

The Role of information and communication technology in improving the level of the employees' performance of the Algeria Foreign Bank

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Abstract:

The aim of study to influence of implementing information and communication technology as a means to enhance organizational performance, we focused on a sample from the External Bank of Algeria (Dali Ibrahim) during the period 2022-2023 based on one of the time series models and the multiple regression model between the independent variables and the dependent variables. This questionnaire was presented with two factors and they recovered 72% of it. The study's findings indicate a significant impact of information and communication technology on employee performance at the External Bank of Algeria, where there is an impact for each of the development of information technology on the added value, this highlights the pivotal role of information and communication technology in fostering the highest levels of efficiency and effectiveness in performance. It underscores the significant and effective contribution of information and communication technology in enhancing employee performance within the institution under study.

Keywords: Information and Communication Technology (ICT); Staff Performance; External Bank of Algeria.

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1. Introduction

Information and communication technology, since the past two decades, has revolutionized the service industry, especially in the field of the banking sector, as it is an integrated package of capabilities and advantages that support the activities of the institution, through its impact on operational efficiency, worker productivity, customer service and achieving their satisfaction, through the development of competitive processes and products that achieve Strategic advantages for the organization and thus became one of the main determinants to distinguish between the leading institutions from others, as it represents a major driving force behind the organizational competitiveness in the current business environment.

The interest in information and communication technology in our lives had effects, whether on a micro or macro level, as it led to the emergence of what is known as the information and knowledge era, an era in which knowledge has become an essential resource that is no less important than the well-known classical production resources. Information technology is considered a strategic weapon. The world today Thanks to the facilities and advantages granted by this human technology, it has become like a small village. So, the Algerian institution is required, for its part, to keep pace with these developments and adapt to them in order to win the challenges of the times, and this can only be achieved by providing a strong infrastructure that allows accommodating developments in this field and qualifying human resources so that they can take charge of the new situation of survival and excellence in our current era.

Information has an undeniable role in all aspects of activity, as it is essential for scientific research, and it forms an appropriate background for making good decisions, it is an indispensable element in the daily life of any individual, and in addition to all this, it is a necessary resource for industry, development, and Administrative, economic, military and political affairs.

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Information and communication technology is considered one of the most important means used by various institutions, both aimed and non-profit, in their various operations, as it allows the provision of information on time and at the lowest costs, as it is based on its application and management by specialized human resources, and for this reason, it has become necessary to pay attention to the human resource. This is considered one of the most important resources in institutions, especially in Algerian banks, given that the latter depends on the efficiency of the workforce, as it is the main engine and the beating heart of all the functions of the institution, which has the most prominent role in achieving the objectives of the institution.

Today, institutions are facing a new form of competition that was not known before. Some even called this situation the new revolution of information and communication technology that changed the course of life in all economic, cultural and social aspects, in addition to the use of the computer that invaded the various fields and activities of human resources to nothing. It is a different communication technology. The economic institution in general has always been the main tool in developing and strengthening the strength of any economy, so it had to update its systems using new technology as a tool to improve administrative capabilities, simplify and facilitate procedures, as well as develop human performance.

1.1The problem of the study:

In the context of all these developments that are dominated by the scientific-technological nature, our work came to shed light on some of the effects that information technology causes in one of the most important aspects of providing banking services.

The main question driving our study is as follows:**What is the impact of utilizing information and communication technology (ICT) as a tool to enhance the performance level of employees at the External Bank of Algeria (EBA)?**

Subsequently, we can explore the following sub-questions to address this

problem:

- To what extent does the External Bank of Algeria utilize information and communication technology?
- To what extent does the External Bank of Algeria make use of information and communication technology?
- How does the use of information and communication technology affect employee performance in the External Bank of Algeria?

