

The Influence of Information Communication Technology on Financial Management

ABSTRACT

Problem statement: The major drawbacks attached to using olden methods of operation for financial management have been a major catalyst to the adoption of the fast growing Information Communication Technology in Financial Management. The major benefits and advantages of using this method are inestimable. Thus, there is need for presenting up-to-date information in this domain.

Aim: This paper presents up-to-date reference about Information Communication Technology influence on financial management.

Scope of study: Basic fundamental information is also presented. The concepts of Information Communication Technology and Financial Management were explained. The components, elements and categories of Information Communication Technology in Financial Management were explained. Stock markets and banking sector were referenced as typical financial institutions using Information Communication Technology.

Conclusion: However, some drawbacks of utilizing Information Communication Technology in Financial Management were noticed in the course of investigation and were presented in the paper.

Limitations: Future studies should look into the application of machine learning (such as artificial intelligence, robotics, automation and so on) to improve the influence of information communication technology on financial management. Further studies should be conducted on the applications of information communication technology in different financial management organizations to observe the variations in the ICT influence.

Keywords: Information Communication Technology, Financial Management, Computer, Stock market, Banking sector

1. INTRODUCTION

Information Technology (IT) is generally a broad term used for information acquisition, processing, data storage and information dissemination. This involves the use of communication technology and computers in the process of handling the information and its movement from acquisition point to utilization levels [1]. In another way, Information technology can be defined as computer hardware and software solutions that offer management support, operations and strategies in various organizations. Information Communication Technology (ICT) is the extended synonym for IT which emphasizes on the role of incorporated communications and telecommunications and computers integration in enabling end users to store, access, manipulate and transmit information. It also involves the use of enterprise software, storage, and audio-visual systems. However, the constant evolution and unsteady progress of technologies on daily basis has greatly influenced the use of Information Technology to be quite challenging to many users. Many computer software are written in complex languages that are difficult to understand by the users [2]. Some have some unique features involving coding and other computer languages. In lieu of this, workers have to be engaged in thorough training before they can use them to utilize the benefits attached. The inability to adapt with such regular changes is another challenge.

Some workers may not be interested in adopting the application and this reduces their enthusiasm to work, but others may take it as an essential assignment necessary to maintain importance in their respective offices. Generically, there is problem in cost estimation and its evaluation of ICT benefits on organizational efficiency. Information technology has positively influenced deviations in organizations but its adaptation has not been easy by the users [3].

ICT is specifically applicable to numerous information technologies involved in electronic information handling and management. The arrival of the ICT sector around the globe has affected numerous areas of companies' operations giving them the opportunity to relate with and execute business activities more perfectly than before via digital networks means. Issues accorded to distance and time constraints have been significantly resolved by ICT to improve the productivity of economic and financial business activities. Nonetheless, organizations of different scales (both private and public sectors) have implemented ICT services. One of the prevailing tools for sustaining efficient internal control against financial reporting is electronic finance. Current financial applications has caused increased competitiveness in communication sector. The speedy global ICT sector development has necessitated all countries to give consideration to its causes, especially based on financial applications. Definitely, Gulf Cooperation Council (GCC) countries are expediting action in improving their wealth via the development of their industrial sectors to improve their international economic category[4].

Progresses in Information Communications Technology have been continuously redesigning the society. It has significantly increased people's potential to store, retrieve and transmit information; and also to connect and collaborate. The speeds, information and communication quality are improving on daily basis. Over a decade, the processing speeds of computers have improved more than 100 times and are increasing exponentially. Several disciplines such as advertising industry, Engineering, medical industry, educational sector and lots more, have adopted the use of ICT in their daily routines. Businesses have used ICT to increase their competences and transform themselves for betterment [5]. Thus, there is doubt that the application of ICT in Financial institutions is inevitable. Financial institutions were at the frontline in establishing the world information economy as it persists currently. ICT development has greatly influenced the financial industries in terms of having access to fast and affordable information. The information technology industry gives room for many other industries to sustain a highly competitive benefit in the world market via some definite new services [6].

