

IMPACT OF MOBILE APPLICATIONS ON WORKFORCE PRODUCTIVITY IN ROAD TRANSPORT INDUSTRY IN NIGERIA

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ABSTRACT

The introduction of mobile applications to transform the workforce of road transport companies in Nigeria has been viewed as a successful technological innovation aimed at achieving high business advantage in this study there is the need to examine the impact of mobile applications in the work activities of the road transport companies in Lagos State. A reasonable number of the employees of road transport companies are field-based and the only means to direct their operations is with the aid of mobile applications and mobile devices. The study adopted a survey design and a case study restricted to seven (7) transport companies operating from the Jibowu in Yaba, Lagos State. A total of one hundred and sixty three employees were drawn as sample size from a total population of three hundred and twenty-six employees of these companies. Questionnaires were designed and structured as both close-ended and open-ended to elicit vital research data. Data analysis was conducted aid of Statistical Package for Social Sciences (SPSS) and hypotheses were tested using Pearson correlation coefficient and chi-square test. Hypotheses were formulated to determine the statistical veracity of the study. The study confirmed that there is a significant relationship between the mobile applications and road transport management thus accepting the alternative hypothesis that significant relationship exists between mobile applications and road transport management. The findings tend to affirm the fact that field-based road transport workforce can enhance their productivity with the aid of mobile applications. The efficiency and timely communication inherent in the use of this technology will impact positively on the reading community, encourage a more knowledge-based individual with skill and capacity to make things happen particularly the real time nature of mobile devices.

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KEYWORDS: Competitive Advantage, Innovation, Mobile Application, Workforce Productivity, Social Media Networks

INTRODUCTION

Behind the product design and technological innovation that catapult organisations into well respected industry leaders are managements' investments in the assets that create tomorrow (Filippone, Youden, Pennington & Fersht, 2012). Human resources in the work places are the force that drive the future growth of the organisation. Human resources constitute the ultimate basis for the wealth of nations. Capital and natural resources are passive factors of production; human beings are the active agents who accumulate capital, exploit natural resources, build social, economic and political organisations and carry forward national development (Harbison, 1973).

Clearly a country which is unable to develop the skills and knowledge of its people and to utilize them effectively in the national economy will be unable to develop anything (Harbison, 1973). For most

organisations people are a vital resource (Lynch, 2006). Elaborating further on this he said there are some industries where people are not just important but are the key factor for successful performance such as advertising and creative, leisure and tourism, management consultancy and the advertising industry, hospitals and medical professions. Investing in human resources is an important first step in modernizing your human resources organisation (Sitriion, 2011).

What is needed is a properly functioning mechanism and technology that can develop and allocate human resources in accordance with the requirements and opportunities in various segments of the industry. The inexorable attraction of mobile applications to the human resources technology is another important great leap that are as well can be translated to facility and human resources development in the transport industry in Nigeria. Making that technology work in

real time on employees' mobile devices will boost engagement, productivity and retention (Sitron, 2011). Relying on mobile applications can make engaged employees feel more connected and are 37 percent more likely to stick around (News Gator, 2013).

Mobile applications provide privileged opportunities for persons in the work places to share in the pool of knowledge developed through network of relationships which are in this context described as social capital. Putnam (1996) defined social capital as the features of social life – networks, norms and trust that enable participants to act together more effectively to pursue shared objectives and is the ways in which knowledge is developed through interaction between people (Armstrong, 2009). This interaction allows the employees to learn faster than their competitors and has been the only way to achieve sustainable competitive advantage (De Geus, 1988).

The use of mobile applications enables the organisations to establish a workable and creative relationship. In the road transport industry where the bulk of their services relate to movement of human beings and materials the practice of virtual team connectivity is paramount. This is important because majority of their workforce is field-based. They operate primarily outside their head offices because their workplaces can be described as the high ways and city roads. They have customers spread across different road networks and the only way to track them is through effective connections and contacts. Thus, to achieve greater responsiveness, efficiency and competitive advantages, mobile applications remain a resource for organisational productivity.

Wall (2011) asserted in this context that organisations with field-based employees need to make their mobile workers as effective and efficient as possible when they operate outside the four walls of the office. Missing opportunities to increase productivity and effectiveness of field-based workers can mean lost revenue for your company as customers (commuters) who are left waiting for service could turn to competitors (Wall, 2011).

Road transport industry is a vibrant and dynamic business. It plays a significant role in the movements of people and products. The logistics role of transport business assists an organisation to determine what product to send, in what economic delivery quantity, by what transport method and from what location (Lynch, 2006) while in the case of commuters, transporting represents a convenient carrier for many travellers. Nigerians are great travellers. Some of them engage in a single-location holiday destination while majority of them commute for business

purposes. Domestic travelers in Nigeria typically use vehicles owned and managed by transport companies. Prominent among these companies are Ekene Dilichukwu, Chisco, ABC, God is Good, Cross Country, Ekeson, Young Shall Grow, Izu Chukwu, Ifesinachi, G.U.O., Iyare, Bestway and Peace mass transit. These companies have offices spread all over the country with head offices located in major cities such as Lagos, Owerri, Enugu, Benin and Onitsha. They carry out their operations both during the day and in the most hazardous time of the nights. The field-based workforce of these companies include the driver, attendants and maintenance engineers. The only way they can maintain contacts with the head office, make requisitions for spare parts when needed, report circumstances on the roads, among others is through the aid of mobile devices.

