts associated with commuting; some of these are energy use, air quality, safety implication, travel timesaving, healthcare, cost and economics, urban sprawl, rural development and job creation. Due to this, many countries of the world now adopt the system of working from remote locations and telecommuting. In recent years, telecommuting has been widely recognized as a transportation demand management strategy because of its potential to relieve traffic congestion, conserve fuel, and improve air quality in urban areas.

Consequently, the advances in computing and telecommunication systems in recent years, have dramatically widened the choice of workplace for information workers and others so they can work wherever these tools are available. However, in sub-Saharan Africa, high-bandwidth capabilities are inadequate. Telecommuting in Nigeria is practiced by approximately 2 million workers and can reach 7.5 to 15 million within a decade. The actual amount and impact of telecommuting in any particular region will depend strongly on the local transportation networks and travel demand measures. The global escalation of the COVID-19 pandemic has thrust many employees and employers into telecommuting. Below is an overview on telecommuting.

### **Evolution of Telecommuting**

The term telecommuting originated from Jack Niles in the early 1970's while working remotely on National Aeronautics and Space Administration (NASA) communication system. The term was used to represent the act of working outside corporate office (Messenger *et al.*, 2017). It became necessary in the 1970's so as to be able to cope with the scarcity of fuel with other resources and also a reduction in commuting. International Business Machine

(IBM) started the deployment of telecommuting in 1980 by installing remote terminals in their employees' home; more so, many others started experimenting telecommuting. Figure 2 shows that there has been a steady increase in the numbers of workers who worked from home in the United States from 1970 to 2010 except for the agricultural sector. Figure 3 shows the trend in the United States from 2001 to 2017 in the various industries. As expected, the most significant changes have been in the computer industry; however, the blue collar industry has not benefitted much from telecommuting.

In 2011, almost 50% of IBM global employees telecommute, which accounted for the decrease in maintenance cost and other overhead cost, thus, saving about \$120 million in their annual report (Messenger *et al.*, 2017), (Lister & Harnish, 2011). According to (Carter, 2016), it was noted that about 7% of the employees agreed that they work better at their corporate offices than working from remote locations or home, while about 65% of the employees agreed that they were more productive in telecommuting than working in their corporate offices. Though, telecommuting present some backlashes such as technical issues, diminishing creativity and social isolation was, however, social interaction among employees have been increased by introducing video conferencing while telecommuting (Singh, Kumar, & Varghese, 2017). In addition, they also recorded a significant reduction on commuters and travel period as telecommuters work from home. More so, experiments and evaluation on daily emissions have been carried out (Shabanpour *et al.*, 2018). The results showed a reduction of about 55% in pollutant generated by commuters' vehicles while telecommuting (Shabanpour *et al.*, 2018). In (Harbert & Tucker-Tatlow, 2013), many researchers noted some challenges of

telecommuting, though the positive effect for both the employers and employees cannot be overemphasized.

Employer's benefits included cutting down of expenses from real estate, office maintenance, office supplies and other overhead cost. Other employers' benefits are decreased absenteeism, increased productivity and reduction in turnover. Many employees considered

telecommuting to be more flexible, have less commuting requirement and thus gives a reduction in the cost of transportation. In Nigeria, telecommuting was hitherto rejected by many organizations as an unacceptable mode of working. However, many firms have started practicing teleworking post-COVID so as to retain all essential business opportunities amidst the possibility of recurrence of the pandemic.

