

THE INTERNATIONAL JOURNAL OF BUSINESS & MANAGEMENT

Effect of Mobile Workforce Management Strategies on Performance of Deposit Money Banks in South East Nigeria

Dr. Melletus Uchekukwu Agbo

Lecturer, Department of Business Administration,
Michael Okpara University of Agriculture, Umudike, Abia, State, Nigeria

Abstract:

Members of the mobile workforce and deposit money banks that employ them face a double-edged sword. On the one hand, it is desirable for mobile workers to remain as productive as possible when they are on the road. Unfortunately, life is not perfect and neither are people, so how do deposit money banks gauge whether a mobile employee is an asset or liability? On the other hand, not all venues that accommodate these workers are entirely conducive to productivity. The main objective of the study is to investigate the effect of mobile workforce management strategies on performance of deposit money banks in South East, Nigeria. The specific objectives sought were to: determine the effects of mobile technology on productivity of deposit money banks in South- East, Nigeria, establish the extent of the effect of biometric time and attendance system on deposit money banks market share in South- East, Nigeria, assess the effects of mobile applications on stakeholders' level of satisfaction of deposit money banks in South- East, Nigeria, ascertain the effect of contemporary environmental factors on the growth of deposit money banks in South- East, Nigeria and determine the relationship between the challenges of mobile workforce management strategies and the profitability of deposit money banks. The researcher adopted the survey design for the study. The population of the study is Six thousand four hundred and ten (6,410) comprised of both the senior and junior staff of the selected eleven deposit money banks in South East Nigeria. Primary and secondary sources of data were used in the course of the study. Works of other authors related to the study were reviewed. The sample size is five hundred and eleven (511) determined, using the finite population formula of Godden. The researcher adopted both parametric and non parametric techniques for data analysis. The Cronbach's Alpha coefficient yielded 0.87, indicating the reliability of the instrument. The data collected was analyzed using Spearman Pearson correlation coefficient, simple and multiple regression model. The findings indicated that: Mobile technology had positive effect on productivity of deposit money banks in South- East Nigeria ($r = 0.932$, $p > 0.05$). Biometric time and attendance system to a great extent enhanced deposit money banks' market share in South East Nigeria ($r = 0.960$, $p > 0.05$). Mobile workforce management strategies positively affected deposit money banks stakeholders' level of satisfaction ($r = 0.950$, $p > 0.05$). Contemporary environmental factors such as government regulation, economic conditions, technological advancement and workforce demographics to a great extent had a positive effect on the growth of deposit money banks. ($r = 0.962$, $p > 0.05$). There was a positive significant relationship between challenges of mobile workforce management strategies (hackers' infiltration, network failure and human error and the profitability of deposit money banks ($r = 0.981$, $p > 0.05$). The study concluded among others that mobile workforce management strategies offer deposit money banks critical improvements in growth and stakeholders' level of satisfaction. The study recommended among others that management of deposit money banks should ensure that right tools and resources are made available to mobile workers, giving them the same connectivity as office based workers.

Keywords: Mobile workforce, management strategies, deposit money banks, profitability

1. Introduction

1.1. Background of the Study

Mobile workforce management strategy is a term to describe the use of mobile technology to manage and monitor teams of mobile workers. These digital systems replace many of the tasks which previously relied on paper by mobile work and manual processes. Employee scheduling, task monitoring, policy compliance and customer feedback are just some of the features offered by mobile workforce management strategies. Mobile workforce management strategy allows managers and mobile workers become more connected. Nick (2017) states that the origin of mobile workforce management strategy can be traced back to 1970's when mechanical clocking in machines began, being linked to early computer systems.

This has changed over the past decades with cloud based software and consumer standard smartphones, combining to make mobile workforce management systems available to deposit money banks of all shapes and sizes. There are many different types of mobile workforce management systems but they share the same set up. A management dashboard is used to coordinate the work of mobile workers who are connected via a smartphone application. It allows a manager to see the exact location and task status of each employee, in real time. The smartphone application provides

employees with all the information they need to do their job. Work schedules, job duties and compliance checks are all accessed in digital form. Data collected by a mobile worker such as delivery notes and customer feedback is automatically stored and uploaded to the head office. Nick (2017) opines that one of the great strength of mobile workforce management software is its flexibility. They can be used for just about any tasks which require the management by a team of mobile workers. Mobile workforce management strategy transforms the way deposit money banks are able to keep control of mobile workers. It provides a simple and effective way to manage and monitor employees in real time. A properly implemented system will significantly reduce waste and boost production, play a vital role in protecting workers by enforcing health and safety compliance, virtually eliminate paper and provide much greater control for employees on how, where and when to do the work Managers can now afford to be desk-bound. Mobile technology has brought transformative change in the consumer world. Mobile environment presents new means of fundamental communication between management and staff.

1.2. Statement of Problem

Members of the mobile workforce and deposit money banks that employ them face a double-edged sword. On the one hand, it is desirable for mobile workers to remain as productive as possible when they are on the road. Unfortunately, life is not perfect and neither are people, so how do deposit money banks gauge whether a mobile employee is an asset or liability? In the office, employees are monitored efficiently by the hours put in a day compared it to their output. In the field, however, deposit money bank' assets are the mobile workforce- technicians, delivery staff, marketer, and sales force being out of the office means out of sight and out of mind or driving their managers out of their minds. On the other hand, not all venues that accommodate these workers are entirely conducive to productivity. What is more, hackers routing 'sniff out' unsecured laptops, smartphones and other handheld devices in use at offices, libraries, restaurants, and other locations, making special precautions imperative if data security is to be maintained in public places. Just as the mobile workforce is growing bigger everyday, hackers are becoming smarter and more effective in their quest to infiltrate the operations of deposit money banks in South East.

Managing a mobile workforce cost effectively can be difficult. A lack of visibility of employee locations outside the deposit money banks office, printing and distributing job packs and lost or incomplete paperwork can lead to delays in issuing invoices and reports. How can these challenges be tackled? Are mobile workforce management strategies working the way they should work in the banking sector? Are they transforming the business operation, driving innovate on and creating opportunities or confusing management and draining deposit money banks resources? How can deposit money banks maximize the value they get from the people empowered with mobility? When employees are given to work remotely or more flexibly through mobile arrangement, it is understandable that managers are sometimes skeptical of their productivity. These aforementioned problems motivated this study.

1.3. Objectives of the Study

The main objective is to investigate the effect of mobile workforce management strategies on performance of deposit money banks in South East, Nigeria while the specific objectives are to:

- Determine the extent of effect of mobile technology on productivity of deposit money banks.
- Establish the extent of the effect of biometric and attendance time on market share of deposit money banks.

1.4. Research Questions

The following research questions were formulated for this study:

- To what extent does mobile technology affect productivity of deposit money banks?
- To what extent does biometric and attendance time affect market share of deposit money banks?

1.5. Research Hypotheses

The following research hypotheses were formulated for this study:

- Mobile technology significantly enhances the level of productivity in selected deposit money banks.
- Biometric and attendance time to a great extent improves market share of deposit money banks.

2. Review of Related Literature

2.1. Conceptual Review

2.1.1. Concept of Mobile Workforce Management

Jones (2006) defines mobile workers as those who work at least 10 hours per week away from home, their main place of work, for example, on business trips, in the field, travelling or on customer's premises and use online computer connections when doing so. This definition appears to be largely stable, with few changes evident over the past ten years. Within this definition, there are five specific types of mobile worker;

- On-site movers are individuals who work on site, but move around within it e.g. security agents and information technology technicians.
- Pendulums-alternate are individuals who work at two fixed locations e.g. the employer's office and a client's office or a home office.

- Normads- are individuals working in a number of different places and are constantly moving among them e.g. a sales agent visiting many customers a day, Management consultants working at different client sites and engineers.
- Yo-yos- occasionally work away from a fixed location e.g. in jobs which require business trips.
- Carriers-work whilst on the move, transporting goods or people, e.g. train conductors or aeroplane stewards.

2.1.2. Mobile Workers Are Increasing Faster than Home Workers

International Data Corporation (2014) Survey predicts that the increase of mobile worker will be significantly greater than the increase in employees working from home despite the widespread adoption of flexible working practices. This prediction reflects the wide range of voice video and data services that are now available to user such as code division multiple access, global system for mobile communication, wireless local area network, digital subscriber line and devices (personal digital assistant, personal computers and other tailored devices) which makes working on the move possible.