The role of information technology in sustaining financial activities is inestimable with reference to various reasons, but the most prevailing importance is in the area of electronic networking which involves exchange of information. Considering the present situation of financial services, they are all planned with respect to establishing a faster and perfect customer services focusing on additional mobile-based faster routes. The significance of information technology is becoming extraordinarily imperative due to the usual usage of cloud-based technology information. When information technology is given priority, the existing whole global financial systems should be given consideration. This allows the technology type to excel and perform perfectly at an entire world level. Information technology functions as regards finance enables financial institutions to steadily reach new information at the same rate as their competition. Information technology influence on financial services also allows complete and easy online transactions for customers. This enables an efficient convince in finance, allowing for the improvement of information technology and initially allow a faster and efficient service. Another recognized industry within information technology is financial reporting. This has greatly influenced the financial service

industry. The developing modernizations that are enshrouded with information technology have greatly motivated the way financial reports are used[7].

Technology has totally motivated a persistent challenge for innovation and accessibility. The role of Information technology plays a significant role in finance departments from small to huge operations and applications. Communication is a crucial element that comes with information technology as well, and there are many benefits attached to the streamline of communication in both perspectives. Establishment of commoditizing and automating processes as well improves information technology power in our society today. A common example is the utilization of robo-advisors in financial institutions. Taking a look at this, IT has overwhelmed the concept of automation in wealth management activities such as investment opportunities and asset allocation. Online transactions and banking, and mobile payments are exceedingly popular in our society presently. Many vulnerabilities have come into existence since financial transactions are usually used. Many financial institutions need to be familiarized with the updated technology and latest security to enable them get use to the current state. Despite many associated risks attached to using information technology, numerous positive aspects are still in existence to the utilization of higher technology. On daily basis, several financial transactions are being executed on daily basis which makes information technology an extra-ordinary one based on how the financial systems are set up. Vast importance is attached to information technology in financial institutions with the help of computer systems and automated software tools that are in place [8]. Figure 1 presents the organogram of how to structure the effective use of ICT in finance. Figure 2 represents the software connection system for the effective use of ICT in finance. Figure 3 shows the various components that make up the financial management system.

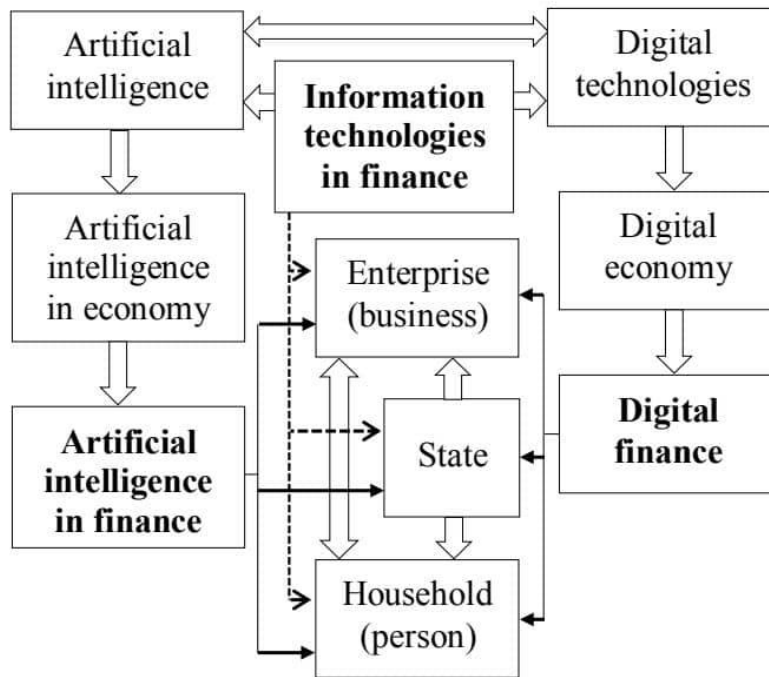


Figure 1: Organogram of structuring the effective use of ICT in finance [8]