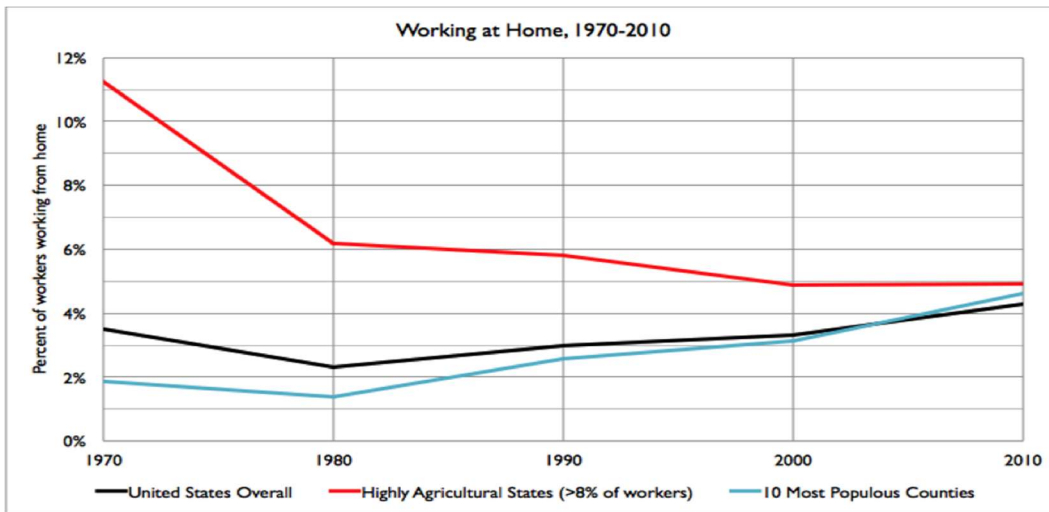


Figure 2 – Percentage of workers working from home in the United States from 1970 – 2010 (Source: US Census Bureau)

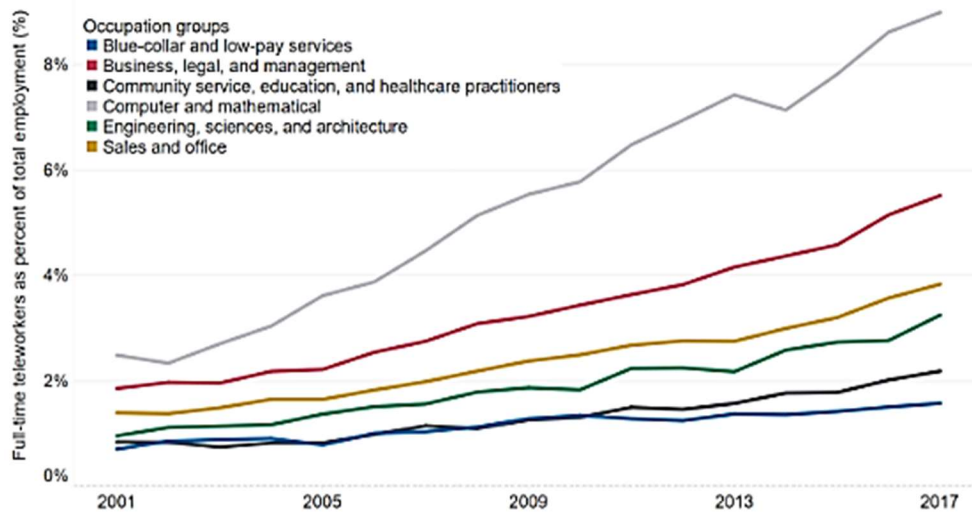


Figure 3: Teleworkers as a percentage of total employment in the US from 2001 – 2017 in various industries (Source: American Community Survey, University of Minnesota)



### **Types of Telecommuting**

Telecommuting jobs exist in almost every industry. The types of telecommuting are categorized into three forms based on how and where the task can be completed.

- i. Remote work: In this type of telecommuting, workers perform their tasks at alternate locations other than their company's physical location, though they may be required to travel occasionally for meetings and events that require physical presence in their offices.
- ii. Virtual job: This type of telecommuting provides location independence. It does not require the presence of employee in the office. Many companies with this position do not have a physical office and often hire contractors to accomplish tasks. Virtual jobs offer a lot of flexibility.
- iii. Work-From-Home (WFH): In this type of telecommuting, employees may not have a home office and sometimes the availability of employees at working hour may be necessary (Hensher, 2020). Many companies are result-oriented and may not care how their employees use their time.

### **Benefits of Telecommuting**

Telecommuting offers lots of benefits which includes the following:

- i. It enhances performance and productivity: Before the COVID-19 pandemic in Nigeria, it was believed that remote working was not efficient, as it will lead to a decline in productivity and company's workload. However, companies that promptly delved into telecommuting during the lockdown adapted to it.
- ii. It reduces business running cost: Telecommuting reduces expenses for both employers and employees. Employers cut down expenses from real estate, office maintenance, office

supplies and other overhead costs while the employees are positively affected by saving cost of transportation and clothing.

- iii. It gives better job satisfaction: There is high level of job satisfaction as people enjoy more freedom and become more productive when they work from home. The rigour of negotiating the roads during commuting is removed which conserves energy for work. With high job satisfaction, employees are more productive.
- iv. It offers more flexibility: As a result of the pandemic, it has been realized that many employees perform better within the comfort of their homes; thus, promoting work and life balance among families (especially women).

