



## Review Article

# THE IMPACT OF INFORMATION AND COMMUNICATION TECHNOLOGY ON THE ALGERIAN BANKS ACTIVITIES

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### ABSTRACT

This study examined the impact of information and communication technology on the Algerian banks activities, we chose sample of seven banks they are BNA, CPA, BEA, BADR, CNEP, SGA, BNP. A total enumeration sampling technique was used to select the Algerian banks agencies whose provide response to a structured questionnaire, Data collected were analyzed using of Statistical Package for Social Sciences (SPSS) software version 20, The findings of the study indicated that the use of ICT increases productivity and improving service quality, improving dealings with banks, IT saves the time of the customers and the employees conspicuously, and gain customer loyalty.

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## INTRODUCTION

New age business environment is very dynamic and undergoes rapid changes as a result of technological innovation, increased awareness and demands from customers. Business organizations, especially the banking industry of the 21st century operates in a complex and competitive environment characterized by these changing conditions and highly unpredictable economic climate. Information and Communication Technology (ICT) is at the centre of this global change (AgboolaAkinlolu, 2007). Today, information and communication technology has become the heart of banking sector, while banking industry is the heart of every robust economy. If it collapses so will the economy. It is absolutely evident from the current recession, in European banks' crises, and in turn. ICT has created a new infrastructure for the world economy to become truly global and also provided the users of new technology a competitive advantage over their rivals (Abubakar and Tasmin, 2012). There is no doubt that commercial banks play an important role in the economic development of any nation (Binuyo and Aregbeshola, 2014).

So the application of information and communication technology concepts, techniques, policies and implementation strategies to banking services has become a subject of fundamental importance and concerns to all banks and indeed a prerequisite for local and global competitiveness. ICT directly affects how managers decide, how they plan and what products and services are offered in the banking industry. It has continued to change the way banks and their corporate relationships are organized worldwide and the variety of innovative devices available to enhance the speed and quality of service delivery (AgboolaAkinlolu, 2007).

### Theoretical basis for the impact of ICT on the the bank activities

#### Information and Communication Technology

Information and Communication Technology (ICT) is the automation of processes, controls, and information production using computers, telecommunications, software's and other gadget that ensure smooth and efficient running of activities. It is a term that largely covers the coupling of electronic technology for the informationneeds of a business at all levels (Agbolade, 2011).

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## The impact of ICT on the the bank activities

Technology has a major impact on the way banking and financial services are delivered (SaeidKhajeh dangolani, 2011). So the benefits of ICT for a firm include general cost reductions, greater flexibility and improvements in product quality, this new technology may also lead to higher product quality or better product development conditions. Moreover, the new technology may also increase the flexibility of the production process (Arvanitis and Loukis, 2009).

## The Review of Related Literature

**Arvanitis, Spyros and Loukis N. Loukis. (2009). "Information and communication technologies, human capital, workplace organization and labour productivity: A comparative study based on firm-level data for Greece and Switzerland". *Information Economics and Policy*, 21(1), 43-61**

This paper describes a comparative empirical study of the effect of information and communication technology (ICT) capital, human capital and new organizational practices on labour productivity in Greek and Swiss firms. They use firm-level data collected in 2005 through a common questionnaire administered to samples of similar composition (e.g. similar firm sizes, similar sectors), from which we construct econometric models with similar specifications for Greece and Switzerland. The analytical framework is based on a firm level production function. We find statistically significant positive effects for physical capital, ICT capital, human capital and "employee voice"-oriented organizational practices for both samples. they also identify considerable differences: Swiss firms are more mature and more efficient than Greek firms at creating, using and combining these 'new' production factors.

**Fernández-Menéndez, López-Sánchez, Rodríguez-Duarte, and Sandulli, (2009). Technical efficiency and use of information and communication technology in Spanish firms. *Telecommunications Policy*, 33(7), 348-359.**

This paper shows the level of use of ICT within organisations, with preference as regards the expenses of ICT, which is responsible for the effect on performance. A general sample of 2255 Spanish companies has been used. Firms' performance is measured as technical efficiency, which is determined by a data envelopment analysis (DEA). Results show that there is evidence of a positive effect of the use of ICT on technical efficiency. This effect is especially notable at intensive use levels in activities related to operations/manufacturing, purchasing or sales.

