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Workplace Digitalization And Employee Productivity In Manufacturing Firms In Port Harcourt, Rivers state, Nigeria For Economic Transformation And Sustainability

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ABSTRACT

The study examined the relationship between Workplace Digitalization and Employee Productivity in Manufacturing Firms in Port Harcourt. Rivers State, Nigeria. The objectives of the study were to examine the relationship between the dimension of workplace digitalization as, digital communication, digital collaboration and digital storage on Employee Productivity measures, efficiency, timeless and task Accomplishment. The cross sectional explanatory survey research design was adopted for this study. The population of the study was Eight Hundred and Thirty-Two (832) employees of thirty (30) registered manufacturing firms currently operating in Port Harcourt.. Taro Yamene formula was used to determine the sample size techniques . Bowley's (1960) Population Appropriation Formula was applied to determine the sample unit for each of the firm. The Primary data were collected using questionnaire. The data were analyzed using tables, simple percentages, mean score ration, standard deviation, while the hypotheses were tested using Spearman's Ranking Order Correlation with the aid of Statistical Package for Social Science (SPSS). The study concluded that there is a significant positive relationship between workplace digitalization and employee productivity in manufacturing firms in Port Harcourt. It was recommended amongst others that: Management of manufacturing firms should regularly assess current infrastructure, identify area of improvement and evaluate emerging technologies that will benefit their organization.

Key note: Workplace Digitalization, Employee Productivity

INTRODUCTION

Employee productivity in manufacturing firms is a critical factor that directly influences the efficiency, competitiveness, and profitability of the organization (Cooper *et al.,* 2018). As the manufacturing sector continually evolves with technological advancements and market dynamics, the ability of employees to perform tasks efficiently and effectively remains paramount. Productivity in this context encompasses the speed, quality, and consistency with which workers carry out their responsibilities, impacting everything from production timelines to product quality and operational costs. The manufacturing industry, characterized by its complex processes and interdependent workflows, requires a concerted effort to optimize employee performance. According to Foroux (2019), factors such as skill levels, technological integration, workflow management, and workplace environment play significant roles in determining

productivity outcome. Thus, efficiency, timeliness, and task accomplishment are considered as measures of employee productivity.

Employee efficiency in manufacturing firms is a pivotal element that determines the overall productivity, quality, and profitability of the organization (Ghemawat & Ricart, 2014). Efficiency refers to the ability of employees to perform their tasks with minimal waste of time, resources, and effort while maintaining high standards of quality. In the manufacturing industry, where processes are often complex and interdependent, enhancing employee efficiency is essential to meet production targets, reduce costs, and stay competitive in a demanding market (Park, 2018). Moreso, Timeliness represents the speed**,** ability or extent to which employees of manufacturing firms achieves production results before deadline. According to Michelle (2017), timeliness is a provided parameter for how often, or within what time frame, outputs will be delivered. It also means to provide support to customers in an opportune manner. Responding to customer requests on time as well as resolving customer issues in a timely fashion is an extremely part of customer service. As technology advances and competition increases, companies are offering different types of services to stay current and attract customers. Manufacturing firms provide their customers with a number of services through responding to them promptly so as to save their time as well.

Task accomplishment is one of the most important aspects of employee performance in restaurants. It refers to the extent to which employees are able to complete the tasks assigned to them, such as preparing food, serving customers, and maintaining cleanliness standards. Nayyar (2015) assert that this can manifest through a variety of metrics, such as the number of orders fulfilled per hour, the number of customer complaints received, and the overall cleanliness of the restaurant. By tracking and measuring task accomplishment, managers can identify areas of improvement and take steps to ensure that employees are performing their duties effectively (Motowidlo, 2013).

Workplace digitalization in manufacturing firms represents a transformative shift in how operations are conducted, driving efficiency, innovation, and competitiveness in a rapidly evolving industry. Digitalization involves the integration of digital technologies into all aspects of manufacturing processes, from design and production to supply chain management and customer service (Odu, 2021). In the context of manufacturing, digitalization facilitates the seamless flow of information across different stages of production, ensuring that real-time data is available for decision-making and process optimization. It empowers firms to improve precision, reduce waste, and enhance product quality, while also providing the flexibility to adapt to changing market demands (Amirize, 2021). This transition is characterized by the adoption of advanced communication, collaboration and storage tools, which collectively enhance operational capabilities, enable more agile and responsive manufacturing systems.