### **Challenges of Telecommuting**

Telecommuting has offered a lot of advantages to firms during the COVID-19 pandemic, however, there are challenges which telecommuting poses. Some of the challenges are as follows:

- i. It induces social isolation: Working from home may deprive employees of important collaboration activities that occur during social gathering. Also, the benefits of sharing innovative idea and brainstorming diminishes. Experts show that social interactions among colleagues build trust and support in workplace.
- ii. It diminishes employee's creativity: The benefits of learning to work under pressure and adaptation to new skills tend to be cut off with telecommuting; this will reduce employee's creativity and tolerance to adapt to unusual tasks.
- iii. Technical issues: One of the main problems with telecommuting is technical issues. A glitch in collaboration tools and hardware



- equipment can halt productivity. It is encouraged to always have some backup plan as some of the challenges are unpredictable,
- iv. Lack of telecommuting policy: The integral part of any organization is policy. It is important for an organization to establish some sets of policy for effective management of telecommuters. This will also help to define clear communication and collaboration channels, and put in place a course of action in case of technology-related issues.

#### ***Telecommuting Pre-COVID***

Pre-COVID, teleworking was occasionally done under normal circumstances. It mostly gave private companies, especially start-ups, opportunities to work sustainably and reap the benefits from medium to long term. It offered less office space, less commuting, fewer business trips, shorter breaks and greater focus for employees. It also had a positive impact on the remuneration system.

#### ***Telecommuting During and Post-COVID***

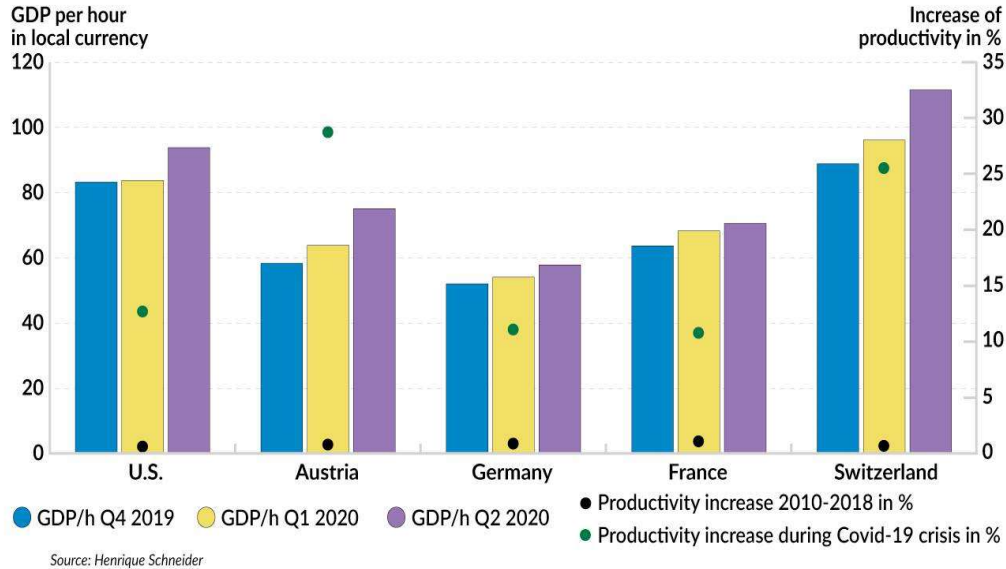
Teleworking during the COVID-19 pandemic is far more challenging because it is mandatory, rather than voluntary, and full-time; the challenges are significant especially in countries with limited infrastructure to support it. Undoubtedly, we have entered the most unusual working arrangement of this generation. The world experienced an unexpected change from the first quarter of the year 2020. Governments, in response to the statistics of cases and deaths due to the pandemic, had to enforce drastic measures to save lives. The challenge for policymakers was how to continue protecting lives without causing a global recession. Measures that ensured physical distancing including the closing of schools,

grounding of flights, putting a stop to large gatherings and closing workplaces were put in place. Our responses to the COVID-19 have also demonstrated ways we can change our commuting behaviour; this is associated with an increase in remote working which will have effects on transport emissions and environmental outcomes. Thus, we have reduced our carbon footprints by travelling less and doing more of video conference. Remote working on a larger scale also offers companies the flexibility to deal with unexpected events in the future, such as the COVID-19 crisis. Finally, remote working gave a renewed boost to cooperation and cohesion.

