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USE OF INFORMATION COMMUNICATIONS TECHNOLOGY (ICT) FOR ACADEMIC , PROFESSIONAL AND BUSINESS DEVELOPMENT

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Abstract

This review highlights the use of ICT in academic, professional and business operations The evolution of Information and Communication Technology (ICT) has been a powerful catalyst in transforming various sectors, including academia, professional fields, and business development. Literature materials on ICT, Digital, internet , website and other related terms and their applications in teaching and learning, research, business, career, agriculture were assembled from journals, conference proceedings , books , Training materials , they were reviewed and discussed. ICT gadgets and devices and their uses in academic, professional and business operations were highlighted and discussed with suitable examples .It was concluded that in each of these areas, basic ICT knowledge empowers individuals and organizations to operate more seamlessly, effectively and efficiently, embrace opportunities for growth, and respond to changing technological landscapes .It was recommended that more people should embrace the use of ICT and internet facilities to make academic , professional and business operations easier. Government should subsidize the cost of ICT/Internet facilities and subscriptions to make it easier for people to own and use them

Keywords: *Academic, Business Development, Digital, Information Communication Technology, Professional*

1.0 INTRODUCTION

Globally it is rare to find any sector that hasn't undergone a digital transformation , and the academic, professional and business sectors are not left out. Information and Communication Technology (ICT) as one of the digital tools has emerged as a powerful tool in transforming education, business and career as we have seen with the introduction of e-learning, e-commerce globally. The adoption of information and communication technology (ICT) has recently changed the mode of operations in many sectors of life. Information and Communications Technology (ICT) refers to the technologies and tools used to handle communications, transmit information, and manage digital data. It encompasses a wide range of devices, systems, software, and applications used to process, store, and exchange information digitally. According to Aker (2011) ICT encompasses technologies used to communicate, store, and process information. In agriculture, ICT includes mobile phones, internet platforms, and geographic information systems (GIS). ICT has become a powerful tool for bridging information gaps and connecting farmers to markets, services, and knowledge resources.

The integration of ICT in instructional delivery is commendable. It makes it easier for lecturers to get the students to participate in the teaching-learning process.

The evolution of Information and Communication Technology (ICT) has been a powerful catalyst in transforming various sectors, including academia, professional fields, and business development. The term internet has been coined from a concept, inter-networking to denote interaction between networking of computers, it is an umbrella under which different network, small and big, freely exchange information across the globe. Internet, thus, can

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broadly be defined as worldwide network of computer communicating via an agreed upon protocol (Tadasad, 2002) the internet carries a vast range of information resources and services. Such as hypertext document and application of the world wide web (www), electronic mail. Telephony and file sharing. Internet gave birth to new activities and service such as email, internet television, online music, digital newspaper and video streaming websites. It provides access to the most diversified source of information posted by individual and various organization world wide on a vast network of servers. The emergence of internet as a veritable instrument in educational development has equally compelled the stakeholders in education to incorporate internet as a major source of information. These have greatly assisted academics in modernizing the process of teaching, learning and research. This idea motivated Kumar and Kuar (2005,) to Opine that the advent of internet has increased the following phenomenon in higher educational system: learners are not dependent on teacher for interaction; teachers can give lectures virtually to unknown leaners and the effects of his work has no bound. Okon, (2005), grouped ICT facilities into broadcast technology, print technology and telecommunication/computer technology. In the view of Oliver (2000). ICT facilitates the dissemination of knowledge based on the contemporary curricula. This is in line with the present curriculum which promotes aptitude and performance of learners, where learning is more learner centered with emphasis on the application of information rather than factual knowledge.