1.2 Study Hypotheses:

The following hypothesis can be tested in order to provide answers to the main question and its sub-questions:

- The initial primary hypothesis states that information and communication technology has a statistically significant impact on employee performance at the External Bank of Algeria, with a significance level of $\alpha \leq 0.05$.
 - The first sub-hypothesis states that the Algerian dimension shows that there is a significant effect at the $\alpha \leq 0.05$ level.
 - The second sub-hypothesis states that applying communication strategies as a tool to enhance employee performance at the External Bank of Algeria shows the statistical analysis shows that there is a significant effect at the $\alpha \leq 0.05$ level. The second sub-hypothesis states that applying communication strategies. Using computer Software as a technique to improve staff performance at the External Bank of Algeria at the statistically significant ($\alpha \leq 0.05$) level.
- The second primary hypothesis implies that there exists a statistically significant impact, at the level of statistical significance ($\alpha \leq 0.05$), between employees' performance and their understanding of information and communication technology ideas.
- The third primary hypothesis states that there is a statistically significant relationship between information and communication technology and employment in Algerian banks abroad, with a significance level of $\alpha \leq 0.05$.

1.3 The Importance of the Study:

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The study's significance lies in its contribution how to use information and communication technology in the performance of employees and employees in the External Bank of Algeria, through the introduction of information technology to facilitate the achievement of the desired goals and develop the performance of employees by facilitating the procedures to go through.

1.4 Study Objectives:

1. Understanding the principles of information and communication technologies.
2. Learning about the employees' performance at the bank.
3. Investigating the relationship between External Bank of Algeriastaff performance levels and information and communication technology.

1.5 Study variables:

Two factors were included in this study:

- Information and communication technology (computer software, communication techniques) represents the independent variable.
- Concepts on ICT and Organizational Performance: we make an effort to provide concise conceptualizations of the research variables as they are represented in information and communication technologies and employee performance.

2. Concepts about ICT and organizational performance:

This section provides a brief overview of the theoretical concepts related to the study variables of information and communication technology and employee performance.

2.1 What is information and communication technology?

A lot of authors and researchers have dealt with several definitions of information and communication technology, from which we can quote the following:

Information and Communication Technology: A group of parts linked to each other, which includes methods of rapid processing of information

using computers, application of statistical and mathematical methods in solving problems, and simulating thinking through computer programs. Information and communication technology: It is the use of modern technologies (a means) such as computers, printers, the Internet, wireless networks, scanners, cellular devices, monitoring devices, software and other modern means in the processes of data collection, preservation, processing, distribution and transmission with great speed and accuracy to assist in support-taking operations in decisions, problem-solving and data analysis to achieve set goals (Martínez, 2003, p58).

Information and Communication Technology: It is the group of technologies used in the processing and transmission of information, especially automated media, the Internet and remote collaborative work, electronic management of activities and other electronic supports that assist in communication operations (Smita et other, 2013, p 256).

Information and Communication Technology: It is a collection of many methods, instruments, strategies, or systems used to process the material or content that is meant to be delivered to the various concerned parties, depending on several stages based on obtaining and monitoring data from the environment, then comes the data processing step, which gives the processing stage results through organization, tabulation, storage, coding, and analysis (Basant, 2006, p 135). As a result, the following definition of ICT will be used for this research:

‘Information and communications technology (ICT) is a tool for performance improvement; it may assist managers in identifying the aspects of their processes that aren't functioning effectively and in providing the best ways to enhance them both directly and indirectly for increased productivity.’

2.2 The importance of information and communication technology:

The development and modernization of institutions, which gives those institutions an advantage over their peers and creates a variety of business environments, is greatly supported by information technology. It needs to be pointed out as follows (Pelgrum, 2001, p170):

- Helps in maintaining successful control of operating procedures.
- Helps in providing the company with a real workforce.

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- Helps in developing the administrative channels of communication between the different departments of the company
- Allows time to be saved, particularly for senior management, so they can focus on more significant tasks.
- Helps in minimizing the size of administrative bodies.

