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THE ROLE OF INFORMATION AND COMMUNICATION TECHNOLOGY (ICT) IN ENHANCING THE EFFICIENCY OF THE BURSARY DEPARTMENT: A CASE STUDY OF PRINCE ABUBAKAR AUDU UNIVERSITY, ANYIGBA, KOGI STATE

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Abstract

Information and Communication Technology (ICT) has become a fundamental tool in improving administrative and financial efficiency in higher education institutions. This study investigates the role of ICT in enhancing the efficiency of the bursary department at Prince Abubakar Audu University, Anyigba, Kogi State, Nigeria. A descriptive survey research design was adopted, and data were collected from bursary staff through questionnaires and interviews. Findings indicate that ICT significantly enhances efficiency through automation, improves accuracy in financial transactions, promotes transparency, and supports real-time financial reporting. However, challenges such as inadequate infrastructure, lack of training, and cybersecurity threats hinder optimal utilization. The study concludes that ICT is essential for effective financial management in universities and recommends increased investment in infrastructure, staff capacity building, and improved ICT policies.

Keywords: ICT, bursary department, financial management, university administration, efficiency, Nigeria

1. Introduction

The evolution of ICT has transformed organizational processes globally, particularly in financial management systems (David, 2008; World Bank, 2020). In higher education institutions, bursary departments play a crucial role in handling financial transactions such as fee collection, payroll, budgeting, and financial reporting (Olasanmi, 2019). Traditionally, these processes were manual, resulting in inefficiencies, delays, and increased susceptibility to errors and fraud (Adegbite & Olayemi, 2021).

The integration of ICT into bursary operations has improved efficiency through automation, digital record-keeping, and real-time reporting systems (Danlami, 2022; Yakubu et al., 2024). Studies show that ICT adoption enhances financial transparency, accountability, and operational effectiveness in tertiary institutions (IIARD, 2022; Bamigboye et al., 2025). Furthermore, ICT tools such as accounting software and online payment systems have streamlined financial processes, reducing manual workload and improving service delivery (Bello & Yusuf, 2019; Kupoluyi, 2018).

1.2 The key objectives of the research

1. Examine ICT Tools Used in the Bursary Department

This objective focuses on identifying and analyzing the specific Information and Communication Technology (ICT) tools employed in the bursary department to carry out financial operations. It involves understanding both the types of technologies used and how they are applied in daily activities.

Typical ICT tools in a bursary department include:

- **Accounting Software** (e.g., Sage, QuickBooks): Used for recording financial transactions, preparing financial statements, and managing accounts.
- **Payroll Systems:** Handle staff salary processing, deductions, and tax calculations.
- **Electronic Payment Platforms:** Enable online payment of school fees and other charges by students.
- **Database Management Systems (DBMS):** Store and manage financial records securely.
- **Spreadsheet Applications (e.g., Excel):** Used for budgeting, financial analysis, and reporting.

Examining these tools helps determine their availability, functionality, level of usage, and effectiveness in supporting bursary operations.



2. Evaluate the Impact of ICT on Financial Efficiency

This objective focuses on determining how the use of ICT improves the efficiency of financial activities in the bursary department. Financial efficiency means carrying out financial tasks in a way that is accurate, fast, and cost-effective, with minimal errors or waste (Adegbite & Olayemi, 2021; Uzor et al., 2022).

ICT enhances financial efficiency in several important ways:

- **Accuracy:** Computerized systems reduce human errors that often occur during manual calculations and data entry. This ensures that financial records are more reliable and precise (Yakubu et al., 2024).
- **Speed:** Automated systems can process transactions, generate reports, and update records much faster than manual methods, saving time and improving productivity (Danlami, 2022).
- **Cost Reduction:** ICT reduces dependence on paper, printing, and manual labor, which helps to lower operational costs in the bursary department (Bamigboye et al., 2025; Bello & Yusuf, 2019).
- **Transparency:** Digital systems create audit trails that allow transactions to be tracked easily. This improves accountability and reduces the chances of fraud or financial mismanagement (IIARD, 2022; Obi & Hassan, 2021).
- **Decision-Making:** ICT provides real-time financial information, enabling management to make informed and timely decisions regarding budgeting, spending, and planning (David, 2008; World Bank, 2020).

