

INFLUENCE OF INFORMATION AND COMMUNICATION TECHNOLOGY ON FINANCIAL PERFORMANCE AND PRODUCTIVITY OF MANUFACTURING COMPANIES IN SOUTHWEST NIGERIA

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ABSTRACT

Adoption of Information and Communication Technology (ICT) has become increasingly vital for enhancing manufacturing firms' efficiency and competitiveness, however, evidence on its effects in developing economies remains inconclusive. This study investigated the influence of ICT use on the financial performance and productivity of manufacturing companies in Southwest, Nigeria. The theoretical framework of this study was based on Resource Based View (RBV) and Growth Accounting. The study adopted mixed method, and data were sourced from interviews, and secondary financial data. Findings show that ICT use has a significant positive influence on organisational productivity, and also contributes significantly to productivity beyond the effects of labour and fixed assets, this indicates the role of ICT as a strategic organisational resource. However, secondary financial data result shows there is no statistically significant direct relationship between ICT use and short-term financial performance indicators. This suggests that although ICT enhances operational productivity, financial benefits may be delayed, indirect, or dependent on complementary organisational capabilities and effective strategic alignment. It was therefore concluded that ICT is a critical driver of productivity of Nigerian manufacturing companies, however, for productivity gains to translate to improved financial performance, there is need for managerial competence, sustained investment, and process integration.

Keywords: Information and Communication Technology; Organisational Productivity; Financial Performance; Manufacturing Firms; Southwest Nigeria.

Introduction

In the contemporary society, information explosion, which is manifested in the exponential growth of digital data, has significantly reshaped information generation, processing, and interpretation. Advances in information and communication technology (ICT) experienced over the years have enabled organisations to manage, analyse, and utilise large amount of information more effectively in decision-making and strategic planning (Olatokun, 2007; Laudon & Laudon, 2022). ICT has therefore become a powerful driver of economic, social, and institutional transformation; it has also influenced firm's mode of operation and competition in the digital era (UNCTAD, 2021). The effective integration of ICT is now globally perceived as imperative for organisational competitiveness as well as national development (OECD, 2023). In modern economy, Maciulyte-Sniukiene and Butkus (2020) asserted that ICT plays an essential role. This role is a function of the attendant benefits of ICT use, knowledge development, economic growth and increased productivity.

In different aspects of business organisations, ICT currently plays a tremendous role, both in the service and manufacturing sector. Over the years, ICT has been providing mechanisms through which new market opportunities and specialised information can be accessed. The reasonable infusion of ICT into the administration and production process of organisations has given rise to new forms of work environment, as well as management and planning which aids the comprehension of the process of production operations, information transfer and enhance the process of adaptation to the ongoing evolution of the social and economic environment (Akinrinade, 2020). The revolution in information technology and information system is bringing a drastic change in manufacturing, trading and service industry across the globe, thereby opening new horizons for business enterprises and enables them to carry out their commercial activities through the application of advanced technologies (Bharadwaj et al., 2013). Similar to large commercial projects, ICT is adopted by large organisations for identifying, measuring, monitoring, and controlling potential risks in order for the firm to achieve strategic objectives (Zwikael & Smyrk, 2019; Project Management Institute, 2021).

ICTs adopted by manufacturing firms covers a vast range of technologies such as Management Information System (MIS) that manages the increasing flows of information as a useful resource for management, Advanced Manufacturing Technologies (AMT) that helps firms cope with the growing information content of shop-floor processes (Olatokun 2007). According to Brynjolfsson et al. (2021), ICT have the potential of becoming a major driving force behind economic growth of any organisation because of its potentially strong restructuring impact on existing economic activities in diverse ways. These include raising labour productivity, improving the quality of existing services, increasing capital intensity, enhancing economics of scale, creating new services, and creating new economic structure (OECD, 2020; UNCTAD, 2021).

