



## Digital Technology Use and Employees' Productivity in Two Cement Factories in Ogun State, Nigeria

Taiye O. Maliki

Department of Business Administration and Management, Federal Polytechnic Ilaro, Ogun State, Nigeria  
oshorenu.maliki@federalpolyilaro.edu.ng

### Abstract

This study focused on assessing the influence of digital technology use on the job productivity of employees in two Cement Factories in Ogun State, Nigeria. A questionnaire was administered on a sample size of 550 administrative workers (350 from Lafarge Cement and 250 from Dangote Cement Factory). The finding further revealed that the use of digital technology has a high influence on job productivity of the employees in areas such as enhancing knowledge sharing (80.0%), increase quality of work output (67.5.0%, Dangote; 55.0%, Lafarge), and increase collaboration (60.0%). Also, the study discovered that employees of the two cement factories face certain challenges such as inadequate ICT training (60.0%) and lack of organizational support (60.0%, Dangote; 50.0%, Lafarge) in using digital technologies for job performance. The study recommended that there is a need for embarking on continuous ICT training of the employees and also, the management of the two factories should formulate and implement in-house policies regarding the use of digital technologies for administrative works.

**Keywords:** Digital technology; job productivity; ICT

### ARTICLE HISTORY

Received: May 1, 2021  
Revised: May 24, 2021  
Accepted: June 7, 2021

### Citation

Maliki, T. O. (2021). Digital Technology Use and Employees' Productivity in Two Cement Factories in Ogun State, Nigeria. *International Journal of Women in Technical Education and Employment (IJOWITED), The Federal Polytechnic, Ilaro Chapter*, 2(1), 95-102

## 1. Introduction

Manufacturing activities are an indispensable part of the human community. Manufacturing industries rely on their workforce, among other resources, to engender the desired organizational achievement. Organizations invest heavily in their human resources in terms of training, motivation and welfare; not only to bring out the best in them but also to enable them to function optimally and productively. Employee's productivity depends on certain factors which must function together to attain the desired goal. For instance, while employees may have the required skills and talent necessary to function, such employee must be provided with adequate and necessary working tools and facilities to display such dexterity.

Digital technologies offer various opportunities which can be essential to the achievement of any organization that embraces its use. Similarly, digital technologies such as computers, the Internet and smartphones have brought great changes to all spheres of human endeavours. For instance, the use of digital technologies enhances speedy communication and feedback process. Furthermore, using digital technology for administrative job performance will enhance productivity. This translates that for productivity to be achieved, employees need to work with tools and skills that can optimize their performance.

In this 21st Century, there is an ongoing evolution in the work environment to accommodate the changes and new development ushered in by the advent of new technologies. This has resulted in a new way of performing tasks and has also enhanced teamwork, and gives room for accuracy and speed; all of which are major ingredients of organizational achievements. Also, developments and the adoption of digital technologies by organizations have greatly increased the use of ICT facilities which gives room for flexibility such as remote working and enhanced



collaboration. Therefore, it is apt to empirically investigate the influence of digital technology use on job productivity.

It is expected that employees make use of digital technologies to enhance their job productivity. Such use may depend on certain factors such as availability of the technologies, level of employee's ICT skills, and organizational support. While studies (like Fadeyi and Haliso, 2019) have shown that ICT use among employees leads to job satisfaction which may enhance productivity, however, some employees may not have the required digital skills needed (Omoniyi and Omoniyi, 2015) and in some cases, the required digital facilities may not be available. This may lead to frustration on the part of staff and customers and may result in not meeting the deadline for job execution and waste of works hours, which overall affect the employees' job productivity. It is on this basis that this study was carried out to investigate the influence of the use of digital technology on job productivity of administrative staff in Dangote Cement Factory, Ibese and Lafarge Cement Factory, Ewekoro, both in Ogun State Nigeria.

The objectives were to identify digital technologies that are available and used by the employees of the two cement factories, to determine the level of ease of use of the available digital technologies, to find out the influence of digital technology use on job productivity of employees in the two cement factories and to identify challenges facing the employees in using digital technologies for job performance. Specifically, the following research questions were addressed: what digital technologies are available for use by the employees of the two cement factories? what is the level of ease of use of the available digital technologies? what is the influence of digital technology use on the job productivity of employees in the two cement factories? And what challenges do the employees face in using digital technology for job performance?