To properly evaluate the impact of ICT, a comparison is made between the manual system (before ICT adoption) and the automated system (after ICT adoption). This comparison helps to identify improvements in performance, efficiency, and overall financial management (Olasanmi, 2019; Ajah & Okwum, 2019).

3. Identify Challenges Affecting ICT Implementation

This objective aims to uncover the problems and limitations that hinder the effective use of ICT in the bursary department. Even though ICT offers many benefits, its implementation is often affected by several challenges, such as:

- **Inadequate Infrastructure:** Lack of sufficient computers, software, and network facilities.
- **Power Supply Issues:** Frequent electricity outages disrupt ICT operations.
- **Lack of Skilled Personnel:** Staff may not have adequate training to use ICT tools effectively.
- **High Cost of Implementation:** Purchasing and maintaining ICT systems can be expensive.
- **Cybersecurity Risks:** Threats such as hacking, data breaches, and fraud.
- **Resistance to Change:** Some staff may prefer traditional methods over new technologies.

Identifying these challenges is important for understanding why ICT may not be fully effective in achieving its intended goals.

4. Propose Strategies for Improvement

This objective focuses on providing practical and workable solutions that will improve how ICT is used in the bursary department. The aim is not just to identify problems, but to address those challenges directly and ensure that ICT systems function more effectively and efficiently.

The recommended strategies are explained below:

- **Investment in ICT Infrastructure:** This involves providing modern computers, up-to-date software, and reliable internet connectivity. With proper infrastructure, bursary operations can be carried out smoothly without frequent system failures or delays.
- **Staff Training and Development:** Regular training programs, workshops, and seminars help staff develop the necessary ICT skills. When staff are well-trained, they can use ICT tools more efficiently, reduce errors, and adapt to new technologies easily.
- **Improved Power Supply:** Since ICT systems depend on electricity, providing backup power sources such as generators or solar systems ensures that operations are not interrupted during power outages.
- **Cybersecurity Measures:** Installing security tools like firewalls and antivirus software, along with implementing data protection policies, helps safeguard financial information from hacking, fraud, and data breaches.
- **System Integration:** Integrating different financial systems (such as accounting, payroll, and payment platforms) into a single unified system ensures smooth data flow, reduces duplication, and improves overall efficiency.
- **Policy Implementation:** Establishing clear ICT policies and guidelines ensures proper usage, maintenance, and security of ICT systems. It also promotes accountability and standardization in operations.

Overall, these strategies are designed to ensure that ICT is fully utilized to improve efficiency, accuracy, transparency, and reliability in the bursary department.

1.3 Research Questions

1. What ICT tools are used in bursary operations?
2. How does ICT improve financial efficiency?
3. What challenges affect ICT adoption?
4. What strategies can enhance ICT utilization?

2. Literature Review

2.1 Concept of ICT

ICT (Information and Communication Technology) refers to a broad range of technologies used to process, store, retrieve, and transmit information. It includes tools such as computers, internet networks, software applications, databases, and

communication systems that enable the handling and sharing of data efficiently (OECD, 2005; UNESCO, 2006).

In practical terms, ICT allows organizations to collect data, manage records, communicate quickly, and automate tasks that would otherwise be done manually. For example, financial data can be stored digitally, processed using accounting software, and shared instantly across departments.

Because of these capabilities, ICT is widely regarded as a major driver of organizational efficiency and innovation (World Bank, 2020). It helps organizations to:

- Perform tasks faster and with greater accuracy
- Reduce operational costs
- Improve communication and coordination
- Support better decision-making through real-time information

Overall, ICT enables organizations to operate more effectively, adapt to changes, and improve service delivery.

2.2 ICT in Financial Management

ICT enhances financial management by making financial processes more accurate, timely, and reliable. First, it improves data accuracy by reducing human errors that often occur during manual calculations and record-keeping. With computerized systems, financial data is processed automatically, leading to more precise results (David, 2008; Uzor et al., 2022).

Secondly, ICT enables real-time reporting, meaning financial information can be accessed and updated instantly. This allows managers and decision-makers to monitor financial activities as they happen, rather than waiting for delayed manual reports.