**Binuyo, Adekunle Oluwole, and Rafiu Adewale Aregbeshola. "The impact of information and communication technology (ICT) on commercial bank performance: evidence from South Africa"**

This paper contributes to the ongoing debate regarding the contribution of Information and Communication Technology (ICT) to firm's performance. As the ICT impact on bank performance is beyond the scope of most similar studies, this study further investigates the impact of Information and Communication Technology Cost Efficiency (ICTCE) on the performance of banks as well.

The study assessed the impact of ICT on the performance of South African banking industry using annual data over the period 1990-2012 published by Bankscope – World banking information source. The findings of the study indicated that the use of ICT increases return on capital employed as well as return on assets of the South African banking industry. The study discovers that more of the contribution to performance comes from information and communication technology cost efficiency compared to investment in information and communication technology. The study recommends that banks emphasize policies that will enhance proper utilization of existing ICT equipment rather than additional investments.

**Agbolade, Obasan Kehinde. (2011) "Information and Communication Technology and Banks" Profitability in Nigeria". *Australian Journal of Business and Management Research*, 1(4), 102-107**

This study examined the nature of the relationship that exist between Banks Profitability and the Adoption of Information and Communication Technology. The data analysis showed that a positive correlation exists between ICT and banks profitability in Nigeria. This implies that a marginal change in the level of the investment and adoption of ICT in the banking industry will result to a proportionate increase in the profit level. This is confirmed by the level of the regression coefficient as well as the factor analysis which revealed that an insignificant size of profit exist without the introduction of the ICT.

**Adesola, Oa Moradeyo, and Ko Oyeniye. (2013) "Impact of Information And Communication Technology On Nigerian Banks Operations A Study of United Bank For Africa (UBA) Plc." *International Journal of Business and Management Invention*, 2(9), 7-12**

This study examined the impact of information and communication technology on the Nigerian banks operations in term of speed of banking operations, and efficient service delivery, workers' performance and bank's profit level, using United Bank for Africa (UBA) Plc. as a case study. The survey research design was used in this study. It involved the use of a self-designed structured questionnaire in collecting data from selected United Bank for Africa (UBA) Plc staff through simple random sampling method. The result showed the usage of ICT contributed significantly to the speed of banking operations, and efficient service delivery, workers' performance and bank's profit level. It was then recommended that the banks should embark on more effective training for the workers, in order to further enhance their performance. And also management of banks should procure quality ICT gadgets that will enhance efficiency and customers' retention.

**Alabar, and Agema, (2014). Information and Communication Technology and Customer Satisfaction in the Nigerian Banking Industry. *Journal of Advanced Management Science* Vol, 2(4)**

Information and communication technology (ICT) in the Nigerian banking industry is generally believed and seen to have dramatic influence on the level of customer satisfaction in recent times. As a prerequisite for banking efficiency, and indeed customer satisfaction, one wonders whether the current

state of ICT in the industry offers the desired level of satisfaction. It is against this backdrop that the study adopts an empirical approach in determining the relationship that exists between the current state of ICT and customer satisfaction in the industry. Four hundred (400) banks' customers were served with questionnaire, out of which only 391 were used. Regression analysis was used in testing the hypotheses. It was discovered that the present state of ICT had significant influence on customer satisfaction. The following recommendations were therefore made: banks should continually explore the possibility of raising the standard of ICT based systems and services, intensify efforts in meeting up with global operational systems and demonstrate a high sense of reliability, responsiveness and credibility in the application of ICT in their operations . The general objective of this study is to analyze the impact of information and Communication Technology on the Algerians banks activities with reference to selected commercial banks in Algeria.

**Methodology**

**Data and Sources**

This study used a descriptive survey design. The purpose of descriptive surveys is to collect detailed and factual information that describes an existing phenomenon. The target population of the study was banks in Algeria. A sample of seven banks were chosen, they are BNA, CPA, BEA, BADR, CNEP, SGA, BNP. A total enumeration sampling technique was used to select the Algerian banks agencies whose provide response to a structured questionnaire designed to solicit their views about the impact of ICT on the Algerians banks activities. The questionnaire was specifically designed to accomplish the objectives of the study it contained 33 questions that measure the impact of ICT on the Algerian banks activities: The first section contained 11 questions that includes the most important means of modern payment used by Algerian banks, while the second section contained 11 questions that measure the most important technology banking used by Algerian banks, and the third section contained 9 questions that are concerned with the reality of modern technology applied in the Algerian banks.