Modern organizations will not develop and upgrade except with advanced information systems based on integrated databases, which requires them to grasp the essence of information and communication technology and effectively utilize it for knowledge management purposes. Information and communication in providing accurate data and information, processing it, and making it accessible to the decision-maker on time, in addition to its role in defining their supply continuously with the development that surrounds them. The importance of information and communication technology comes from the following considerations they are as follows(Aniekwu, 2002, p85):

- ☐ Obtaining the information required to perform its work appropriately and distinctively;
- ☐ Creating new job opportunities;
- ☐ Take advantage of the advantages and modern communication technologies;
- ☐ Linking between individuals, institutions or bodies in terms of time or place;
- ☐ Works to shorten time and distances, rationalize efforts and resources, and remove spatial obstacles;
- ☐ It allows the organization to reach very important results in terms of presence in new markets and enhancing quality;
- ☐ More effective management of human resources and customers;
- ☐ Optimizing production and controlling costs.
- ☐ Information security;
- ☐ Speed of development of the system;
- ☐ The ability to change and modify;
- ☐ Capacity to carry additional work;
- ☐ The possibility of enlarging capabilities;
- ☐ Required to maintain order;

- Ensure the integrity of the data is not lost.

2.3 Functions of information and communication technology

Kabari (2015) outlines several key benefits of information and communication technology:

1. Speed: Technology enables workers to process tasks much faster than traditional methods.
2. Cost-effectiveness: By automating business processes, information technology helps streamline operations, making them more efficient and profitable.
3. Trade convenience: The internet serves as a global marketplace where products can be advertised and sold, allowing for worldwide accessibility and the ability to receive inquiries and quotes from different regions.
4. Creation of new jobs: While certain traditional jobs like typing may become obsolete due to technology, new roles and opportunities emerge within the realm of information and communication technology.

- **Hardware:** Hardware is a set of physical components represented in computers and peripherals to carry out the required tasks.

- **Software:** Software is a set of intangible components of a computer system, including instructions, procedures, programs, operating systems, and programming languages. This software performs several basic functions, the most important of which are computer operations management, data retrieval, and support for business applications.

- **Networks:** Networks are a group of computers organized together and linked by lines of communication so that their users can share the available resources and transfer and exchange information among themselves. These networks are used to achieve a range of purposes such as providing communication between people and accessing information remotely, electronic commerce and others(Christina, 2015, p36).

2.4 Impact of ICT on the organizational performance

The concept of employee performance: is defined as human behaviour in the workplace, that is, it is the achievement that is achieved as a result of the physical and mental effort that the individual exerts in his work. The performance of workers indicates that whatever the multiplicity

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of these criteria, they must deal with or emphasize two basic aspects: The first is objective: it expresses the basic elements required by the nature of the work, such as quantity of production, quality, speed, and the extent to which the individual has achieved goals, the use of time. The second is subjective or behavioural: it reveals the individual's characteristics such as ability and speed in learning, the possibility of relying on him, benefiting from training, supervisory ability, the extent of acceptance of criticism, cooperation, and his relationship with subordinates. The importance of these standards and their definition for workers and the extent to which they relate to their progress and the progress of the organization(Brady,2008, p125).

Therefore, we see that the relationship between the use of information technology and employee performance is as follows:

Increasing the number of opportunities available to the organization in the internal and external markets and activating the process of generating and applying new ideas necessary for the development of goods and services.

Increasing the efficiency of the organization in exploiting its various resources to generate the required outputs at the lowest possible cost, by automating its operations and activities based on computer applications.

Increasing the effectiveness of the organization in achieving its long-term goals related to survival, growth, and continuity through improving learning and knowledge transfer processes, using local and global business networks, improving the effectiveness of the decision-making process, increasing its quality, improving its content, and increasing the effectiveness of the administrative communication process inside and outside the organization (Martínez-Frías, 2003, p59).

Organizations' interest in moving towards competitive advantage pushes them towards the use of information technology, which highlights the increased interest in research, development and training, which contributes to building and developing individual capabilities.

Influencing the moral side of the employees towards increasing their loyalty and belonging to the organization through the opportunities it provides for easy access to information, which contributes to enhancing their

participation in the decision-making process. Reducing the cancelled routine job burdens on managers, allowing them to use this time in strategic planning and drawing up the organization's general policies (Aniekwu, 2002, p86).