Organizations (manufacturing firms) are increasingly adapting to digital communication as a way to streamline their operations and improve communication (Tom-West, 2023). Many manufacturing firms are using product management software to track progress and share information. They are also using collaborative platforms like Microsoft Teams and Slack to communicate with team members and keep everyone on the same page. Manufacturing firms are finding that digital communication is not only more efficient, but also more secure, as it allows them to share information without worrying about paper documents being lost or stolen (Howard *et al.,* 2017). Another feature of workplace digitalization is digital collaboration. In every firm, collaboration is very essential for optimal performance be it human or machine. Digital collaboration is crucial in manufacturing firms due to the complex and often global nature of their operations. As it enables instant communication between different departments, plants, and even countries reducing delays and accelerating decision-making processes (Yulianto & Layona, 2022). Digital tools enable manufacturers to quickly gather and integrate customer feedback into their processes. Enhanced collaboration supports the implementation of sustainable manufacturing practices by sharing knowledge and resources (Quet & Dahdah, 2020). Thus, digital collaboration refers to the use of digital tools and technologies to enable and enhance interaction among individuals or teams, often regardless of their physical location.

Lastly, digital storage is gradually gaining popularity at both in the individual and organizational level of

operation. Digital storage simply refers to the adoption of online storage facility in creating, storing, and retrieving records of an organization rather than storing them in physical (manual) files and physical computer systems. Employees subscribe to Google drive facility via Google account with an initial free storage capacity of 15 gigabyte (Microsoft, 2020). Letters, memos, forms, and other correspondences of the establishment are uploaded and accessible by designated officers anywhere and anytime (online) with the use of password (Joseph, 2018). This makes it possible for employee in such manufacturing firm to manage records securely and seamlessly. This background necessitated this study.

It appears that one of the greatest problem facing manufacturing firms is low productivity. This could arise due to little or inability of managers in manufacturing firms to properly identify employees who interact fairly with workplace technologies. However, workplace technologies are very vital in manufacturing firms since their daily operation revolves around operating machines for effective production. Supporting this view, Odu (2021) posited that organization that adopts innovation on time stand a better chance of gaining competitive advantage over others.

It equally seems that due to inadequate training, employee in manufacturing firms finds it difficult to produce quality product efficiently. This could be predicted on the ground that they posses little or no digital skill. More so, the delay in production and less quantity are assumed to be attributed to organizational incompetent of having innovative employees who can assist in achieving their set goals and organizational objectives timely (Foroux, 2019; Ghemawat & Ricart, 2014; Nayyar, 2015; Michelle, 2017). To this end, the level at which manufacturing firms digitalize their workplace is not yet ascertained yet.

Another issue that necessitated this study is the dearth of documented empirical studies on workplace digitalization and employee productivity specifically in manufacturing firms in Port Harcourt. Though, there have been several research efforts investigating the relationship of dimensions and measures under study. For instance, Tom-West (2023) examined the relationship between workplace technological adoption and organizational productivity of construction companies in Rivers State; Amirize (2021) examined the influence of office digitalization on work-life balance of employees in broadcast stations in South-South, Nigeria; Jenic and Lamovsek (2019) examined how digitalization affects the workplace; Youngki and Nilesh (2016) investigated the complexity of organizational digitization and firm Performance: A Set-Theoretic Configurational Approach; Odu (2021) examined the influence of workplace virtual environment on organizational health of tertiary institutions in South-South, Nigeria. But none of the study adapted same dimensions and measures as presented in the conceptual framework overleaf. Therefore, there is need to close this knowledge gap.