Brahmann (2014) indicates that where home working has failed to bring greater productivity, there are high hopes for mobile working. The family project, for example, found that Danish workers who alternated between locations were highly productive, whereas permanent and near-permanent remote workers were less productive than office workers. The main reason for the remote workers' poor performance was the isolation that they experienced due to reduced social and informal interaction with colleagues and insufficient access to intra-company information flows.

Workers who have voice, video and data services that support informal communication as well as broadband and wireless technology are equipped to overcome these barriers and are likely to be more productive. Moreover, those who can work on the move can be more efficient with their time. Cisco's Survey Report (2014) indicates that

- Increase in mobile working are not limited to the traditional markets of Asia, the United States and Western Europe. In Latin America, Central and Eastern Europe, Middle East, Africa and Russia, where mobile penetration exceeds fixed-lined penetration, information and communication technology spending is also increasing creating a fertile environment for mobile working practices.
- Mobile and remote communications using broadband technologies and voice video and data services are set to increase in line with global increases in mobile working. With this business must ensure that they adopt process structures, new resources and management strategies that make mobile working effective if they are to benefit from increased productivity.

2.1.3. The Emerging Profile of Mobile Workers

International Data Corporation Survey (2004) reveals that mobility within the global workforce is booming. According to International Data Corporation's global study of mobile working trends published in 2014, the largest number of mobile workers, are in Asia/pacific (excluding Japan), followed by the United States and Western Europe. The mobility revolution can be expressed by five main drivers:

- Businesses (and individuals) like to communicate on the move.
- Mobility increases corporate productivity and competitiveness
- Well developed broadband mobile devices, technologies and services
- Mobile technology supports personal communication.
- Digital information and content are increasingly pervasion

Mobile workers are increasing faster than home workers

International Data Corporation (2014) predicts that the increase of mobile workers will be significantly, greater than the increase in employees working from home, despite the widespread practices. This prediction reflects the wide range of voice, video and data services that are now available to users such as code division multiple access, global system for mobile communication, wireless local area network, digital subscriber line and other devices like personal computers, and tailored devices which make working on the move possible. Mobile workers can be more productive than home workers.

2.2. Theoretical Framework

2.2.1. Expectancy Theory

Conventional expectancy theory holds that effort will only lead to performance if the associated outcomes are valued and placed in high regard. Although the Porter and Lawler expectancy model of motivation as discussed in Staw (2004:35) include the fundamentals of Vroom's original approach, a number of modifications have been made. Whereas Vroom's model suggested that satisfaction leads to performance, the Porter and Lawler model argues that it is performance that leads to satisfaction. This represents a significant departure from early expectancy theory and augments the mobile workforce hypothesis, that is, being motivated by work itself

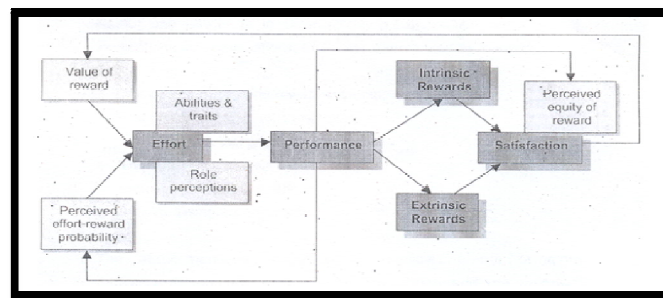


Figure 1: The Porter-Lawler Model

Source: Staw (2004). *Psychological Dimension of Organizational Behaviour*, New Jersey, Prentice Hall

Additional features of the Porter and Lawler model depicted in Figure 1 as compared to conventional expectancy theory includes, abilities and traits as well as role perceptions that play a role in individual ability to perform. In addition, the perceived value of reward together with the effort-reward probability combines at the outset with individual ability and role perceptions in determining whether effort will be expanded. Performance results in intrinsic rewards that are associated with feelings of accomplishment and achievement, whereas extrinsic rewards denote tangible outcomes such as pay and promotion. In the perceived equity section of the model, individuals judge whether their performance delivered to the organization is commensurate with the rewards received and if found to be equitable only then will the individual feel satisfied. The more equitable the rewards are perceived, the more individuals will perform and in turn exert more effort in pursuance of valued outcomes.

2.3. Empirical Review

2.3.1. Effects of Mobile Workforce Management Strategies

Clemons and Kroth (2015) conducted an in-depth survey with the title 'effect of mobile workforce management strategies on the performance of selected manufacturing organizations in New York, United States of America. The study adopted survey design and drew a sample of 40 leaders of organizations ranging from small entrepreneurial start-up to state government owned businesses. 500 corporations were selected for the study. The data collected were analyzed with simple regression. The result showed that leadership and strategy and not technology is the chief banner to success for the mobile workforce. They recommended that the upshot managers must simultaneously inform mobile employees of new initiatives, keep them engaged and provide them with the best possible tools to complement the competitive direction and mission plan of the organization. Managers must also set up parameters that will permit mobile workers to be responsive and responsible. The researcher affirmed of the findings of the study that mobile employees should be given free hand to operate in the field.

Clemons and Kroth (2015) conducted another study on 'the effect of mobile workforce management strategies on productivity of organization' in New York. The study adopted survey design. Non- probability random sampling technique and multiple regression analysis were applied and 200 questionnaires were distributed to respondents on 5- points Likert scale. The study revealed that mobile workforce management strategies increase the productivity of organizations. According to the study, decentralization of the workplace, enhanced the work of mobile workers in hospital, where hospital staff roam the halls and are only reachable via mobile device, at home where people will take advantage of growing flexible work schedule options, anywhere global entrepreneurs need to meet clients wherever they may be or any place, that drivers, sales persons, pilots, consultants, educators need to be.

Clover and McCauley (2006) conducted a study to determine the effect of mobile technology on profitability of manufacturing organization in North America. The study adopted a descriptive correlation design and drew a sample of 100 senior executives knowledgeable about their companies' use of mobile technology, as well as with independent experts. The study revealed that mobile technology has rapidly penetrated the workplace in recent years, leading to widespread changes in working practices and management strategies. The effect on mobile workforce productivity has been vastly positive across regions and industries. Based on the survey, 100 senior executives in North America, as well as a series of interviews with practitioners and independent experts, the study found reason for optimism and caution as firms increasingly 'go mobile'. The key findings were highlighted below;

- Mobile clearly delivered better productivity. Over two-thirds of surveyed executives agreed that their personal productivity had improved by at least 20%, as a result of use of mobile technology (including phones, Black Berry, Wireless fidelity-enabled Laptops, other mobile devices and applications, while 91% agreed that mobile technology had boosted the productivity of their productivity substantially. These benefits have manifested themselves most clearly in easier, faster access to people and reduced 'dead time' while travelling, and overall in an improved level of responsiveness within the organization.
- Integration with core enterprise system is central to continual productivity gains. Surveyed executives view integration of mobile applications with core enterprise systems as among the key measures to ensure further productivity gains from mobile technology.

3. Methodology

3.1. Research Design

The survey design is the most appropriate because it permits direct contact with the unit of study through the means of instruments such as questionnaire.

3.2. Sources of Data

The data for this study were obtained specifically from two sources namely: primary and secondary sources

3.2.1. Primary Source of Data

In collecting primary data for the study, device employed was questionnaire. Research questionnaire was the major research instrument for this study. The questionnaire comprises two sections, section A entail questions soliciting the respondent's socio-demographic data while section B have design in 5 Likert scale of strongly agree, agree, undecided, disagree and strongly disagree.

3.2.2. Secondary Source of Data

This relates to information gathered and recorded by some other persons. The sources of secondary data include text books, journal and other published works in relation to the study. The information collected through this source was mainly used in the literature review aspect of the study, to help the researcher have a close grasp of the extent of the work in the area of investigation.

3.3. Population of the Study

The population of this study consisted of respondents from the selected eleven (11) deposit money banks operating in the South-East Nigeria (Enugu, Anambra, Imo, Abia and Ebonyi States). A total of Six thousand, four hundred and Ten (6410) respondents comprising both the senior and junior staff of the deposit money banks.

