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The Impact of Financial Digital Technology on Achieving the Advantage of Financial Inclusion in Financial Institutions in Algeria - A Case Study of Banks and Insurance Companies.

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Laboratory of Financial and Banking Systems and Macroeconomic Policies in Light of Global Transformations.

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1. Introduction

Financial technology is a means based on the Internet and computing devices integrated within the services of finance and the financial and banking industry, seeking to create products characterized by speed in performance, ease of access and cost reduction, so this technology can be a way to achieve social justice, break isolation, increase returns and expand the customer base of the financial and banking sector, because traditional financial transactions may be limited to a certain category and a narrow geographical area at specific times, but what distinguishes financial technology or the so-called financial transactions Digital gives an additional advantage and privilege to financial and banking institutions, from the above we can formulate the following main question:

What is the impact of financial technology and digitization on achieving the advantage of financial inclusion in financial institutions in Algeria?

To address the main question in detail, we ask the following sub-questions:

- Is there a statistically significant impact at the level of significance ($\alpha \leq 0.05$) of digital openness in financial institutions on achieving financial inclusion in Algeria?

- Is there a statistically significant impact at the level of significance ($\alpha \leq 0.05$) of digitizing customer relations with financial institutions in Algeria on enhancing the elements of achieving financial inclusion?

- Is there a statistically significant impact at the level of significance (α≤0.05) of the job performance of employees in financial institutions in Algeria on promoting the achievement of financial inclusion?

- Is there a statistically significant impact at the level of significance (α≤0.05) of access to financial services in financial institutions in Algeria on achieving financial inclusion?

To answer the main question and sub-questions, we develop hypotheses related to the following subject of study:

- **Main hypothesis 1 (H1):** There is a statistically significant effect at the level of significance (α≤0.05) of digital openness in financial institutions on achieving financial inclusion in Algeria
- **The second main hypothesis (H2):** The digitization of customer relations with financial institutions in Algeria has a statistically significant impact at the level of significance (α≤0.05) on enhancing the elements of achieving financial inclusion
- **The third main hypothesis (H3):** The job performance of workers in financial institutions in Algeria has a statistically significant impact at the level of significance (α≤0.05) on promoting the achievement of financial inclusion.
- **Main hypothesis IV (H4):** There is a statistically significant effect at the level of significance (α≤0.05) of access to financial services in financial institutions in Algeria on achieving financial inclusion.
- **The importance of the study:** The digitization of financial institutions is important, as the issue of digitization in financial institutions in Algeria has become not just an option, but a strategic necessity to achieve progress and sustainability in the financial sector and reach advanced levels in achieving the advantage of financial inclusion as an option for economic development and sustainable development of various economic sectors, the importance of the study is due to providing a comprehensive and integrated vision on the digitization of Algerian financial institutions, which contributes to supporting digital transformation effectively and safely, andIt enhances the ability of financial institutions to face future challenges and take advantage of the available opportunities, as well as highlighting the elements of achieving comprehensive digital transformation and ways to access them in light of the statement of tools and ways to achieve this.

- Previous studies:

*** Maha Shehadeh's study, The Impact of Digital Transformation Dimensions on the Digital Maturity of Islamic Banks - Applied Research in Jordanian Islamic Banks, 2022,** The problem of the study is to show the impact of the dimensions of digital transformation and its relationship to the digital maturity of Islamic banks, to conclude in the end of the study to the conclusion that it is necessary to adopt a digital transformation strategy aimed at focusing on customers and innovation in the Islamic finance system.

* **Sanaa Raheb and Halima Chebbi's study, "The impact of digital transformation on the job performance of workers in Algerian commercial banks - a case study of commercial banks in the state of El Tarf- 2023**, the main problem of the study is embodied in the statement of the impact of digital transformation on the job performance of workers in commercial banks in the state of El Tarf, the results of the study were embodied especially in the result that digital transformation in commercial banks is based on both digital technologies, bank employees and customers.

*** Puri Sarah and Brahimi Asia "Financial Technology as a Mechanism for Applying Financial Inclusion: A Field Study on a Sample of National Bank of Algeria (BNA) Customers", 2023**.The main problem of the study is the extent to which financial technology contributes to the application and promotion of financial inclusion, and this study concludes that Algeria's adoption of a policy of adopting and supporting financial technology has contributed to raising the level of financial services, that the National Bank of Algeria has made an important leap in this area.

* **Al-Mansbah Rabeh Amin, "Mechanisms of digitizing financial and banking services to establish digital financial inclusion - adopting financial technology innovations as a way - 2022**, the problem of the study is the extent to which the financial and banking services sector can be developed and financial inclusion enhanced through financial technology innovations, the article concluded with the most important results that traditional financial services have lost their position and share in a market that is rapidly moving towards digitization.