Conceptual Framework

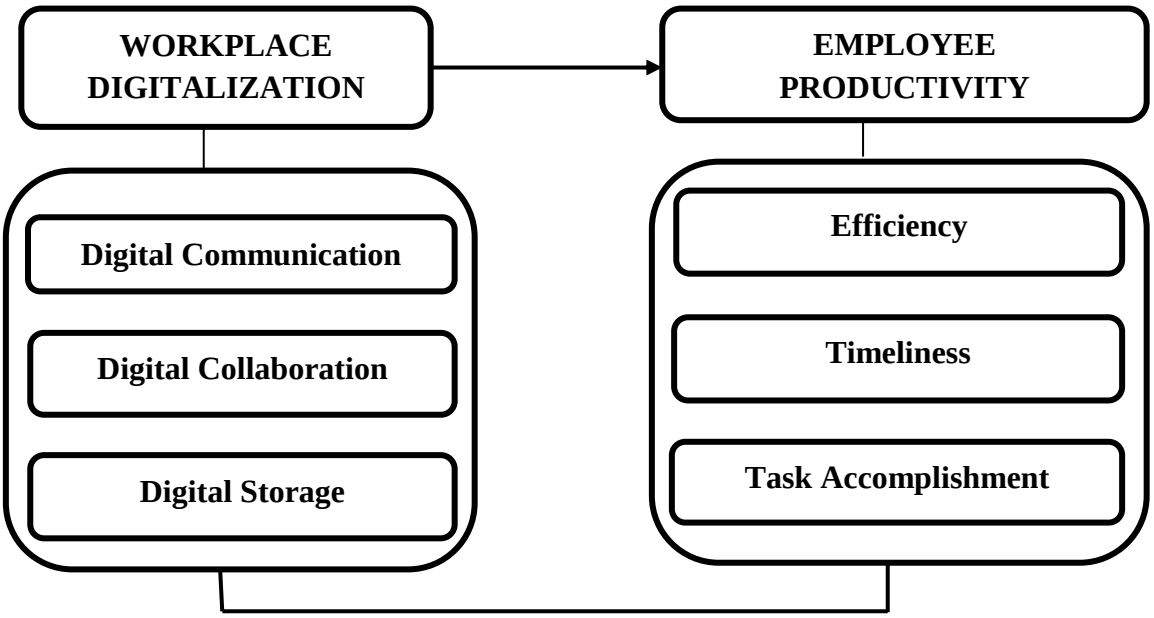

Fig. 1.1: Conceptual Framework Showing Relationship between Workplace Digitalization and Employee Productivity
Source: Odu (2021), Tom-West (2023); and Foroux (2019)

Purpose of the Study

The purpose of the study was to examine the relationship between workplace digitalization and employee productivity in Manufacturing Firms in Port Harcourt. Specifically, the study objectives were:

1. To determine the relationship between digital communication and employees' efficiency in Manufacturing Firms in Port Harcourt.
2. To ascertain the relationship between digital collaboration and employees' timeliness in Manufacturing Firms in Port Harcourt.
3. To investigate the relationship between digital storage and employees' task accomplishment in Manufacturing Firms in Port Harcourt.

Research Questions

Following the objectives of the study, these research questions were posed:

1. What is the relationship between digital communication and employees' efficiency in Manufacturing Firms in Port Harcourt?
2. What is the relationship between digital collaboration and employees' timeliness in Manufacturing Firms in Port Harcourt?
3. What is the relationship between digital storage and employees' task accomplishment in Manufacturing Firms in Port Harcourt?

Research Hypotheses

Based on the research questions posed above, the following null hypotheses were tested at 0.05 level of significance.

Ho_1: There is no significant relationship between digital communication and employees' efficiency in Manufacturing Firms in Port Harcourt.

Ho_2: There is no significant relationship between digital collaboration and employees' timeliness in Manufacturing Firms in Port Harcourt.

Ho_3: There is no significant relationship between digital storage and employees' task accomplishment in Manufacturing Firms in Port Harcourt.

Theoretical Review

This work is anchored on Roger's (1962) Diffusion of Innovation Theory. Roger's Diffusion of Innovation Theory explains the processes involved in the adoption of innovations such as new technologies, techniques, and procedures and well as the resultant effects of such steps on organizational processes. The diffusion of innovation theory assumes that:

i) In a social system, there will always be a disparity in the level and time at which individuals within a given social system adopt new ideas, techniques, and technology.
ii) Individuals and arms of institutions that adopt innovations early will naturally outperform late adopters and the laggards.

The implication of this theory is that as individuals advance in the use of sophisticated devices, there will naturally be a disparity on how productivity is enhanced by both category of people in the society. While some individual are digitally compliant and digitally literate enough to carry out online operations, there are still those who still find it difficult to operate simple smart phones. The fact is that while those with digital skills interface with better productivity, others are bedeviled with low productivity while those who embrace and adopt emerging digital work environment enjoy speed, efficiency and high level effectiveness in coping with socio-personal functions others are battling with job stress.