A post-pandemic world has the prospects of being more interconnected than the world before. Before the COVID-19 outbreak, studies had shown that occasionally, only a small percentage of the workforce of many organizations were working from home. Figure 4 shows the effect of the pandemic on productivity in developed countries. Productivity barely increased from 2010 – 2018 but in just the first quarter of 2020 there has been over 10% increase in productivity, and as much 25% in some countries. Many organizations are adopting teleworking to avoid office congestion and make use of their time to be productive. However, studies into telecommuting has repetitively revealed that employees working from home are likely to work longer hours than when they are working in their offices. This is because the time to travel to the workplace is non-existent. Also, modifications in work schedules and the blurring of the boundaries between paid work and personal life improve productivity. The reduction in commuters during the pandemic has had unexpected positive consequences for the environment.

### Productivity boost

Developed countries saw a huge rise in economic productivity during the Covid-19 crisis



**Figure 4:** Productivity Pre and Post COVID in Developed Countries

### ***Transportation and Telecommuting in Nigeria Post COVID-19: Opportunities, Challenges and Prospects***

Telecommuting is becoming more and more widespread in Nigeria. Advantages often experienced by employers and workers alike assure that this trend may continue; thus, transforming the work ethic of a substantial percentage of the national work force. Most telecommuters can be broadly characterized as “information workers”, since, most of their work focuses substantially on the creation, distribution, or use of information. On the other hand, aspects of some jobs cannot adopt telecommuting such as those doing manual labour in construction, assembly lines, and food processing and hospital workers amongst others. Some jobs can be done with a combination of telecommuting and commuting such as engineers that can design from home and then go to a site to

implement their design. Industries such as software development can be purely done remotely as long as long as the worker is connected to server through which he can send or implement his work. Though, the number of people teleworking part-time or on a full-time basis has been gradually increasing over the years, the pandemic has certainly fast-tracked the adoption of teleworking modalities by employers. Remote working on a larger scale also offers companies the flexibility to deal with unexpected events in the future, such as the COVID-19 crisis.

### ***Telecommuting in Nigeria Post COVID-19: Opportunities***

Telecommuting in Nigeria can reduce energy consumption and carbon emissions from transportation systems. Employees may telework part-time or, less commonly, full-time. This includes the

energy savings from reduced commuter travel and the indirect impacts on energy consumption associated with changes in non-work travel and home energy consumption. Nigeria has 92.3 million internet users, and the number is expected to increase to 187.8 million in 2023. This shows that internet penetration in Nigeria was 47.1 per cent in 2018 and is probable to grow to 84.5 per cent in 2023. Figure 5 shows the map of internet penetration in Nigeria and even though there is no data on telecommuting specific to Nigeria, Figure 6 shows the ability of regions to switch to teleworking during the pandemic. It is clear that, internet penetration in Nigeria needs improvement and the switch to teleworking is less pronounced in Sub Saharan Africa.

Internet usage in Nigeria is important to telecommuting in learning and teaching since the classes are not usually interrupted. The use of internet, telephones and other social media platforms like Zoom, Google Classroom and Google Meet,

WhatsApp, among others, make remote activities effortless and less stressful. Any telecommuting system that is adopted for an organization will provide opportunities for reducing environmental air pollution and noise levels, increasing the space, security and comfort for pedestrians and cyclists. More so, it will reduce road traffic accidents and reduce the negative effects of long travel times. Traffic congestions can have direct and indirect cost impacts on business activities. The direct costs of congestion that affect production costs include additional labour costs associated with longer trips made by employees during business hours, higher operating costs of vehicles, and suboptimal use of vehicles. As highlighted above, telecommuting tends to reinforce some of the sustainable development goals (SDGs) such as SDG 7 (Affordable and Clean Energy), SDG 8 (Decent Work and Economic Growth), SDG 9 (Industry, Innovation and Infrastructure) and SDG 11 (Sustainable Cities and Communities).