S/N		Number of Employees
1.	First Bank, Main Branch, Enugu, Enugu State	750
2.	Union Bank of Nigeria, Bank Road, Umuahia, Abia State	600
3.	Diamond Bank (Nigeria) Awka, Anambra State	550
4.	Guaranty Trust Bank, Abakaliki, Ebonyi State	600
5.	Zenith Bank, Owerri, Imo State	720
6.	Unity Bank, (Nigeria) Ogui Road, Enugu, Enugu State.	400
7.	EcoBank, Bank Road, Umuahia, Abia State.	700
8.	Heritage Bank, Awka, Anambra State	450
9.	United Bank for Africa (UBA), Station Road, Enugu	560
10.	Access Bank, Abakaliki, Road, Enugu State	620
11	Fidelity Bank, Umuahia, Abia State	460
	Total	6,410

Table 1: The Population of the Study Area
Source: Researcher Field Compilation, 2020

3.4. Sample Size Determination

Sample size refers to a proportion of the population, which was taken as a representation of the whole population and on which conclusion made on them based on the data, which they give was taken to be peculiar to all members of the whole population. The actual population of the senior and Junior staff of in the eleven (11) selected money deposit banks in the South-east, Nigeria is Six thousand, four hundred and ten, using the finite populations formula of Godden (2004) as quoted in Okebaram (2014) to determine the sample size.

$$SS = \frac{Z^2 (P) \times (1-P)}{C^2}$$

Given =

$$SS = \frac{SS}{\frac{(1 + (SS-1))}{POP}}$$

Where:

SS = Sample size

Z = Confidence level (95%)

P = Percentage of population picking a choice worst case % of the sample (90% or 0.9).

C = Confidence Interval, expressed as decimal.

POP = Total population (6,410)

Godden (2004:1) states that this formula is best applied where the population is less than 50,000.

Substituting

$$Z = 95\% (1.96)$$

$$P = 90\% (0.9)$$

$$C = 0.025$$

$$SS = \frac{1.96^2 (0.9) (1 - 0.1)}{0.0252}$$

$$SS = \frac{3.8416(0.9) (0.1)}{0.000625}$$

$$SS = 553.19$$

$$POP = 6,410$$

$$\therefore \text{New SS} = 553.19$$

$$\frac{1 + (553.19 - 1)}{6,410}$$

$$= \frac{552.19}{1.08}$$

$$= 511.287037$$

$$\Omega = 511$$

3.5. Sampling Techniques

A sample of 511 (Five hundred and Eleven) respondents were selected from the population of the study using Purposive Sampling Technique. This is most appropriate since it enables the researcher have direct contact with the respondents. The researcher attempted to zero in on the targeted sample in the eleven selected Deposit money banks. In order to get the quantity of the questionnaire to be distributed in each of the eleven (11) Deposit money banks, the sample size has to be broken down using Bowley's population allocation statistic formula. It is thus:

$$n = \frac{n_1(n)}{N}$$

Where

$$n_1 = \text{Element within the sample.}$$

$$n = \text{Sample size.}$$

$$N = \text{Total population}$$

Substitute the figure of each bank branch above with Bowley's formular.

First Bank	=	511 x 750/6410 =	60
Union Bank	=	511 x 600/6410 =	48
Diamond Bank	=	511 x 550/6410 =	48
Guaranty Trust Bank	=	511 x 600/6410 =	48
Zenith Bank	=	511 x 720/6410 =	57
Unity Bank	=	511 x 400/6410 =	31
Eco Bank	=	511 x 700/6410 =	55
Heritage Bank	=	511 x 450/6410 =	35
United Bank for Africa	=	511 x 560/6410 =	44
Access Bank	=	511 x 620/6410 =	49
Fidelity Bank	=	511 x 460/6410 =	36

511

Banks	Population	No of questionnaire administered	Percentage of questionnaire %
First Bank	750	60	12
Union Bank	600	48	9
Diamond Bank	550	48	9
Guaranty Trust Bank	600	48	9
Zenith Bank	720	57	11
Unity Bank	400	31	6
Eco Bank	700	55	11
Heritage Bank	450	35	7
UBA	560	44	9
Access Bank	620	49	10
Fidelity Bank	460	36	7
Total	6410	511	100

Table 2: Allocation of Sample Size

Source: Field Survey, 2020

3.6. Description of Research Instrument

The instruments for data collection used in this study were structured questionnaire and interview. The questionnaire has two parts. All the question in part A provides general information about the respondents while the remaining questions in part B address the research questions. The designed questionnaire was on a 5- points Likert scale arranged according to the objective. The responses are Strongly Agree (SA), Agree, (A), Undecided, (U) Disagree (D) and Strongly disagree (SD). For positive statements the scores are 5,4,3,2 and 1. Also, an oral interview guide was used.

3.7. Reliability of the Instrument

A test-re-test method was adopted for this study. A pilot study was carried out in order to ensure the reliability of the instrument used for this study. This method involved administering twenty-five (25) questionnaire to two groups of respondents under study. After two weeks, the twenty-five (25) questionnaire were collected and re-administered the two groups for the second time. The degree of similarity between the sets of scores obtained from the two groups determined the reliability of the test. The reliability of the test instrument, was estimated by examining the consistency of the responses between the two tests. The results obtained from the two tests were consistent, hence the instrument was reliable.

The researcher employed Spearman Pearson Ranking Order Correlation Coefficient (R) to assess relationship.

$$R = \frac{1 - 6 \sum d^2}{N(N^2 - 1)}$$

Where:

$$N = 25$$

$$N^2 = 511$$

$$\sum d^2 = 327.9925$$

$$= \frac{1 - 6(327.9925)}{25(511 - 1)}$$

$$= \frac{1 - 1967.955}{25(510)}$$

$$= \frac{1 - 1967.955}{12750}$$

$$= 1 - \frac{1967.955}{12750}$$

$$= 1 - 0.154349$$

$$= 0.845651$$

$$= 0.85$$

∴ = 0.85 is close to 1.0, hence we can conclude that 1st scores and the 2nd test scores agree very much with each other in their ranking. The table is in the appendix.

3.8. Method of Data Analysis

Data were presented in tables and percentages. Thus both parametric and non-parametric techniques for data analysis were used for the hypotheses testing. Hypotheses 1, 2, and 3, were tested by simple Linear regression while hypothesis 4 and 5 were tested by multiple regression using statistical package for the social sciences (SPSS 15.00 version). The multiple regression test statistic is the most appropriate because of the large sample size.

3.9. Decision Rule

In testing hypotheses, the calculated value of the test statistic was compared with critical or table value. The critical or table value serves as a benchmark for rejecting or not rejecting the null hypothesis. Reject the H_0 and uphold H_a (alternate hypothesis) if the Z-table calculated exceeds the Z-table (critical value). Otherwise do not reject the null hypothesis. Here, regression tested the extent of the relationship between two or more variables while the Z-test test the significance or fit of the variables.

4. Data Presentation and Analyses

4.1. Introduction

Data collected in the course of this study were presented in this chapter descriptively with the aid of frequency tables. Also, the mean responses and standard deviation were presented. The results from the various tests of hypotheses were presented, also.

4.2. Data Presentation

This section contains the responses of the respondents to the questions in the study questionnaire.

4.2.1. Return Rate of Questionnaire

Five hundred and eleven (511) copies of the study questionnaire were administered to the sample study. Out of this number, four hundred and eighty-four (484) copies were correctly filled and returned, while twenty-seven (27) copies

were not correctly or returned (see Table 3). Based on the high rate of return, the return copies were deemed adequate to provide the data for this study.

Bank	Administered (%)	Correctly Filled and Returned (%)	Incorrectly Filled or Not Returned (%)
First Bank	60 (100.0)	54 (90.0)	6 (10.0)
Union Bank	48 (100.0)	46 (95.8)	2 (4.2)
Diamond Bank	48 (100.0)	46 (95.8)	2 (4.2)
GTB	48 (100.0)	46 (95.8)	2 (4.2)
Zenith Bank	57 (100.0)	53 (93.0)	4 (7.0)
Unity Bank	31 (100.0)	30 (96.8)	1 (3.2)
Ecobank	55 (100.0)	52 (94.5)	3 (5.5)
Heritage Bank	35 (100.0)	34 (97.1)	1 (2.9)
UBA	44 (100.0)	42 (95.5)	2 (4.5)
Access Bank	49 (100.0)	46 (93.9)	3 (6.1)
Fidelity Bank	36 (100.0)	35 (97.2)	1 (2.8)
Total	511 (100.0)	484 (94.7)	27 (5.3)

Table 3: Return Rate of Questionnaire

Source: Field Survey, 2020

4.2.2. Respondents' Demographic Characteristics

The demographic characteristics of the respondents are presented here.

4.2.2.1. Sex

The distribution of the respondents based on their sex is presented in Table 4.