*** Yalouli Tarek and Qarari Sabrina, The Reality and Challenges of Digital Financial Inclusion in Algeria, 2023,** The study addresses the problem of the reality and challenges of digital financial inclusion in Algeria, and the study finally concluded a number of results, the most important of which is that digital financial inclusion works to achieve economic benefits, so it is necessary to develop strategies to expand it, and also Algeria faces a set of obstacles in embodying financial inclusion.

- Study methodology: The deductive approach was relied on through the description tools in the theoretical side and analysis in the applied side, in addition to the inductive approach to extrapolate the results of the field study.

- The scientific gap of this study: This study is distinguished from previous studies reached in this subject by three research gaps, the first is the time gap, through which the study examines the impact of digital openness and job performance of workers in light of digitization and digitization of customer transactions and access to financial services on financial institutions operating in Algeria during this year (2024) and achieving the advantage of inclusion, by demonstrating the modern Algerian experience in opening up to digitization and its technologies, the second spatial gap It concerns the financial institutions operating in Algeria in the wilaya of Chlef in particular, and the third main gap is the scientific gap that gives clear results to the impact of the digital transformation of these institutions in terms of achieving financial inclusion and overcoming the challenges of digital openness and digitization of customers or even the job performance of workers and ease of access to services in facilitating and enhancing financial inclusion.

First Theme: Concepts on Digitization and Financial Technology in the Banking Sector

1. Definition of financial technology: Fintech is defined as those companies that combine financial services with modern and innovative technologies as a base that provides the market with an offer of Internet-based products and services with the aim of attracting customers that are more user-friendly, effective and transparent than those products and services available before[1].

Fintech means the new wave of companies that are changing the way they pay, send and transfer money, borrow and lend, invest and saving, the most commonly used sectors such as payments and money transfers, mobile payments, crowdfunding, as well as peer-to-peer [2].

Therefore, the term fintech is the integration of financial activity with technological innovation to result in a new field concerned with financial transactions and services, depending on the outputs of new technology such as smartphones, communication networks, artificial intelligence, the Internet, big data and its analytics and other technologies..

From the previous definitions, we can derive a number of characteristics related to financial technology, namely:

- They are based on technological devices and Internet networks.

- They are characterized by speed in performance and accuracy.

- Facilitates access to banking financial products.

- It is characterized by modernity and innovation.

- Greater effectiveness and transparency.

2. **Motives for adopting financial technology:** The spread of the use of financial technology technologies across different regions of the world is due to many factors and reasons that forced global financial systems to adopt fintech technologies and take advantage of their advantages, we mention these motives as follows[3]:

- Demographic and cultural transformations: The group under thirty years old represents half of the world's population, which is the generation called the digital millennial generation or the digital citizen, as the range of services and products for all sectors has become dependent on mobile devices and various digital channels dedicated to end-use.

- The disadvantages of traditional financial services, such as the multiplicity of high-cost bank branch networks and outdated information systems, which have made adaptation to the new digital world slow, and thus have a negative impact on the desired financial inclusion through modern technologies.

- Technological advancements have paved the way for the digitization of transactions and data analysis, giving a better understanding of users' behavior, thus finding solutions while automating processes.

The following factors can also be added as other motivations for the adoption of fintech in the banking sector:

- The factor of competition between fintech companies or large companies in the field of digitization and electronic has opened the way for innovative solutions in the banking sector, which has increased the orientation of banks to these technologies.

- Global openness and trade liberalization between countries have forced banking professionals to find faster and cheaper solutions to settle payments and various transactions.

Slow processes, obsolete systems, and increase the technological and digital awareness of societies.

3. **Fintech franchises in banking services:** Technological technologies have an impact on the provision of banking services compared to those traditional transactions, where fintech has been able to compete with traditional banking service providers due to the following fintech privileges[4]:

- **Value chain classification**: In the sense that these companies classify the financial services value chain rather than offering a full range of products and services to traditional financial institutions, fintech targets a specific product or service and seeks to provide it in a better way (in terms of price or quality of service).

- **Adoption and use of open platforms**: Unlike traditional institutions that limit the freedom of their customers and keep them within a narrow field of performance, fintech companies are working on the use of open platforms that allow diversification of services and products through a diversity of applications, which increases the number of customers and achieves a kind of comprehensiveness.

- **Use of alternative information**: Fintech technologies have alternative sources of information to know more about the type of customers based on e-commerce data and mobile phone information history, thus assessing the risks of all customers with the bank, whether as old or new customers.