**Measuring the stability of the questionnaire**

In order to measure the stability of the questionnaire, werelid on Crombach alpha coefficient that was 0.859, a value greater than 0.6, which means the stability of the measurement tool, therefore; we can use it in this study.

**Table 1. measure the stability of the questionnaire**

	Percentage	
	YES	NO
Usecreditcard	100%	
UseSWIFTnetwork	60%	40%
Use ofcashdispensersandautomaticcashmachinenetwor kandGABS	80%	20%
Use the Internet	80%	20%
Use the Electronic Payments Tool (EPT)	70%	30%

**Analysis ofthe questionnaire results**

To measure the impact and the reality of information technology and communication atvarious Algerian banking

activities, we askeda series of questionsto the managers of Algerian bank ,answers were processed using spssprogram and the results which wereexpressedintables andpercentageswere usedin the analysis ofthe questionnaire results, Amongthe questions thatwe focusedon it to seemodern payment methodsused inbanks: What types ofnetworks are availablein the Algerianbanksand the results wereas follows: The table shows the use of ICT technologies (new Payments Tool) by banks agencies. The most widely adopted products were bank cards (100%), the Internet and Use of cash dispensers money mechanism and network money mechanism GABS and DAB (100%), electronic payment network for trader rate (70 %) and the swift network system as a percentage of 60%, This implies that the products were adequately spread from the headquarters to most of the branches. Direct observation by the researchers also confirmed the availability of the products in most of the branches visited. This shows a growing trend in the rate of adoption of ICT in banking operationsIn addition, there are other types of new networks that have been used in Algerian banks such as electronic system of compensation and the creation of electronic clearing services as part of a national strategy to modernize payment Means

**The importance of investing inInformation and Communication Technology"ICT "**

The investment in the Information and Communication Technology is critical and necessary because without it technological developmentcan not be embodied, and due to this importance, it was among the points that we focused on to know the share allocated from the total budget of the Algerian banks investment in technology and the results were as follows:

**Table 2. The importance of investing inInformation and ICT**

	Duplicates	Percentage
0	2	20%
≤ 5%	2	20%
5-10	1	10%
20-30	1	10%
30-40	2	20%
50%≥	2	20%
total	10	100%

Through the table we note that 20% of the surveyed banks spend the total budget for them more than 5 and 10% of them spend between 5% to 10%, on the other hand, another sample of respondents believe that this ratio is ranging from 20% to 30% of the total budget for investments in the field of technology, this investments were represented buying computer and networking devices and other investments in IT and therefore the results obtained ratios are considered inadequate because technology requires large sums of money to invest in the mechanism,So it is worth suggesting that the Algerian banks needs to spend more on ITC ,Investment in information and communication technology should form an important component in the overall strategy of banking operators to ensure effective performance .

**Technologies and productivity growth**

The search for technology is still the first strategic goal of the Algerian banks, the interviewer interests is in new Information

and Communication Technology to improve productivity, and to increases productivity of banks by saving technology which is necessary for the banks to adopt the principle of achieving savings as priorities in order to be able to compete by cost in medium term: this ratio was estimated at 40% according to the interviewer interests, it is illustrated in the following Figure:

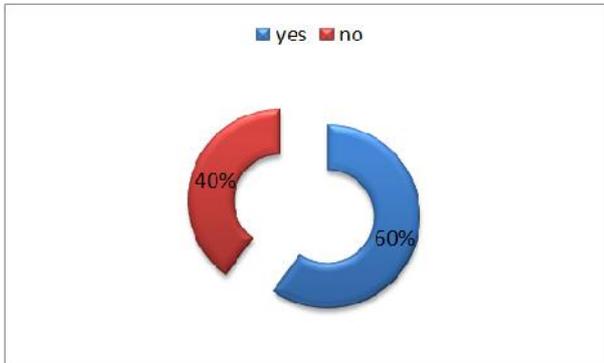


Figure 1. Technologies and productivity growth

**The level of the impact of technology on productivity**

The Table make clear that most of the respondents believe that ICT development has a positive impact on productivity so that the percentage of respondents who believe that it is very high and high impact are 20% and 60% respectively.