Sex	Frequency	Percent (%)
Male	255	52.7
Female	229	47.3
Total	484	100.0

Table 4: Sex Distribution of Respondents

Source: Field Survey, 2020

Table 4 shows that majority (52.7%) of the respondents are males. However, the difference between male and female participation in the study is not much (5.4% difference).

4.2.2.2. Marital Status

The distribution of based on their marital status is presented in Table 5.

Marital Status	Frequency	Percent (%)
Single	294	60.7
Married	190	39.3
Total	484	100.0

Table 5: Respondents' Distribution Based on Marital Status

Source: Field Survey, 2020

As presented in Table 5, 294 (60.7%) respondents are single while 190 (39.3%) respondents are females.

4.2.2.3. Age Range

The respondents' frequency distribution based on the age range is presented in Table 6

Age (years)	Frequency	Percent (%)
30 – 40	212	43.8
41 – 50	179	37.0
51 years and above	93	19.2
Total	484	100.0

Table 6: Respondents' Distribution Based on Age Range

Source: Field Survey, 2020

Table 6 reveals that 212 (43.8%) respondents are aged 30 to 40 years, 179 (37%) respondents are aged 41 to 50 years and 93 (19.2%) respondents are aged 51 years and above.

4.2.2.4. Educational Qualification

The presentation of the respondents' distribution based on their educational qualification is seen in Table 7.

Educational Qualification	Frequency	Percent (%)
OND	134	27.7
HND/BSc	253	52.3
PhD	97	20.0
Total	484	100.0

Table 7: Distribution of Respondents according to Educational Qualification

Source: Field Survey, 2020

Table 7 shows that 134 (27.7%) respondents have OND, 253 (52.3%) respondents have HND/BSc and 97 (20%) respondents have PhD.

4.2.2.5. Length of Period in Service

The distribution of the respondents based on their length of period in service is presented in Table 8.

Length of Period	Frequency	Percent (%)
1 to 5 years	149	30.8
6 to 10 years	231	47.7
11 years and above	104	21.5
Total	484	100.0

Table 8: Distribution of Respondents by Length of Period in Service

Source: Field Survey, 2020

Based on the data presented in Table 8, the length of service for 149 (30.8%) respondents is 1 to 5 years, that of 231 (47.7%) respondents is 6 to 10 years while that of 104 (21.5%) respondents is over 11 years and above.

4.2.3. Data Presentation Based on Study Objectives

Responses to the questions in the study questionnaire are presented in this section based on the study objectives. The presentation of the data is based on the decision rule stated below.

Decision Rule

If Mean < 3.5, the respondents are not in agreement with the statement

If Mean ≥ 3.5, the respondents are in agreement with the statement

4.2.3.1. Effect of Mobile Technology on Productivity of Deposit Money Bank

The respondents' responses on the effect of mobile technology on productivity of deposit money bank is presented in Table 9.

Statement	SA (%)	A (%)	U (%)	D (%)	SD (%)	Mean (Std.)
Recent technological innovations such as smart phones allow mobile workers to access the corporate information while being away from their offices	140 (28.9)	191 (39.5)	60 (12.4)	48 (9.9)	45 (9.3)	3.67 (1.25)
Mobility enables deposit money banks to maximize return on real estate and resource investment	132 (27.3)	216 (44.6)	55 (11.4)	50 (10.3)	31 (6.4)	3.76 (1.15)
Mobile e-mail provides an instantaneous delivery and access mechanism that appear to be highly supportive of time critical tasks in deposit money banks	104 (21.5)	224 (46.3)	64 (13.2)	59 (12.2)	33 (6.8)	3.63 (1.15)
Mobile devices and applications boost the productivity of deposit money banks	152 (31.4)	245 (50.6)	38 (7.9)	29 (6.0)	20 (4.1)	3.99 (1.00)

Table 9: Effect of Mobile Technology on Productivity

Source: Field Survey, 2020

In response to the questions on the effect of mobile technology on productivity, Table 9 shows that 140 (28.9%) respondents strongly agreed that recent technological innovations such as smart phones allow mobile workers to access the corporate information while being away from their offices. This is also the perception of 191 (39.5%) respondents

who agreed with this statement. However, 48 (9.9%) respondents and 45 (9.3%) respondents disagreed and strongly disagreed with this statement respectively. while 60 (12.4%) respondents were undecided. The mean score of 3.67 ± 1.25 shows that the respondents are in agreement that recent technological innovations such as smart phones allow mobile workers to access the corporate information while being away from their offices.

The responses of 132 (27.3%) respondents who strongly agreed, 216 (44.6%) respondents who agreed, 55 (11.4%) who were undecided, 50 (10.3%) respondents who disagreed and 31 (6.4%) respondents who strongly disagreed as well as the mean score of 3.76 ± 1.15 , indicates that the respondents are of the general opinion that mobility enables deposit money banks to maximize return on real estate and resource investment.

Based on the mean response score of 3.6 ± 1.15 and the responses of 104 (21.5%) respondents who strongly agreed, 224 (46.3%) respondents who agreed, 64 (13.2%) respondents who were undecided, 59 (12.2%) respondents who disagreed and 33 (6.8%) respondents who strongly disagreed, it is the determination of the respondents that mobile e-mail provides an instantaneous delivery and access mechanism that appear to be highly supportive of time critical tasks in deposit money banks.

In response to whether mobile devices and applications boost the productivity of deposit money banks, 152 (31.4%) respondents strongly agreed, 245 (50.6%) respondents agreed, 38 (7.9%) respondents were undecided, 29 (6%) respondents disagreed and 20 (4.1%) respondents strongly disagreed. With this response and the mean response score of 3.99 ± 1.00 , the respondents are of the general opinion that mobile devices and applications boost the productivity of deposit money banks.

4.2.3.2. Effect of Biometric and Attendance Time on Market Share of Deposit Money Bank

Table 10 captures the respondents' opinions on the effect of biometric and attendance time on market share of deposit money bank.

Statement	SA (%)	A (%)	U (%)	D (%)	SD (%)	Mean (Std.)
Labour costs associated with buddy-punching, the practice of one employee 'clocking' in or out for another are virtually eliminated with biometrics which affect the market share of deposit money banks	102 (21.1)	252 (52.1)	89 (18.4)	26 (5.4)	15 (3.1)	3.83 (0.93)
Integration of biometric into mobile workforce management system positively affect market share of deposit money banks	117 (24.2)	246 (50.8)	74 (15.3)	38 (7.9)	9 (1.9)	3.88 (0.93)
Biometric time clock eliminate conflict over hours worked and time accrual benefits for mobile employees	167 (34.5)	235 (48.6)	21 (4.3)	32 (6.6)	29 (6.0)	3.99 (1.09)
Deposit money banks can achieve a boarder range of direct and indirect time cost and operational benefits than alternative time method through biometric system	106 (21.9)	241 (49.8)	78 (16.1)	27 (5.6)	32 (6.6)	3.75 (1.07)

Table 10: Effect of Biometric and Attendance Time on Market Share of Deposit Money Bank

Source: Field Survey, 2020

As shown in Table 10, it is the general view of the respondents that labour costs associated with buddy-punching, the practice of one employee 'clocking' in or out for another are virtually eliminated with biometrics which affect the market share of deposit money banks. This is captured in the mean score of 3.83 ± 0.93 and the responses of 102 (21.1%) respondents who strongly agreed, 252 (52.1%) respondents who agreed, 89 (18.4%) respondents who were undecided, 26 (5.4%) respondents who disagreed and 15 (.1%) respondents who strongly disagreed.

Based on the responses of 117 (24.2%) respondents and 246 (50.8%) respondents who strongly agreed and agreed respectively as well as the mean response score of 3.88 ± 0.93 , the respondents are of the general opinion that integration of biometric into mobile workforce management system positively affects market share of deposit money banks. However, 74 (15.3%) respondents were undecided about this, 38 (7.9%) respondents disagreed with this and 9 (1.9%) respondents strongly disagreed with this.

The opinions of the respondents on whether biometric time clock eliminates conflict over hours worked and time accrual benefits for mobile employees is verified in the respondents' responses. From the responses of 167 (34.5%) respondents, 235 (48.6%) respondents, 21 (4.3%) respondents, 32 (6.6%) respondents and 29 (6%) respondents who strongly agreed, agreed, were undecided, disagreed and strongly disagreed respectively as well as the mean response score of 3.99 ± 1.09 , the respondents are generally in agreement with this assertion.

