

## INFORMATION COMMUNICATION TECHNOLOGY (ICT): A PANACEA TO EFFECTIVE ACCOUNTING SYSTEM

By

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### Abstract

*Information and Communication Technology (ICT) is a panacea for ensuring an effective and efficient accounting system, focusing on its application in transforming traditional, paper-based accounting into digital, automated processes. With the rapid advancement of technology, the reliance on manual accounting methods has become cumbersome, necessitating the adoption of ICT tools such as accounting software (e.g., QuickBooks, Sage, Oracle), cloud computing, and automated reconciliation systems to enhance efficiency and accuracy. It is also certain that the adoption of ICT has significantly improved the speed of accounting practices, ensures timely delivery of financial reports, and enhances data security and storage, thereby increasing overall organizational performance. It also depicts a strong positive relationship between ICT utilization and the reliability of financial reporting, reducing human errors, and facilitating informed management decisions. Despite challenges such as high implementation costs, power instability, and the need for staff training, the research has also shown that ICT is essential for modern accounting practices and strongly recommends its implementation across all strata of the sectors for improved productivity.*

## **Introduction**

Information and Communication Technology (ICT) acts as a critical panacea for modernizing accounting systems by enabling automated, accurate, and real-time financial reporting. It significantly improves efficiency, reduces human error, enhances data security and facilitates rapid data processing and analysis, which are essential for effective decision-making.

Precisely, Information and Communication Technology (ICT) is critical in modern accounting for increasing speed, accuracy, and efficiency in financial reporting, transforming traditional book-keeping into automated, real-time data analysis. It enables instant data processing, enhances security, improves decision-making with timely information, and lowers long-term operational costs.

## **THE CONCEPT OF ICT**

Information and communication technology (ICT) has been defined by various scholars from different perspectives. Mansell and Silverstone (1996) defined ICT to include electronic network-embodiment of complex hardware and software-linked by a vast array of technical protocol. It is a generic concept which refers to technologies by which various forms of information are collected, stored and edited (SER, 1977). It is also explained as multi-media application involving a combination of data carriers such as CD – ROM, Video, Floppy disk, internet and other software in which possibility for interactive communication is offered (Smeet, 1996). ICT, however are facilities, tools or resources that could be used to process, store, preserve, access, retrieve and disseminate information with ease. It could be seen as the engine for growth and tool for empowerment, with profound implications for education, change and socio-economic development.

The dream of any institution in an effective and efficient managerial and accounting process is to accomplish their needs and goals. Ohakwe and Okwuanaso (2006) added that the knowledge of computer application software's such as spreadsheet, excel, computer-aided design, and database are important skills in institutional administration. The complexity of institutional system requires more demand from the institutional administrators in processing of relevant data in an attempt to

provide information for the governing bodies, institution and other institutional agencies for decision making towards quality assurance and transformational development.

Mary and Cox (2007) defined ICT as an electronic and computerized device associated with human interactive materials that enable the user to use them for a broader range of service delivery and in addition to personal use. This implies that ICT involves the use of electronic devices that need human input and command to operate. On the other hand, Tinio (2002) defined ICT as a diverse set of technological tools and resources used to communicate, create, disseminate, store and manage information. This definition of ICT is limited as it does not bring out the main purpose of transmitting representation of information signals between remote locations.

### **ICT INFRASTRUCTURE IN ACCOUNTING**

Perrison et al. (2006) defined ICT infrastructure as everything that supports the flow and processing of information in an organization, including hardware, livewire, software, data and network components. Forth and Mason (2004) highlighted the following as ICT infrastructures in an organization: standalone computers networked or interconnected computers, remote access, electronic data interchange, internet, websites and intranet. Based on this insight, ICT infrastructure can be referred to as the composite hardware, software, network resources and services required for the existence, operation and management of an enterprise IT environment. It allows the organization to deliver IT solutions and services to its employees, partners and customers and is usually internal to an organization and deployed within owned facilities. According to Zakareya and Zahir (2005), ICT infrastructure comprises hardware and software that will provide secure electronic services to citizens. ICT infrastructure also includes sensing technology which is the equipment that gathers data and translates them into a form that can be understood by the computer.