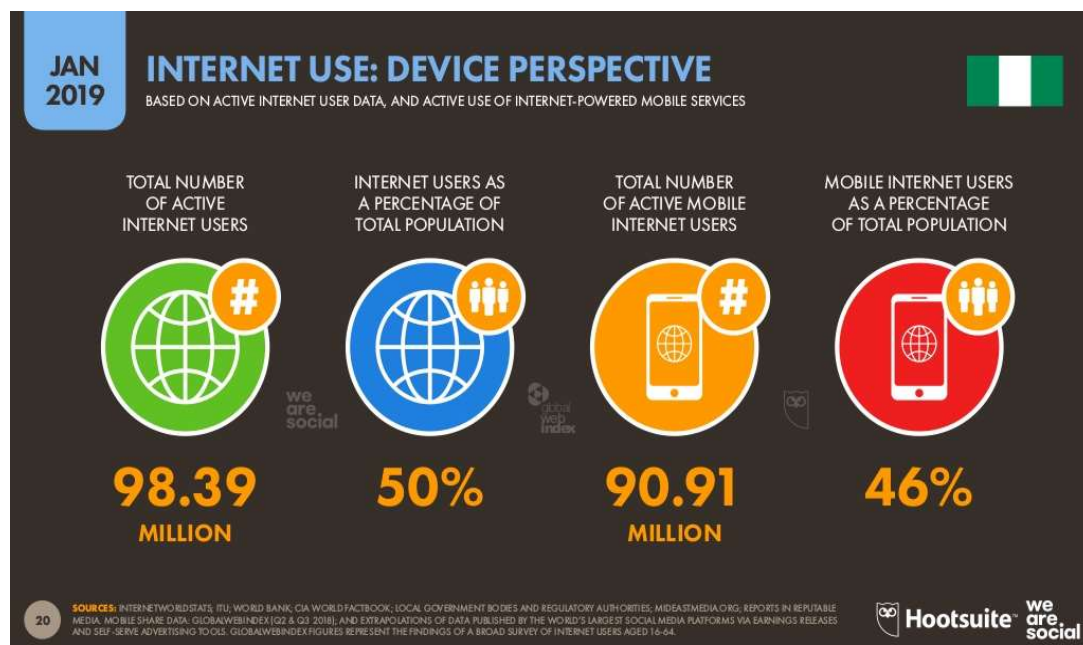


Figure 5: Internet Penetration in Nigeria

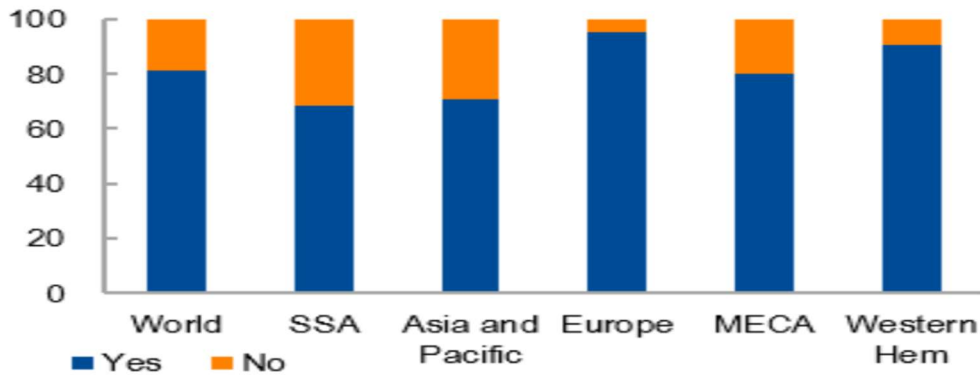
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### More telework

The ability to switch to telework to continue business during the pandemic varied across regions.

(percent of countries reporting telework)



Source: IMF Strategy, Policy, and Review Department, Survey of Policy Responses to COVID-19 and Related Shocks (2020).

Note: SSA = sub-Saharan Africa; MECA = Middle East and Central Asia; Western Hem = Western Hemisphere. Accessed in mid-May 2020.

INTERNATIONAL MONETARY FUND

Figure 6: Teleworking across Regions

#### Telecommuting in Nigeria Post COVID-19: Challenges

The short-term benefit of improved outdoor air quality during COVID-19 lockdown and curfew imposition was evident. However, with telecommuting, cooking and other means of using fuel increase, thereby degrading the quality of the air at indoor as most people cook with firewood and kerosene in their homes. Besides, the problems of inadequate power supply and poor internet connections in Nigeria may make the people to commute daily. Also, poor ICT infrastructure as well as inefficient telecommunication systems that cannot match the basic requirement for telecommuting also account for the inability of many Nigerians to telecommute. Although, the availability and use of computers are not prerequisites for telecommuting, most tasks carried out by

telecommuters today are done by the use of computers and communications systems.