3. The practical side:

The importance of using information and communication technology as a tool to improve the level of performance of employees in the External Bank of Algeria

In this section of the study, we will focus on understanding the significance of utilizing information and communication technology as a means to enhance the performance of employees at the External Bank of Algeria. We used a questionnaire as our primary method for data collection, which enabled us to examine hypotheses through analysis using the SPSS program. This approach facilitates an in-depth exploration of how information and communication technology can positively impact employee performance within the context of the External Bank of Algeria.

3.1 Study and Sample

The study population consists of all employees who work at the External Bank of Algeriain Daly Brahim, the focus of our research. For the study sample, we distributed an estimated 40 questionnaires based on the total sample size. Ultimately, we received 37 valid questionnaires for analysis after excluding any incomplete or duplicated responses.

3.2 Describing the characteristics of the study sample:

Table (01) shows the characteristics of the two study samples:

TableNo.(01): shows the characteristics of the two study samples:

Characteristics		Number
Gender	Male	15
	Female	22
Total		37
The Age	less than 35	5
	47-35	12
	57-47	8

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	more than 57	12
Total		37
Educational Qualification	Technical Diploma	6
	Bachelor's degree	25
	Master's degree	5
	Magister degree	1
Total		37
Number of years of service	less than 10 years	10
	10-20	15
	over than 30	12
	Total	37

Source: This information is a product of the SPSS system, as interpreted by the researcher.

3.3 Target Sample Information and Data for Measurement:

The questionnaire encompasses the primary variables of the study. The independent variable focuses on information and communication technology and includes sub-dimensions such as computer software and communication techniques. Meanwhile, the dependent variable is characterized by the level of employee performance.

The survey made use of a five-point Likert scale, offering a range of options for participants to choose from ranging from 'strongly agree' to 'strongly disagree'. To ensure the validity and reliability of the questionnaire, it underwent rigorous testing. Table No. (02) presents the outcomes of these tests, assessing factors such as honesty and perseverance in respondents' answers.

Table No. (02): Results of honesty in reliability coefficient of reliability

N of Items	Cronbach' Alpha
3	0.828

Source: Compiled by the researcher using data generated from the SPSS software.

The value of the alpha coefficient for all items of the questionnaire was (0.828), as we find that the final form of the questionnaire is distributable. Thus, the researcher verified the validity and reliability of the study questionnaire, making him completely confident in the validity of the

questionnaire, testing hypotheses and answering study questions.

3.4 Results Initial Diagnosis:

To assess the levels of each variable within the study based on the opinions gathered from the employees of the External Bank of Algeria from 2022 to 2023, the researcher provided an overview of the variable levels to validate the initial findings. The results of the sample responses regarding the study variables are presented as follows:

Table No. (03) Shows the study variables' descriptive statistics, the arithmetic mean, standard deviation, and coefficient of difference. Specifically, it covers the first dimension, which pertains to the total and sub-dimension (computer software) of the main independent variable, information and communication technology within the External Bank of Algeria, relying on the statistics, it is clear that:

Table No. (03): Descriptive Statistics for Total and Dimension (computer software)

the question	Arithmetic mean	Standard deviation	Variation coefficient
Q 1	3.55	0.920	25.2
Q 2	3.40	0.940	27.4
Q 3	2.95	0.923	22.5
Q 4	3.30	0.762	20.6
Total Dimension computer software	3.30	0.886	23.92

Source: Compiled by the researcher using data generated from the SPSS software.

Table No. (03) provides insights into the first dimension (computer software) of communication technology, is measured through the first dimension of computer software.

- The first dimension (computer software) shows a total mean score of 3.30. This indicates a notable alignment with the responses gathered from the employees of the External Bank of Algeria in terms of the general standard deviation (0.886) and a coefficient of difference (23.92), and this indicates the importance of the computer software dimension of the External Bank of Algeria during the study period.

We observe that paragraph (Q1) within the initial dimension (computer programming) exhibits the highest level of response, featuring an arithmetic mean of (3.55). Additionally, there is notable dispersion among responses, with an average deviation of (0.920) and a coefficient of difference of

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(25.2), indicating significant utilization of modern software and information technology at the External Bank of Algeria.