Wall (2011) argued that if you require your workers to return to the office to input information captured in the field, valuable time is wasted that could be spent servicing additional customers. Adding mobile devices to the equation can be the answer and if done right can take advantage of the many moments throughout the day where work could be done quickly (Sitron, 2011). Applying mobile devices to the road transport businesses is evolving, compulsory and changing. It confirms worker collaboration and new technologies skills (Filippone *et al*, 2012) in the growth of the road transport industry. Business strategies are compelling these companies to engage in relevant networks and contacts with the hotels, airlines, rail operators, car hire companies, vehicle manufacturers and distributors, some packaged trips agencies for the purpose of conveying their employees and users. These collaborations caught across customer segments, regions and processes which require changes to organisation design, performance management and culture (Filippone *et al*, 2012).

Organisational strategies of these transport companies should be designed and strengthened to attract customers within the road transport industry. Typically, such travellers include two groups (Lynch, 2006)

- the young travellers who have limited time and cash- perhaps on a gap year combining work and travel
- the retired independents who have plenty of time and rather more cash

Not only does mobile devices assist field based work force of these transport companies to get connected and be reached by their head offices and these groups of travellers, it also boosts interrelationship with other transport companies especially during calamitous conditions such as road blockades caused by accidents or criminals. In a more irrational and wrong use they can use it to avoid the grips of traffic

law enforcement agencies such as Federal Road Safety Corps. Today's mobile HR technology allows organisations to push time-sensitive information and tasks to people so that it can be addressed in the moment when it is relevant to the person's job, regardless of whether the person has a company issued computer or not (Sitrión, 2011).

Arguments about who actually needs mobile devices have been in the domain of industry executives for a long time. The scope of usage is predicted on its relevance and tasks. According to Ghauri (2011) the standard workers who need mobile applications are the executives, road warriors, sales, potential new hires and workers always in the field e.g. geologist looking for oil deposits, on-site project managers at a construction site or consultants.

There are presently a lot of different types of mobile devices. The range includes Nokia, Smartphones, Samsung, iPhones, iPads, Techno, Tablet, etc. Employees of road transport companies are knowledgeable and are being trained on the usage and efficiency of mobile applications. It is not difficult to gain a complete picture and services provided by the mobile devices. Mobile devices afford the operators of road transport business, the opportunity to avail themselves the benefits of social media network. Interconnectivity between the field-based employees, commuters and the head offices can be made easy with the aid of mobile social media applications.

Ghauri (2011) posits that for the 21 percent of time spent on an iPad communicating they are, at most, either sending a quick one- to two-line response to an e-mail, writing a 140-character tweet and may be a one-liner comment or update on face book. Such messages are only important when they convey critical messages that aim to boost both employees and organisational productivity. Expatiating on this, Sitrión, (2011) explained that not only can you send critical information such as new company policy or alerts, you can also implement two way communications as part of the process like sending a notice of office closures due to severe weather and offering a check-in button for employees to let the company know you are safe such as in the case of drivers, crews and passengers.

Managers and chief executives of road transport companies can also take advantage of mobile devices to handle approval of personnel changes, expense reports, time off requests and other work flows and when managers have the right tools to quickly respond to employees' needs, it improves job satisfaction for everyone (Sitrión, 2011).

LITERATURE REVIEW

In the face of global industry changes that escalate worldwide talent management demands, human resources leaders have a mandate for transformation (Filippone et al, 2012). Human resources executives have been caught up in the whirlwind of change. They have been asked to centralize, globalize, cut costs and staff, and embrace new technology just like their business counterparts (Filippone et al, 2012). Every organisation certainly wants employees who can learn quickly and adapt to changing circumstances (Briggs & Morgan, 2013). Every transformation that increases employees competencies is predicated on mainly information technology.

Information technology provides rich analytics necessary to forecast financial performance, analyze customer and supplier dynamics, monitor workforce behaviour and track product performance (Filippone, et al 2012). When managers have the right tools to quickly respond to employee needs; it improves job satisfaction for everyone and organisational productivity (Armstrong, 2009). Organisational productivity is commonly defined as the ratio of a volume measure of output to a volume measure of input use (organisation for Economic Cooperation and Development, 2001). At aggregate/macro level productivity is measured in terms of Gross Domestic Product (GDP) per hour worked (Ji-Won, 2011).

As executives feel the mounting frustration with outdated processes there is growing pressure to change- develop tools that can make work processes faster, easier and more engaging (Sitrión, 2011). Mobile applications are expected to be the main technology driving this change. Mobile applications are software applications designed to run on smartphones, tablet computers and other mobile devices.