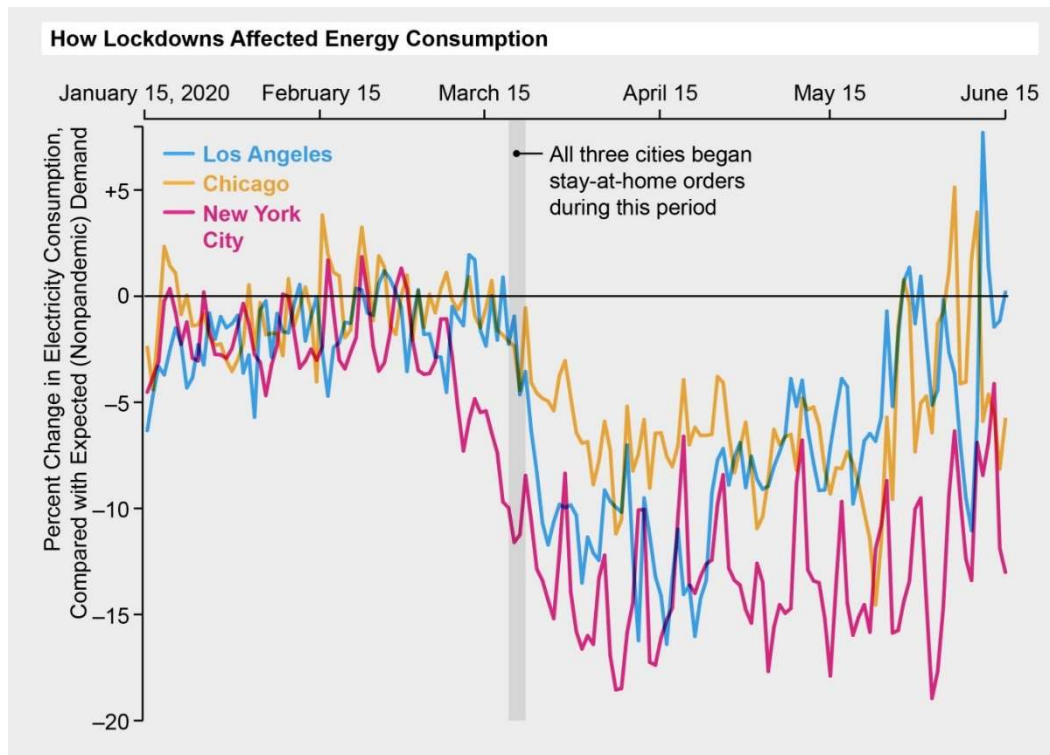
#### Prospects of Telecommuting in the Public Sector

Mitigation of congestion and improvement of air quality are the points of interest of public sectors in many areas suffering from clogged roads (Mogaji, 2020). However, while the congestion problem is clearly solved for the telecommuter, the broader impacts are unclear. Government agencies can play a significant role in facilitating and encouraging telecommuting. For example, during the pandemic, some government agencies only required essential workers to commute to work and transfixed meeting points to the virtual space; schools were allowed to commence e-learning using different online platforms. Telecommuting can be an effective tool for travel demand

management, albeit, it cannot be mandated. It can also be an effective tool to save energy; as shown in Figure 7, there was a clear reduction in energy consumption in all three cities just after stay-at-home orders were implemented.

Telecommuting, in the Post COVID-19 era, would serve as an opportunity for Nigerian public sector to fully embrace remote working for transparency, prudence

and improved record keeping. In the academia, telecommuting is an effective strategy the Nigerian Government can adopt in the educational sector. By adopting remote teaching, world renowned professors could co-teach in Nigerian public universities. The remote academic activities are nearly stress free and classes may not be subjected to interruption since a student can work at his own pace.



**Figure 7:** Change in Electricity Consumption during COVID in three US Cities with Stay-at-Home Orders (Source: Cruickshank, 2020)

**Prospects of Telecommuting in the Private Sector**

Telecommuting has the potential for bolstering human capital, improving employee retention and recruitment, increasing productivity and work capacity, and reducing employer operating costs (Pinsonneault & Boisvert, 2011). Among private sector employers, the reasons for telecommuting include greater flexibility,

employee satisfaction and improved income savings. Telecommuting has been promoted as a strategy to reduce operating expenses. Employees can work remotely or change their schedules to avoid traveling to work during peak hours.