Conceptual Review

Concept of Workplace Digitalization

Due to the rapid change in technology and organizations' consistency in shaping its business operations, digitalization is unbecomingly creeping into the base of all industries as it tries to intimate the business with its environment, thus providing premises for management to make and implement digital policies that would strengthen its communication process while contributing to organizations' goal effectively and efficiently (Loredana, 2016). Generally, the concept of digitization is a broad term spanning the media industry including the prints and the electronic media. It is the representation of an object, image, sound, document, or a signal usually an analog signal by a discreet set of its points or sample. The result of these processes are digital representation, digital image for an object and digital form for a signal (Akinreti *et al.*, 2018).

Collins English Dictionary defines digitalization as the process of converting information into a digital (i.e. computer-readable) format, in which the information is organized into bits. Digitalization most often refers to enabling, improving and/or transforming business operations and/or business functions and/or business models/processes and/or activities, by leveraging digital technologies and a broader use and context of digitized data, turned into actionable knowledge with a specific benefit in mind (Amancio, 2018). Sandeep (2019) averred that digitalization means turning interactions, communications, business functions and business models into (more) digital ones which often boils down to a mix of digital and physical as in customer service, integrated marketing or smart manufacturing with a mix of autonomous, semi-autonomous and manual.

Thus, this study defines workplace digitalization as the automation of administrative processes and arrangement of operations in such a way that employees can access files and work beyond the physical office premises. Pranjali (2017) asserted that workplace digitalization has deepened the reliance on data analytics, social networks and mobile technologies, and has dramatically reformed the role of communications in businesses. In order to utilize technological advances towards the engagement of stakeholders, as well as adapting to the digital transformation, several organizations have taken essential steps to develop a strategic framework for organizational priorities. Edward (2018) defined workplace

digitalization as the collaboration of workforce and technologies (both the ones in operation and the ones yet to be implemented) to get work done in today's workplace. It ranges from the human resource (HR) applications and core business applications to e-mail, instant messaging and enterprise social media tools and virtual meeting tools. Because most organizations already use many of these components, an organization such as a broadcast station generally does not have to digitalize the office (i.e the workplace) from the ground up. In fact, if the staff respond to e-mails from smartphones, check their pay stubs online or digitally enter a sales opportunity, an organization may be closer to operating a digital workplace than it thinks (Odu, 2021).

According to Tom-West (2023), workplace digitalization can help improve communication, collaboration, content management, access to analytics data and social networking as well as staff and customer experience. Successful enterprises are embracing technology to create digital workplaces that improve business cohesion. The concept of digitalizing workplace is an interesting proposition that aims to limit these short comings and develop innovativeness of small and medium enterprises (Amirize, 2021). As part of the concept, research and potential of scientific, research and development institutions are transformed (through the engagement of commercial entities and institutions of business environment) into products and services distributed on market principles and providing new values and desired benefits to clients (Garud; Bailetti in Cerere, 2013). Within the context of this study, digital communication, digital collaboration and storage are used as dimensions of workplace digitalization.

Dimensions of Workplace Digitalization

Digital Communication

Digital communication is referred to as the sharing of information, ideas, or simply words over the World Wide Web, or the Internet (Jack, 2018). The Internet consists of a worldwide string of connected networks that exchanges data through packet switching using the standardized Internet Protocol Suite (TCP/IP). Unlike before, people can stay at home and be connected to their family, friends, and even colleagues from anywhere around the world (Tom-West, 2023)

Operationally, digital communication is the use internet and web-based applications in sharing documents and other information contents in an organization. Going further, Howard *et al.* (2017) defined digital communication as the number of ways people can communicate over the World Wide. It includes chat rooms, email, instant messaging, forums, social networking sites and voice over internet protocol (IP) programs. The World Wide Web, or the Internet, is a series of connected networks that connect computers across the world together. This network allows different kinds of communication methods. Voice over internet protocol (IP) or voice IP (VoIP) refers to programs like Skype, WhatsApp video call, Messenger video call, Zoom, etc. that allow people to communicate using audio and video over the Internet. Social media sites like Facebook, Twitter, Instagram, etc. are other examples of internet communication (Buyya, *et al.,* 2008). The ability to use these digital communication platforms in staying in touch with colleagues and external office stakeholders. Being digitally literate enables administrative managers to post messages and then respond to the messages over others in a long network from one computer or mobile phone to another. Internet forums also facilitate communication by letting someone create a thread, which others then respond to in a long chain.