Wirsiy and Shafack (2002) explained that ICT is a broad-based term that encompasses the gathering (acquisition), organization (packaging), storage and retrieval (dissemination) of information that can be in textual or numeric (books and documents), pictorial and vocal forms (audio-visual), using combination of all the above (multimedia) including computers and telecommunications (telephones). These ICT packages haves brought major shift in the education paradigm that has brought advantages over conventional learning system where the potential benefits of Computers and computer related devices cannot be overestimated as it gives students a sense of empowerment and control over the pace of learning. According to Brown (2015) lack of competence of computer hinders utilization of computers, but these technologies and their use have made big changes in the educational sector, hence changing its paradigms from teacher-centered to student-centered, and more open in interaction through online learning unlike the conventional class room situation. Akaa *et al* (2024) reported that some of the challenges with the use of ICT gadgets and devices are high cost of purchase and high subscription costs, which have even increased in most recent times, other challenges were inability of people to use the gadgets and devices and network failure or fluctuations

Given the importance of ICT to virtually all spheres of life, this work highlights reviews, and discusses the importance and use of ICT in academic, professional and business operations

Review of Concepts

DIGITAL: Digital involves the use of digital tools and platforms to collect, analyze, and share data. This includes mobile apps, satellite imagery, and digital marketplaces. Digital operations leverages data-driven insights to optimize research, business, farming practices, office operations, improve decision-making, and enhance market access .

Digital tools empower farmers with real-time information on weather, market prices, and best practices. For example, the *e-Choupal* initiative in India provides farmers with digital access to market information, enabling them to negotiate better prices for their produce (Mittal & Mehar, 2016). By connecting farmers directly to buyers, this platform eliminates intermediaries, ensuring fairer prices and higher incomes for farmers. Additionally, digital platforms such as weather forecasting apps and soil health monitoring tools enable farmers to make informed decisions, reducing risks and improving productivity. The integration of digital technologies into agriculture and agribusiness also facilitates traceability and transparency in supply chains, enhancing consumer trust and marketability of agric9ultural products.

ICT (Information and Communication Technology)

ICT encompasses technologies used to communicate, store, and process information. ICT includes mobile phones, internet platforms, and geographic information systems (GIS). ICT has become a powerful tool for bridging information gaps and connecting people to markets, services, and knowledge resources.

ICT facilitates the dissemin9ation of knowledge and connects people to markets and services. For example, mobile-based advisory services like *Esoko* in Ghana provide farmers with timely information on weather and market prices, improving decision-making (Aker, 2011). These services are particularl9y valuable in remote areas where access to traditional extension services is limited. Additionally, ICT platforms such as GIS and remote sensing technologies enable precision agriculture by providing detailed insights into soil conditions, crop health, and resource availability. By leveraging ICT, farmers can optimize input use, reduce waste, and increase profitability, contributing to sustainable agricultural development.

ICT Applications in Business and Agribusiness

ICT applications in agricultural business include e-commerce platforms, supply chain management systems, and digital payment solutions. These tools enhance efficiency, transparency, and profitability in agricultural value chains. By digitizing business processes, stakeholders can streamline operations, reduce costs, and improve market access.

ICT applications in business enable farmers to access larger markets, reduce transaction costs, and improve financial inclusion. For example, the *M9-Farm* platform in Kenya connects farmers directly to buyers, eliminating middlemen and increasing farmers' incomes (Wyche & Steinfield, 2016). This platform also provides farmers with real-time price information, enabling them to make informed decisions about

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when and where to sell their produce. Digital payment solutions, such as mobile money services, have also transformed financial transactions in rural areas, providing farmers with secure and convenient access to credit and savings. By integrating ICT into agricultural business models, stakeholders can create more inclusive and efficient value chains that benefit all participants.

2.0 Methodology

Literature materials on ICT, Digital, internet , website and other related terms and their applications in teaching and learning, research, business, career, agriculture were assembled from journals, conference proceedings , books , Training materials , they were reviewed and discussed

3.0 REVIEW AND DISCUSSION

3.1 Information Communications Technology Skills

ICT skill is the term used to describe the abilities required to effectively use the ICT components which include:

- the hardware (physical technology devices such as computers, printers, camera and others);
- Software (which are operating systems and applications or programs installed in hardware devices for specific function such as spreadsheets, databases, presentations and text-based documents);
- communication systems and devices that facilitate connections with other ICT users and the internet (such as smartphones, telephone lines and wireless signals);
- Online data sharing platforms using social media.