Turning now on the process on how it is acquired, it is observed that mobile applications are acquired through native distribution platforms called app stores which are operated by the owners of the mobile operating system and the most popular operating system- native stores are Apple's App Store, Google Play, as well as Windows Phone and Black Berry App, World further went on to disclose that as of June 2015, more than 100 billion mobile apps had been downloaded from the Apple App Store. It is possible that a solution must be found in mobile apps which will change the way businesses are run so as to improve productivity of employees. Organizations' that have successfully achieved a competitive advantage leveraged on this opportunity to deliver economies of scale; reduce costs and raise profit margins. Mobile applications offer their users the opportunities of connecting people and being connected. According to Ghauri (2011) "the

anticipation of getting that little gadget made us giddling with excitement at the mere thought of how it would make our lives easier and more productive by allowing us to be continuously connected and reachable.

Mobile applications come in different forms such as you can rely on to update your blog, track analytics, post photos, link to social media or perform any number of small changes to your blog (Ubabukor, 2016) and popular mobile properties accessed through mobile apps are social networking properties led by Facebook with 727 million monthly active mobile-only users (Ubabukor, 2016). It is quite fascinating to divulge that what has made mobile apps very interesting and relevance is not only the app store properties but mobile devices such as Apple I phone and Ipad, Android (Techno, Samsung, Nokia) Motorola Xoom among others and they serve as other primary functional instruments for social media networks such as Tweeter, Instagram, among others. They contain programmes that have potentials for collaborations such as in expertise location, collective intelligence, emergent structures, interest cultivation, mass coordination and relationship leverage (Bradley & McDonald, 2011 cited in CIPD Research Report, 2013) and are accessible to targeted workers (Ghauri, 2011).

But now the question arises as to what determines the rate at which people indulge in the usage of mobile apps or what drives the mobile apps markets. Quick reasoning suggests that the answer first lies in the rate of usage of mobile devices referred to as mobile phones and secondly at the level of per capita income and finally awareness. Using this simple narration, 80 percent of the people in the European Union had mobile phones, China and India 30 percent, Latin America 85 percent, central Europe 83 percent, et (Lynch, 2006). This development might have affected the number of available apps and the number of people downloading at apps downloads rates. The average mobile app download rate per 100 users was calculated in selected countries worldwide and in the second quarter 2014 it was discovered that an average of worldwide, 1.23 apps were downloaded per 100 users. India and the United Kingdom were lower than the worldwide average and the U.S. was only slightly higher at a rate of 1.25 apps down loaded per 100 users. The countries with the most impressive app rate were found in Asia. Malaysia topped the ranking with the highest app rate of 4.64 app down loads (Lynch, 2006).

The business case for mobile applications postulates that constantly connected and reachable employees bring about tangible and intangible benefits to the organisations. The mobile applications provides the opportunity to alter fundamentally the balance between competitors (Lynch, 2006). Today's mobile

human resources technology permit people to push time-sensitive information and tasks to people so that it can be addressed in the moment when it is relevant to the persons job (Sitrión, 2011). Mobile applications are very complex and could be classified as a product of advanced technology. Advanced technology increases competitiveness and customer demands for 24 hours services and it means an acceleration to more complex working time arrangements such as shift work, night work and much greater use of flexible systems and irregular hours (Spurgeon, 2003).

In developing economies such as Nigeria technology acquisition and modernization are critical to economic development. Productivity of many industrial organisations in Nigeria still remains a conceptual issue. Viewed against the background of the legacy of stereotyped planning and a complete absence of accountability, transparency and competition, industry achievements in the areas of employment relationship is not considerable. The one cloud still hanging over this negative development is the lack of cheap and effective information technology facilities such as mobile devices. It is generally accepted that with more careful management and more openness and time, business organisations in Nigeria could improve sales, make more revenues and increase customer services with the aid of mobile workforce. The need to increase market awareness, reduce cost and reposition workers for productivity hinges on the beauty of the majority of the productivity apps (Agbata, 2016). Gone are the days when phones are solely used for calling, sending text messages etc.

In the road transport industry mobile applications can be used to enhance employee and vehicle tracking, maintain customer connection and relationship through booking and transloading. Real time mobile workforce management solutions have been identified as a human resources technology framework that can help to boost employee productivity and customer service and maintain a competitive edge (Wall, 2013). For field-based employees such as drivers and crews, these solutions can offer them a real time alternative to paper forms and allow for increased communication with head office. The solutions can as well be used to locate shorter and easy routes, reduce travel time and gas costs while boosting productivity of the workforce and delivering fast returns on investment.

Presently majority of the transport companies operate night service – travelling in the night. With the aid of mobile applications it will be easy to track or locate them and when required offer services such as repairs or transloading. Thus road Transport Company that ignores techno-savvy age or the value propositions of mobile applications tend to produce demeaning

characteristics that are likely to diminish their competitive advantage and employee productivity.

Benefits of Mobile Applications

Mobile applications have the potentials to effect great changes in the way businesses are conducted and interpersonal relationships of the workers (Agbata, 2016). Creating a mobile based real time work flow capability can save your company in a variety of ways such as eliminating time- draining processes and making human resources processes relevant to the work that is happening at that moment, makes a more flexible personalized work place that stimulates greater collaboration and employee retention (Sitrión, 2011).