ICT also supports effective decision-making by providing up-to-date and organized financial data. Managers can analyze trends, track performance, and make informed financial decisions quickly and confidently.

In addition, ICT improves key financial functions such as:

- **Budgeting:** Helps in planning and allocating financial resources efficiently.
- **Revenue Tracking:** Ensures accurate monitoring of income and payments.
- **Expenditure Control:** Helps track and regulate spending to avoid waste or overspending.

Overall, ICT makes financial management more efficient, transparent, and well-coordinated, helping organizations achieve better financial control and performance (Bamigboye et al., 2025; Adegbite & Olayemi, 2021).

2.3 ICT in University Administration

First, ICT improves **communication** within the university. Through emails, portals, and internal systems, information can be shared quickly between departments, staff, and students. This reduces delays and ensures that administrative tasks are carried out smoothly (Adu & Omodara, 2010).

Second, ICT helps to reduce corruption by promoting transparency. Digital systems record transactions and activities automatically, creating audit trails that make it easier to detect and prevent fraud or mismanagement. This increases accountability in administrative processes (Kupoluyi, 2018).

ICT also improves service delivery. Services such as student registration, fee payment, result processing, and staff management can be handled faster and more efficiently using automated systems. This leads to better experiences for both students and staff.

Furthermore, ICT supports the effective management of university resources and operations. It helps administrators to plan, monitor, and control resources such as finances, personnel, and facilities. With access to real-time data, management can make informed decisions and ensure that resources are used efficiently (Ajah & Okwum, 2019; Olanmi, 2019).

2.4 Role of ICT in Bursary Departments

ICT contributes significantly to improving the efficiency of bursary operations by transforming manual financial processes into faster, more reliable digital systems.

- **Automation:** ICT automates routine financial tasks such as fee processing, payroll, and record-keeping. This reduces dependence on manual procedures, minimizes workload, and ensures consistency in operations (Danlami, 2022).
- **Accuracy:** Computerized systems perform calculations and data processing with high precision, reducing the likelihood of human errors that are common in manual systems. This leads to more reliable financial records (Yakubu et al., 2024).
- **Transparency:** ICT systems maintain detailed digital records and audit trails of all transactions. This makes it easier to track financial activities, enhances accountability, and discourages fraudulent practices (IIARD, 2022).
- **Speed:** Automated systems process financial transactions much faster than manual methods. Activities such as payment verification, report generation, and account updates are completed quickly, improving overall productivity (Bello & Yusuf, 2019).

Overall, studies show that the adoption of ICT in bursary departments not only improves operational efficiency but also reduces fraud and strengthens financial accountability through better monitoring and control systems (Danlami, 2022; IIARD, 2022).

2.5 Challenges of ICT Adoption

Although ICT offers many advantages, its effective adoption in institutions—especially in Nigeria—is often limited by several key challenges:

- **Poor Infrastructure:** Many institutions lack adequate ICT facilities such as modern computers, reliable internet connectivity, and network systems. Inconsistent power supply further disrupts ICT operations, making it difficult to maintain continuous service.
- **High Implementation Costs:** Setting up ICT systems requires significant financial investment in hardware, software, installation, and maintenance. For many institutions, limited funding makes it difficult to acquire and sustain these technologies.
- **Lack of Skilled Personnel:** Effective use of ICT depends on trained staff. However, many institutions face a shortage of personnel with the necessary technical skills, which leads to underutilization or misuse of available ICT tools.
- **Cybersecurity Threats:** As financial and administrative systems become digital, they are exposed to risks such as hacking, data breaches, and fraud. Without proper security measures, sensitive information can be compromised.

These challenges significantly reduce the effectiveness of ICT implementation and utilization in Nigerian institutions (Obiwelluozor & Kasimu, 2022; Obi & Hassan, 2021). Furthermore, policy and regulatory gaps, such as lack of clear guidelines or weak enforcement of ICT standards, can hinder proper deployment and management of ICT systems (NITDA, 2022).

Overall, addressing these challenges is essential for maximizing the benefits of ICT in institutional administration.

2.6 Theoretical Framework

The study is anchored on the Technology Acceptance Model (TAM), a theory that explains why individuals choose to accept or reject a new technology.