The work in (Ajayi, 2020) highlighted that the total shutdown and reduction in economic activities through restriction of movement, shutting down of

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educational centres, and manufacturing industries was to flatten the curve in most countries. In Nigeria, many private owned firms and education institutions were badly affected by the storm of COVID-19 which led to the downsizing of workforce. Less than 2% of the universities in Nigeria were able to embrace and inculcate virtual learning; this is because telecommuting has not been part of our culture. However, most businesses have positively adapted to remote work. As such, new working behaviours will not increase the number of the unemployed; rather, it will increase more access to work.

#### **FACTORS THAT MAY AFFECT TELECOMMUTING IN NIGERIA POST COVID-19**

In the past, “interconnectedness” in economic development terms meant roads, highways, air and rail transportation. Today, “interconnectedness” mostly refers to access to information and data, as well as ICT infrastructure. Telecommunications may help to eliminate the geographical backlash to economic development and make rural areas very accessible and attractive to viable businesses. Unique applications of telecommunications may ensure that jobs are available in all areas, especially rural areas, and stop serious tendencies towards emigration. Before the pandemic, only a fraction of the workforce worked from home, now, the pandemic has forced remote working to gain prominence. This is synonymous to the international oil crisis of early 1970s which initiated the need for telecommuting. The availability for relevant technological infrastructure and the COVID-19 pandemic has further reinforced a paradigm shift in transportation system and interconnectedness. The following factors will determine the impact of telecommuting on interconnectedness post-COVID.

#### *Technological Availability and Infrastructure*

The development of an extensive telecommunications infrastructure may provide economic growth opportunities in both urban and rural areas. Many commentators have argued that advanced telecommunications systems will make all locations attractive and, therefore, tend to reduce existing inter-regional economic and social inequalities. However, reduced telecommunications costs do not seem to have had a major impact on changing the relative weights of location factors; and many of the current disadvantages of remote locations will persist into the future. The establishment of telecommuting centres in economically disadvantaged areas may revitalize commercial districts and create new employment opportunities. For instance, in Nigeria, there is a concentration of skills and capital in places like Lagos and Abuja. However, with telecommuting, there could be a spread in skills and capital which could result in even economic development.

Telecommuting is often practiced, as little as, one or two days each week, although it can be full-time. While today’s most visible telecommuters are predominantly managers or professionals, telecommuting is potentially relevant to most information workers as well as to some other types of employees. As corporate information technology and public telecommunications services have advanced, interest in telecommuting has increased markedly in recent years.

The setting up and securing of the infrastructure for remote working is necessary. Currently, organizations need to invest heavily in procuring the telecommuting gadgets; more so, where organizational profiles are managed centrally, there comes the need to organize everything remotely. This requires in-depth security changes and structural adjustments. The preponderance of cybercrimes makes this to be of necessity.



### *Employer Benefits and Concerns*

It is often assumed from the worker's perspective that the most important reason for telecommuting is to avoid the stress, unpleasantness, and delay time associated with a lengthy trip to work on highly congested highways. Telecommuting makes more jobs more accessible to economically depressed regions; it may help reduce the social tensions of poverty and unemployment. With the current transformation in digital technology, telecommuting is spreading widely in many institutions and industries (such as sales, publishing, customer service, marketing and academics) (Bishop & Roberts, 2020). Currently, many office jobs and positions in technological field are done remotely. It is expected to reduce the number of trips made in peak hours by reducing commuting. These benefits include greater productivity, less stress, more flexibility to balance work with family commitments, greater job satisfaction, and lower costs of travel, clothing etc. However, the major concerns of telecommuting for employers is the issue of security and privacy of data. Security and privacy are mainly dependent on the adopted communication method used for transmitting as well as the sensitivity of work. A serious effort should be invested in research on encryption to protect telecommuting from data interception and tampering. If short-term gains are observed in terms of benefits to employers, this could result in a virtuous cycle making telecommuting more attractive. The adoption of telecommuting post-COVID is dependent on the trade-off between the benefits and concerns resulting from it.