Productivity, was described by Kretschmer, Cardona and Strobel (2012) as a measure of organisational performance, as well as the relationship between inputs (raw material) such as labour, capital, and technology, and the output produced. Adoption of ICT enables organisations to optimise workflows, streamline operations, and enhance coordination, which eventually lead to improvement in operational efficiency and overall productivity (Brynjolfsson, Rock & Syverson, 2021). Empirical evidence has however shown that ICT-driven productivity gains considerably differ across sectors and even countries, and is also a function of employee skills, institutional context, and complementary investments (OECD, 2023). The accurate measurement of productivity requires reliable estimation of inputs and outputs, as well as an understanding of how technology allows for input substitution. To assess the contribution of different production factors

such as labour, ICT, and capital assets, the growth accounting framework has become a standard analytical approach (UNCTAD, 2021). In Nigeria, the application of ICTs is becoming more and more important in the manufacturing sector, and to a large extent the adoption is believed to have a serious effect on performance of organisations (Olatokun, 2007).

Profitability and productivity are two important economic factors that have played key roles in the evaluation of performance and economic growth. They serve as the foundation for economic prosperity, a pre-requisite for national development and also an important indicator of organisational competitiveness as the use of ICT is increasing day by day in manufacturing firms all over the world. In the study conducted by Kajogbola (2004), ICT adoption and usage was established to be beneficial to both service and manufacturing industries in Nigeria, while the outcome of the preliminary study of Olatokun (2007) on the adoption of ICTs in Nigeria's manufacturing industry shows that the relatively high adoption of ICT by manufacturing firms in the country.

Recent studies suggest that ICT investment alone does not automatically translate into improved organisational performance unless it is supported by complementary factors such as skills, organisational restructuring, and effective management practices (Brynjolfsson, Rock & Syverson, 2021), while empirical evidence continues to show mixed results regarding the extent to which ICT enhances firm performance, sustaining ongoing scholarly debate (OECD, 2023). This uncertainty is particularly evident in the Nigerian manufacturing sector, where infrastructural limitations, capability gaps, and weak institutional support can constrain the realisation of ICT-driven benefits (Adebayo, Olanrewaju & Kareem, 2022; Adeola & Evans, 2023). It has been observed that there is still a serious debate on how investment in ICT and its application can improve financial performance of organisations. Also, most studies on influence of ICT on financial performance has always been based on ratios, while little studies have been carried out on variables used by organisations in presenting their financial report such as sales, profit before and after tax, shareholders fund and earnings per share. The observed gap in literature formed the basis of this study, as the influence of use of ICT on the financial performance and productivity of manufacturing companies in Nigeria was established. There is no known study in this area within the Nigerian context. It therefore becomes imperative to examine how the use of ICT influence productivity and financial performance of manufacturing companies in Nigeria, considering the high cost associated with ICT adoption in organisations.

Objectives of the Study

1. To investigate the influence of ICT on productivity of manufacturing companies in Southwest, Nigeria.
2. To determine the combined effect of ICT usage and financial performance on the productivity of manufacturing companies in Southwest, Nigeria.

Research Hypotheses

- H₀₁: There is no significant difference in the contribution of ICT, Labour and Fixed Asset to Organisational Productivity in Southwest, Nigeria
- H₀₂: ICT usage and financial performance have no significant combined effect on the productivity of manufacturing companies in Southwest, Nigeria.

Literature Review

ICT in the Manufacturing Industry

The continuous turbulence of the business environment, the changing nature of work, opportunities afforded by economic integration, and the changing competitive climate have all combined to present organisations with compelling reasons to re-think their structures, strategies,

missions and approach to business (Olatokun, 2007). The contemporary manufacturing environment is characterised by rapid technological change, intensified global competition, and increasing market uncertainty. These dynamics have compelled organisations to reconsider their structures, strategies, and modes of operation in order to remain competitive and resilient (Porter & Heppelmann, 2019). As manufacturing firms face pressures arising from global integration, evolving customer expectations, and shortened product life cycles, sustaining competitive advantage now depends heavily on the effective use of digital technologies. In this context, the adoption of information and communication technology (ICT) has become a strategic necessity rather than a discretionary investment, particularly for firms seeking to compete successfully in both local and international markets (OECD, 2020; UNIDO, 2022).