Table No. (04): presents descriptive statistics for both the overall dataset and the dimension of Communication Techniques.

the question	Arithmetic mean	standard deviation	Variation coefficient
Q 1	3.70	0.855	21.6
Q 2	3.30	0.820	22.4
Q 3	3.40	0.830	23.5
Q 4	3.20	0.690	20.5
Total network dimension	3.40	0.798	22.00

Source:Compiled by the researcher using data generated from the SPSS software.

Table No. (04) provides insights into the second dimension, Communication Techniques, of the primary independent variable, Information and Communication Technology, is outlined as follows:

- The second dimension, Communication Techniques, indicates that the total mean for the dimension, particularly for communication networks, is 3.40. This suggests a significant level of engagement among respondents from the External Bank of Algeria. Moreover, the dispersion of responses surpassed the average, with a general standard deviation of 0.798 and a coefficient of difference of 22.00. These metrics underscore the considerable importance placed on communication techniques within the External Bank of Algeriaduring the study period.

- In the second dimension (communication techniques), Paragraph (Q1) received the highest response, boasting an arithmetic mean value of 3.40. There is notable dispersion among the answers, as indicated by the above-average standard deviation of 0.798 and a coefficient of variation of 22.00. This suggests that employees utilize communication techniques amongst themselves to enhance work efficiency and foster teamwork, thereby elevating the bank's performance level.

Table No. (05) states that the descriptive statistics for the study variables are depicted, encompassing the arithmetic mean, standard deviation, and coefficient of variation. These statistics extend to the total main variable,

which serves as the dependent variable, namely employee performance within the External Bank of Algeria.

Table No. (05): Descriptive Statistics of the Total Variable (employee performance)

the question	Arithmetic mean	standard deviation	Variation coefficient
Q 1	3.20	0.865	22.5
Q 2	3.65	0.825	23.6
Q 3	3.40	0.856	24.5
Q 4	3.30	0.778	21.7
Total employee performance	3.41	0.831	23.07

Source:Compiled by the researcher using data generated from the SPSS software.

Table 05 clearly presents the specifics of the total main independent variable, employee performance, as follows:

- The mean of the total calculation for the independent variable (employee performance) stands at 3.41.
- The overall standard deviation is 0.831 and the coefficient of difference (23.07). This suggests that the efficacy of the employee performance variable among workers at the External Bank of Algeriathroughout the study period was noteworthy.

Paragraph (Q2) concerning the main independent variable, employee performance, garnered the highest response, boasting an arithmetic mean value of 3.41. Additionally, there was a dispersion above the average among the responses, with a standard deviation of 0.831 and a coefficient of variation of 23.07. These statistics indicate a high level of consistency in the employee performance variable among workers at the External Bank of Algeria.

3.5 Testing and analyzing the hypotheses regarding correlation and influence relationships among the study variables.

In this section, we present the results of testing the hypothesis concerning the correlation between the implementation of information and

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communication technology as a means to enhance employee performance at the External Bank of Algeria.

Table No. (06) displays the values of Spearman's correlation coefficients between information and communication technology and employee performance.

Table N° (06):The Spearman's correlation coefficients between information and communication technology and employee performance.

Variable	computer software	Communication techniques	Number of Correlation Coefficients	Percentage %
employee performance	0.950	0.930	2	81.82%

Source:Compiled by the researcher using data generated from the SPSS software.

Upon reviewing the correlation matrix presented in Table No. (06), it becomes apparent that:

1. There is a correlation between the computer software dimension and the employee performance variable.
2. The dimension of Communication Techniques demonstrates a strong and statistically significant positive correlation with employee performance.
3. Significant correlation coefficients were observed at the dimensional level for both computer software and communication techniques, with values ranging between ($P \leq 0.05$ and $P \leq 0.01$), indicating a notable relationship between these dimensions and employee performance.
- 4- The achieved results indicate the emergence of (81.82%) of the expected relationships between information and communication technology and employee performance. Overall employee performance and at the level of dimensions in the External Bank of Algeria over the course of the study.

The primary hypothesis asserts that there exists a substantial relationship between the utilization of information and communication technology as a means to enhance employee performance within the External Bank of Algeria for assess this hypothesis, we examine the impact relations between the sub-variables of information and communication technology on employee performance in the External Bank of Algeria. An analysis the conducted to investigate the influence of sub variables of information and communication technology on employee performance within the context of the External Bank of Algeria.