### *Extension of Urban Areas and Development of Rural Areas*

Home-based telecommuting has shown rapid growth in the last few years and it is widely expected to become a significant

substitute for commuting as a result of advances in technology, lower costs and recognition of productivity benefits. Historically, improvements in transportation networks which often lead to reductions in commute times have facilitated decentralization to lower-density or less expensive housing on the urban fringe. Jobs tend to remain concentrated at centers or develop in other suburbs while the associated commuting distances and commuting time tend to increase. Although, telecommuting appears to bring great improvements in transportation, it seems reasonable to expect similar effects, at least in some cases. Telecommuting is sometimes portrayed as a means of increasing the jobs-housing balance in urban and suburban areas by enhancing the ability to move work to, or closer to, the workers' residences rather than making workers to commute to work daily.

With partial adoption of telecommuting by companies, transport and telecommunication infrastructure in rural areas are more likely to be developed; thus, this will make the more rural locations attractive to commuters. This helps to facilitate the extension of urban centres and development of rural settlement.

### *Climate Change and the Need for Sustainable Cities*

There is a need to inculcate some energy efficient measures and gradually shift to renewable energy in the nearest future across different sectors in Nigeria. The effects of automotive pollution are outstanding particularly in many Nigerian major cities where a traffic gridlock is a usual experience; here, a significant amount of fuel is burnt when vehicles are stuck in traffic congestion. With the increase in population, increase consumption of petroleum-based fuels will indisputably aggravate the endangering situation as unmanageable amount of wastes would be released. The



main problems of road transportation in Nigeria are congestion, inefficient and excessive pressure on the Nigerian roads, the driver's noncompliance with traffic regulations and the price charged. The benefits achieved by making the cities more sustainable will contribute in perpetuating telecommuting as the means of "transportation" for the future.

## CONCLUSION

Telecommuting gained more popularity during the pandemic as many employees were compelled to stay home and work safe. Prior to the pandemic in Nigeria, telecommuting was not popular; however, the pandemic led to the downsizing of most companies. Owing to the socio-economic impacts of downsizing, many companies and organizations have adopted teleworking so as to retain their essential businesses. The uncertainty surrounding the development and deployment of a safe and effective vaccine as well as the lack of therapeutic options has hampered the economic recovery and the restoration of businesses to normalcy. Despite the lifting of the stay at home order across states, many employers still request their employees to work from home. The progress in ICT has helped in accommodating telecommuting. This makes it easier to complete task remotely, interact with business partners, colleagues and managers outside the working premises through the use of web-based applications, collaboration tools (meeting software) and wireless devices and so on (Felstead & Henseke, 2017). Furthermore, the pandemic has pushed new frontiers in technology and innovations necessary to adapt to the stinging effects of the pandemic. This will include development in areas like human-computer-interaction, ICT, remote teaching, remote health monitoring among others. In the event of a future pandemic, workers, employers, healthcare providers and

governments will have to adapt to a new way of living and working which will require new behaviors and new norms. It, most likely, will involve a hybrid or blend of teleworking and de-confinement, that is, the possibility to use the workplace but with controlled conditions based on physical distancing.

In the past, technologies were not sufficiently advanced to accommodate teleworking. Telework programs allow employees to work from home or a satellite office either for all or part of the day. Employers benefit by reducing their costs and improving productivity. A successful telecommuting arrangement is supported by a flexible leadership style, goal oriented and relies heavily on efficacious communication scheme (Lee & Joseph Sirgy, 2019). It was shown in (O'Brien & Aliabadi, 2020) that the lockdown has affected nations and individuals in many aspects of life, such as mental, financial and social; as such the need to adopt telecommuting has become a necessity. Satellite "telework" centres, that are near or in residential areas and fully equipped with appropriate telecommunications equipment and services, can serve employees of single or multiple firms, co-located on the basis of geography rather than business functions. In many cases, a shared facility provides a more practical and satisfactory location for telecommuting than the home and a setting that does not relegate traditional business management styles.

Ultimately, telecommuting can be a paradigm shift in how the activities of work place and workforce are managed. If telecommuting is well managed and reviewed, it can be rewarding to the parties involved. As such, developing teleworking policies could be an essential part of business sustainability. Addressing the challenges of modern transportation will not be an easy task and requires a delicate balance between the supply and demand for



transport. Finally, as at present, there are no robust studies on the impact of telecommuting post-COVID in Nigeria. As such, it is suggested that the effects of energy use, air quality, productivity, rural-urban development and many associated factors should be investigated.

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