**Table 3. The level of the impact of technology on productivity**

	Recurrence	Percentage
VeryLow	0	0%
Low	1	10%
Moderate	1	10%
High	6	60%
Very High	2	20%

On the other hand, we have tried to analyze the important elements to the productivity of the network through the computer and whether or not to provide in various banking operations, namely: Average operations performed in the day, the average time it takes for each process, the results are shown in the following Table:

**Table 5. Banks equipped means of ICT**

	Banks not equipped means of ICT		Banks equipped means of ICT	
Average operations performed in the day	20Operation	70%	200 Operation	30%
	50 Operation	30%	500Operation	70%
The average time it takes for each process	10 Minute	60%	1second	10%
	15 Minute	40%	3seconds	90%

According to the table above, it appears that overall productivity improved and multiplied so that when you use a computer, the average number of operations for these services will be 20 process as a percentage of 30% to 500 process as a percentage of 70% at a time is currently only 3 minutes a percentage of 90% and this Contrary interests that do not use a computer that produces 30-day process in only a percentage of 70% and 50 process by 30% advance estimated between 10 to 15 minutes, and the results during the big difference in the completion of operations in terms of time and number of operations performed in the day .

**Shift from inventory management to flow management**

The technology of new information and communication allow for the transition from the classical management of inventory to manage flow control any exchanges with the duplication of processes and processed gradually and this is illustrated in the following Figure:

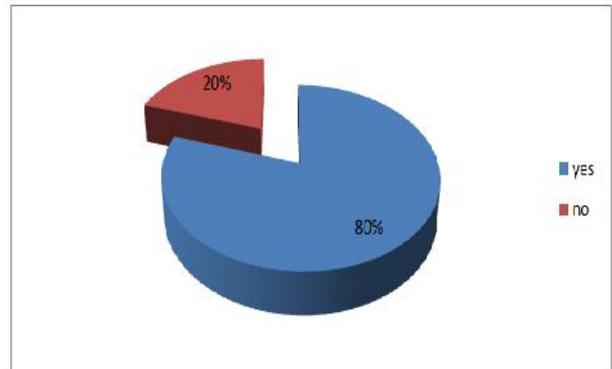


Figure 2. Shift from inventory management to flow management

**The impact of the introduction of new Information and Communication Technology on the method used in the inner workings of the Algerian banks**

To find out the extent of the impact of new Information and Communication Technology on the way to conduct banking transactions in terms of the speed of information processing, the quality of banking services offered, the low percentage of the obstacles we have adopted the results in the following Table:

**Table 4. The impact of new Information and ICT**

	percentage	
	Yes	No
Information processing speed	80%	20%
Improve the quality of services	70%	30%
Influence of ICT Devices on Error Rate Reduction	60%	40%
Fading obstacles spatial	90%	10%

Depending on the results of the table we note that the impact of new Information and Communication Technology on the inner workings of the Bank contributes significantly to the elimination of spatial obstacles (90% of the whole sample),

followed by information processing speed (80% of the whole sample) and then 70% for improving the quality of services and finally 60% to reduce the Error Rate.

**The impact of technology on the distribution task**

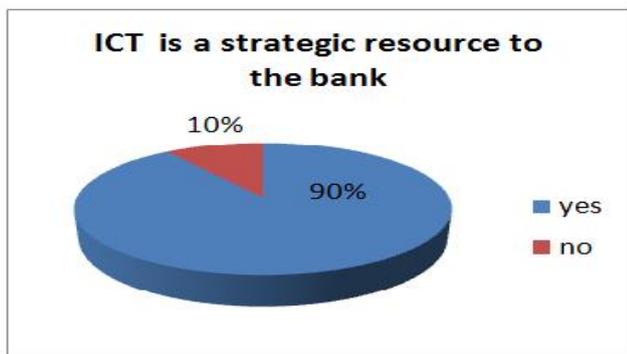
A characteristic of any banking institution is the quality and ability to be upgraded through the offer, which determines the additional value to each customer based on the system to the next question:

**Table 6. The impact of technology on the distribution task**

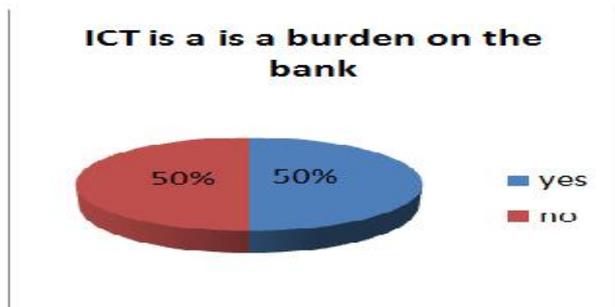
	Percentage	
	Yes	No
Customer satisfaction	90%	10%
Improve the quality of services	90%	10%
Customer loyalty	80%	20%

**What is the impact of the introduction of information technology and communication in the Algerian banking relationship with the customer?**

The customer is one of the most important priorities that banks seek to achieve by giving a good image of the bank customer to



**Figure 3.**



Information and Communication Technology leads to the saving of the time of the customers conspicuously, and to reduce costs related to their handling of the bank, which has become a key demand, so banks have to provide fast service compared to the opponent, or otherwise they will lose out to their competitors.