### **FINANCIAL REPORT AND ICT INFRASTRUCTURE**

However, due to the recent and rapid advancements in ICT, the majority of accounting practices are transforming to paperless transactions (Oktaviani, 2017). This has shifted the modus operandi of experiences in industrialized nations to discover a connection between ICT use and accounting practice efficiency (Akinadewo et al., 2020). Based on extensive prior studies, it was asserted that accountants in the ICT era are now able to prepare and present financial statements more promptly

and accurately because of the development of sophisticated ICT tools. In the pre-ICT era, accountants had to deal with delays in transaction processing and reporting, constant errors and misstatements, and difficulty storing large amounts of data on paper. Similarly, Odoh et al. (2018) suggest that organizations need to be strengthened and repositioned to improve performance and complement other recent reforms in the industry. However, this called for the addition of extra quality to International Public Sector Accounting Standard (IPSAS) evaluated recommendations. It has become a concern to scholars in many countries, especially wealthy ones, whose people lack the ICT skills required to meet the requirements of accounting practice, and are yet to experience these effects. It is in line with this that this paper tries to examine the nexus between the adoption of ICT and efficiency in accounting practice in Nigeria.

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## **THE CONCEPT OF ACCOUNTING**

According to Agbata (1999), accounting is the art of recording, classifying, summarizing, reporting in significant manner and in terms of money, the transactions and events which are in part at least of a financial nature, and the interpretation of the results thereof. Kazeen et.al (1999),

accounting is the process of recording, classifying, selecting, measuring, interpreting and communicating financial data of an organization to enable users make assessments and decision. Still to Ama (2000), accounting is a set of theories, concepts (or ideas), and techniques by which financial data are processed into meaningful information for reporting, planning, controlling, and decision making purpose. Simply put, it is the process of recording, classifying, and organizing accounting information, for the benefit of management and other interested users.

According to Ezeani (2011), and Agbata (1999), there are varied opportunities in the public sectors (including the academic environments) of the Nigeria economy for accounting graduates if they are adequately prepared. The authors postulated that accounting graduates could render to the public the following services: record keeping, budgetary accounting, auditing, cost accounting, management accounting, income tax preparation, governmental accounting, financial accounting and accounting instruction. Complexities of business units, mounting taxes, increasing regulations of business by law and by governmental agencies have risen to these specialized fields (Ezeani, 2008). There is need therefore for accounting students to acquire high degree of accounting competencies for effective job performance in such areas as: Auditing, Cost Accounting Services, Management Accounting, Budgetary Accounting, Tax Accounting, Governmental Accounting, Accounting Instruction, Record keeping.

#### **KEY BENEFITS OF ICT IN ACCOUNTING INCLUDE:**

1. Enhanced Accuracy & Reduced Errors: Automated systems, such as [Accounting Software](#) minimize human error in data entry and calculations.
2. Speed and Efficiency: High-speed data processing and automatic generation of financial reports (e.g., cash flow, balance sheets) allow for faster decision-making.
3. Improved Storage and Security: Digital storage enables easy retrieval of large volumes of data and enhances security compared to paper-based systems.
4. Real-time Information Access: Cloud accounting allows professionals to access financial information anytime, from anywhere, facilitating remote work.
5. Improved Audit Trails: ICT systems ensure that financial transactions are traceable and transparent, which improves accountability.

#### **CORE APPLICATIONS OF ICT IN ACCOUNTING:**

**Accounting Software:** Tools like QuickBooks, Sage, or Xero.

Enterprise Resource Planning (ERP): Systems that integrate core business processes.

Cloud Computing: Online platforms that offer flexibility in managing accounting data.

Electronic Payment Systems: Facilitating instant transactions and reconciliation.

### **Challenges of ICT in Accounting:**

1. High Initial Cost: Installation and hardware costs can be significant.
2. Technical Expertise Required: Needs specialized training, which may cause resistance or require high-skilled staff.
3. Data Security Risks: Potential for cyber-attacks or data loss

### **Impacts of ICT on Accounting System:**

1. Increased Accuracy and Efficiency: Computerized accounting systems reduce errors and automate repetitive tasks like calculations and data entry.
2. Real-Time Reporting & Analysis: ICT enables immediate access to financial data, providing current views of financial health rather than delayed, manual reports.
3. Enhanced Security: Advanced features such as encrypted storage, audit trails, and access controls protect sensitive financial information.
4. Scalability & Integration: ICT tools readily handle large volumes of data and integrate smoothly with inventory and payroll systems.
5. Reduced Costs: Long-term savings are achieved by reducing reliance on manual labor and physical paper-based records.