Having a mean response score of 3.75 ± 1.07 , as well as 106 (21.9%) respondents strongly agreeing, 241 (49.8%) respondents agreeing, 78 (16.1%) respondents not being decided, 27 (5.6%) respondents disagreeing and 32 (6.6%) respondents strongly disagreeing; it is the general conception of the respondents that deposit money banks can achieve a boarder range of direct and indirect time cost and operational benefits than alternative time method through biometric system.

4.3. Test of Hypotheses

The results from the various tests of hypotheses are presented in this section.

4.3.1. Test of Hypothesis One

Mobile technology significantly enhances the level of productivity in selected deposit money banks This hypothesis is tested using the linear regression analysis. The results are summarized thus;

Variable	Coefficient	t-value	p-value
Constant	1.034	18.759	0.000
Mobile Technology (MT)	0.801	56.297	0.000

Table 11: Summarised Regression Results for Hypothesis One
 $r = 0.932$; $r^2 = 0.868$; $RegSS = 421.816$; $ResSS = 64.151$; $F\text{-value} = 3169.338$; $sig. = 0.000$

Source: Appendix 3

The result of the regression analysis summarized in Table 11 shows that the model for the relationship between mobile technology (MT) and productivity (P) is: $P = 1.034 + 0.801MT$

This reveals that mobile technology (MT) has positive impact on performance (P). With t-value > 1.96 (t-critical) and p-value < 0.05 , this impact is significant.

Also, the regression coefficient (r) of 0.932 indicates a strong relationship between the independent variable (mobile technology) and the dependent variable (productivity). The coefficient of determination (r^2) of 0.868 reveals that 86.8% of the variation observed the dependent variable is caused by the independent variables. Having a regression sum of square of $421.816 >$ the residual sum of squares of 64.151, this variation is not due to chance. The F-value and corresponding significance value of 3169.338 (0.000) shows that these results are significant.

Based on this, the results indicate that there is a significant positive effect of mobile technology on level of productivity in the selected deposit money banks.

4.3.2. Test of Hypothesis Two

Biometrics and attendance time to a great extent improves market share of deposit money banks This hypothesis is tested using the linear regression analysis. The results are summarized thus;

Variable	Coefficient	t-value	p-value
Constant	0.443	9.388	0.000
Biometrics and Attendance Time (BAT)	0.891	75.140	0.000

Table 12: Summarised Regression Results for Hypothesis Two
 $r = 0.960$; $r^2 = 0.921$; $RegSS = 383.797$; $ResSS = 32.765$; $F\text{-value} = 5646.034$; $sig. = 0.000$

Source: Appendix 4

The result of the regression analysis summarized in Table 12 shows that the model for the relationship between biometrics and attendance time (BAT) and market share (MS) is: $MS = 0.443 + 0.891MT$

This reveals that biometrics and attendance time (BAT) has positive impact on market share (MS). With t-value > 1.96 (t-critical) and p-value < 0.05 , this impact is significant.

Also, the regression coefficient (r) of 0.960 indicates a strong relationship between the independent variable (biometrics and attendance time) and the dependent variable (market share). The coefficient of determination (r^2) of 0.921 reveals that 92.1% of the variation observed the dependent variable is caused by the independent variables. Having a regression sum of square of $383.797 >$ the residual sum of squares of 32.765, this variation is not due to chance. The F-value and corresponding significance value of 5646.034 (0.000) shows that these results are significant.

Based on this, the results indicate that biometrics and attendance time to a great extent improves market share of deposit money banks.

5. Summary of Findings, Conclusion and Recommendations

5.1. Summary of Findings

- Mobile technology significantly enhanced the level of productivity in selected deposit money banks in South- East, Nigeria ($r=0.932$, $p > 0.05$).
- Biometric time and attendance system to a great extent enhanced market share of deposit money banks in South-East Nigeria ($r = 0.960$, $p > 0.05$).

5.2. Conclusion

The study concluded that mobile technology significantly enhances the level of productivity of selected deposit money banks. Mobile technology increases the performances of mobile work force, thereby increasing productivity gains of deposit money banks. It was further concluded that Biometric time and attendance system to a great extent enhances market share of deposit money banks. One of the critical success factors for any workforce management strategies is the ability to address time theft. Biometric-based time and attendance system virtually eliminate the most significant sources of time theft known as buddy punching, the practice of one worker clocking in or out for another. Biometrics offers the only effective means of addressing the buddy-punching dilemma by directly linking an individual worker to a personal labour record. Biometric time and attendance system offers money deposit banks a broader range of direct and indirect time cost and operational benefits than alternative time and attendance methods.

5.3. Recommendations

In view of the findings earlier stated, the following recommendations are made with the firm belief that if implemented will result in overall improvement in deposit money banks performance.

- Management of deposit money banks must ensure that the right tools such as laptop enabled wireless fidelity, personal digital computers and resources are made available to mobile workers, giving them the same connectivity as office-based workers.
- The management of various deposit money banks should ensure that mobile employees engaged in overtime work, should be well compensated as this will motivate them and leads to extra productivity.
- On line banking should be done preferably from a Wireless fidelity Protected Access 2 (WPA₂) net work to prevent the activities of hackers.

6. References

- i. Agbadu, A.B. (2004). *Statistics for business and social sciences*. Benin City; Uri Publishing Limited.
- ii. Alanen, J. and E. Autio (2003). Mobile business services: A strategic perspective, in menneke, B. E. and T. J. Strader (eds.) *Mobile Commerce: Technology, Theory, and Applications*, Hershey, PA: Idea Group Publishing, 162-184.
- iii. Ammenwerth, E. (2000). Mobile information and communication tools in the hospital. *International Journal of Medical Informatics*, 57(1),21-40
- Anckar, B. and D. D'Incau (2002). Value creation in mobile commerce: Findings from a consumer survey. *Journal of Information Technology Theory and Application*, 4(1), 43-64.
- iv. Anderson, J. C. and D. W. Gerbing (1988). Structural equation modeling in practice: a review and recommended two-step approach. *Psychological Bulletin*, 103(3), 411-423
- v. Anthony, R. N. (1965). *Planning and control systems: a framework for analysis*, Bost on, MA Harvard University Graduate School of Business.
- vi. Asika, N. (2004). *Research Methodology: A process approach*. Lagos: Mukugamu and Brothers Enterprises.
- vii. Bagozzi, R. P. (2007). The legacy of the technology acceptance model and a proposal for a paradigm shift. *Journal of the Association for Information Systems*, 8(4), 244-254.
- viii. Bajaj, S. (2017). Effects of Mobile technology on organizational performance. *Journal of Mobile Technology*, 2(6), 25-30.
- ix. Balasubramaniam, S., R. A. Peterson, and S. L. Jarvenpaa (2002). Exploring the implications of m-commerce for markets and marketing. *Academy of Marketing Science*, 30(4), 348-361.
- x. Barclay, D., C. Higgins, and R. Thompson (1995). The partial least squares (pls) app roach to causal modeling: personal computer adoption and use as an illustration. *Technology Studies*, 2(2), 285-309.
- xi. Barki, H. and A Pinsonneault (2005). A model of organizational integration, implementation effort, and performance. *Organization Science*, 16(2),165-179.
- xii. Barnes, S. J. (2003). Enterprise mobility: concepts and examples. *International Journal of Mobile Communications* 1(4), 341-359.
- xiii. Baroudi, J. J. and W. J. Orlikowski (1989). The problem of statistical power in M -IS research. *Management Information Systems Quarterly*, 87-106.
- xiv. Beulen, E. and R.-J. Streng (2002). The impact of online mobile office applications on the effectiveness and efficiency of mobile workers' behavior: a field experiment in the it services sector, in applegate, L., R., Galliers, and J. I. DeGross (eds.) *Proceedings of the Twenty-Third International Conference on Information Systems*, Barcelona, Spain, 629-640.
- xv. Bhattacharjee, A. (2001). Understanding information systems continuance: an expectation-confirmation model. *Management Information Systems Quarterly*, 2(3), 351-370.
- xvi. Brachman, S. (2014). *Mobile technology's impact on emerging economies and global opportunity*. Washington DC, Brookings institute for technology innovation.
- xvii. Bradley, S. P. and R. L. Nolan (1998). *Sense and respond*. Boston, Massachusetts: Harvard Business School Press.
- xviii. Branchmann, S. (2014). *Mobile technology's impact on emerging economies and global opportunity*. Washington DC, Brookings Institute for Technology Innovation.
- xix. Brewster, C. C, Dowting P., Grobler P, Holland P and Warnich, S (2003). *Contemporary issue in human resources management gaining a competitive advantage*. Cape Town: Oxford University Press.
- xx. Buchanan, G. (2001). Improving mobile internet usability, in Shen, V. Y (eds.) *Proceedings of the Tenth International World Wide Web Conference*, New York, NY: ACM, 673-680, www10.org/cdrom/papers/230.