**Is technology considered a burden on the bank or a strategic resource to it?**

Findings from the statistical analysis of the study show that 90% of the respondents believe that information and communication technology is a strategic supplier to the bank, while 50% of the managers see it as a burden to the bank due to the lifting of the level required by the human resources organization's need.

General findings of the impact of information technology and communication on activities of the banks: Through the table it is clear that the introduction of information technology and communication lead in the first place to the expansion of the bank's activity and the percentage of 80 improving profitability and improving service quality and gain customer loyalty 70, and then improving dealings with banks and attract foreigners to 60, improve to deal with the customer by 40. In the last to raise productivity by 20 percentage

**Test hypotheses**

Through analytical study that we have had at this stage we will try to answer the hypothesis that

**H1:** Algerian banks apply information technology and communication to carry out its activities, In order to test this hypothesis has been using one sample test

By testing one sample test we must accept the null hypothesis **H0:** Algerian banks not use new information and communication technology to conduct banking activities because sig less than 0.05.

**Table 7. TEST Hypotheses**

	VeryLow	Low	Moderate	High	Very High
Expand the bank's activity					80%
Improve the handling of customer					40%
Attract new customers					60%
Improve dealings with banks					60%
Improve market operations					60%

	VeryLow	low	Moderate	High	Very High
Raise productivity					20%
Information processing speed					70%
Improve the quality of services					70%
Improve profitability					70%
Customer loyalty					70%

bring in and gain satisfaction and loyalty, we measured this effect through the following Table: From the results of the table it is clear that one of the priorities of the Algerian banks is to improve the quality of banking services to ensure customer satisfaction and loyalty, the banks customers believe that the new.

**Table 8. Test NICT**

	t	sig
NICT	-1.742	0.115

## Conclusion and Recommendations

The findings from these studies show the critical importance of technology information and communication on the banks that apply modern information technologies through new applications of information systems and standards for the design of these systems, which led to the necessity of seeking banks to keep pace with this development to use these technologies and the integration of information technology and information systems, management and regulation of the level of in order to gain a competitive advantage to enable them to withstand the intense competition in the market.

## REFERENCES

- Abubakar, A. A. and Tasmin, R. B. H. 2012. The impact of information and communication technology on banks' performance and customer service delivery in the banking industry. *International Journal of Latest Trends in Finance and Economic Sciences*, 2(1).
- Adesola, M.A., Oa Moradeyo and Ko Oyeniyyi, 2013. "Impact Of Information And Communication Technology On Nigerian Banks Operations A Study Of United Bank For Africa (UBA) Plc." *International Journal of Business and Management Invention*, 2(9),7-12.
- Agbolade, O. K. 2011. Information and Communication Technology and Banks" Profitability in Nigeria. *Australian Journal of Business and Management Research*, 1(4), 102-107.
- Agboola, A. 2007. Information and communication technology (ICT) in banking operations in Nigeria—An evaluation of recent experiences. *African Journal of Public Administration and Management*, 18(1), 1-14.
- Alabar, T. T. and Agema, R. J. 2014. Information and Communication Technology and Customer Satisfaction in the Nigerian Banking Industry. *Journal of Advanced Management Science Vol*, 2(4).
- Arvanitis, S. and Loukis, E. N. 2009. Information and communication technologies, human capital, workplace organization and labour productivity: A comparative study based on firm-level data for Greece and Switzerland. *Information Economics and Policy*, 21(1), 43-61.
- Binuyo, A. O. and Aregbeshola, R. A. 2014. The impact of information and communication technology (ICT) on commercial bank performance: evidence from South Africa. *Problems and Perspectives in Management*, 12(3), 59-68
- Saeid Khajehdangolani, 2011. The Impact of Information Technology in Banking System (A Case Study in Bank Keshavarzi IRAN). *Procedia-Social and Behavioral Sciences* 30, 13-16.

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