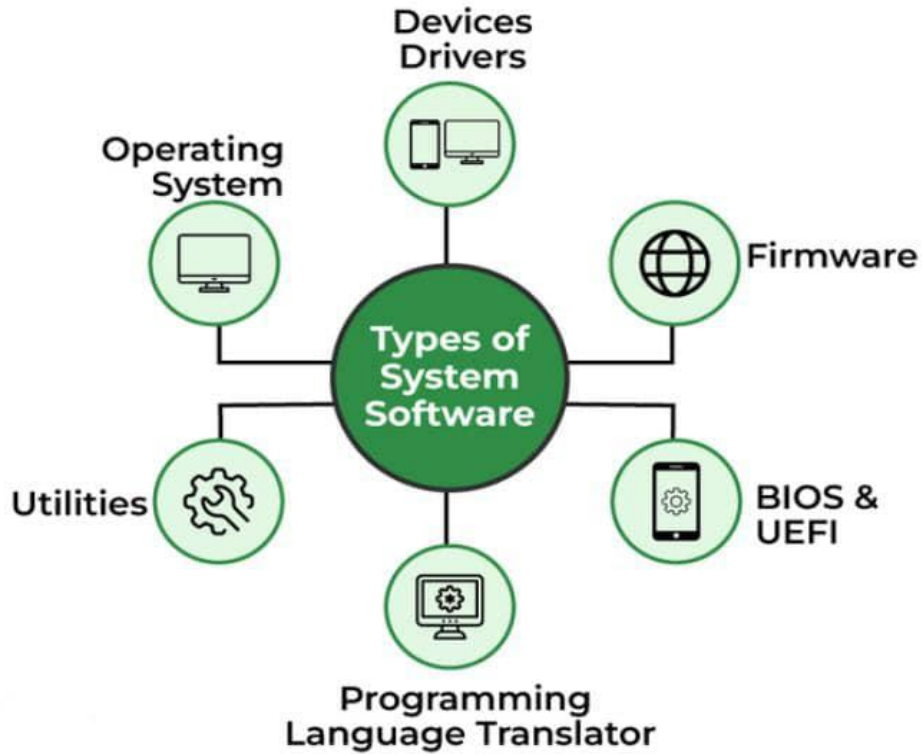


Figure 2: Software connection system for the effective use of ICT in finance

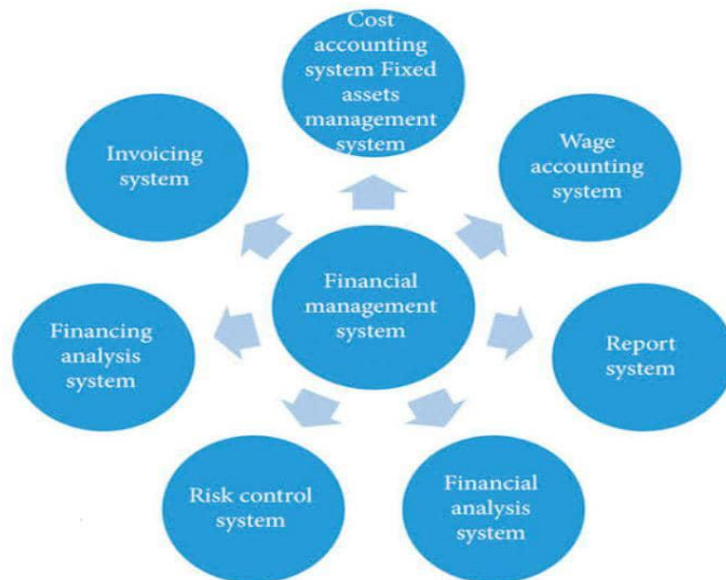


Figure 3: Components of the financial management system

Previous studies have presented reports and results obtained in investigating how the advancement of ICT has positively influenced the mode of operations of Financial Institutions. However, there is need for improvement on some basic fundamental information regarding this topic. This paper critically presents up-to-date information regarding the influence of ICT on the management of finances in our various organizations.