- xxi. Bruyn (2015). *Effect of mobile applications on profitability of banks*. Nw York: McGraw-Hill Companies.
- xxii. Burrell, C. (2017) Impact of mobile Technology on performances of mobile workers, *Journal of mobile Technology Innovation*, 3(7), 40-53 Carlos Survey Report, 2012.
- xxiii. Chan, S. and X. Fang (2003). Mobile commerce and usability, in Siau, K. and E. Lim (eds.) *Advances in Mobile Commerce Technologies*, Hershey, PA: Idea Group, 235-257.
- xxiv. Charles Custis Harrison (1906). *Letter to Taylor*. Stevens Institute of Technology Archives. Retrieved May 5, 2008.
- xxv. Chau, P. Y. K. and P. J. Hu (2002). Examining a model of information technology acceptance by individual professionals: An exploratory study, *Journal of Management Information Systems*, 18(4),191-229.
- xxvi. Chin, W. W. and P. A. Todd (1995). On the use, usefulness, and ease of use of structural equation modeling in MIS research: a note of caution, *Management Information Systems Quarterly*, 237-246.
- xxvii. Cisco R. (2014). *A study: Understanding and managing the mobile workforce*, San Jose, USA Cisco system.
- xxviii. Clemons, C. and Kroth, S. (2015). *Managing the mobile workforce*. New York: McGraw-Hill Companies.
- xxix. Clover, E. and Kroth, S. (2015). *Managing the mobile workforce*. New York: McGraw-Hill Companies
- xxx. Clover, E. and Mc-Caulay, S. (2006). *Business in motion, managing the mobile workforce*, New York: Harper & Row Publishers.
- xxxi. Compeau, D. R., D. B. Meister, and C. A. Higgins (2007). From prediction to explanation: reconceptualizing and extending the perceived characteristics of innovation. *Journal of the Association for Information Systems*, 8(8),409-439.
- xxxii. Computerworld (2003). *Executive briefings: the wireless corporation. strategic insights from the editors of computer world*.
- xxxiii. Coursaris, C., K. Hassanein, and M. Head (2004). Understanding the mobile consumer. in Shi, N.S. (ed.), *Wireless Communications and Mobile Commerce*, Hershey, PA: Idea Group Publishing, 132-165.
- xxxiv. Covey, S. R. (2004). *The 8th habit, from effectiveness to greatness*. New York: Simon and Schuster.
- xxxv. Crowston, K. (2003). A taxonomy of organizational dependencies and coordination mechanisms. in Malone, T. W., K. Crowston, and G. A. Herman (eds.) *Organizing Business Knowledge: The MIT Process HANDBOOK*, Cambridge, MA: MIT Press, Cambridge, 85-108.
- xxxvi. D'Ambra, J. and C. S. Wilson (2004). Explaining perceived performance of the world wide web: uncertainty and the task-technology fit model, *Internet Research*, (1)4, 294-310.
- xxxvii. D'Aveni, R. A. (2004). *Hyper competition: managing the dynamics of strategic maneuvering*, New York, NY: The Free Press
- Daft, R. and R. H. Lengel (1984). information richness: A new approach to managerial behavior and organization design. *Research in Organizational Behavior*, (6),191-233
- xxxviii. Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology, *Journal of Management Information Systems Quarterly*, 13(3),319-339.
- xxxix. Davis, F. D., R. P. Bagozzi, and P. R. Warshaw (1989). User acceptance of computer technology: a comparison of two theoretical models, *Management Science*, 35(8), 982-1003.
- xl. DeLone, W. H. and E. R. McLean (1992). Information systems success: The quest for the dependent variable, *Information Systems Research*, 3(1), 60-95.
- xli. DeLone, W. H. and E. R. McLean (2003). The DeLone and McLean Model of Information Systems Success: A Ten Year Update, *Journal of Management Information Systems*, 19(4),9-30.
- xlii. Dishaw, M. T. and D. M. Strong (1998). Supporting software maintenance with software engineering tools: A computed task-technology fit analysis, *Journal of Systems and Software*, 44(2),107-120.
- xliii. Dishaw, M. T. and D. M. Strong (1999). Extending the Technology acceptance model with task-technology fit constructs, *Information and Management*, 36(1), 9-21.
- xliv. Drazin, R. and A. H. Van de Ven (1985). Alternative forms of fit in contingency theory. *Administrative Science Quarterly*, 30, 514-539.
- xlv. Dreike, Almer, Elizabeth, and Louis E. Single. (2004). Career consequences of flexible work arrangements: The Daddy Track. *The CPA Journal*. September 2004.
- xlvi. Drucker, (1974). *Principles of management*. Retrieved May 2015.
- xlvii. Dutta, S. (2012). *Field service: the right technician, survey report*. New York: Leader to Leader Publisher
- xlviii. Enikanselu, S.A, Ojodu, H.O. and Oyende, A. I. (2009). *Management and business research seminar*. Lagos: Enykon Consult.
- xlix. *Expository viewpoint*. Enugu: John Jacob's Classic Publishers Ltd.
- l. Fang, X. (2005-6). Moderating effects of task type on wireless technology acceptance. *Journal of Management Information Systems*, 22(3), 123-157.
- li. Flexible working practices boost business success. *Leadership and Organization Development Journal*, February-March 1997.
- lii. Frederick, T. (1997). Early century management consultant. *The Wall Street Journal*. Retrieved May 4, 2008.
- liii. Friedman, E (2013). *External factors that influence mobile workforce management*, Sydney; Pretence-Hall.
- liv. Fry, L. W. and J. W. Slocum (1984). Technology, structure, and workgroup effectiveness: A Test of a Contingency Model. *Academy of Management Journal*, 27(2), 221-246.
- lv. Garder, (2015). *Process algebra for parallel and distributed processing*, New York: CRC Publisher.
- lvi. Gartner, F. (2014). Implementing workforce management system. *Academy of Management Journal*, 44(6), 1102-1121.