Manufacturing firms increasingly deploy ICT across multiple functional areas, although the depth and sophistication of adoption vary widely. Advances in digital connectivity have reduced the relevance of geographical boundaries, enabling manufacturing activities to be coordinated across dispersed locations and global value chains (World Bank, 2021). Consequently, ICT has become integral to manufacturing competitiveness by enabling real-time coordination, enhanced visibility of operations, and improved responsiveness to environmental changes (UNCTAD, 2023). The production of goods and services is now strongly influenced by the systematic application of digital and physical technologies, which together shape how inputs are transformed into outputs with greater precision, speed, and efficiency (Frank, Dalenogare, & Ayala, 2019). As a result, ICT continues to emerge as a major driver of strategic and operational transformation within the manufacturing sector.

Among manufacturing organisations, ICT is being deployed to support a wide range of activities, including electronic procurement, digital marketing and sales, online order processing, and supply chain coordination. Advanced e-business tools facilitate virtual collaboration among firms, enabling joint product development, shared design platforms, and integrated supply chain management across organisational boundaries (Kamble, Gunasekaran, & Gawankar, 2018). Through these applications, ICT enables manufacturing firms in redesigning production processes, strengthening relationships with business partners, and improving operational efficiency at firm and industry levels (OECD, 2020). The diffusion of digital technologies has also contributed to process innovation, which enhances productivity, reduces costs, and improves overall industry performance (UNIDO, 2022).

The specialised application of ICT in manufacturing encompasses several critical areas. Remote manufacturing allows firms to design products in one location while producing them in another, thereby optimising resource utilisation and reducing production costs through global coordination (Frank et al., 2019). Accelerated wear testing employs digital simulations and data analytics to replicate real-life operating conditions, enabling manufacturers to assess product durability and performance under stress before physical deployment. Product testing is similarly enhanced through ICT by allowing extensive testing in controlled virtual environments, improving product reliability and reducing development risks (Porter & Heppelmann, 2019).

Additionally, ICT in manufacturing firms comes in the form of simulated destruction testing which uses advanced software models to predict the response of materials and structures to extreme conditions, inadvertently offering a cost-effective alternative to physical destructive testing. Computerised measurement systems support highly complex and precise measurement tasks throughout different stages of production, improving quality control and consistency. Finally, ICT is deployed by manufacturing firms for process automation, which enables through interconnected digital systems and robotics and allows manufacturing firms to centralise control,

reduce human error, and assign repetitive or hazardous tasks to machines, thereby enhancing safety and operational efficiency (Kamble et al., 2018; UNIDO, 2022).

Growth Accounting

The growth accounting approach to productivity measurement is a prominent example for non-parametric techniques traceable to the works of Tinbergen (1942) and Solow (1957). They formulated productivity measures in a production function context and linked them to the analysis of economic growth. Growth accounting consists of a set of calculations resulting in a measure of output growth, a measure of input growth, and their difference, most commonly referred to as total factor productivity (TFP) growth. Today, the production theoretical approach to productivity measurement offers a consistent and well-founded approach that integrates the theory of the firm, index number theory and national accounts (OECD, 2001). Although Growth Accounting has been mostly used to compute productivity at national level, it can however be used also to compute productivity at the level of the firm or industry. Growth accounting takes as its basis the idea that output in any society or firm is produced by combining together a set of inputs- the factors of production into outputs. The growth accounting methodology imposes a set of strictly neo-classical assumptions that buy the possibility of having a clear interpretation of the relationship between labour productivity growth and capital (including ICT capital), labour and total factor productivity, but does not allow us to measure the indirect effects of ICT investment (Biagi, 2013).

Growth accounting is a methodology used in measuring the productivity of organisations or nations by dividing the growth in output into two parts. The first part is the growth in output attributable to growth in all factor inputs, holding technology constant. The second part is the growth that is traceable only to an increase or decrease in technology. Growth accounting does not explain why factor inputs or technology changes, rather it gives the credit for observed output growth into proximate sources, given the observed growth rates of inputs (Huggett, 2015).