2. LITERATURE REVIEW

Chowdhury [9] examined how ICT investment can affect increase in the performance of corporate via three indicators which are labor productivity, internal return rate, and local export market expansion. The result revealed increase in internet users' number by 1%. This contributed to a reduction in inflation impact by 40%, which shows how communication technology enhances the economic environment. The results also revealed positive influence of ICT investment sector on the general development of the market. On the other hand, negative impact was observed on labor productivity making the investment to have insignificant impact on the company performance. Chien et al. [10] investigated information technology impact on banks' financial performance enlisted in Tehran Stock Exchange. The study adopted random sampling methodology by sending a questionnaire to information technology experts and finance departments of these banks. Their results showed that IT operations, IT knowledge and IT infrastructures have significantly influenced the financial performance of the banks. In the study conducted by Ramaswamy et al. [11], it was observed the utilization of IT was the automation of all economic processes beginning from when a purchase order was placed to when payment was finally received. This caused ineffective and cost-minimized transactions and provided efficient visibility of all areas of financial transaction processing. Another study evaluated various transactions that took place in a typical financial supply chain. This was conducted at the enterprise level and several performance gaps were noticed in the financial supply chain.

Salehi et al. [12] investigated the level of IT application relationship and its reliability, relevance and comparability of information involved in financial statements. The methodology involved sending of questionnaire to accounting managers, financial managers, book authors, accounting supervisors, PhD scholars, faculty members, and researchers whose area of specialization is finance to gather information. A considerable change in financial reporting was noticed using IT which made the accounting information to be more reliable and relevant. However, there were concerns about the security of information of the users. Aldalayeen et al. [13] investigated the impact of using Information Technology on the financial efficiency of the industrial companies. It was observed that IT variables such as networking capabilities, systems complementary and databases have a statistically influence on financial performance. Authors recommended the use of IT tools for industrial companies as a means of attaining competitive benefits. Taiwo [14] utilized secondary data and Pearson's correlation analytical methods to investigate the empirical impact of information technology on organizational performance and accounting systems. A sample of 20 staff in financial services was investigated using SPSS software. Other related accounting departments in a University were also examined. Significant positive relationship existed between the accounting and ICT system. Also, a significant positive relationship was observed between organizational performance and ICT.

A study conducted on ICT impact on financial development used Gulf Cooperation Council (GCC) countries as case studies [15]. ICT proxy was used as a function of Internet users and fixed broadband while domestic credit to private sector was considered as a percentage of gross domestic product (GDP) and broad money supply/GDP. These were the two financial development index proxies. Fixed effects (FEs) estimations was adopted. The results revealed that fixed broadband was increased signifying its statistical significance and

positive influence on the financial development proxies adopted. Considering domestic credit as a percentage of the GDP proxy, the result revealed ICT positive effects of ICT were more than the Internet users' source. Approximately 2% increase in financial development was obtained for an increase in fixed broadband by 1%. However, about a 0.09% increase was obtained for the internet user variable. An increase in other money supply proxy by 0.40% was noticed for an increase in ICT by 1%. Furthermore, increase in money supply by 0.11% for an increase in internet user ratio by 1% was noticed. A generalized moments estimator method was adopted as a control means for endogeneity problem, and the results showed the previous fixed effects results. Trade openness and urbanization were significant and reflected positive influence on financial development proxies. Nonetheless, the natural resources and economic growth negative impact were proved to be significant and valid. In conclusion, it is imperative for GCC countries to take action in establishing an efficient joint information system to aid the construction of effective economic sectors.

The concept of information technology was explored by Amalia [16] and clarification of the purpose of information technology in finance was also examined. His article described the main software products advantages which guaranteed the execution of automation process in financial research. Modern information technology was used as main tools for household finance management. Analysis was done on the use of e-government in Ukraine. The efficiency of e-government implementation using e-Government Development Index in Ukraine and Eastern European countries was estimated. The analysis was based on using system indicators to examine the Ukrainian e-Government Development Index. Digital technologies in finance and economy were separately studied. Analysis was also conducted for Eastern European countries and Ukraine world indexes indicators for their digital economy development. Clarification of the problems and benefits of the modern cryptocurrency market was also done. The determination of artificial intelligence main directions in finance was executed. Positive influence of ICT on the study was noticed. In a related study, Information Technology influence on corporate financial management was presented [17].