We are in the era of the fourth industrial revolution, majorly characterized by the increased use and application of digital technology. Digital technology can be described as combinations of systems and processes that use digital signals. According to the United Nations (2021), digital technologies are technologies for managing, processing or communicating information; which include the Internet, wireless networks, smartphones, computers, software etc. Digital technologies, also known as information and communication technology (ICT) are electronic digital devices that are used for creating, manipulating, storage and retrieval of information. The application and use of digital technology have permeated evenly into all spheres of human endeavour. It is almost impossible to cope effectively in the global village without depending on digital technology. Among the users of digital technologies are employees of various organizations for their job performance.

Every organization has a focus as to what to achieve. However, such achievement can only be made possible when employees perform their duties efficiently using available resources. For employees to be productive on the job, required working tools must be made available and used. According to Techtargert (2021) employee's productivity, which is an important consideration to organizations, can be described as an assessment of how efficient a worker is. An employee can deliver or perform assigned tasks or roles in a way to reduce time-wasting, energy, satisfy customers and enhance the quality and quantity of job output. Sauer mann (2016) argues that an employee's productivity could be measured as a ratio of output relative to an input. For instance, in equipping an employee with adequate digital technologies, one would expect an increase in the quantity and quality of work output of such an employee. Meanwhile, the job productivity of employees can be measured using certain parameters such as quality and quantity of job output, the satisfaction of customers attended to, feedback etc.

The use of digital technology by employees for job performance can influence their job productivity. For instance, a study by Enyia, Oshi and Onwuka (2016) shows a high positive correlation between the use of ICT and job productivity of workers in selected public enterprises in River State Nigeria. However, such influence can vary depending on certain criteria to which the employees are exposed. Also, a survey by Jahanan, Nav and Asadi (2012) discovers that the use of digital technology among employees significantly improves their accuracy, efficiency, speed and skills. It also assists in developing the interest of employees in achieving organizational goals. This implies that organizational achievement in this 21st Century, among other factors, is key to the use of digital technology for job performance.

## 2. Methodology

The study adopted a survey design. The population of the study consisted of all the employees of the two cement factories, namely: Lafarge Cement factory, Ewekoro and Dangote Cement Factory, Ibese, both in Ogun State. A total sample size of 550 administrative workers was selected from the two factories. While 350 administrative workers were selected at Lafarge Cement Factory, 200 administrative workers were selected at Dangote Cement Factory. The choice of the administrative workers was based on the nature of their job descriptions as they often use ICT to perform their duties, unlike those at the production lines who may use more machine tools than ICTs. Data for the study were collected through the use of a self-designed questionnaire.

## 3. Data Analysis

Table 1: Frequency and Percentage Analysis of Demographic Variables.

Gender	Dangote	Lafarge
	n= 200	n = 350
Male	70	85.7
Female	30	14.3
Academic Qualifications		
MPhil/MSc/MBA/MA	18	26
BSc/BA/HND	82	74
Age		
18-30 years	22	20
31-40 years	58	50
41-50 years	20	20
51- 60 years	10	10
Years of working experience		
1-5 years	30	14
6-10 years	50	56
11-15 years	10	20
16years and above	10	10
Sections where respondents work		
Production	30	38
Central Admin	40	42
Marketing	30	20

Table 1 shows that the majority (70.0%) of the respondents from Dangote Cement Factory were male while the remaining 30.0% were female. Also, the majority (85.7%) of respondents from Lafarge Cement Factory were male while the remaining 14.3% were female. Also, the majority of 82.0% and 74.0% of respondents from Dangote and Lafarge, respectively, had BSc/BA/HND as their academic qualifications. Similarly, the majority of 58.0% and

50.0% of respondents from Dangote and Lafarge, respectively, were between 31-40 years of age. The Table also shows that the respondents had varying years of working experience with the factories as the majority of 50.0% and 56.0% had 6-10 years working experience with Dangote and Lafarge, respectively. Only 10.0% of the respondents had worked in the two factories for more than 16 years.

Table 2: Available digital technologies used by the Administrative Staff of the two Cement Factories

SN	Digital Technologies available	Dangote	Lafarge
a	Digital visitor management systems	-	-
b	Smart/ Virtual Assistants	--	--
c	Printers	90%	85%
d	Cloud computing	--	--
e	Scanners	70%	80%
f	Digital camera	-	-
g	Computer	100%	100%
h	Websites	85%	80%
i	Work-related Mobile/ Phone applications	30%	-
j	Video conferencing (Zoom, Google meet etc)	40%	40%
h	E-mail	50%	60%
i	Smartphones	100%	100%
j	Internet	40%	40%
h	Robot	-	-
i	e-record management system	30%	-
j	Social media (Facebook, WhatsApp, Instagram etc)	80%	70%
k	CCTV	60%	50

From Table 2, it is evident that various digital technologies were available and used by the respondents in the two cement factories. The two most commonly available digital technologies used were Computers (100%) and Smartphones (100%). This is followed by computer printers (90% from Dangote and 85.0% from Lafarge). Also, the Table revealed that the majority (85.0%) of respondents from Dangote and 80.0% from Lafarge used website while some 80.0% and 70.0% from Dangote and Lafarge, respectively, also use social media for their job performance. Also, 40% of the respondents from the two Cement Factories claimed to use video conferencing facilities. The Table further revealed that only 30% of the respondents from Dangote Factory claimed that they use an e-record management system. Similarly, none of the respondents from the two factories used digital visitor management systems, smart/ virtual assistants, cloud computing, digital camera, and robots.