Digital communication refers to the combination of observable and measurable knowledge, skills, abilities and personal attributes in the sharing of information, ideas, or words over the Internet (Howard, *et al.,* 2017). Everyone seems to have gone digital via the use of digital communication with less focus on proficiency. The global growth in digital communication truly requires proficiency for ease of communication, effectiveness in the area of socialization, corporate dealings, etc. Proficiencies in digital communication bring about versatility in communication, a growing community of individuals, good documentation, and a leveled communication among others. Dixon (2019) posited that communication over the Internet is far more complex than the face-to-face (traditional) form of communication, in spite of its advantages. The complexities range from learning how the devices and communication platforms

work to learning the rules of the communication pattern. New features are added to digital communication devices every now and then; same with the platforms. Digital communication, which can be via texts, audio, video, memes, ideograms, etc., is very technical in nature. There is need, therefore, to get along with the trend in order to be proficient in digital communication. Employees who truly want to communicate effectively and efficiently will have to patiently allow themselves to be grounded in all these intricacies that are involved, which implies proficiency in digital communication.

Digital Collaboration

In every firm, collaboration is very essential for optimal performance be it human or machine. Digital collaboration is crucial in manufacturing firms due to the complex and often global nature of their operations. As it enables instant communication between different departments, plants, and even countries, reducing delays and accelerating decision-making processes (Yulianto & Layona, 2022). Digital tools help integrate various functions such as design, production, and supply chain management, leading to more streamlined workflows. Digital collaboration facilitates quicker iterations of product designs by enabling immediate feedback and adjustments. Digital tools enable continuous monitoring of production processes, ensuring that quality standards are maintained. Collaboration platforms facilitate the sharing of quality reports and data analytics, helping in early detection of defects and continuous improvement (Thomas & Bhat, 2022).

Thus, digital collaboration refers to the use of digital tools and technologies to enable and enhance interaction among individuals or teams, often regardless of their physical location. It involves sharing information, resources, and ideas through various online platforms to achieve common goals and complete tasks effectively (Susanti & Suyudi, 2020). Digital collaboration tools help in better planning and utilization of resources, leading to cost savings. Digital platforms encourage the sharing of ideas and best practices across the organization, fostering a culture of innovation (Roy, 2012). Digital tools enable manufacturers to quickly gather and integrate customer feedback into their processes. Enhanced collaboration supports the implementation of sustainable manufacturing practices by sharing knowledge and resources (Quet & Dahdah, 2020).

Digital Storage

Digital storage refers to the creating and storing administrative files in web-based networks rather having them stored on premised based computer devices or file cabinets. Electronic storage has advanced beyond the physical computer system. Digitally conscious administrative systems today, leverage on online computing infrastructure in managing their records rather than keeping them in file cabinets or location-based data storage facilities such as hard disk, flash drive, memory card, memory stick, CD ROM, etc. Joseph (2018) defined digital storage usage as an advanced computing practice where documents and all data of an organization are stored in internet-based computer networks rather than location-based devices.

Conceptually, digital storage refers to the saving and accessing official data and information contents in an online platform rather than a physical computer device. In work systems that adopt digital storage, administrative files can be accessed from any computer anytime and anywhere with an internet connection and a web browser. Digital storage is also known as virtual storage. Virtual storage (virtual computing) services run on subscription basis. The organization or unit of an organization subscribes to a cloud computing service provider to enjoy this form of electronic storage facility. It is also important to note that virtual storage services also enable businesses to access and conveniently use Microsoft Office Packages such as Word, Spreadsheet, PowerPoint, etc. (Jacobson, 2016; Microsoft, 2020). By expansive subscription, organizations or units of an organization can enjoy additional office data processing and storage packages through its facility.

Cloud storage usage facility refers to a free online service that enables subscribers to store and access files in secure Google Account. Every Gmail account owner has access to a 15 gigabyte Google drive facility that can be used to upload and download relevant files. Joseph (2018) pointed out that Google drive is a digital storage service which expands users' ability to store files beyond the limits of hard drive or computer system in an office. Digital storage usage is simply the online replication of the popular tangible

flash drive device used in offices. Offices can expand the storage service by subscribing for more on a pay-as-you-go basis. Employees today, subscribe to Google drive and other services in order upload, save, retrieve and share administrative files stored online for easy access anytime. This makes it possible for office workers and committee members to access and even upload documents to a platform that can be accessed by designated members anywhere and anytime. Files created and edited through the office suite are saved in the online storage platform. Digital storage usage houses any kind of file such as photos, videos, PDFs, Microsoft Office files, etc.