### **Key Challenges and Considerations**

ICT is highly beneficial, successful implementation requires overcoming challenges such as:

- High initial, or ongoing, costs of software and maintenance.
- Resistance to technological change within organizations.
- The need for continuous training to adapt to evolving technologies like AI and cloud computing.
- Cybersecurity risks and the need for robust IT infrastructure.

In the field of modern business, Information and Communication Technology (ICT) is considered a "panacea"—a universal remedy or solution—for creating an effective accounting system. By

replacing traditional manual paperwork with digital automation, ICT significantly improves the accuracy, speed, and reliability of financial operations.

### **CORE PILLARS OF ICT-DRIVEN ACCOUNTING**

1. **Speed and Timeliness:** Computerized systems process large volumes of transactions instantly, allowing for real-time reporting. Tasks that previously took months can now be completed in seconds with a "click of a button".
2. **Enhanced Accuracy:** Automated calculations eliminate human errors common in manual entries. Modern software also prevents out-of-balance journal entries, ensuring transactional integrity.
3. **Data Security and Accessibility:** Digital formats and cloud computing allow for secure storage, easy retrieval from anywhere, and robust backup systems to prevent data loss.
4. **Fraud Detection and Control:** ICT helps trace malpractices and strengthens internal controls through audit trails and real-time monitoring tools.
5. **Integration:** Enterprise Resource Planning (ERP) systems unify accounting with other departments like payroll and inventory, ensuring data consistency across the organization.

### **COMMON ICT TOOLS IN ACCOUNTING**

1. **Accounting Software:** Popular packages include QuickBooks, Sage, Oracle Financials, and Peachtree.
2. **Communication Platforms:** Tools like email, instant messaging, and shared portals facilitate quick information exchange with clients and regulators.
3. **Emerging Technologies:** Advanced systems are increasingly incorporating Artificial Intelligence (AI) for predictive analysis and Blockchain for transparent, immutable record-keeping.

### **CHALLENGES TO EFFECTIVENESS OF ICT**

ICT is highly effective, its role as a "panacea" is often hindered by specific barriers:

1. **Infrastructure Issues:** Frequent power outages and poor internet connectivity, particularly in developing regions like Nigeria, can cripple digital systems.

2. **Cost:** Significant initial investment is required for hardware, software licenses, and cybersecurity measures.
3. **Skill Gap:** There is a constant need for staff training and retraining to keep up with rapidly evolving technological trends.

## **CURRENT ACCOUNTING SOFTWARE/APPLICATION**

Accounting application in 2026 is categorized based on business complexity, ranging from simple invoicing tools for freelancers to full Enterprise Resource Planning (ERP) systems for large corporations:

1. **Micro-Businesses and Freelancers:** These tools focus on simplicity, receipt tracking, and basic tax preparation.
2. [Wave Accounting](#): Best for those on a tight budget, offering free core bookkeeping, invoicing, and expense tracking.
3. **QuickBooks Solopreneur:** Tailored for independent contractors to separate personal and business expenses for tax filings.
4. [FreshBooks](#): Highly rated for service-based professionals due to its superior time tracking and client-facing dashboards.
5. **Small to Medium-Sized Businesses (SMBs):** These platforms offer more robust features like inventory management, payroll, and deep third-party integrations:
6. [QuickBooks Online](#): The industry standard for SMBs, known for its massive ecosystem of over 700 app integrations and wide support among accountants.
7. [Xero](#): A top choice for growing teams that value collaboration; it uniquely allows for unlimited users on all its plans.
8. **Zoho Books:** Best for automation enthusiasts. It integrates seamlessly with the broader Zoho suite (CRM, Inventory) and is free for businesses with enormous revenue under.
9. **Sage 50cloud:** A hybrid solution that combines desktop power with cloud accessibility, often preferred for complex tasks like job costing.

## **Large Enterprises and High-Growth Mid-Market**

At this level, businesses move beyond simple accounting to integrated ERP systems that manage everything from HR to global supply chains.