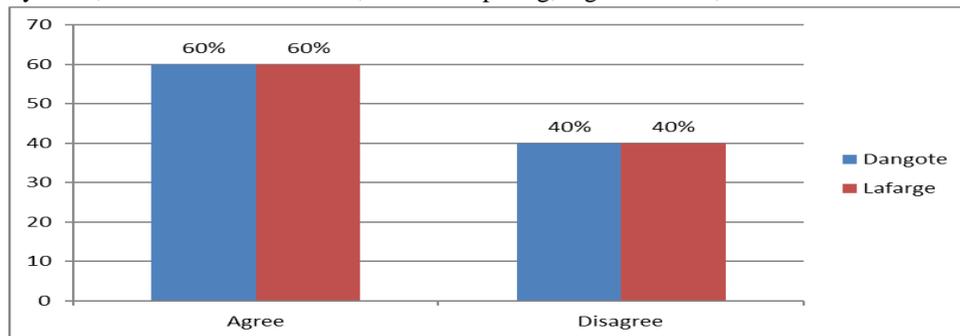


Figure 1: Ease of using digital technologies.

Figure 1 indicates the ease of use of digital technologies that are available to the respondents. From Figure 1, it is evident that the majority (60%) of the respondents from the two factories agreed that they find it easy to use the available digital technologies while the remaining 40% claimed that they did not find it easy using the available digital technologies.

Table 3: Influence of digital technology use on employees' productivity

SN	Influence of digital technology use on employees productivity	Dangote		Lafarge	
		Agree %	Disagree %	Agree %	Disagree %
1	Increase quality of work output	67.5	32.5	65	35
2	Increase quantity of work output	45	55	40	60
3	Facilitate remote working	40	60	37.5	62.5
4	Enhance Time Management	52.5	47.5	50	50
5	Improves feedback	60	40	50	50
6	Enhance knowledge sharing	80	20	80	20
7	Improves monitoring of staff	30	70	40	60
8	Increases initiation, innovation and talent management	33.3	66.7	30	70
9	Enhances data analytics	55	45	55	45
10	Increase collaboration	60	40	60	40
11	Enhances task management	40	60	40	60
12	Assist in staff training	30	70	40	60

Table 3 shows the influence of using digital technologies on the job productivity of employees in the two cement factories. The respondents were presented with 12 items relating to their job productivity on which the use of digital technologies has influence. It is evident from the Table that the use of digital technologies has a high influence on the job productivity of the respondents. The majority (67.5% and 65% from Dangote and Lafarge, respectively) of the respondents claimed that the use of digital technologies increased the quality of their work output; while 45.0% and 40.0% from Dangote and Lafarge, respectively, claimed that it increased the quantity of their work outputs. Another major influence of the use of digital technology by the respondents is that it improved feedbacks from colleagues and visitors (60.0% from Dangote, 50.0% from Lafarge) and enhanced knowledge sharing (80.0% from Dangote and Lafarge, respectively).

However, the majority (70.0%) of the respondents from Dangote and 60.0% from Lafarge claimed that the use of digital technologies did not influence staff monitoring. Similarly, the majority (70.0% of respondents from Dangote and 60.0% from Lafarge) claimed that the use of digital technologies did not influence staff training. Also, 60.0% of the two factories claimed that the use of digital technologies did not influence their management of assigned tasks.

Table 4: Challenges of using digital technologies for job performance

SN	Challenges	Dangote		Lafarge	
		Agree	Disagree	Agree	Disagree
1	Inadequate facilities	30%	70%	30%	70%
2	Inadequate ICT training	60%	40%	60%	40%
3	Lack of organizational support	60%	40%	50%	50%
4	Unfavourable digital technology policy from my employer	30%	70%	30%	70%
5	Frequent technology updates make it difficult to catch up	40%	60%	50%	50%

From table 4, it is evident that the most common challenges to the respondents from the two factories were the need for more training (60.0% from the two factories), and lack of organizational support (50.0% from Dangote and 60.0% from Lafarge) in using digital technologies. Also, 40.0% of respondents from Dangote and 50.0% from Lafarge claimed that the frequent technological updates make it difficult to catch up, while 30% of the respondents across the two factories claimed that the inadequacy of digital facilities is a challenge to them.