Concept of Employee Productivity

Productivity is an overall measure of the ability to produce a goods or service (Farrell, 2016). Specifically, Foroux (2019) defines productivity as the measure of how specified resources are managed to accomplish timely objectives as stated in terms of quantity and quality. Productivity may also be defined as an index that measures output (goods and services) relative to the input (labor, materials, energy, etc., used to produce the output). Polaris bank will be termed productive if the outputs it get from its investments as well as its employees and executives are good enough when compared to the input made, and vice versa. It then implies that productivity in the banking industry, especially in Polaris banks, is the measure of how well they manage their resources in order to achieve the envisaged output.

Conceptually, employee productivity is a measure of the quantity and quality of work done, considering the cost of the resources used. Employee productivity could also mean the measure of the quantity of total employees' output per unit of inputs in their respective firm. Employee productivity may be hard to measure, but it has a direct effect on a company's profits. An employee is productive if it produces either a given quantity of output with less inputs or a higher output quantity with given inputs. Productivity can also be defined as the relationship between results and the time it takes to accomplish them (Parkins & Hudgins, 2014). Time is often a good denominator since it is a universal measurement, and it is beyond human control. The less time taken to achieve the desired result, the more productive the system. Regardless of the type of production, economic or political system, the definition of productivity remains the same. Thus, though productivity may mean different things to different people, the basic concept is always the relationship between the quantity and quality of goods or services produced and the quantity of resources used to produce them (Parkins & Hudgins, 2014).

Hence, there are two major ways to increase productivity: increase the output or decrease the input. Of course, a similar effect would be seen if both input and output increased, but output increased faster than input; or if input and output decreased, but input decreased faster than output. Organizations have many options for use of this formula, labor productivity, machine productivity, capital productivity, energy productivity, and so on. A productivity ratio may be computed for a single operation, a department, a facility, an organization, or even an entire country. Conversely, employee productivity is an objective concept (Cooper *et al.,* 2018). As an objective concept it can be measured, ideally against a universal standard. As such, organizations can monitor productivity for strategic reasons such as corporate planning, organization improvement, or comparison to competitors. It can also be used for tactical reasons such as project control or controlling performance to budget. Employee productivity is also a scientific concept, and hence can be logically defined and empirically observed (Cooper *et al.,* 2018). This study measures employee productivity in terms of efficiency, timeliness and task accomplishment.

Measures of Employee Productivity

Efficiency

Efficiency means doing things in the right way (Drucker in Ghemawat & Ricart, 2014). Merriam-Webster Dictionary (2019) defines efficiency as the capability to producing desired results with little or no waste (as of time or material). But what does it mean to actually be efficient in how you spend your days? Efficiency means negotiating each day's circumstances while ensuring there is enough time for non-negotiable like sleep and self-care. This nuance is especially important for working professionals.

Efficiency does not always mean sitting down at a desk in the morning, whittling down a to-do list, and leaving the office by 5 p.m. It's all about doing your best despite internal and external factors, leaving ample time to take care of yourself (Ghemawat & Ricart, 2014).

In within the context of this study, efficiency is the ability to act or produce effectively with a minimum of waste, expenditure or unnecessary effort. Efficiency focuses more on resources and speed with which organizational goals are achieved. The efficiency of an employee in an organization is determined by how successfully they assign resources in order to achieve goals in the right way. In other words, how well employee of an organization converts input into output, such as products, programmes and services contributes to the success of organization (Love, 2016). Efficiency as a measure of employee productivity is an employee characteristic and relates to the speed and accuracy of an employee at the job task. It closely relates to employee productivity, the more efficient they are the more productive they will be if managed correctly. Employee efficiency is therefore a complex measurable parameter which characterizes an output produced by efforts and by achievements of an employee.