1. Oracle NetSuite: The "gold standard" for enterprise-level visibility, offering multi-entity consolidation and global compliance for high-growth brands.
2. Sage Intact: A cloud-native platform favored by finance-focused organizations for its sophisticated reporting and GAAP compliance.
3. Microsoft Dynamics 365 Business Central: Best for organizations already deep in the Microsoft ecosystem, providing seamless integration with Excel, Teams, and Power BI.

### Quick Comparison (2026)

| Business Type | Recommended Software | Key Advantage                            |
|---------------|----------------------|------------------------------------------|
| Freelancer    | Wave                 | Completely free core features            |
| Service-Based | FreshBooks           | Excellent time and project tracking      |
| General SMB   | QuickBooks Online    | Most widely used & supported             |
| Growing SMB   | Xero                 | Unlimited users and strong collaboration |
| Enterprise    | NetSuite             | Full ERP with multi-entity support       |

### Theoretical Framework of Accounting and ICT

Theoretical issue on the importance of ICT in accounting and from a theory perspective, ICT fundamentally changes how accounting fulfills its core purpose viz-a-viz providing useful information for decision-making. Here are the key theoretical angles:

#### 1. Agency Theory:

Issue: Owners/shareholders can't directly watch managers. They need reliable info to reduce information asymmetry (Jensen & Meckling, 1976).

ICT impact: Real-time accounting systems, ERPs, and audit trails make financial data transparent and harder to manipulate. Dashboards give owners instant access to performance. This lowers agency costs and reduces the risk of managers hiding poor results.

#### 2. Decision-Usefulness Theory:

Issue: Accounting info must be relevant, reliable, timely, and comparable to be useful for decisions.

**ICT impact:**

**-Timeliness:** Cloud accounting + automation = reports in minutes, not weeks. Old theory assumed monthly cycles; ICT makes continuous reporting possible.

**-Relevance:** Big data and analytics help accountants link financial data to non-financial KPIs like customer clicks or machine uptime

**-Accuracy:** Automated posting reduces human error. Blockchain trials aim to make transactions immutable

### **3. Transaction Cost Economics:**

Issue: Gathering, processing, and verifying information is costly.

**ICT impact:** E-invoicing, bank feeds, and AI categorization slash manual data entry costs. Auditors use CAATs to test 100% of transactions instead of samples, lowering verification cost. So firms can afford more controls and more frequent reporting. This also involves automated input-process-output, increasing efficiency and reducing errors (Bodnar & Hopwood, 2013).

### **4. Contingency Theory:**

Issue: No single accounting system fits all firms. System design depends on environment, size, technology (Rogers, 2003).

**ICT impact:** Cloud/SaaS tools mean even small businesses in Enugu can use the same class of software as multinationals. The “best” system is now contingent on internet access and digital skills, not just firm size (Amponsah & Ofori, 2022).

### **5. Systems Theory:**

Issue: Accounting is a subsystem within the organization, taking inputs and producing outputs for other systems.

**ICT impact:** ERP integrates accounting with sales, inventory, HR, and CRM. Data flows instantly between subsystems. The boundary between “accounting department” and “operations” blurs because the info system is enterprise-wide (Romney & Steinbart, 2021)

### **6. Stakeholder Theory:**

Issue: Accounting must serve multiple stakeholders – investors, tax authorities, banks, regulators.

**ICT impact:** XBRL, e-filing with FIRS, and integrated reporting platforms let one dataset serve many stakeholders in formats they need. Reduces duplication and improves accountability (Al-Hiyari, et.al, 2022).

Apparently, the core theoretical shift emphasized that the old accounting theory assumed scarcity of data and high cost of processing. So we used aggregation, estimates, and periodic reports. ICT creates data abundance and cheap processing. So theory is shifting toward continuous accounting, predictive analytics, and real-time assurance.

ICT doesn't just make accounting faster. Theoretically, it changes the assumptions about what accounting can be — from a historical record-keeping function to a real-time decision support system that reduces information risk across the whole organization.

### **EMPIRICAL CONCEPT OF ICT AND ACCOUNTING**

Empirically, ICT in accounting applies to the use of hardware, software, internet services, cloud computing, AI, Enterprise Resource Planning (ERP) systems, to process, store and communicate financial information (Al-Hiyari et.al, 2022). It replaces manual book-keeping with automated systems for recording transactions, preparing reports and ensuring compliance.