- **Adaptation and personalization:** by collecting and analyzing data better, and then designing products that take into account the personal side of the consumer or customer, such as alerts and notifications.

The aforementioned elements had an impact on all parties from fintech customers and companies through:

- Improve customer experience (performance, transparency, quality, accuracy).
- Savings and access opportunities shorten time and effort.
- Reduce operating costs and raise performance efficiency.

4. **Opportunities offered by fintech to banks:** Fintech has very important opportunities that the banking sector should exploit and benefit from, which we list as follows[5]:

- Increasing access to capital: through p2p and ECF technologies that provide credit to borrowers, from small and medium enterprises, due to their difficulty in accessing traditional bank borrowing, and thus new access to equity financing.
- Establishing financial inclusion: fintech opened the field of finance to multiple groups that were disadvantaged and marginalized in traditional finance and unable to access financial and banking services, through fintech shortened distances and reduced class gaps as it targets a larger number of traders, such as what distributed ledger technology

provides from the inclusion of asset management such as commodities and products, art pieces, real estate, stocks, using coding technology.

- Quality of Banking Service: Fintech companies improve traditional banking offerings in a flexible and efficient way, through the use of automated advisors and robots to help the client experience the investment.
- Cost advantage: Fintech companies offer transactions at the lowest cost and speed for their banking services, such as cross-border transfers, as well as reduce counterparty risks, such as instant settlement via blockchain technology.
- Positive impact on financial stability due to increased competition: entry of new competitors into banking transactions through fintech technologies, segmentation of the banking market, reducing systemic risk.
- RegTech Technology: It helps the banking sector achieve regulatory compliance and follow up on the prudential requirements of reporting and consumer protection, while improving compliance and risk management, and is considered a way to deal with change in the regulatory environment and reduce costs.
- Security: Provided by blockchain technology through the approved encryption protocol, with anonymity techniques and preventing data or information leakage.
- The use of modern technologies and innovations associated with the emergence of fintech, gives the banking sector great incentives and privileges to attract it and enter into its business strategy, and this is due to the diversity of opportunities it provides from quality, innovation, availability, and accessibility of the product, also imposes challenges and confrontations to achieve goals depending on fintech, the following are the five most important elements related to the opportunities and challenges of integrating fintech into banks[6]:

- Enhanced digital banking experience for customers.
- Personalized customer services, with big data and cloud computing operations.
- High data security, better compatibility with network data, and the most appropriate regulatory environment.
- Financial products and services are cost-effective and blockchain-based technologies.
- Transactions with higher efficiency and superior financial innovations while reducing risk.

Fintech technologies are not without many threats and challenges that banks and their users should be wary of and take more seriously.

Fintech allows the provision of a feature of economies of scale to provide payment and transfer services, quickly, easily and securely, as these services provide access to large segments of society, which achieves financial inclusion of transactions (see Appendix No. 01), and the stages of payment using fintech technologies are embodied in the following[7]:

- The pre-transaction phase includes the activities and preparations necessary to build the infrastructure and initial provision of payment services.
- The authorization phase is embodied in the processes and activities that allow the payment transaction to be approved and approved before it ends.
- Clearing stage Settlement of payment orders between the parties involved in the process.
- Settlement stage The actual exchange and transfer of funds between the parties, through the posting of credits and discounts across accounts.
- Post-transaction includes processes for data issuance, resolution, dispute resolution and reporting, with compliance.
- We seek to highlight the factors affecting the competition of banks in light of the adoption and expansion of the use of fintech technologies[8]:
- Banking: To reach a high degree of competition in the banking industry, it is necessary to create a clear regulatory environment and specific standards for the uses of modern technologies, as well as the markets of banking platforms in the field of fintech..
- Payments, remittances and Forex payments, these elements are of great importance to competition authorities, as fears of weakening that competition are reflected in the provision of technologies through payment services, access to important assets such as data and Near Field Communications (NFC).).

- Cryptocurrencies This market knows great competition among various cryptocurrencies, that is, competition between cryptocurrency exchanges, and it is formed from sub-markets, including mining, swap, portfolios, payments, characterized by a different and diverse dynamic from each other and therefore different competition from one branch to another, i.e. an increase in the number of competitors, despite its participation in one network, but the threat of eliminating competition is its submission to the distributed ledger (DLT)).
- Wealth and asset management Competition challenges here include fee policies for service providers, the elimination of barriers between various services such as information, consulting and management, and the effects of using software may be positive or negative.
- Digital Personal Finance Department shows competition in the ability to access and study customer data to serve the objectives.