Growth Accounting Equation:

$$\frac{\Delta Y_t}{Y_t} = \frac{\Delta A_t}{A_t} + \frac{\Delta K_{ict}}{K_{ict}} + \frac{\Delta K_{others}}{K_{ict}} + (1-\beta) \frac{\Delta L_t}{L_t}$$

β is Cost share of capital input

$(1-\beta)$ is Labour's share of capital cost

K is Capital

K_{ict} is Capital investment of ICT

K_{other} is Capital investment of other fixed asset

L is labour

A is total Multifactor Productivity (TFP)

ΔY is the change in output in any year,

ΔK the change in the capital stock in a year, and

ΔA the change in the level of efficiency of the economy

The term a, often referred to as the multifactor productivity level captures differences in output across firms and over time that are not accounted for by changes in the input use. Output can be measured either as total cost of production (gross output) or value added, the gross output is however the most commonly method for determining the output of firms. OECD (2001) however noted that whether value added or gross output is chosen, the interpretation of the gross-output and value-added based productivity statistics rests entirely on the assumption that the production function is a valid representation of the production processes. The growth accounting framework according to OECD (2001), relied on some basic assumptions; these include:

- a. Production processes can be represented by production or transformation functions at various levels of the economy or organisations. Production functions relate maximum producible output to sets of available inputs.
- b. Producers behave efficiently, that is, they minimise costs and/or maximise revenues.
- c. Markets are competitive, and market participants are price-takers who can only adjust quantities but not individually act on market prices.

There are few known econometric studies on ICT and productivity at the firm level that has examined multifactor productivity growth, most likely due to data limitations (Brynjolfsson and Hitt, 2003).

Financial Performance Measurement

Prior studies have demonstrated that financial performance can be assessed using measures such as accounting-based measures, market-based measures, or combination of both, depending on the research context and objectives (Venkatraman & Ramanujam, 1986; Gentry & Shen, 2023). Accounting measures which are derived from financial statements of organisations capture historical performance and reflect managerial decisions related to asset utilisation, cost control, and operational efficiency. On the other hand, market-based measures indicate investors' expectations of future performance and growth potential as reflected by share prices and market valuations (Hillman & Keim, 2001). Each approach of financial performance measurement offers distinct theoretical insights, and is subject to specific limitations which invariably makes the choice of performance indicators a critical methodological consideration in empirical studies.

Common financial indicators used by firms to assess performance and summarise performance as seen in published financial reports include revenue, operating profit, profit before taxation, profit after taxation, retained earnings, dividends, and earnings per share. The combination of these indicators provides a comprehensive view of financial outcomes over a reporting period (Gentry & Shen, 2023). Beyond purely financial indicators, researchers have increasingly acknowledged the relevance of non-financial measures in ascertaining the performance of firms; these measures include market share, workforce size, and product portfolio expansion. These serves as complementary indicators of organisational performance, and they capture dimensions of growth, competitiveness, and strategic positioning that may not be immediately reflected in financial accounts (Kaplan & Norton, 2020). Consequently, contemporary firm performance evaluation frameworks often combine both financial and non-financial metrics to provide a more balanced and forward-looking assessment of organisational performance.

However, the use of diverse performance measures complicates cross-study comparisons and empirical generalisation. According to Dechow, Ge, & Schrand (2010), accounting-based indicators are backward-looking and may be affected by differences in accounting standards, managerial discretion, and earnings management practices. Although market-based measures are forward-looking, however, it assumes that capital markets efficiently incorporate all available information into firm valuations which is an assumption that may not always hold, especially among firms in emerging markets (Gentry & Shen, 2023). Therefore, scholars increasingly advocate for the combined use of accounting and market measures to mitigate individual biases and enhance the robustness of financial performance assessment.

Research Methodology

This study adopted mixed-methods research design to investigate the influence of ICT use on the financial performance and organisational productivity of manufacturing companies in Southwest, Nigeria. The quantitative component employed a cross-sectional survey design, using

structured questionnaires to collect primary data from managerial and operational staff of manufacturing firms in Southwest, Nigeria. In addition, secondary financial data were obtained from published annual reports to assess objective measures of financial performance. The qualitative component utilised a descriptive and exploratory approach, involving semi-structured interviews with key informants such as ICT managers and production supervisors to gain deeper insights into ICT usage and its operational implications. Quantitative data were analysed using descriptive statistics, correlation, and multiple regression techniques, while qualitative data were analysed thematically. The integration of quantitative and qualitative methods enhanced the validity of the findings and provided a comprehensive understanding of how ICT use influences productivity and financial performance among manufacturing firms.