With mobile applications an organisation can potentially publish and locally store worker and organisational data such as head count, compensation, performance ratings etc on the mobile device itself (i.e. if you want off line capabilities) (Ghauri, 2011). In addition, mobile applications can potentially be beneficial to field-based workforce (Wall, 2013) of road transport companies in Nigeria in the following ways:

- boosting efficiency and productivity
- in fast responses and reduced time-to-resolution
- optimized GPS routes that reduce time and cost
- gives positive impact on customer satisfaction
- can improve over all company performance
- for complete data capture in the field
- reports completed quickly with in-field wireless forms
- increase significant return on investment
- can be used to build trust between employees and managers (Briggs & Morgan, 2013)
- can be applied to recruitment, human resources shared services or outsourcing strategies (Filippone *et al*, 2012) such as in employee contact centre, workforce data management/ analytics, recruitment/staff and benefits administration.
- Mobile applications can also be used in traffic diversion, minimizing of accidents, decongestion and solving of road blockades, emergency and reducing the number of casualties during accidents by locating the accidents scene on time.

Implications of Mobile Applications on Workforce Productivity

A significant area where mobile apps are repeatedly needed and useful is human resources segment in the organisation. In particular, a distinction should be drawn among the following ways in which mobile apps may be advantageous.

Corporate Corporation

Either mobile devices or apps can be useful in the transformation of the information department of the organisation. Critical information such as a new policy or alerts for cancelling orders, placing orders or for managing risky situation pass through SMS, Twitter, instalgram or any other app. A two way communication process like sending a notice of office closures due to severe weather and offering a check-in button for employees to let the company know you are safe may be all the organisation needs to remain afloat in the industry (Sitrión, 2011).

Employee Self-Services

There is, however, another aspect which works in the context of employee self-services to boost the productivity of the workers. This is self-initiated and driven. Employees who do not have laptop may rely on their mobile devices to access pay stubs, time tracking, colleague contacts and leave request. It is interesting to note that the tendencies for the workers to use mobile apps or devices facilities more are influenced by free mobile app downloads. For instances 57.33 billion free apps were downloaded on mobile devices in 2012 and by 2017 it is estimated that 253.91 billion apps will be downloaded while paid apps in 2012 were 6.65 billion downloaded through mobile devices and by 2016 download figures will be 13.39 billion (Wall, 2013).

Manager Self-Services

Another aspect of mobile apps and devices usage relates to manager self-services. While the ability of the manager to coordinate the activities of the organisation rests on his competency and skills, implementation of management policy may involve the real applications of these facilities. Such tasks like personnel changes, expense reports, time off requests, distant direction or instructions and other workflows are better attended to improve job satisfaction for every one (Sitrión, 2011). Therefore spending on these facilities have a major role in boosting productivity (CS Insight, 2013) explained that about 6 billion smartphones were purchased in 2012 and these phones are coming to the workplace with the employee. They make work processes, faster, easier and more engaging.

A significantly and well designed business oriented metrics can be effectively linked to mobile applications for easy interpretation and applications by the management and employees. Below are the various business-oriented metrics that can be operated with the aid of mobile apps and devices.



Source: PWC 2012 Adapted from Filippone, Youden, Pennington and Feraht (2012), Human Resources Transformation: Is it Driving Business Performance HFS Research collaborating sourcing intelligence May 15-16

The business-oriented metrics when effectively utilized and accepted by the leadership and employees of these road transport companies can enhance the development of new routes, customer satisfying facilities, effective workshops and maintenance engineers, stakeholder, satisfaction and stimulate growth for higher return on investments. The strongest metrics focus on value levers that drive business outcomes which are directed with effective communication built on information technology efficiency and tools (Filippone *et al.*, 2012).

There has been a substantial increase in the use of mobile devices in Nigeria. Most social applications are now made for viewing on the mobile devices. Job seekers such as drivers, crew persons, office attendants, ticketing officers, truck and passenger vehicle attendants are being recruited through the aid of mobile devices. According to Dey (2013) job

seekers may not have computers or carry it with them all the time but they do have mobiles.

Mobile Applications and Social Media Networks

Companies across different industries are now using social media such as Facebook, fan pages, LinkedIn, Tweeter, Instagram to enhance organisation reputation and brand attractiveness (Dey, 2013). Many of these companies rely on these networks for employees' recruitment. Recruiting software provider Bullhorn Reach reports that twenty-one percent of recruiters are connected to LinkedIn as well as Facebook and Tweeter for hiring purposes (Waxer, 2013). These types of human resources activities are stimulated with the aid of mobile devices. The revolution created by mobile social media applications is tempting and scintillating.

Kaplan and Kaenlein (2010) have found that mobile social media applications are expected to be the main

driver of this evolution for over 50% of the market. In different perspectives, they looked at this surge and concluded that this surge toward mobile social media can even be seen as another step toward internet democratization and closing the digital divide between developed and emerging countries. In India for example mobile phones outnumber personal computers by 10 to 1. In Thailand only 13% of the population own a computer, versus 82% who have access to a mobile phone (Kaplan & Haenlein, 2010). While in Nigeria the percent could be higher averaging 60%.