- lvii. Gebauer, J. and M. Ginsburg (forthcoming). Exploring the black box of task- technology fit: the case of mobile information systems. *Communications of the ACM*.
- lviii. Gebauer, J. and M. J. Shaw (2004). Success factors and impacts of mobile business applications: Results from a mobile e-procurement study. *International Journal of Electronic Commerce*, 8(3), 19-41.
- lix. Gefen, D. and D. Straub (2000). The relative importance of perceived ease of use in is adoption: a study of e-commerce adoption. *Journal of the Association for Information Systems*, 1(8).
- lx. Gefen, D. and D. Straub (2005). A Ractical guide to factorial validity using plsg graph: tutorial and annotated example. *Communications of the Association for Information Systems*, 16,91-109.
- lxi. Gefen, D., D. W. Straub, and M.-C. Boudreau (2000). Structural equation modeling and regression: guidelines for research practice. *Communications of the Association for Information Systems*, (4), article 7.
- lxii. Gefen, D., E. Karahanna, and D. W. Straub (2003). Trust and TAM in online shopping: an integrated model. *Management Information Systems Quarterly*, 27(1),51-90.
- lxiii. Ghosh, A. and T. Swaminatha (2001). Software security and privacy risk in mobile e-commerce, *Communications of the ACM*, 44(2), 51-57.
- lxiv. Goodhue, D. L. (1998). Development and measurement validity of a task-technology fit instrument for user evaluations of information systems. *Decision Sciences*, 29(1),105-138.
- lxv. Goodhue, D. L. (2007). Comment on benbasat and barki's. quo vadis tam article. *Journal of the Association for Information Systems*, 8(4), 19-222.
- lxvi. Goodhue, D. L. and R. L. Thompson (1995). Task-technology fit and individual performance. *Management Information Systems Quarterly*, 19(2), 213-236.
- lxvii. Goodhue, D. L., B. D. Klein, and S. T. March (2000). User evaluations of IS as surrogates for objective performance. *Information and Management*, 38, 87-101.
- lxviii. Goodhue, D. L., W. Lewis, and R. Thompson (2006). *PLS, small sample size, and statistical power in Management Information System research in Proceedings of the 39 Hawaii International Conference on System Sciences*.
- lxix. Goodhue, D. L., W. Lewis, and R. Thompson (2007). Statistical power in analyzing hieraction effects: questioning the advantage of PLS with product indicators. *Information Systems Research*, 18(2), 211-227.
- lxx. Gorry, G. A and M. S. Scott Morton (1971). A framework for management information systems. *Sloan Management Review*, 13(1), 55-70.
- lxxi. Graham, Baxter W. (1996). The business argument for flexibility. *HR Magazine*. May 1996.
- lxxii. Hackman and Oldham (1976). *Motivation through the design of work test of a Theory, Organizational Behavior and Human Performance*, 7(16), 250-279.
- lxxiii. Haider, A.A. (2013). *Strategies for the modern, mobile workforce survey report*. New York: Prentice-Hall, Inc.
- lxxiv. Han, S. (2006). Physicians' acceptance of mobile communication technology: an exploratory study. *International Journal of Mobile Communications*, 4(2), 210- 230.
- lxxv. Harvey, D. and Brown, D.R. (2001). *An experiential approach to organizational development*. New Jersey: Prentice-Hall, Inc.
- lxxvi. Hellriegel, D. and Slocum, J.W. (1996). *Management*. New York: South Western Publisher.
- lxxvii. Holman, O. Wall, T.D, Clegg, C.W., Sparrow P. and Howard, A (2005). *The essentials of the new workplace a guide to the human impact of modern working practices*. United Kingdom: John Wiley and Sons.
- lxxviii. HRLab, C. (2012). Your go-to guide for mobile workforce management software. <http://www.hrlab.com>.
- lxxix. <http://www.app.freedom.com.mobileworkforceuncreasingproductivityFebruary, 3, 2015>, *The service council, connecting with your world*, mobile force management, Q₂, 2013.
- lxxx. <http://www.app.freedom.commobile workforce increasing productivity, February 3 2015, the service council connecting with your world, mobile force management>.
- lxxxi. Hughes, T.P. (1989). *American genesis: A century of invention and technological enthusiasm, 1870-1970*. New York: Viking.
- lxxxii. IBM Research, (2007). *Effects of mobile technology on workforce*. IBM publisher.
- lxxxiii. IDC research market analysis (2013). *Worldwide worker population forecast*.
- lxxxiv. Igbaria, M. (1997). Personal computing acceptance factors in small firms: a structural equation model. *Management Information Systems Quarterly*, 21(3), 279-305.
- lxxxv. Intel-Security and the Centre for International Studies Survey 2015.
- lxxxvi. Jarvenpaa, S. L. (2003). Mobile commerce at crossroads. *Communications of the ACM*, 46(12), 41-44.
- lxxxvii. Johson, R. D. and Thurston, E. K. (2002). *Exploring corporate strategy*, (6thed) Financial Times, New Jersey: Prentice.
- lxxxviii. Jones, D. (2002). *Gallup cashes in after book scores. USA Today*. <https://tmbc.com/compan/pressdetai/22>
- lxxxix. Kaetsu, (2007). The economic intelligence unit. *Journal of Family and Economic Issues*, 22(2), 141-170.
- xc. Kalam, J. A. (2015). *Problems of micro, small and medium enterprises*, peru: Techpedia.
- xc. Kandola, S. (2007). Effects of mobile technology on mobile workforce. Lagos: Interpublishers.
- xcii. Kaplan, R.S. and Norton, D. P. (2004). *Strategymaps-converting, intangible assets into tangible outcomes*, Boston Massachusetts: Harvard Business School.
- xciii. Kaplan, R.S. and Norton, D.P (2004). *Strategy maps – converting intangible assets into tangible outcomes*. Harvard Business School Press, Boston Massachusetts.
- xciv. Karimi, J., T. M. Somers, and Y. P. Gupta (2004). Impact of environmental uncertainty and task characteristics on user satisfaction with data. *Information Systems Research*, 15(2), 175-193.

- xcv. Kaspersky Survey (2014). Factors affecting mobile workforce. New York; Cunilford press.
- xcvi. Keefe, G.O. (2013). Mobile workforce management solution for increased productivity. *Journal for Technological Innovation*, 2(5), 10-20.
- xcvii. Keefe, G.O. (2013). Mobile workforce management solutions for increased productivity. *Journal for Technological Innovation*, 2(8), 25-43.
- xcviii. Kim, H. (2002). An empirical study of the use contexts and usability problems in mobile internet. in *Proceedings of the 35th Hawaii International Conference on System Science*.
- xcix. KPMG's technology innovation survey (2013). *Key strategies- impacting the mobile workforcet. Strategic Management Journal*, 13(2)135-44.
- c. Kreither and Kinicki (2002). *Organizational behavior*, (2nd European Edition), McGraw-Hill Publishing Company.
- ci. Landy, F. J. and Conte, J. M. (2004). *Workinthe21st, century – an introduction to industrial and organizational psychology* (International Edition McGraw –Hill.
- cii. Lederer, A. L. (2000). The technology acceptance model and the world wide web. *Decision Support Systems*, (29),269-282.
- ciii. Lee, C.-C., H. K. Cheng, and H.-H. Cheng (2007). An empirical study of mobile commerce in insurance industry: task-technology fit and individual differences. *Decision Support Systems*, 95-110.
- civ. Lee, Y. E. and I. Benbasat (2004). A framework for the study of customer interface design for mobile commerce. *International Journal of Electronic Commerce*, 8(3),79-1 02.
- cv. Legris, P. J. Ingham, and P. Collette (2003). Why do people use information technology? a critical review of the technology acceptance model. *Information and Management*, (40),191-204.
- cvi. Lehmann (2007). *Business in Motion, Managing the Mobile Workforce*. London, Oxford University press.
- cvii. Leiter, M.P. and Maslach, C. (1988). The impact of interpersonal environment on burnout and organizational commitment. *Journal of Organizational Behavior*; 9(4),297-308.
- cviii. Leiter, M.P., and Maslach, C. (1998). *Burnout*. In H. Friedman (Ed.) *Encyclopedia of Mental Health*, 202-215. New York: Academic Press.
- cix. Leung, K. and J. Antypas (2001). Improving returns on m-commerce investments. *Journal of Business Strategy*, 22(5), 12-13.
- cx. Leveen-Sher, Margery. (1996). Flexibility is the key to small business benefits. *Washington Business Journal*, 8 (40),191-204.
- cxii. Liang, T.-P. and C.-P. Wei (2004). Introduction to the special issue: Mobile commerce applications. *International Journal of Electronic Commerce*, 8(3).
- cxiii. Lin, T., and Schmidt, J. (2002). *Economic conditions during the 2001 Recession (Part 1)*. Washington Economic Trends.
- cxiiii. Lopperi, K. and S. Sengupta (2004). Are we ready? the state of wireless e-business in the USA, *Information Systems and e-Business Management*, (2), 293-307.
- cxv. Lucas, H. C. Jr. (1975). Performance and the use of an information system, *Management Science*, 21(8), 908-919.
- cxvi. Lucas, H., Jr. and V. Spittler (1999). Technology use and performance: a field study of broker workstations. *Decision Sciences*,30(2),291-311
- cxvii. Luff, P. and C. Heath (1998). *Mobility in collaboration in Proceedings of the CSCW'98*. Seattle: United State of America, 305-314.
- cxviii. Malone, T. W. and K. Crowston (1994). The interdisciplinary study of coordination. *ACM Computing Surveys*, 26(1), 87-119.
- cxix. Markus, M. L. (1994). Electronic mail as the medium of choice, *Organization Science*, 5(4), 502-527.
- cxix. Matarazzi, (2007). *Workplace resources*, California: Sun Micro Systems.
- cxx. McGregor, D. (1960). *The human side of enterprise*. New York, McGraw-Hill.
- cxxi. McKinney, V., K. Yoon, and F. Zahedi (2002). The measurement of web-customer satisfaction: an expectation and disconfirmation approach. *Information Systems Research*, 13(3), 296-315.
- cxxii. Medlin, B. (2008). *The Relationship among Goal Setting, Optimism and Engagement, the Impact on Employee Performance*, Tunisia: Academy of Organizational Culture.
- cxxiii. Melville, N., K. Kraemer, and V. Gurbaxani (2004). Review: Information Technology and Organizational Performance: An Integrative Model of IT Business Value, *Management Information Systems Quarterly*, 28(2), 282-322.
- cxxiv. Mintzberg, H. (1973). *The nature of managerial work*, Englewood Cliffs, New Jersey: Prentice Hall.
- cxxv. Moon, J.-W. and Y.-G. Kim (2001). Extending TAM for a World-Wide-Web Context, *Information and Management*, 38,2 17-230.
- cxxvi. Moorhead and Griffin (2002). *Managing people and organization*. Houghton: Mifflin Company.
- cxxvii. Moorhead, G and Griffin, R. W. (2001). *Managing people and organization*, Houghton: Mifflin Company, Massachusetts.
- cxxviii. Mylonopoulos, N. A and G. I. Doukidis (2003). Introduction to the Special sue: Mobile Business: Technological Pluralism, Social Assimilation, and Growth, *International Journal of Electronic Commerce*, 8(1), 5-22.
- cxxix. Nick. E. (2017). Managing mobile Employees through Mobile Technology, *Journal for Technology Innovation*, 3(6), 14-18.
- cxix. Nwachukwu, C.C. (1988). *Management theory and practice*. Onitsha: Africana FEP Publishers Limited.