The study investigated all the manufacturing companies quoted in the Nigeria Exchange Group (NGX), Southwest, Nigeria. This is based on the fact that Southwest, Nigeria has the highest number of manufacturing companies listed in Nigeria Exchange Group. In all, a total of 30 manufacturing firms were investigated in this study. The inclusion of all the quoted manufacturing companies in Southwest, Nigeria was done using the total enumeration technique, which states that in population size of less than 100 people, a survey of total population should be taken (Gay & Airasian, as cited in Leedy & Ormrod, 2003).

In achieving the objectives of this study, primary and secondary data were collected. Primary data was collected from senior employees at the Finance, and IT departments through questionnaire and interview. Secondary data used in this study were obtained from the published financial reports of the quoted manufacturing companies in Southwest, Nigeria. Secondary data for ten years were collected, from 2014 to 2023.

Presentation of Results

Types of ICT used in Manufacturing Companies

Analysis of interview data reveals that manufacturing companies in Southwest, Nigeria employ a diverse range of ICTs to support their administrative, operational, and production activities. Respondents identified the use of general-purpose and specialized ICTs. The general-purpose ICTs include computer systems, servers, websites, and internet connectivity; while the specialised enterprise and production technologies include enterprise resource planning (ERP) systems, Oracle databases, accounting and human resource software, SAGE applications, and high-performance liquid chromatography (HPLC) systems.

Data obtained indicate that ICT adoption among the quoted manufacturing companies extends beyond basic communication and data processing to encompass integrated systems that support their core business functions. General-purpose ICT infrastructure forms the foundational layer enabling communication, information storage, and connectivity across departments. According to of the Head of the IT Department of one of the companies that participated in this study:

“There are different types of ICT in use in our company. We have computer system, scanner, server, internet, HPLC, and Oracle Database.”

This statement indicates the co-existence of administrative ICT tools and advanced technological systems within a single manufacturing firm; this reveals a multi-layered approach to digitalisation. The use of enterprise systems like Oracle Database, accounting software, ERP, and Human Resource Management software also points to efforts toward data centralisation, process integration, and improved coordination of organisational activities. These types of systems are capable of enabling real-time access to organisational data. This invariably enhances decision-making, and support efficiency in workforce administration, financial management, and supply

chain operations. Furthermore, the use of specialised technologies such as HPLC indicates that ICT adoption also supports production quality control and technical analysis, especially in manufacturing contexts that require precision testing and compliance with quality standards. This finding therefore suggests that ICT use among the manufacturing firms studied is not limited to back-office functions but is embedded within their production and quality assurance processes. The qualitative evidence gathered also reveals that manufacturing organisations in Southwest, Nigeria are progressively adopting a combination of basic, enterprise-level, and specialised ICT tools. This pattern is a reflection of varying levels of digital maturity of manufacturing companies and underscores the strategic role of ICT in enhancing operational efficiency, integration, and competitiveness within the manufacturing sector.

Influence of ICT usage on Organisational productivity

Interview data provide insights regarding how the contribution of ICT to productivity improvements. All interviewed employees affirmed that ICT has been actively integrated into production processes particularly in technically intensive activities like chemical formulation, coding, counting, and movement of equipment and materials within the factories. Responding on the role of ICT in quality control and production accuracy, one of the respondents reported that:

“ICT is used in our production process, for instance HPLC is used for data analysis. We also use ICT for chemical formulation; we also use ICT to know the measurement and content of drugs. Also, we use wheel balancing to measure the thickness of the drugs so that before the mass production of drugs, we will be sure the drug is produced to specification.”

This statement illustrates ICT supports for standardisation, precision, and quality assurance, which results to error reduction and rework, which serves as fundamental determinants of productivity within manufacturing environments.

Furthermore, interview responses reinforced the survey finding that ICT increases average output per employee. Respondents emphasised the time-saving and efficiency benefits of automation and computerisation. As one employee stated:

“Using the ICT, job that should have been done manually can be done using computer and done at minimal time.”

This response shows how ICT replaces labour-intensive tasks with faster and more accurate digital processes, and enabling employees to produce more output within shorter timeframes.