According to TAM, two main factors determine whether people will adopt and use ICT:

- **Perceived Usefulness:** This is the extent to which a person believes that using a particular technology will improve their job performance. For example, bursary staff are more likely to use ICT systems if they believe those systems will make their work faster, easier, and more accurate.
- **Perceived Ease of Use:** This refers to how easy the technology is to learn and operate. If ICT tools are simple, user-friendly, and require little effort to use, staff will be more willing to adopt them.

In the context of the bursary department, TAM suggests that ICT systems will be successfully adopted when staff see them as beneficial and easy to use. If the systems are complex or do not clearly improve performance, users may resist them.

Therefore, the model helps explain how ICT adoption can be improved by focusing on user training, system design, and perceived benefits (OECD, 2005).

3. Methodology

3.1 Research Design

A descriptive survey design was adopted for this study. This design is appropriate because it allows the researcher to collect and describe information about the current use of ICT in the bursary department without manipulating any variables. It focuses on understanding existing conditions, opinions, and practices of staff regarding ICT usage. Through this approach, data can be gathered from respondents using questionnaires or interviews and then analyzed to identify patterns, trends, and relationships.

3.2 Population and Sample

The **population** of the study consists of all bursary staff at Prince Abubakar Audu University, Anyigba, Kogi State. These individuals are directly involved in financial operations and ICT usage, making them relevant to the study.

From this population, a sample of 50 respondents was selected. The sample represents a smaller group chosen from the population to make data collection manageable while still providing reliable information. By studying this sample, the researcher can draw conclusions about the entire bursary department.

3.3 Data Collection

Data for the study were gathered using questionnaires and interviews, which are common tools for collecting primary data.

- **Questionnaires:**

Structured questionnaires were distributed to bursary staff to obtain information about their use of ICT, its benefits, and the challenges they face. Questionnaires are useful because they allow respondents to provide answers in a standardized format, making the data easier to analyze.

- **Interviews:**

Interviews were conducted with selected staff members to gain deeper insights and detailed explanations that may not be captured through questionnaires. This method allows for clarification and more in-depth understanding of issues related to ICT usage.

3.4 Data Analysis

The data collected were analyzed using **descriptive statistics**, which help to summarize and present information in a clear and understandable form.

- **Percentages:** Used to show the proportion of respondents who gave particular responses, making it easier to compare results.
- **Tables:** Data were organized into tables to present findings clearly and systematically, allowing for easy interpretation.

This method of analysis helps to identify trends, patterns, and relationships in the data without using complex statistical techniques.

4. Results and Discussion

4.1 ICT Tools Used

This finding shows that the bursary department relies on several key ICT tools to carry out its financial operations effectively.

- **Accounting Software:** These are programs used to record, process, and manage financial transactions such as income, expenses, and account balances. They help in preparing accurate financial reports and maintaining proper records.
- **Payroll Systems:** These systems are used to manage staff salaries, allowances, deductions, and taxes. They automate salary calculations and ensure that payments are processed accurately and on time.
- **Online Payment Platforms:** These platforms allow students and other stakeholders to make payments electronically, such as school fees and other charges. This reduces the need for physical cash handling and makes transactions more convenient and secure.
- **Database Systems:** These are used to store, organize, and manage large volumes of financial data. They make it easy to retrieve information when needed and ensure proper record-keeping.

The use of these tools indicates that the bursary department has adopted modern ICT solutions to improve efficiency, accuracy, and service delivery. This aligns with earlier studies, which also identified similar ICT applications as essential for effective financial management in institutions (Kupoluyi, 2018; Bello & Yusuf, 2019).

4.2 Impact of ICT on Efficiency

4.2.1 Improved Accuracy

ICT significantly improves the accuracy of financial operations in the bursary department by reducing the likelihood of human errors. In manual systems, mistakes often occur during calculations, data entry, and record keeping. However, with the use of computerized systems, financial data is processed automatically, ensuring greater precision and reliability. This leads to more trustworthy financial records and reduces inconsistencies in reporting (Yakubu et al., 2024).