#### 4. Findings and Discussion

It is evident from the findings that various digital technologies are available for use by respondents from the two Cement Factories. The most common types of digital technologies available and used were computers, smartphones, printers, websites, social media and scanners. However, digital technologies such as digital visitor management systems, smart/virtual assistants were not available.

Also, the finding further revealed that many of the respondents find it easy to use the available digital technologies. This may be attributed to the level of digital skills and abilities possessed by the respondents that facilitated the ease of use of the digital technologies for their job performance.

Similarly, the findings revealed that the use of digital technology has a high influence on the job productivity of employees in the two Cement Factories. This is similar to Angioha, Erukoha, Agba and Ikhizamah (2020) and Mutuka, and Nyaribo (2015) discovery that the use of ICT facilities influences employees productivity in selected banks in Nigeria and Kenya, respectively.

Such areas of high influence include enhancing knowledge sharing activities, quality of their work outputs, feedback, and increase in collaboration among the employees. This is in line with Martin et al (2019) discovery

through a systematic review of several empirical works of literature that the use of mobile communications among employees leads to an increase in collaboration which results in high productivity.

The findings further revealed that the employees face certain challenges in using digital technology for job performance. The major challenges were inadequate ICT training; lack of organizational support and frequent technology updates which make it difficult for the employees to catch up, hence the need for constant training on the use and application of new technologies. This finding is in line with Johansson (2017) discovery that frequent technological updates/ renewal was a major barrier to the use of digital technology for job performance.

## 5. Conclusion

It was established from the findings that digital technologies such as computers, smartphones, printers, scanners, and social media were available and used for job performance by the employees of Dangote Cement Factory, Ibese and Lafarge Cement Factory, Ewekoro. Also, many of the employees found it easy to use the available digital technologies. The study also established that the use of digital technologies has a high influence on the job productivity of the respondents. Such influence includes an increase in quality of work output; enhancing knowledge sharing and feedback from colleagues and customers. Therefore, the use of digital technologies has improved the job productivity level of employees in the two Cement Factories that were studied.

## References

- Angioha, P.U., Eukoha, C. U., Agba, R. U. and Ikhizamah, G. U. (2020). Information Technology Predictor Variables and Employee Productivity in Commercial Banks. *Journal of Information and Visualization*, 1(1), 44-54.
- Enyia, C. D., Oshi, E. O. and Onwuka, E. M. (2016). Impact of ICT On Employee Productivity in Public Enterprises In Nigeria. A Study of Selected Enterprises in Rivers State. *Research Journal of management*, 4(6), 1-8.
- Fadeyi, O. O. and Haliso, Y. (2019). The Nexus of Information Acquisition, ICT Use and Employee Satisfaction in Microfinance Banks in South-West, Nigeria. *Library Philosophy and Practice (e-journal)*. 2422.
- Jahanian, R., Nav, Z. N. & Asadi, A. (2012). The Impact of Information Technology and Communication Training on the Performance of Human Resources in Educational Organizations. *World Applied Sciences Journal*, 16 (6): 850-855.
- Johansson, J. (2017). Challenges and opportunities in digitalized work and management – case study 8. *Studies in Social Sciences, Work report*, 2017:8.
- Martin, G., Khajuria, A., Arora, S., King, D., Ashrafian, H. and Darzi, A. (2019). The impact of mobile technology on teamwork and communication in hospitals: a systematic review. *Journal of the American Medical Informatics Association*, 26(4), 339-355
- Mutuku, M. N. & Nyaribo, W. M. (2015). Effect of Information Technology on Employee Productivity in Selected Banks in Kenya. *Review of Contemporary Business Research*, 4(1), 49-57.
- Omoniyi, E. O., & Omoniyi, S. T. (2015). An assessment of benefits and challenges of information and communication technology to office managers in the banking industry. *Journal of Internet Banking and Commerce*, 20(3), 1.



Sauermann, J. (2016). Performance measures and worker productivity, Retrieved from <http://hdl.handle.net/10419/148485> <http://dx.doi.org/10.15185/izawol.260>

Techtarget (2021). Employee productivity. Retrieved from <https://whatis.techtarget.com/definition/employee-productivity>

United nations (2021). Information and Communication Technologies (ICT). Retrieved from <http://aims.fao.org/information-and-communication-technologies-ict>