The interrelationship between mobile applications and social media networks is quite amazing and has triggered another trend of upsurge. Mobile devices are now acquired basically by some people to avail themselves of social media networks, these smack off the interusefulness of the both devices. Human resources departments of business organisations can use social media networks to continuously update their employees on Face book, Tweeter, LinkedIn among others about the objectives and goals of their organisations and to source new workers. It is exciting to explain the importance of mobile applications interusefulness with social media using the business operations of Sodexo. According to Vor hauser- Smith (2013) Sodexo has 15000 downloads for its mobile job application and has resulted in 107 hires out of these hires, 53 percent were internal candidates, therefore demonstrating social and mobile strategies help with internal mobility.

In the road transport industry mobile social media applications are conveniently applied to ease contact derailments, travel frustration and disappointments. Most of the commuters in Nigeria establish periodic contacts with their favourite transporters through the mobile social media applications. Modern vehicles in the fleet of the transporters are first advertised for travellers through the mobile social media applications thereby enhancing customers' awareness, attracting patronage and recommendation. Haulage companies make a lot of business through mobile social media applications contacts and where necessary prices, charges and fares can be displayed on the media for customers to make choice.

In Nigeria therefore mobile social media applications have made a tremendous progress and still be relied extensively for future business developments and efficiency. The discovery of mobile applications will continue to serve as a strong complement to the development and growth of the road transport business.

The extent to which mobile application marketers in Nigeria have served as complementors will be determined based on the level of complementarity and consumer targeting. Whenever there is strong

synergy between the road transport business and mobile applications infrastructures there is two way value addition. Thus it is important to examine the strengths and weaknesses of such linkages both from the complementors (mobile applications facilities suppliers) and the road transport companies so that they can work together to present new and sustainable joint offerings to customers. By this, the role of these complementors will be appreciated. Nalebuff and Branden Burger (1997) described the complementors as those companies whose products add more value to the products of the base organisation than they would derive from their own products by themselves.

Factors Inhibiting Mobile Application Use

The simple assumption that the future is bright for the use of mobile apps and devices in business organisations in Nigeria is invalidated by such factors as:

1. Lack of organisational efforts to prioritize and modernize systems in line with the global business challenges. Advocates for mobile applications in human resources transformation like Watson (2013) has argued that HR executives are not technology focused and the junior HR itself do not have time to get involved due to their ever-growing to do list.
2. Perception that technology adoption is an IT responsibility. Gill in Sitrion, (2011) pointed out that the people look at technology adoption as a systems project versus organisational development and culture change initiative and this is creating confusion.
3. Fear of cost and added complexity of adopting still more technology. Due to this reasoning actual usage of these facilities falls short of these sophisticated considerations. Standing on the exposition of SAP Insider (2014) studies show that 80% of employees only use basic functions like expenses tracking, time reporting and tasks approvals. Any other usage beyond this does not meet up with the expected returns. However, the most dangerous perception is hinged on the feeling that the greater cost can come from employees perception that the company does not invest in technology to make work better ((Sitrion, 2011).

Statement of Problem

The principal mechanism for transforming and boosting the productivity of workforces in the road transport industry is connected to mobile applications. The transport industry plays a pivotal role in the development and growth of the economy. The services provided include haulage of goods and conveying of people from one destination to another. Majority of the services provided by the transport industry are carried outside their head offices. This is to say, a sizeable chunk of their employees is field-

based which is a function of the nature of services they provide to the public. Therefore it becomes apparently inexcusable that such employees must maintain constant contact with the head offices and management while still on their workplace. With the development of mobile applications and devices, workers in the industry such as transporting can be continuously connected and reachable (Ghauri, 2011). The mobile devices include smart phones Ipad, Iphone, Tablets, Nokia, Techno, Samsung, Android and Motorola Xoom. Using these mobile devices field-based workers can get across to their head offices through such applications E-mailing, Tweeting, Facebook, Whatsapps (Dey, 2013) and when there is problems like accidents, breakdown or armed robbery attacks they can beckon for help with the aid of their mobile devices.

The problem confronting the usefulness of mobile applications and devices especially in the road transport industry is its unreliability often caused by network failures, unavailability of recharge cards, high cost of technology, power failures and unethical compliance of head office staff in picking calls when there is a distress call, service time outs. At times typing of messages when calls have failed to sail through can be burdensome, time consuming and distressful, especially during tension soaked moments like accidents or armed robbery attacks. Thus the question is asked should human resources capitalize on this medium to better support the workforce (Ghauri, 2011) and how is it changing the way we do business in the transport industry and the way employees relate to their employers (Dey, 2013).

Objectives of the Study

The objective of this study is to develop a mobile application processes that will boost the productivity of the field-based employees of road transport companies in Nigeria. Other objectives include to:

- identify measures to optimize routes, which will reduce travel time with the aid of mobile applications and devices
- identify methods of maximizing employees productivity through interpersonal relations
- develop ways of minimizing delays through effective communication with mobile devices
- examine methods of training through mobile applications.

Finally, the study intends to identify measures of collective, storing, accessing and publishing data that relate to its field-based workforce and to develop a study material for further academic studies.