4.2.2 Enhanced Speed

ICT also enhances the speed at which financial transactions and reports are processed. Through automation, tasks such as fee payment processing, payroll management, and financial reporting are completed much faster than in manual systems. This reduces delays, improves efficiency, and allows staff to attend to other important administrative duties. Overall, ICT helps the bursary department operate more quickly and effectively (Danlami, 2022).

4.2.3 Transparency and Accountability

ICT improves transparency and accountability in bursary operations by creating **digital audit trails** for all financial transactions. Every payment, approval, or modification is automatically recorded in the system, making it easy to trace and verify activities. This reduces the possibility of fraud,

manipulation, or unauthorized transactions, as all actions can be monitored and audited when necessary. As a result, financial operations become more open, reliable, and accountable (IIARD, 2022; Obi & Hassan, 2021).

4.2.4 Better Record Management

ICT also enhances record management by enabling the **secure storage, organization, and retrieval of financial data**. Unlike manual systems that rely on paper files, digital systems store information electronically, reducing the risk of loss, damage, or misplacement. This makes it easier for staff to access financial records quickly when needed, improving efficiency and supporting accurate reporting (Adegbite & Olayemi, 2021).

Overall, these findings are consistent with previous studies which emphasize that ICT plays a vital role in improving financial efficiency, transparency, and accountability in organizations (Bamigboye et al., 2025; Uzor et al., 2022).

4.3 Challenges Identified

The study revealed several challenges that hinder the effective use of ICT in the bursary department:

- **Inadequate ICT Infrastructure:** Many institutions lack sufficient ICT facilities such as modern computers, updated software, and reliable internet connectivity. This limits the effective use of digital systems in financial operations.
- **Power Supply Issues:** Unstable electricity supply disrupts ICT usage and can lead to system downtime, delays in processing transactions, and possible data loss.
- **Lack of Training:** Some staff do not have adequate ICT skills or training, making it difficult for them to fully utilize available technologies. This reduces overall efficiency and effectiveness.
- **Cybersecurity Risks:** The use of digital systems exposes financial data to risks such as hacking, data breaches, and unauthorized access, which can compromise sensitive information.

These challenges are consistent with earlier studies which also identified infrastructure deficits, skill gaps, and security concerns as major barriers to effective ICT implementation in Nigerian institutions (Obiwelluozor & Kasimu, 2022; NITDA, 2022).

5. Conclusion and Recommendations

5.1 Conclusion

ICT plays an important role in improving the efficiency of bursary department operations. It enhances accuracy by reducing errors in financial data processing, promotes transparency through digital record-keeping and audit trails, and strengthens overall financial management processes such as budgeting, reporting, and transaction handling (World Bank, 2020; Olanmi, 2019). However, despite these benefits, the effectiveness of ICT is limited by challenges such as poor infrastructure, lack of technical skills, and other operational constraints. Therefore, addressing these issues is

essential to fully maximize the benefits of ICT in bursary administration.

5.2. Recommendations

These recommendations are aimed at improving the effective use of ICT in the bursary department and addressing the challenges that limit its performance.

1. **Invest in ICT Infrastructure** :The institution should provide modern ICT facilities such as updated computers, reliable internet services, servers, and relevant software. Strong infrastructure ensures smooth operation of digital systems and reduces breakdowns that can disrupt financial processes.
2. **Provide Staff Training Programs**: Regular training and workshops should be organized to improve the ICT skills of bursary staff. This will enable them to efficiently operate financial software, reduce errors, and adapt to new technological developments.
3. **Improve Cybersecurity Measures**: Strong security systems such as firewalls, antivirus software, data encryption, and access control should be implemented. This helps protect sensitive financial information from hacking, fraud, and unauthorized access.
4. **Ensure Stable Power Supply**: A reliable electricity supply is essential for uninterrupted ICT operations. The use of backup systems such as generators or solar power should be encouraged to prevent disruptions in financial processing.
5. **Adopt Integrated Financial Systems**: The bursary department should implement integrated financial management systems that combine accounting, payroll, budgeting, and payment processes into a single platform. This improves efficiency, reduces duplication of work, and enhances data consistency.

Overall, these strategies are essential for maximizing the benefits of ICT and ensuring improved efficiency, accuracy, and transparency in bursary operations.

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