Regarding workforce reduction, the qualitative data also corroborate the quantitative findings while also providing nuance. Respondents acknowledged that ICT adoption has significantly reduced labour requirements, however, it was emphasised that certain tasks still require human input. Examples cited during the interviews included firms operating with lean staffing structures such as a healthcare company with only six employees in its sales unit and a consumer goods company with just two ICT staff supporting the entire organisation and its external branches. One respondent succinctly captured this impact and asserted that: *“...with the use of ICT, the work of twenty people can be done by two people.”* This statement reflects the labour-saving potential of ICTs, while also implying a shift in workforce composition rather than complete labour elimination.

These results underscore the role ICT plays as a productivity-enhancing resource which enables manufacturing organisations to achieve higher output using fewer resources, while maintaining quality standards and operational effectiveness.

Test of Hypotheses

Hypothesis One

H01: There is no significant difference in the contribution of ICT, Labour and Fixed Asset to Organisational Productivity in Southwest, Nigeria

Table 1 present the relationship between ICT, Labour and Fixed Asset as factors of production and Organisational Productivity.

Table 1: Regression Analysis of Organisational Productivity

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-1.884	.710		-2.653	.015
	Productivity-Fixed Asset	1.330	.100	.948	13.282	.000
2	(Constant)	-1.667	.427		-3.901	.001
	Productivity-Fixed Asset	.734	.115	.523	6.358	.000
	Productivity- Labour	.521	.086	.498	6.050	.000
3	(Constant)	-1.835	.278		-6.593	.000
	Productivity-Fixed Asset	.483	.089	.344	5.446	.000
	Productivity- Labour	.455	.057	.435	7.977	.000
	Productivity-ICT	.342	.065	.276	5.236	.000

a. Dependent Variable: Organisational Productivity

Three models were estimated to assess the incremental contribution of fixed assets, labour, and ICT to organisational productivity. Model 1 considered fixed assets as the sole predictor of organisational productivity. The results indicate a strong and statistically significant positive relationship between fixed assets and organisational productivity ($B = 1.330$, $\beta = 0.948$, $t = 13.282$, $p < .001$). This finding suggests that investment in fixed assets which includes machinery and equipment plays a critical role in enhancing productive capacity and operational efficiency among manufacturing companies in Southwest, Nigeria.

Model 2 introduced labour as an additional predictor alongside fixed assets. Both variables remained statistically significant. Fixed assets continued to exert a positive influence on organisational productivity ($B = 0.734$, $\beta = 0.523$, $t = 6.358$, $p < .001$), while labour also demonstrated a significant positive effect ($B = 0.521$, $\beta = 0.498$, $t = 6.050$, $p < .001$). The reduction in the coefficient for fixed assets relative to Model 1 is an indication that part of its effect is shared with labour, which indicates complementarities between capital investment and human input in driving productivity.

Model 3 included ICT as a third predictor. The results show that all three variables, that is, fixed assets, labour, and ICT all have significant and positive effects on organisational productivity. Fixed assets ($B = 0.483$, $\beta = 0.344$, $t = 5.446$, $p < .001$) and labour ($B = 0.455$, $\beta = 0.435$, $t = 7.977$, $p < .001$) remained strong predictors, while ICT also emerged as a significant contributor ($B = 0.342$, $\beta = 0.276$, $t = 5.236$, $p < .001$). Inclusion of ICT further reduced the coefficients of fixed assets and labour, suggesting that ICT investment accounts for additional variance in organisational productivity beyond traditional production inputs.

Therefore, the findings demonstrate that organisational productivity is jointly influenced by physical capital, human labour, and ICT investment. Although fixed assets and labour remain foundational drivers of productivity, ICT however plays a statistically significant and complementary role by enhancing efficiency with which traditional inputs are utilised. These results therefore suggest that manufacturing organisations that integrate ICT with their physical and human resources are more likely to achieve higher productivity outcomes.

Hypothesis Two

H₀: There is no significant relationship between the influence of ICT use on financial performance and organisational productivity of manufacturing companies in Southwest, Nigeria.

Using secondary data, Pearson Product Moment Correlation analysis was conducted between organisational productivity and selected financial performance indicators, namely sales, profit before tax, profit after tax, shareholders’ fund/net asset, and earnings per share. The results are presented in Table 2.