Significance of the Study

This study has created an enormous social capital and impacted tremendously on the performance of individuals and its resultant boost to organisational productivity. It will further create a sea change to workforce transformation, hands on performance and

a sense shared ownership within and outside the four walls of transportation industry in Nigeria. Mobile applications would become a beacon of success for greater efficiency, responsiveness and business competitive advantage. Furthermore, it is the intention of this study to develop a study material that will be relevant in the management of the workforce of the road transport industry in Nigeria. The study will also be beneficial to both workers and management to the extent that field based workforce can be connected and be reached without visiting the office for directions. By conducting a study that will assist field-based transport workers, get information while on the field without getting to the office, the researcher has assisted the companies to save time, eliminate redundancies and reduce the chance for human error. Furthermore, this study will be of great assistance to future researches and new body of learning.

Research Questions

The following questions have been prepared for the purpose of this study.

- How has the mobile apps and devices succeeded in tracking the location of field-based employees?
- Has the conversion of vehicles for non-official uses been mitigated with the aid of mobile applications and devices?
- Has mobile apps and devices assisted management in gaining insight into how long it takes to complete a given job?
- What are the perceptions of field-based workers about maintaining constant contact with their managers?

Hypotheses Formulation

The following hypotheses are formulated for the statistical significance of this study.

Hypothesis 1: There is no significant relationship between mobile applications and road transport management in Nigeria.

Hypothesis 2: There is no significant relationship between mobile applications and job content designing in the road transport industry.

Hypothesis 3: Introduction of mobile devices will not significantly improve the interpersonal relationship between field-based workforce and management.

Scope of Study

The scope of this study covers the impact of mobile applications on workforce productivity in road transport industry in Nigeria. The choice of the topic is influenced by the desire to develop a mobile applications process that will aid substantially the road transport industry in Nigeria. The increasing number of accidents on Nigerian roads and rampant unethical behaviour of the drivers call for the need of proper monitoring and direction. However these

drivers and their crews are field-based and the only way to maintain contacts is through the use of mobile apps and devices. A total of seven (7) intercity transport companies have been chosen for the purpose of this study. They are God is Good (GIG), G.U.O, Chisco, Ifesinachi, Cross Country, Young Shall Grow, ABC, These companies have been chosen because of their level of investment in the business, number of employees in their pay roll, diversified operations and the number of passengers they carry on a daily basis.

Limitations of Study

Nigeria as a developing country lacks the basic infrastructure and capacity and frequent power and energy problems may pose a stumbling block to effective communications, human rigidities and behavioural issue may pose problems.

RESEARCH METHODS

The methodology of this study is based on survey research. The design allows the researcher to elicit information relating to present and past behaviours, experiences and characteristics, measure many variables, test multiple hypotheses (Neuman, 2000). The study relied extensively on primary data generated through the administration of questionnaires. The design of the questionnaires is both open-ended and close-ended to facilitate relevant and unrestricted supply of information. The questions are focused on the relevance of mobile applications and devices in tracking vehicles, eliminating non-official uses of vehicles, management ability to design job contents, perceptions of field-based work force about interpersonal relationship with management. The study concentrated on three hundred and twenty-six (326) employees of transport companies operating in Yaba Bus Terminus; God is Good (60), G.U.O. (38), Chisco (40), Ifesinachi (62), Cross Country (36), Young Shall Grow (48), ABC (42). Based on this number of employees (population) one hundred and sixty three (163) employees were drawn as sample size: God is Good (30), G.U.O. (19), Chisco (20),

Ifesinachi (31), Cross Country (18), Young Shall Grow (24), ABC (21). Data analysis was conducted with the aid of Likert 5 point scale for ranking of responses and Pearson correlation coefficient to determine the statistical significance of the study.

DATA ANALYSIS AND RESULTS

The analysis was based on the data released by one hundred and sixty three (163) employees representing the sample size for the study. A total of 158 employees representing 96.93 percent completed the demographic questions. Males were in the majority with a total of 142 representing 89.87% and females were 16 in number which accounted 10.13%. The average age bracket of the employees was 28 to 55 years for males and 22 to 36 years for females. Basically, 140 employees that participated in the study were married and 18 employees were not married. A total of 60 persons within the sampled group were drivers and 98 persons worked either as conductors or customer service staff. The salary structures of the participants in the study vary between N60,000 and N120,000 with the exception of drivers and conductors whose salaries could not be ascertained due to the influence of travel allowances, loading charges and other miscellaneous charges.

In terms of academic qualifications, a total of 72 persons out of the 158 interviewed persons representing 45.57 percent have valid management or training certificates. Only 22 out of the 60 drivers have valid driving school certificates. The other drivers acquired their skill through on the job training. Forty percent of the total persons interviewed have working experience between 1 to 20 years; 60 percent have between 20 to 35 years' experience either as drivers or transport officers. The most important welfare and compensation package were death and accident allowances, insurance coverage and travel allowances.

The tables below contain data that measure the statistical relationship of the research variables.

Table 1: Assessing the relevance of mobile apps and devices in tracking the location of field-based employees

	SA	A	D	SD	Ind.	Total
Responses	86	43	20	6	3	158
Percentage (%)	54.43%	27.22%	12.66%	3.80%	1.90%	100%

Source: Field Survey, 2016.