Budiasih [18] investigated the effect of digital technology on financial management. It was observed that digital transformation has prompted significant fluctuations in business patterns, presenting novel challenges and opportunities. In financial management context, the adoption of artificial intelligence, digital payments and huge data analysis is prevailing as new methods. Comprehensive reports on the positive effects of daily transactions on strategic decision making, digital technology and highlights challenges such as changing business models and data security were presented. A knowledge gap in the literature was revealed which provides limitations for further research. Deep insights for researchers and practitioners was conveyed in the results which guides the adaptation of strategies and policies in digital transformation era.

3. INFORMATION TECHNOLOGY COMPONENTS

The components of information technology are hardware, software, data, procedures, internet and users/people. The hardware is simply the physical, tangible and touchable components which can be touched and seen. The four main categories are output devices, input devices, storage devices and Central Processing Unit. The hardware devices are the input devices used to send data to the computer. Examples include light pen, keyboard and mouse. Hardware devices are the output devices via which information is sent out of the computer. These include speakers, printers and monitors. The computer part that executes tasks is the Central Processing Unit. It contains the microprocessor which is usually regarded as the computer brain. Hardware components are the storage devices and they store data. Their main two types are secondary (in which information is stored permanently) and primary (in which information is stored temporarily). Examples are ROM and RAM respectively [19].

The intangible components that can only be seen are the software. They are the computer codes and programs that control the hardware devices. A set of instructions written to execute a definite task is called a computer program. Software are of three categories. The system software is the first one and purposely provides the basic computer functionality [20-22]. It is made up of the Support system and Operating system with Diagnostic tools and Linux being examples respectively. The users perform specific tasks using with the aid of application software. Examples include Media development software and Web browser. Lastly, software developers use programming software to debug, create, support and maintain other software and programs. Examples are BASIC and JAVA.

Other Information Technology components are the data, procedures, internet and people as mentioned earlier. The raw fact and figures being processed into information are called data. They are usually stored in the electronic devices until when needed. An example is NAME. The laid down rules and regulations that oversee the way information is exchanged and processed is called the procedures. A global system made up of interconnected computer networks that utilize the standard internet procedure suite or other network to connect several billion devices worldwide is called the internet. Lastly, people are the man-power involved in the IT activities steps. They are the major determinant of the failure or success of information systems [23].

3.1 Elements of Information Communication Technology

Communication Technology, Computer Technology, Computer Communication Technology and Telecommunication Technology are the various Information Technology elements. An electronic device having the ability to store and process information with respect to the instructions given to it, is called a computer. The process of designing, programming and constructing computers is called computer technology. This has positively improved information transmission. It is difficult to live in these recent period without computers. Computer usage determines data precision, accuracy and efficiency. Communication comprises of information sharing and exchange. Facts, ideas and opinions are being exchanged during communication amongst individuals. The process of constructing, designing and maintaining communication systems with the aid of electrical devices is referred to as communication technology. The routes via which communication is utilized have improved with the aid of telecommunication devices as a result of information technology development [24].

Information transmission across various locations by electronic means is called telecommunication. Telecommunication technology is the methods and devices utilized in transmitting information over long distances through radio, wire or satellite without information damage or loss as a result of noise or interference. The new method in telecommunications is a transition from mechanical to electrical, and in electrical, from analogue to digital means of transmission. Computer communication technology transmits the convergence between communication and computing. Information exchange is referred to as communication. As computing is being executed, transformation and transfer of information is being done. It is hard to differentiate where computing starts and where communication ends as they are both interwoven. Recent developments in communication technology and computer have placed information management in a higher degree.

3.2 Categories of Information Communication Technology

The various categories of Information Communication Technology are Function, Network and Enterprise Information Communication Technology. The technologies making the execution of singular tasks easier is called Function Information Communication Technology. They have serious impact on the efficiency of such tasks. These technologies are commonly adopted by accountants, doctors, design engineers and other relevant professionals. Spread

sheets and word processors are the most common function ICT forms. The technologies that offer media for people to communicate are referred to as Network Information Communication Technology [25-26]. It is analogous to communication technology as earlier discussed in the elements of IT. Network technologies enable users to communicate as they wish without restrictions. They include instant messaging, blogs and emails. The technologies used by organizations to efficiently manage relations among employees or with business partners are called Enterprise Information Communication Technology. They are implemented and purchased by the organizations. They comprise applications having specialization in enhanced business communications and processes.