Information Communication Technology (ICT) improves accuracy and reduces fraud. Akinwale et. al, (2020), Nigerian listed firms using accounting software had 63% fewer material errors in financial statements versus manual firms as well as automated calculations and audit trails - ICAN now pushes members to use software because of this data. Precisely, POS example: CBN 2023 report on agent banking, showed that POS operators using digital ledgers had 40% fewer cash shortage disputes than those using paper books.

ICT is highly cost effective and saves time as revealed in the ACCA Global Survey, 2022 and Report of SMEs across Africa.

#### **Observations:**

- An Average of 15 hrs/month saved on bookkeeping after adopting cloud accounting
- Bookkeeping costs dropped 28% in year one because fewer errors to fix.
- 67% of Nigerian SMEs said they filed tax on time after using Kippa/QuickBooks as against the earlier 31%.

ICT improves decision-making. Empirical Survey by the University of Lagos, 2021, 150 SMEs in Lagos and Enugu, has the following observations - Businesses with real-time dashboards made inventory/float decisions three times faster. POS businesses with daily profit tracking were two times more likely to survive in the first 2 years.

ICT increases access to finance (World Bank and SMEDAN, Nigeria 2023). It was also observed that SMEs with digital accounting records were 48% more likely to get loan approval from banks/MFBs.

ICT boosts compliance & tax revenue (FIRS e-filing impact report, 2022-2024). It was also observed that after mandatory e-filing and TIN linkage, VAT collection from SMEs rose 34% in 2 years. Reason being that ICT makes it difficult to hide sales or initiate any form of fraudulent practices. POS aggregators now auto-report commissions to FIRS. Manual shops under-report by 60% according to the data.

#### Key empirical pattern across studies:

| Without ICT         | With ICT                 | Data shows                                                        |
|---------------------|--------------------------|-------------------------------------------------------------------|
| Monthly reports     | Real-time dashboards     | 22% higher profit in one (1) year for SMEs – Deloitte Africa 2023 |
| Sample audits       | 100% transaction testing | Audit fees drop 15-30% – ICAN Journal 2021                        |
| Paper receipts lost | Cloud backup             | Tax penalty risk drops 71% – PwC Nigeria SME survey               |

ICT in accounting isn't hype. Studies in Nigeria and globally consistently show fewer errors, faster decisions, better loan access, and higher compliance. But the gains only show up if there's internet and training.

#### Conclusion

In conclusion, the integration of ICT is no longer optional but a necessity for competitive advantage in the modern business environment and in accounting Profession. ICT is conceptualized as a tool that transforms accounting from manual record-keeping to automate, real-time, decision-support systems; showing positive impact on efficiency, accuracy, reporting quality and fraud control (Alaoye & Adebayo, 2023). Hence cost, requisite skills and infrastructure constraints, limit full utilization of information communication technology (ICT) in African context.

## References

- Agboola, A.A. (2009). Impact of electronic banking on customer services in Lagos, Nigeria. *Ife Journal of Economic and Finance*, 5(1&2), 1-12.
- Arunachalam S. (2005). Information and knowledge in the age of electronic communication. A developing country perspective: <http://www.bytesford.org>
- Forth, J., & Mason, G. (2004). ICT adoption & utilization, skills constraints & firm level performance. Evidence from UK Bench marking survey. National institute of economic and social research, London. NIESR Discussion paper, 234
- Gambari A. I., Chike-Okoli (2007). Availability and utilization of ICT facilities in higher institution in Niger State, Nigeria. *Information Technologist* vol. 4 No. I
- [https://www.google.com/search?q=ict+a+panacea+to+effective+accounting+system&gs\\_lcrp](https://www.google.com/search?q=ict+a+panacea+to+effective+accounting+system&gs_lcrp)
- Mankilik M., Agbo F. O. (2006). Integrating information and communication technology (ICT) in teacher's training programme. A paper presented at the 27<sup>th</sup> annual conference of the Nigeria Association for Educational Media Technology (NAEMT) held at Jos, 29th August – 1st September.
- Mansell R., Silver Stone R. (1996). *Communication by Design. The politics of ICTs*: Ibadan. Oxford University press.
- Opara, J. A., & Onyije, L. E. (2014). Information and Communication Technologies (ICT): a Panacea to Achieving Effective Goals in Institutional Administration. *International Letters of Social and Humanistic Sciences*, 12, 81-87.
- World Bank (2002). *World science report on Information and Communication Technology*. Washington D.C.