The table indicated that 86 respondents representing 54.43% of the total sample size strongly agreed that mobile applications and devices assist in tracking the

location of field-based employees, 43 respondents accounting 27.22% agreed, 20 (12.66%) disagreed, 6(3.80%) strongly disagreed while 3 (1.90%) remained indifferent.

Table 2: Examining the impact of mobile apps and devices in eliminating non-official use of company vehicles

	SA	A	D	SD	Ind.	Total
Responses	55	61	32	4	6	158
Percentage (%)	34.81%	38.61%	20.25%	2.53%	3.80%	100%

Source: Field Survey, 2016.

The study found out that 55 of the respondents representing 34.81% were within the group survey testified strongly that mobile apps have the potential

to eliminate non-official use of vehicle, 61(38.61%) agreed, 32(20.25%) disagreed, 4(2.53%) strongly disagreed while 6(3.80%) remained indifferent.

Table 3: Analyzing the significant relationship between mobile applications and job content designing

	SA	A	D	SD	Ind.	Total
Responses	59	72	17	8	2	158
Percentage (%)	37.34%	45.57%	10.76%	5.06%	1.27%	100%

Source: Field Survey, 2016.

The table shows that a total of 59 respondents representing 37.34% of the sample size strongly agreed that significant relationship exists between mobile applications and job content designing,

72(45.57%) agreed, 17(10.76%) disagreed, 8(5.06%) strongly disagreed while 2(1.27%) chose to remain indifferent.

Table 4: Assessing the interpersonal relationship between field-based workforce and management

	SA	A	D	SD	Ind.	Total
Responses	62	81	5	8	2	158
Percentage (%)	39.24%	51.27%	3.16%	5.06%	1.27%	100%

Source: Field Survey, 2016.

The data on the table above disclose that 62 persons representing 39.24% strongly testified that interpersonal relationship exists between field-based workforce and management. This is followed by 81 persons accounting 51.27% who testified that such a relationship exists while 5(3.16%) disagreed,

8(5.06%) strongly disagreed and 2(1.27%) remained indifferent.

TEST OF HYPOTHESES

Hypothesis One: There is no significant relationship between mobile applications and road transport management in Nigeria.

Table 1 Correlations Matrix For Hypothesis One

		Mobile applications	Transport management
Mobile applications	Pearson Correlation	1	.512**
	Sig. (2-tailed)		.000
	N	158	158
Transport management	Pearson Correlation	.512**	1
	Sig. (2-tailed)	.000	
	N	158	158

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

In addition, table 1 above shows the Pearson correlation coefficient results, it is seen that the correlation coefficient is .512 while the p value is 0.000, this shows that there exist moderate significant relationship between mobile applications and road transport management in Nigeria, thus the H₀ was rejected, since p value (0.000) is less than 0.01, while

its alternative was accepted and this states that significant relationship between mobile applications and road transport management in Nigeria.

Hypothesis 2: There is no significant relationship between mobile applications and job content designing in the road transport industry.

Table 2: Correlations Matrix For Hypothesis Two

		Mobile applications	Job content designing
Mobile applications	Pearson Correlation	1	.307**
	Sig. (2-tailed)		.001
	N	158	158
Job content designing	Pearson Correlation	.307**	1
	Sig. (2-tailed)	.001	
	N	158	158

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

Furthermore, Table 2 above shows the Pearson correlation coefficient results, it is seen that the correlation coefficient is .307** while the p value is 0.000, this shows that there exist weak but however positive relationship between mobile applications and

job content designing, as such the H₀ was rejected, since p value (0.001) is less than 0.01, Hence its alternative was accepted and this states that there is a significant relationship between mobile applications

and job content designing in the road transport industry.

relationship between field-based workforce and management.

Hypothesis 3: Introduction of mobile devices will not significantly improve the interpersonal

Table 3 Assessing the relevance of mobile apps and devices in tracking the location of field-based employees

Response	SA	A	D	SD	IN	Total	X ² cal	X ² crit	Df	P	Rem
	55	61	32	4	6	158	89.532	9.49	4	0.05	Accepted

The chi-square value (significance) is 89.532 while the tabulated value (significance) is 9.49. Since calculated value is greater than the tabulated value at 0.05 (representing the level of significance) it implies that we should accept H₁. Accepting H₁ means that introduction of mobile devices will significantly improve the interpersonal relationship between field-based workforce and management.

DISCUSSION

The argument that the impact of mobile applications in the road transport management is asymmetric is not debatable. Field-based workers rely on mobile applications to enhance their performance and at times develop advance knowledge to raise objections to management dazzling range of policy recommendations about issues affecting them. The study has successfully found that there is a significant relationship between mobile applications and road transport management. Majority percentage of 54.43% representing 86 respondent testified that mobile applications are relevant in tracking the location of field-based employees. Respondents totaling 73.81% x 38.61% affirmed that it can be relied upon to eliminate non-official use of vehicle and 82.41% (37.34%) x 35.57%) testified that it can be used in job content designing.