3.3 Influence of Information Communication Technology in Financial Management

Financial forecasting has been identified as part of Information Communication Technology influence in Financial Management. This is vital in every business and allows the company to forecast the best decision to take in order to improve the business wealth and profit. The amount of finances needed to procure fixed assets and the working capital should be perfectly evaluated by the financial manager. Working capital is meant for short-term while fixed assets are meant for long term scale. A software developed for budgeting and planning makes financial managers work to be easy. Probable business losses or profit can be easily forecasted by financial managers considering projected income, time, expenses and costs. Also, Information Communication Technology has enormously impacted financial and organizations firms in making financial resources to be relaxed. The management may wish to offer stocks to the public which can be performed online. Loans may also be obtained from banks. The internet enables constant access to credit rating and credit scores of companies to all lenders or creditors, businesses and insurance companies [27].

Furthermore, investment evaluation using IT applications can make financial managers to know the return rate of an investment proposal. Also, the income that an investment can make within a specific period can be projected automatically. Decision can be made based on this information on whether to reject or accept the investment proposal. The availability of online financial markets can enhance companies to be engaged in online security investment. To achieve this, the institution should be certified with reference to their web information security and get authorization from the government. Generally, government banks offer these online investing platforms for businesses and individuals. Cash management is another financial sector that is positively influenced by ICT. In an immediate click of a financial manager, data based on current cash balance can be seen immediately. Based on this, cash in bank and cash at hand can be easily managed. These can be seen from generated reports obtained from the company's financial transactions. Additionally, records of cash in bank can also be obtained immediately in their various online unofficial bank statement. The principles of cash management state that a business must accelerate cash collections and it must delay cash disbursements. Cash collections can be perfectly accelerated through promoting cash discounts and creation of online billings early payments of accounts receivable. Debit card payment options and creation of online credit, fast cash and wire transfers can also be of assistance. Modern lock-box payment accounts and check disbursement can assist a business in prolonging cash disbursements [28].

Lastly, Information Communication Technology facilitates interrelation between Finance sectors and other departments. IT communication tools can also be supportive to the financial manager. There should be connection between the financial manager and different departments to coordinate the incurred expenses and costs from each department. Mobile phones, faxes, Emails and other technological tools can be useful in transferring financial data among people immediately. However, original receipts must be forwarded to the accounting department or controller office for financial recording reasons. At times, meetings

are held via web conferencing in companies to allow the financial manager spread the financial reports to key people in the company despite being at far distance [29].

3.4 Stock Markets and Banking Sector as Typical Financial Institutions using Information Communication Technology

3.4.1 Stock Markets

The National Stock Exchange (NSE) came into existence in the early 90s and transformed the method of operation of stock markets usually adopted via the use of Information technology. Floor based trading was substituted for screen based electronic trading. Trading is now being executed at the investor doorstep. Transfer of transactions by brokers is being executed via RTGS mode. This forms part of the constituents pertaining to the funds leg of secondary market transactions. Information communication technology permits investor through availability of information and education. The financial statements for many corporations are available on various websites. Even the annual reports can be accessed from here. An investor can also get information on particular stocks and the history of those companies as well as the latest related news. As a result, investors can use this information to make smart and well-educated decisions for investing. This has resulted in increase in the number of investors in the market [30].

The use of new communication networks and trading software has drastically reduced middlemen or brokers. Such software allow investors to buy and sell stock and bonds or debentures on-line. These software assist investors to place market orders and also allow them to place limit orders or stop-loss orders. Even the Government Securities have substituted Screen based trading system for Order Matching System. This results in more transparency and better price discovery in the market related transactions in Government securities. Clearing Corporation of India Ltd. (CCIL) has emerged as a fully IT permitted entity to be engaged in reporting and electronic transaction processing. This has advanced the market growth in terms of coverage and depth. Negotiated Dealing System (NDS) has come in use, which has provided the technology platform for changing market and regulatory requirements.