2. ICT skills can be seen as the ability to use ICT facilities for information creation (example word processing, camera and videos); storage (example cloud, flash drive, CD and hard drive); retrieval (example search engines); and sharing and usage (example social media). There are multiple resources and knowledge abundant on the Internet, video clips, audio sounds, and visual presentation and so on, but will require ICT skills to access (Odobi, 2024)

3. ICT skills, in the opinion of the European Centre for the Development of Vocational Training in UNESCO (2015) are skills needed to use efficiently, at least the elementary functions of Information and Communication Technologies, essentially word, image or data processing, Internet and e-mail.

3.2 Use of ICT Devices for Various Operations

1. Academic Development

- **Access to Knowledge**: ICT has revolutionized access to information and educational resources, making it possible for students, researchers, and educators to obtain vast amounts of data instantly through online libraries, open educational resources, and research databases.
- **E-Learning and Distance Education**: ICT tools enable online learning platforms, allowing students to access education remotely and institutions to offer flexible learning models. MOOCs (Massive Open Online Courses) and virtual classrooms have increased access to quality education worldwide.
- **Collaborative Learning**: With ICT, collaboration among students and educators across different geographical regions have become easier. Tools like Google Workspace, Microsoft Teams, and collaborative learning platforms encourage peer-to-peer learning and idea exchange.
- **Research and Development**: Advanced ICT tools, including data analysis software and high-performance computing, facilitate complex research processes, accelerate data analysis, and improve accuracy, significantly benefiting academic research.

2. Professional Development

- **Skill Development and Lifelong Learning**: ICT enables continuous skill enhancement through online courses, webinars, and workshops. Professionals can easily access resources and upskill to keep up with industry trends, maintaining competitiveness.
- **Remote Work and Collaboration**: With tools such as video conferencing (Zoom, WebEx), project management software (Asana, Trello), and communication platforms (Slack), ICT has enabled remote work, allowing professionals to collaborate globally.
- **Networking Opportunities**: ICT facilitates professional networking through platforms like LinkedIn and online professional groups, where individuals can connect, exchange ideas, and find career opportunities.
- **Automation of Tasks**: ICT has automated repetitive tasks, such as data entry and scheduling, freeing up time for more strategic activities. This has increased productivity and enabled professionals to focus on complex and creative tasks.

3. Business Development

- **E-Commerce**: The rise of ICT has given businesses the tools to establish online presences, reaching wider audiences through e-commerce platforms, digital marketing, and social media, monitoring of exchange rate of the Naira to other foreign currencies, eg Dollars, Pound Sterling, Yen etc .for instance, Jummia and Ali baba are foreign companies known for large volumes of online sales. Uber and Bolt are city transport platforms that rely on IC/digital technology for their operations
- **Data-Driven Decision-Making**: ICT has enabled data analytics, allowing businesses to analyze customer preferences, market trends, and financial metrics. This data-driven approach enables more informed decision-making and better risk management.

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- **Enhanced Customer Engagement**: ICT tools, including CRM software and social media, allow businesses to engage with customers more effectively, provide timely support, and build loyalty through personalized experiences.

Efficiency and Cost Savings: Automation, cloud computing, and digital project management tools have streamlined operations, reduced costs, and improved overall efficiency in business processes.

3.3 BASIC INFORMATION COMMUNICATIONS TECHNOLOGY KNOWLEDGE/SKILLS FOR ACADEMICS , PROFESSIONALS AND BUSINESS DEVELOPMENT

1. Computer knowledge: The first thing to know as an academia or professional is computer knowledge. Have a laptop, smart phone ,palmtop, etc How to connect smartphone to your laptop, how to connect your laptop to a printer and so on.(Odobi,2024)

2. **Word Office**: Microsoft Office is a suite of productivity applications developed by Microsoft, designed to support various professional, educational, and personal tasks. Each application within Microsoft Office serves a specific purpose.

a. Microsoft Word

Microsoft Word is the go-to word processing tool for creating, editing, and formatting documents.