While on the area of interpersonal relationships a total of 90.51% (39.24% + 51.27%) testified that it is relevant in strengthening the interpersonal relationship between the management and field-based workforce. The statistical relevance of this finding has been confirmed by the alternative hypothesis which states that there is a significant relationship between mobile applications and road transport management in Nigeria. This affirmation is pertinent and inclusive both in terms of job content designing and interpersonal relationship. The strength of this study is that it provides concrete evidence of mobile applications impact on workforce productivity of road transport companies in Nigeria. This argument is in support of the view of Wall (2011) that missing opportunities to increase productivity and effectiveness of field-based workers can mean lost revenues and the pricing of petrol.

SUMMARY AND CONCLUSION

The choice that road transport companies make in allowing mobile devices and applications as part of

their workforce operating facilities is presumably a viable option for productivity. Circumstances that encourage the usage of mobile applications are numerous and these can increase depending on the scope of operations. Due to the nature of their work activities, road transport companies are described as organisations and facilities such as mobile devices and applications to establish interpersonal relationship between their field-based workforce and management. With the inclusion of mobile applications these companies have been able to track the movement of their vehicles and passengers, maintain accurate road work activities of their employees and give instructions when and where necessary.

RECOMMENDATIONS

This study shows how a well-designed management information system founded on the use of mobile applications would improve the effectiveness of the workforce. In broad terms the study recommended that field-based employees should have unlimited access to internal resources of connectivity using any of the mobile applications that are convenient to both staff and organisation. Fostering sustainable growth is paramount in the industry. Therefore field-based workers should be required to pass through the processing learning and training so that immediate decisions that are not detrimental to the goals of the organisation can be taken without waiting for instructions from head office. Decisions bothering on route diversion, additional expenses among others in times of blockage or accidents can be taken without recourse to head office.

REFERENCES

- Armstrong, M. (2009). *Armstrong's handbook of human resources management*, London: Kogan Page.
- Bradley, A. & McDonald, M. (2011). *The social organisation: How to use social media to tap the collective genius of your customers and employees* (Boston: Harvard Business Review Press) in CIPD Research Report March 2013 social media and employee voice: the current landscape. Retrieved July 23, 2013 from <http://www.cipd.com.uk>.

- Briggs, A. & Morgan, P.A. (2013). Shaping an Ethical Workplace Culture, SHRM Foundations Effective Practice, Guidelines Series www.shrmfoundation.org. Ethical Workplace Culture
- CCS Insight (2013). Is HCM enough Analyst Report sitrion [www.sitrion.com/test drive](http://www.sitrion.com/test-drive).
- CIPD Research Report (2013). Social Media and Employee Voice: The current land scope Retrieved July 23.
- Dey, I. (2013). How are Electronic Technology and social media affecting the employment relationship (from hiring to engagement to retention) Between employers and employees; and the roles responsibilities and contributions of human resources organisations. *National Academy of human resources Ram Charam HR Essay contest*.
- Filippone, Youden, Pennington & Fersht (2012). Human Resources Transformation: Is it Driving: Business Performance HFS Research collaborating sourcing intelligence May.
- Ghauri, H. (2011). Mobile Applications for Human Resources June/July workforce solutions review.
- Harbison, F.H. (1973). *Human resources as the wealth of Nations*. New York: Oxford University Press p. 3.
- Ji-Won, S. (2011). Excessive overtime workers and productivity: Evidence and implications for better work. Better work discussion payer series: No. 2 *International Labour Organisation ad International Finance Cooperation, Geneva, ILO, ISSN; 978, 922-125109-5* (web pdf).
- Kaplan, A. & Kaenlein, M. (2009). Users of the world unite! The challenges and opportunities of social media (Kelly School of Business Indian University, Elsevier). In Business Horizons, 2010 Retrieved July 26, 2013.
- Lynch, R. (2006). *Corporate strategy*. 4th Edition, New York: Prentice Hall, Pearson Education, U.S.A.
- Nalebuff, D.J. & Brandenburger, A.M. (1997). *Competition*, London: Howper Collins Business.
- Gill, N. (2013). What's standard in the way of adoption. Sitrion www.sitrion.com/test-derivative.
- News Gator (2013). How personal mobile devices are Transforming Human Resources News Gator Collective Benchmark Survey Report www.sitrion.com.
- Organisation for Economic Cooperation and Development (2011).
- SAP Insider (2014). Cited by sitrion (www.sitrion.com) February 20.
- Sitrion (2011). www.sitrion.com.
- Ubabukor, O. (2016). How to build blogs with your Smartphone gadget smart. Punch Newspaper Tuesday September p. 3.
- Vorhauser-Smith, S. (2013). Three companies nailing social and mobile for H.R. in Forbes Retrieved July 26, 2015 from <http://www.forbes.com/sites/sylviaivorhuasermith/2013/07/09>.
- Wall, R. (2011). Improve the productivity of your mobile workforce Vm ware Solution Brief p. 2.
- Watson, T. (2013). Human Resource service delivery and Technology Survey Executive Summary.
- Waxer, C. (2013). Human Resource Turn to social media as Data Quality challenges persist in data informed. Retrieved July 26 from <http://data-informed.com/hr-recruiters-turn-to-social-media-as-data-quality-challenges-persist>.