There is no single understanding of this quite wide term, but usually sense of employee efficiency refers to the following conceptions which intersect with each other in certain aspects and usually are used in a mixture as identified by (Park, 2018). 1. Productivity-oriented approach: it stands for objective appraising of the value produced by efforts and talents of the employee and comparing this value against the worth of inputs and resources provided to this employee by the organization. In other words this attitude means determining the level of employee profitability: his or her ability to convert investments into direct profits or some long-term benefits; 2. Objectives-oriented approach: it stands for determining an ability of employee to accomplish certain amount of work (or to achieve some other required objectives) within a given period of time or/and other business resources. This attitude identifies an employee as efficient one if he or she properly fulfills certain working plans or matches certain productive norms. These plans usually imply certain inbuilt level of profitability; 3. Performance-oriented approach: this attitude means giving an appraisal to a manner which an employee adheres to while carrying out his or her job. In this case the employee efficiency is analyzed by measuring compliance of his/her activities with certain standards or requirements. This attitude states that employee is 100% efficient when he or she strictly follows a predefined procedure or workflow which is considered as efficient (Park, 2018).

Timeliness

Timeliness refers to the speed of dissemination of the products to be produce i.e., the lapse of time between the end of a reference period (or a reference deadline) and dissemination of the product. Timeliness is a provide parameters for how often, or within what time frame, outputs will be delivered. It also measured by turnaround times, waiting or response time either deliver services or production yearly or quarterly.

Timeliness reflects the ability of employee to produce a response within an allotted time determined by the task requirements. Michelle (2017) posits that timeliness and Punctuality is a single entity. For instance, if your employees have differing levels of productivity and timeliness, you'll need to know how to phrase your employee appraisals. In order for the written feedback on your evaluations to have a long-lasting impact, you need to focus on the individual performance factors that determine the quality and quantity of your employees' work. Given that requests can arrive from both data sources and workers, the request scheduler must very carefully balance the requirements of staff requests and their deadlines against the need to keep the standards reflects the source up-to-date. Missing deadlines might mean missing opportunities to be productive operating on stale data might mean making wrong decisions. The scheduler must therefore determine the order in which the incoming source and staff requests are handled so as to maximize the possibility of meeting both timeliness and deadline constraints. Solutions to address the conflict between user request timeliness and data freshness have been developed in the context of real-time databases.

Furthermore, both source and staff requests may specify timeliness requirements and a uniform mechanism for assigning scheduling ordering to both types of requests is needed. Michelle (2017) opined

that timeliness of output is the length of time between data availability and the event or phenomenon they describe. Timeliness refers to the speed of numbers availability, whether for dissemination or for further processing, and it is measured with respect to the time lag between the end of the reference period and the release of numbers. The researcher also views timeliness as a key element of figures quality: adequate timeliness corresponds to a situation where policy-makers can take informed decisions in time for achieving the targeted results. In quality assessment, timeliness is often associated with punctuality, which refers to the time lag between the release date of data and the target date announced in some official release chart. Timeliness can be further broken down into timeliness-output and timeliness - source material.

Operationally, Timeliness of output refers to the speed, ability or extent to which employees achieves production results before deadline**.** Johnny (1993) averred that productivity measurement systems should be able to determine changes in the ratio of outputs to inputs (productivity indexes) and in the quality and timelines of outputs. To Myra (1980), with few exceptions, tapers appear to be regarded as after thoughts, as opposed to be planned end-products of the processing activity the timeliness of output on tape generally legs far behind that of other forms. There are some basic issues in mapping timeliness solutions to the information collection scenario. Firstly, in the timeliness context, staff requests correspond to production or output (a series of read/write requests), which typically take longer time to be processed (Michelle, 2017). Secondly, source update requests in the timeliness context do not have deadlines associated with them, enabling them to be treated differently from real-time productions. In this case, more fine-grained and timely interaction between the staff and system is needed. Both source and staff requests represent a single operation on a single data source.

Task Accomplishment

Conceptually, task accomplishment is defined as the ability of employees at all levels to effectively carry out assigned targets/tasks within record time or before deadline. Task accomplishment is some strategic contribution to the higher objectives of an organization that could take the form of revenues generated, costs avoided, revenues recovered and percent improvement in some process, smooth operation etc.; something above and beyond the normal day-to-day duties and responsibilities. Now, those daily duties and responsibilities may be tactics that support the strategic contribution (Mattessich, 2015).

Employees at all levels are primarily employed to provide administrative assistance and carry out other office tasks assigned to him/her. Employers and bosses look out for employees that can accomplish any assignment, task or target given to them promptly or early enough before deadline. In fact, an employee that is fund of completing tasks at the last minute or deadline can be said to be underperforming. Employees are expected to be up and doing in preparation of documents, information dissemination, and carrying out their day to day official duties (Nayyar, 2015). Additionally, Ilies and Judge in Nayyar (2015) posit that task accomplishment is an observable and measurable end result having one or more objectives to be achieved within a more or less fixed timeframe. Task accomplishment is the desired result or possible outcome that a person or a system envisions, plans and commits to achieve at the end: a personal or organizational desired end-point in some sort of assumed development. Many people or organizations endeavor to reach goals within a finite time by setting deadlines. It is roughly similar to purpose or aim, the anticipated result which guides reaction, or an end, which is an object, either a physical object or an abstract object, that has intrinsic value.