- **Academic Use**: Word allows students, educators, and researchers to create various academic documents, such as essays, research papers, dissertations, and reports. It provides formatting tools that adhere to academic styles (APA, MLA), grammar and spell-checking features, and the ability to include references and citations. It's also helpful for creating collaborative documents for group projects. It can be used to review articles and projects
- **Professional Use**: In the workplace, Microsoft Word is used for creating proposals, reports, contracts, and memos. It helps professionals maintain a consistent, polished presentation of written material and is invaluable in industries where formal documentation is essential.
- **Business Development**: Microsoft Word is ideal for drafting business plans, strategic documents, contracts, and marketing materials. It supports professional formatting that enhances readability and allows businesses to create cohesive documents for internal and external communication.

b. Microsoft Excel

Microsoft Excel is a powerful spreadsheet tool used for organizing, analyzing, and visualizing data.

- **Academic Use**: Excel is used in academia for data analysis, especially in research that involves statistical analysis, large datasets, or quantitative methods. Students and researchers often rely on Excel for laboratory data, survey analysis, and financial modeling, as well as for creating charts and graphs for presentations.
- **Professional Use**: Excel is crucial for various professional tasks, such as budgeting, financial analysis, project tracking, and report generation. It supports a wide range of formulas and functions that streamline complex calculations, making it a valuable asset for finance, marketing, and administrative professionals.
- **Business Development**: Excel enables businesses to track KPIs, analyze financial data, and forecast sales. It's also widely used for inventory management, customer data tracking, and market analysis. Pivot tables, charts, and visualizations make it easier to spot trends and insights critical for strategic decision-making.

c. Microsoft PowerPoint

Microsoft PowerPoint is a presentation software that helps create and deliver visual and engaging presentations.

- **Academic Use**: PowerPoint is commonly used in academic settings for classroom presentations, seminars, and project showcases. It enables students and educators to visually enhance their presentations, incorporating multimedia elements like images, videos, and animations to make content more engaging and memorable.
- **Professional Use**: In the workplace, PowerPoint is essential for presenting reports, project updates, and ideas to teams, stakeholders, and clients. It helps professionals communicate complex information clearly and persuasively and is often used during training sessions, workshops, and conferences.
- **Business Development**: PowerPoint is widely used to pitch ideas, introduce new products, and present business plans to investors. It allows businesses to create visually compelling presentations that capture attention, clarify key points, and drive engagement.

3. **Basic Internet information**: This is another ICT skill necessary for academic, professional and business development. They include

a. **E-mail address**: An email address is essential for communication, collaboration, and accessing online services across academic, professional, and business contexts. It serves as a primary channel for exchanging information, sending updates, and networking, playing a crucial role in modern connectivity.

4. **Use of basic tools for writing research work.** For example, the use quill Bot and ChatGPT for paraphrasing and can perform tasks typically requiring human intelligence. This also include the use of google scholar for academic research online.

5. Social media proficiency: Knowing how to use social media platforms like LinkedIn, Twitter, or Instagram and Whatsapp for professional networking and information

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sharing can expand an academic or professional's reach and engagement

6. Video Conferencing Skills: Familiarity with tools like Zoom, Microsoft Teams, and Google Meet is essential for remote communication. Skills include knowing how to set up meetings, use virtual backgrounds, share screens, mute/unmute, and engage participants effectively

7. Basic Troubleshooting: Knowing how to handle common tech issues—like connectivity problems, software glitches, or system updates—can help minimize disruptions and maintain professionalism in digital communications.

4.0 CONCLUSION AND RECOMMENDATIONS

4.1 Conclusion

In each of these areas, basic ICT knowledge empowers individuals and organizations to operate more seamlessly, effectively and efficiently, embrace opportunities for growth, and respond to changing technological landscapes.

4.2 Recommendations

More people should embrace the use of ICT and internet facilities to make academic , professional and business operations easier.

Government should subsidize the cost of ICT/Internet facilities to make it easier for people to own and use them

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