3.4.2 Banking Sector

In the olden days, manual ledgers were often used in the banks to record transaction histories. With the recent Information Technology systems, banks can store and present accurate information of their customers' bank accounts. A software has been developed by Infosys called "Finacle". This is adopted by several banks and has simplified banking operations to an excellent extent. It works on the principle of four eyes concept having several functions that can handle savings account, loan account and many more. It can also help investigate the accountability status of a banking firm. ICT has influenced banks to move beyond branch banking to Core banking solutions involving the use of Internet banking, ATM and mobile banking. The use of internet can help banks to execute standard and low value-added transactions such as balance inquiries, bill payments and account transfer via online channel. This enable them to focus their resources into specialized, high-value added transactions such as personal trust services, corporate lending and investment banking. Banks can now file their regulatory returns online. Banks are now sharing various information with each other. A typical example is CIBIL score software which reflects an individual's score regarding his credit history. This is generated as a result of banks sharing the details of an individual's credit history.

It has now been ascertained that banks have derived benefits through information technology and electronic banking which has enhanced their efficiency and effectiveness of operations. It has facilitated faster and convenient transactions processing. Also, their costs

have reduced and profitability has improved. There is now improvement in customers' satisfaction by providing him benefits such as reduced frequency of visiting banks, quick service delivery and reduction in cash handling. Customers can now make fixed deposits, view their account balance and also transfer money online. At the same time, ICT has influenced competition and the degree of contestability in banking and financial services. Thus, overall performance of the banks has increased considerably along with enhancement of their image and goodwill. However, It has brought in concerns such as account hacking, phishing and so on [31].

3.5 Challenges of Information Communication Technology in Financial Management

Despite the numerous and endless advantages of adopting Information Communication Technology in financial management, there are still some drawbacks attached. Setting up an information technology system in a financial firm requires that all the components of ICT available. The required infrastructures also includes ICT experts who are basically charged with the responsibility of installing, designing, fixing and maintaining the systems. In some cases, special ICT personnel is needed to exploit the usage of such systems and technologies and even engage others in training. In the absence of this, no financial institution can appreciate the optimum advantages attached to using ICT. The absence of the required elements such as computer technologies and communication in organizations makes the use of ICT to be a difficult one [17].

Furthermore, it is necessary for trained staff to perfectly blend with the changes and transmit positive responses. This is a serious investment by the organizations and the money spent on training should be appreciated. This will also boost the qualifications of trained staff members. In cases where the workers in a company are unresponsive and not interested in moving along with the change, it makes their productivity to be low. It is quite obvious that the accorded benefits of adopting ICT in the system would be jeopardized. Nevertheless, the use of ICT and its implementation becomes hard in an organizational settings where the management systems are severe. Under this, the management is not ready to evolve and change with the world. In such organizations, the presence of ICT is extremely low. If such management continues like that, the business will eventually become less competitive and irrelevant. To curb this, a management system should be volatile to allow the influence of the lower level workers in becoming positively inclined in IT [19].

Finally, investing in ICT is a great idea. It involves investing time, intellect, money and others. The procurement of hardware components and setting the software up is money consuming. Money is also spent on the maintenance of such elements and components. Additional cost is incurred on staff training and hiring of ICT specialists. Furthermore, when most of the activities in an organization are executed via computers and other electronics, there is reduction in the number of staff needed. This is a probable down trench to the workers of such organizations. This can cause job insecurity, resistance to change and morale, thereby leading to a high level of inefficiency and unproductivity. The expected profit of a business can be drastically reduced due to the workers inefficiency and thus, hinder the overall success. This will also have negative effects on the economy. High level of unemployment comes into play when workers are laid off as a results of replacing their duties with machines [20].

4. CONCLUSION

This paper has discussed the concepts of Information Communication Technology in Financial Management. Emphasis was laid on the components, elements and categories of Information Communication Technology in Financial Management. Up-to-date information on

the influence of Information Communication Technology on financial management was discussed alongside with basic fundamental information regarding this topic. Stock markets and banking sector were cited as case studies of financial institutions using Information Communication Technology. However, some drawbacks of utilizing Information Communication Technology in Financial Management were noticed in the course of investigation and were presented. Future studies should look into the application of machine learning (such as artificial intelligence, robotics, automation and so on) to incorporate the influence of information communication technology on financial management. Further studies should be conducted on the applications of information communication technology in different financial management systems to observe the variations in the ICT influence.

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