Table No. (07) Table No. (07) Presents the findings concerning the impact of distancing and total information and communication technology on organizational performance in the External Bank of Algeria.

Table No. (07): First Dimension: Impact of computer software Dimensions on employee performance

dependent variable	determination coefficient R2	regression coefficient t^{β}	calculated t value	The calculated F value	Indication level P	The nature of the relationship
employee performance	0.935	0.925	25.650	770.445	0.000	high spirits

Source: Compiled by the researcher using data generated from the SPSS software.

The data presented in Table No. (07) indicate the following regarding the first dimension (computer software) from the dimensions and total of information and communication technology:

The first dimension (computer software) has yielded highly significant effects across various dimensions of outstanding performance, as evidenced by the calculated (t) and (F) values. These effects were observed at a significance level of 0.05

Table No. (08): The second dimension: the impact of the dimensions of Communication techniques on employee performance

dependent variable	determination coefficient R2	regression coefficient t^{β}	calculated t value	The calculated F value	Indication level P	The nature of the relationship
employee performance	0.910	0.925	30.250	960.755	0.000	high spirits

Source: Compiled by the researcher using data generated from the SPSS software.

The data presented in Table 8 highlight the following insights regarding the second dimension (Communication Techniques) concerning the dimensions and overall assessment of information and communication technology:

The second dimension (Communication Techniques) has demonstrated a highly significant effect across various dimensions of outstanding performance, as indicated by the calculated (t) and (F) values. These effects are observed at a significance level of 0.005.

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Table No. (09): examines the effects of information and communication technologies on employee performance.

dependent variable	determination coefficient R²	regression coefficient t^{β}	calculated t value	The calculated F value	Indication level P	The nature of the relationship
employee performance	0.894	0.945	24.795	614.790	0.000	high spirits

Source: Compiled by the researcher using data generated from the SPSS software.

The data presented in Table No. (09) indicate the following regarding the total information and communication technology in the dimensions of employee performance:

- The total dimensions of information and communication technology have demonstrated a significant and considerable impact on overall employee performance. The computed (t) and (F) values, which were determined to be statistically significant at the 0.05 level of significance, provide proof of this impact. The main impact hypothesis, which is the second main hypothesis, can be adopted in light of these findings. According to this hypothesis, the association between information and communication technologies and employees of the External Bank of Algeria is statistically significant.

4. CONCLUSION

In wrapping up our study, we delved into how information and communication technology (ICT) impacts employee performance at the External Bank of Algeria. Our investigation unveiled a direct link between using ICT and how well employees perform. ICT, with all its different uses, has truly amped up the productivity, efficiency, and overall performance of organizations. From delivering better services to improving product quality and even boosting the speed, efficiency, and accuracy of tasks, ICT has been a game-changer. What's more, employees have been quick to adapt, tweaking their approaches to fit the possibilities that ICT brings to the table. After analyzing our findings, we have come up with a few recommendations:

- We found a solid connection between using information technology and how well employees perform at the External Bank of Algeria. Employees understand just how crucial ICT and communication are. Organizations

need to keep investing in ICT tools and make sure employees get the right training to make the most of them.

- Our study also showed that using information technology has a big impact on overall employee performance at the bank. This highlights the need to fully embrace ICT to get the best out of the workforce.

-However, we didn't find a significant link between having computer programming skills and employee performance at the External Bank of Algeria, even though modern software is in use. To bridge this gap, more investigation is needed to figure out how to better integrate programming skills into initiatives aimed at improving employee performance.

-According to the study, there are statistically significant variations in how using information technology affects employees' performance at the External Bank of Algeriadue to the variables (gender, educational level);

-According to the study, there are statistically significant variations in how using information technology affects employees' performance at the External Bank of Algeriadue to the variables (age, professional seniority).

- A. aiming to boost spending on networks and communication software in order to stay up with technological advancements and changes around the world and implement the newest innovations.
- B. attempting to increase and elevate performance levels and provide personnel with new technique training.

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