Table 2: Correlation of Financial Performance and Organisational Productivity

		Organisational Productivity
Sales	Pearson Correlation	-.258
	Sig. (2-tailed)	.334
	N	26
Profit before Tax	Pearson Correlation	-.262
	Sig. (2-tailed)	.327
	N	26
Profit after Tax	Pearson Correlation	-.342
	Sig. (2-tailed)	.194
	N	26
Shareholders Fund/Net Asset	Pearson Correlation	-.349
	Sig. (2-tailed)	.186
	N	26
Earnings per Share	Pearson Correlation	-.370
	Sig. (2-tailed)	.158
	N	26

Correlation results show negative relationships between organisational productivity and all the financial performance indicators considered in this study. Specifically, sales ($r = -0.258$), PBT ($r = -0.262$), PAT ($r = -0.342$), shareholders’ fund/net asset ($r = -0.349$), and EPS ($r = -0.370$) all exhibit weak to moderate negative correlation coefficients. However, none of these relationships are statistically significant as the corresponding p-values are all greater than the 0.05 significance level ($p > 0.05$).

The results show that all financial performance indicators namely sales, PBT, PAT, shareholders’ funds, and EPS are negatively related to organisational productivity, although the relationships are weak and not statistically significant. This pattern suggests that higher financial performance does not necessarily translate into improved productive efficiency. One possible explanation is that manufacturing companies may be experiencing inefficiencies in the use of resources, where increases in revenue or profit are not matched by proportional gains in output. It may also reflect overinvestment or underutilisation of capital especially in contexts where

structural and operational challenges limit effective deployment of resources. Furthermore, financial indicators can be influenced by accounting practices or short-term strategies that do not directly capture operational performance, creating disconnect between profitability and productivity. The absence of statistical significance further indicates that these relationships are not strong enough to draw firm conclusions, and may be influenced by external factors, time-lag effects, or data limitations.

The absence of statistical significance is an indication that variations in organisational productivity as captured in this analysis are not systematically associated with changes in the selected financial performance indicators based on the available secondary data. Consequently, the null hypothesis is not rejected. This therefore implies that when secondary financial data are used there is no statistically significant relationship between ICT-related financial performance measures and organisational productivity among the manufacturing companies studied. The contrasting results between this analysis and those obtained from primary data suggest that the relationship between ICT use, financial performance, and productivity may be influenced by measurement approaches, time lags, or firm-specific contextual factors. Secondary financial indicators often reflect aggregated outcomes and may not immediately capture the productivity gains associated with ICT investments particularly in the short term or in environments where complementary organisational capabilities are still developing.

The findings suggest that although the perception of managers and employees may be that ICT use is enhancing productivity and financial outcomes, such effects may not be directly observable in archival financial data without considering moderating factors such as firm size, industry characteristics, or the maturity of ICT implementation.

Discussion of Findings

Finding reveals consistent and significant positive influence of ICT use on organisational productivity among manufacturing companies in Southwest, Nigeria. The survey showed that nearly all respondents acknowledged that ICT use enhances output per employee, and increases employee efficiency and improves job satisfaction. This is in accordance with existing research linking digital technology adoption to productivity gains (Cette, Nevoux & Py, 2025). Recent empirical evidence from firm-level data supports this finding that broader ICT adoption significantly improves labour productivity and total factor productivity (TFP), demonstrating that ICT enables organisations to operate more efficiently and achieve greater output with the same or fewer inputs (Gargallo-Castel and Galve-Górriz, 2012; Chinedu, Boneri, & Yagboyaju, 2025).

Also, qualitative interviews provided insight regarding how ICT has been embedded in production processes. For example, advanced measurement technologies like high-performance liquid chromatography (HPLC) and computerised process controls were cited by respondents as critical in ensuring precision and reducing errors in manufacturing firms in Southwest, Nigeria. This reflects broader literature indicating that digital and automation technologies enhance production accuracy and operational control, which in turn reduces waste and enhances product quality. Furthermore, respondents highlighted that ICT enables tasks that were previously manual to be completed more rapidly and with fewer errors. This finding is consistent with literature on how ICT improves efficiency and reduces operational costs (Ayatse, 2012; Abdullahi & Mohamud, 2023).