Task accomplishment is the process of finishing a task on time with and without supervision. It involves planning, testing, tracking, and reporting (Besim, 2015). Task accomplishment can help either individual achieve goals, or groups of individuals collaborate and share knowledge for the accomplishment of collective goals. Tasks are also differentiated by complexity, from low to high. For any job, there are a wide variety of tasks that employees must perform on a daily basis (Motowidlo, 2013). As such, task accomplishment is a key focus of many employees given that "goals are always there in the workplace, if only by default". Further, research has shown that goal attainment, or the lack thereof, relates to personal

well-being. However, most of the work linking task accomplishment to worker well-being has done so using between-person research designs, though there may be important variability in these constructs within a person over time. Accomplishment is found in the successes that create positive end results for more than one person. It aligns itself as a more selfless measure of success in working towards a goal greater than an individual. Things such as curing disease, winning a team sport and participating in community activities all go under the frame of accomplishment as end results are more communal.

Empirical Review

Tom-West (2023) examined the relationship between workplace technological adoption and organizational productivity of construction companies in Rivers State. The aim of the study was to ascertain how dimensions of workplace technological adoption (task automation, digital communication and virtual reality) relate with measures of organizational productivity of construction firms in Rivers State in terms of quality of output, quantity of output and timeliness of output. The study adopted the cross sectional survey research design. The population of the study consists of One-hundred and Twenty-Four (124) construction firms operating in Rivers State. Due to manageability and accessibility, Forty-Two (42) registered construction firms with more than five years of existence operating in Rivers State are studied. The study adopted a census population which involve using the entire population rather than drawing sample from it. Hence, the study uses the entire population Forty-Two (42) construction firms with Two Hundred and Ten (210) respondents. Structured questionnaire was used as instrument for data collection. Simple percentage was used for the demographic analysis, mean and standard deviation were used for the univariate analysis; Spearman Rank Order Correlation Coefficient was used for the bivariate analysis, while the multivariate analysis was done using Partial Correlation. The findings revealed that a significant positive relationship exists between dimensions of workplace technological adoption such as task automation, digital communication and virtual reality; and measures of productivity such as quality of output, quantity of output and timeliness of output in construction companies in Rivers State. It was also found that organizational adaptability has a moderating impact on the relationship between workplace technological adoption and organizational productivity in construction companies in Rivers State. The study concluded that Construction firms that adopt emerging technology in their workplace stand bigger chance of improving their productivity than others who neglects the relevance of workplace technological adoption in the virtual business world. Consequently, it was recommended amongst others that management of construction firms should regularly assess current infrastructure, identify area of improvement and evaluate emerging technologies that will benefit the organization.

Amirize (2021) examined the influence of office digitalization on work-life balance of employees in broadcast stations in South-South, Nigeria. The objective of the study was to examine how dimensions of office digitalization such as digitalized flexible work system, social media based interactivity, and network virtualization influence measures of work-life balance such as socio-personal functions satisfaction, official time maximization, and ample rest/leisure. The explanatory cross sectional survey research design was adopted for this study. Using the Krejcie and Morgan Sample Size Determination Table of 1970, sample size of 328 respondents was drawn from a population of 1819 staff of broadcast stations in South-South Region of Nigeria. Questionnaire was used as instrument for data collection after face-validation by the supervisors, having ascertained the reliability of the instrument at 0.73 using Cronbach alpha. Out of 412 copies of the questionnaire administered, a total 350 were retrieved. Arithmetic mean and standard deviation were used for univariate analysis; Spearman Rank Order Correlation was used for the bivariate analysis, while Partial Correlation was applied for the multivariate analysis.The findings revealed that dimensions of office digitalization such as digitalized flexible work system, social media based interactivity and network virtualization have significant positive influence on work-life balance of employees. It was also found that managerial style significantly moderates the relationship between office digitalization and work-life balance. The study concluded that office digitalization is a necessary workplace condition for the achievement of work-life balance of employees