- cxxx. O'Hara, K. (2002). *Exploring the relationship between mobile phone and document use during business Travel, presented at the wireless world: social and interaction implications of the mobile age.*
- cxxxii. Okebaram, S. M. (2014). *Research methodology for business and social science*; an Oliver, R. L. (1980). A cognitive model of the antecedents and consequences of satisfaction decisions. *Journal of Marketing*, 17(3), 460-469.
- cxxxiii. Orlikowski, W. J., and C. S. Iacono (2001). Desperately seeking the it in it research: a call to theorizing the its artifact. *Information Systems Research*, 12(2), 121- 134.
- cxxxiv. Pagani, M. (2006). Determinants of adoption of high speed data services in the business market: evidence for a combined technology acceptance model with task technology fit model. *Information and Management*, 43(7),847-860.
- cxxxv. Peak, Martha H. (1996). Why I hate flextime. *Management Review*. February 1994. Sheley, Elizabeth. Flexible Work Options. *Human Resource Magazine*. February 1996.
- cxxxvi. Perrin, T. (2003). *Working today: understanding what driver employee Engagement*. *European Journal of Training and Development*, 38, 400-401.
- cxxxvii. Perrow, C. (1967). A framework for the comparative analysis of organizations. *American Sociological Review*, (32), 194-208.
- cxxxviii. Perry, M. (2001). Dealing with mobility: understanding access anytime, anywhere. *ACM Transactions on Computer-Human Interaction*, 8(4), 323-347.
- cxxxix. Prahalad, C. K. and M. S. Krishnan (2002). The dynamic synchronization of strategy and information technology. *Sloan Management Review*, 43(4), 23-33.
- cxl. Purdue University Survey, (2015). Application of biometric time and attendance system. Purdue University Press.
- cxli. Ravichandran, T. and A. Rai (2000). Quality management in systems development: an organizational systems perspective. *Management Information Systems Quarterly*, 24(3), 381-415.
- cxlii. Richard A. (2007). *D'Aveni on Changing the conversation: tuck and the field of strategy*. tuck school of business. Archived from the original on August 4, 2007. Retrieved November 22, 2007.
- cxliii. Schwarz, A. and W. Chin (2007). Looking forward: toward an understanding of the nature and definition of it acceptance. *Journal of the Association for Information Systems*, 8(4), 230-243.
- cxliv. Scott, J. E. (1995). The measurement of information system effectiveness: evaluating a measuring instrument. *Database for Advances in Information Systems*, 26(1), 111-128.
- cxlv. Sean. O. B. (2014). Challenges of managing remote employees. *Administrative Science Quarterly*, 44(6) 741-763
- cxlvi. Sean, O. B. (2014). Challenges of managing remote employees. *International Journal of Operations and Production Management*, 12(7) 29-45, 1992.
- cxlvii. Shahenwa (2015). Strategies for managing mobile workforce. *Management Journal*, 5(4), 10-30.
- cxlviii. Shahnewa (2015). Implementing biometric time and attendance solution. *Biometric management Journal*, 2(10), 19-25.
- cxlix. Sharples, M. (2008). *The design and implementation of a mobile learning resource*. *Long Range Planning*.
- cl. Siau, K., E. Lim, and Z. Shen (2001). Mobile Commerce: Promises, Challenges, and Research Agenda, *Journal of Database Management*, 12(3), 4-14.
- cli. Simmonds (2007). *Workplace resources*, California: Sun Micro System.
- clii. Simon. H. (1960) *The New Science of Management Decision*, New York, NY: Harper and Row.
- cliii. Skyrme, David J. (1994). Flexible Working: Building a Lean and Responsive Organization. *Long Range Planning*.
- cliv. Smith. H k, N. Kulatilaka, and V. Venkatraman (2002). Development in IS practice iii: riding the wave: extracting value from mobile technology. *Communications of the AIS*, 8, 467-481.
- clv. Sorensen, A. (2007), *Managing the mobile workforce*, New York: economic intelligence press, USA.
- clvi. Staw, B.S. (2004). *Psychological dimension of organizational behavior*. New Jersey Preason Pretence Hall.
- clvii. Straub, D. and E. Karahanna (1998). Knowledge worker communications and recipient availability: Toward a task closure explanation of media choice, *Organization Science*, 9(2), 160-175.
- clviii. Straub, D., M.-C. Boudreau, and D. Gefen (2004). Validation guidelines for is positivist research. *Communications of the Association for Information Systems*, (13), 380-427.
- clix. Stuart, A (2014). Insight and strategies for managing your mobile workforce. *International Journal of Research in Social Sciences*, 3(1) 16-25.
- clx. Taylor, F. W. (2008). *Expert in efficiency, dies' originator of the modern scientific management movement*. Revised March 2014, New York Times.
- clxi. Taylor, S. and P. Todd (1995). Assessing IT Usage: The Role of Prior Experience, *Management Information Systems Quarterly*, 19(4), 561-570.
- clxii. Taylor, W. (1989). *Principles of scientific management*. cited by Montgomery 1989:229, italics with Taylor Montgomery 1989:251
- clxiii. Thompson, J. D. (1967). *Organizations in action*, New York: McGraw- Hill.
- clxiv. Trader M. (2015). The benefits of biometric time and attendance solution. *Biometric research Journal*, 3(30), 45-65.
- clxv. Triandis, H. C. (1980). Values, attitudes, and interpersonal behavior, in H.E. Howe (ed.), *Nebraska Symposium on Motivation, 1979: Beliefs, Attitudes and Values*, Lincoln, NE: University of braska Press, 195-259.
- clxvi. Turel, O. (2006). Contextual effects on the usability dimensions of mobile value-added services: a conceptual framework. *International Journal of Mobile Communications*, 4(3), 309-332.
- clxvii. Van de Ven, A. H. and D. L. Ferry (1980). *Measuring and assessing organizations in Series on Organizational Change*, New York: Wiley press.

- clxviii. Van de Ven, A. H. and R. Drazin (1985). The concept of fit in contingency theory, *Research in Organizational Behavior*, (7), 333-365.
- clxix. Varshney, U. (2002). Wireless in the enterprise: requirements and possible solutions. in *Proceedings of the Workshop on Wireless Strategy in the Enterprise: An International Research Perspective*, University of California, Berkeley. October 15-16.
- clxx. Venkatesh, V. (2003a). User acceptance of information technology: toward a unified view. *Management Information Systems Quarterly*, 27(3), 425-478.
- clxxi. Venkatesh, V., V Ramesh, V., and A. P. Massey (2003b). understanding usability in mobile commerce, *Communications of the ACM*, 46(12),53-56.
- clxxii. Venkatraman, N. (1989). The concept of fit in strategy research: Toward verbal and statistical correspondence. *Academy of Management Review*, 14(3), 423-444.
- clxxiii. Vondramin, P. (2005). *Information overload: A temporal approach*. New York: accounting organizations and society.
- clxxiv. Wageman, R. and F. Gordon (2005). As the Twig is Bent: How Ooup Values Shape Emergent Task Interdependence in Groups, *Organization Science*, 16(6),687- 700.
- clxxv. Weill, P. and M. Vitale (1999). Assessing the health of an information systems applications portfolio: an example torn process manufacturing. *Management Information Systems Quarterly*, 23(4), 60 1-624.
- clxxvi. Welbourne, M. (2007). *Employee engagement, beyond the fad and into the executive suite*. New York: Leader to Leader Publisher.
- clxxvii. Wellman, J. and Kruger, S.J (1999). *Research methodology for the business and administrative sciences*. Johannesburg: International Thomson Publishing.