Regression analysis demonstrate that fixed assets and labour remain foundational predictors of organisational productivity, however, ICT contributes additional explanatory power beyond these traditional inputs. This pattern aligns with theoretical expectations from the production function and Resource-Based View which posit that ICT constitutes an intangible

resource that enhances the effectiveness of other production factors (Venkatraman & Ramanujam, 1986). Recent cross-industry evidence indicates that interaction of ICT adoption with other organisational resources significantly influence productivity outcomes, highlighting complementarities between digital tools and human capital (Machek, 2014).

The finding of this study that ICT adoption can reduce workforce size in some production settings conforms with contemporary discussions on digital labour substitution and task automation. Although the perception of majority is that ICT reduces number of required employees, however, qualitative evidence indicated that remaining tasks still require human oversight particularly in technical and quality-assurance roles. This nuanced effect where ICT reconfigures rather than eliminates labour echoes broader research on digital transformation and labour dynamics, which finds that technology tends to shift the nature of job tasks rather than lead to wholesale job losses (Abdullahi & Mohamad, 2023).

Correlation analysis using primary data showed very strong positive relationship between ICT-influenced financial performance and organisational productivity. This suggests that manufacturing firm's internal perceptions of financial outcomes associated with ICT align with operational improvements. However, secondary data analysis yielded non-significant correlations between published financial indicators (sales, profit margins, earnings per share) and productivity measures, revealing that productivity gains do not immediately or uniformly translate into stronger financial performance as captured by archival financial metrics. This finding resonates with studies that show the effects of ICT on financial outcomes can be lagged, indirect, or contingent on other organisational capabilities such as strategic alignment, managerial competence, and market conditions. Indeed, recent research on ICT and firm financial performance finds mixed effects, with some studies reporting limited direct financial gains despite efficiency improvements (Okeke, 2024).

Taken together, the findings reinforce the view that ICT plays a crucial role in enhancing productivity across multiple dimensions of manufacturing operations. By facilitating data-driven decision-making, improving operational accuracy, and enhancing coordination between functions, ICT can help firms overcome structural inefficiencies and respond more effectively to competitive pressures. At the same time, the disconnect between productivity gains and short-term financial performance highlights the importance of examining mediating factors such as strategic investment decisions, market dynamics, and absorptive capacity.

In theoretical terms, the results support the RBV assertion that ICT functions as a valuable and non-substitutable resource that enhances organisational capabilities when combined with traditional inputs. They also underscore the need for integrative frameworks that consider how ICT interacts with organisational structures, processes, and strategic orientations to affect long-term performance outcomes.

Conclusions

This study examined the influence of ICT use on organisational productivity and financial performance in manufacturing companies in Southwest, Nigeria, integrating both primary and secondary data. The findings indicate that ICT adoption significantly enhances organisational productivity by improving employee efficiency, increasing output per worker, supporting quality assurance, and streamlining production processes. ICT also facilitates strategic business functions such as sales, marketing, customer service, and research and development, thereby contributing to more efficient and responsive organisational processes. Regression and correlation analyses further confirm that ICT complements traditional production resources, such as labour and fixed assets, to drive productivity gains. However, while managerial and employee perceptions highlight

a strong positive relationship between ICT use, productivity, and financial performance, secondary financial data reveal no statistically significant direct effect on financial outcomes. This suggests that the financial benefits of ICT may be indirect, delayed, or contingent upon complementary organisational capabilities and strategic alignment. The study underscores the critical role of ICT as a strategic resource that enhances operational efficiency and productivity. For manufacturing firms, the effective integration of ICT into core processes is essential to sustain competitive advantage, optimise resource utilisation, and support long-term organisational growth. Future research could explore the moderating effects of firm size, industry characteristics, and digital maturity to further understand the conditions under which ICT investments translate into measurable financial performance gains.

Recommendations

Based on the outcome of this study, the following recommendations were made:

1. Management should adopt a strategic approach to ICT deployment by aligning digital tools with organisational goals and operational workflows to maximise efficiency and output.
2. To maximise the benefits of ICT, firms must ensure employees possess the necessary technical and digital skills. Training programmes, workshops, and continuous professional development should be implemented to upskill staff and enable them to adapt to emerging digital technologies.
3. Given the weak correlation between secondary financial data and productivity gains, firms should implement performance measurement systems that track both operational and financial outcomes of ICT investment.

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