5. **The relationship between financial technology and digitization:** Through this point, we seek to clarify the point of disagreement between the terms financial technology and digitization and the relationship between them

We have already defined financial technology and briefly mentioned within the content its most important approved technologies, while digitization or what is recently termed digital transformation expresses the integration of new processes for the institution based on newer technologies, tools and methods of work based on the Internet, in addition to the existence of an internal organization supported by senior management[9], that is, it is the process of moving to a model based on digital technologies based on information and communication technology in innovating products and services and providing new channels of Revenues and opportunities increase the value of their products instead of relying on traditional methods that require more effort and time.

Second Theme: Financial Inclusion and its Relationship to the Banking Sector

1. Concepts about financial inclusion:

According to the World Bank, financial inclusion is the ability of individuals and institutions to access different financial products and services at affordable prices that meet their needs (credit, insurance, transactions, payments, savings) and provide them in responsible, permanent or continuous ways[10].

2. **Dimensions of financial inclusion and indicators for measuring it**:

The concept of financial inclusion is based on three main dimensions[11]:

- Access to financial service: means the ability to use financial services from its main providers, with the need to analyze the potential obstacles to benefit from these services, such as the cost of comparing branches and ATMs, for example, this dimension is measured by an indicator measuring the number of access points per 1000 adults nationally, or the number of ATMs, electronic money accounts, the interconnection between service delivery points, the percentage of the total population of the same administrative units with at least an access point,,,,,,
- Use of financial services: It expresses the extent to which customers use financial services provided by banking institutions, by collecting data on the regularity and frequency of use for a period of time, from the indicators of its measurement:
  - Percentage of adults holding at least a regular deposit account
  - Percentage of adults who own a regular credit account
  - Number of cashless retail transactions per person
  - The number of phone payment transactions.

- **Quality of financial services:** Quality means the importance of customer service, and it includes the point of view, taste, opinion of the customer and his attitudes towards requesting financial service, and quality is affected by many factors such as the cost of service, consumer awareness and culture, the effectiveness of compensation, transparency and competition, and indicators measured by us[12]:

- Affordability
- Transparency
- Convenience and ease
- Consumer Protection
- Financial Education
- Indebtedness

All indicators depend on the opinions of customers and their attitudes towards the aforementioned elements of satisfaction or dissatisfaction with their levels.

3. **The importance of financial inclusion:** Financial inclusion is a strategic goal for countries and governments due to its contribution in areas such as[13]:

- Enhancing financial stability and enhancing competition among financial institutions
- Financial inclusion is a key factor for achieving the Sustainable Development Goals
- Attention to the social aspect.

Third Theme: Field Study

1. **Study population:** The study population included employees of banks and insurance companies for the state of Chlef, and the random sample was selected for the purpose of achieving confidence in the values of the results of the study, and the sample was represented in 52 employees.

Measuring Tool: The measuring tool is a questionnaire divided into 24 items distributed over 03 axes.

2. Stability and truthfulness of the study tool:

- Stability of the **questionnaire tool:** A consistency refers to the consistency and reliability of the results produced by the questionnaire when used multiple times in the same conditions.
- **Questionnaire stability test using the method of Alpha Cronbach coefficient (cronbach-Alpha):** To measure the stability of the questionnaire, the Alpha Cronbach test was used, and its results were as in the following table:

Table 01: Alpha Cronbach coefficient for measuring the stability of the study instrument

Forms Themes	Number of ferries	Alpha Cronbach Laboratories
First Theme: Use (Openness) of Digital Financial Services	8	0,905
Second Theme: Job Performance of Employees (Performance Evaluation)	8	0,881
Third Theme: Customer Digitization and Relationships (Customer Trust)	8	0,912
Fourth Theme: Financial Inclusion and Digitization	8	0,854
Fifth Theme: Access to Financial Services	8	0,789
General stability of the questionnaire	40	0,937

Source: Prepared by researchers based on SPSS27 outputs.

Through our reading of the

data of the above table, it was found that the general stability coefficient of the study axes is high, as it reached (0.937) for the total twenty-four paragraphs of the questionnaire / while the axes coefficient ranged between 0.78 as a minimum and 0.93 as a maximum, and this is evidence that the questionnaire has a high degree of stability that can be relied upon in the field application of the study according to the Nanly scale, which adopted 0.70 as a minimum for stability.

3. **Validity of internal consistency:** The validity of the internal consistency of the questionnaire was verified by calculating the Pearson correlation coefficient between the scores of each of the three paragraphs of the three axes and the total degree of the axis to which the paragraph belongs, and the following table shows the correlation coefficients between each paragraph of the first axis and the total degree of the axis.

Table (02): Correlation coefficients between the degree of each paragraph and the grade of the first axis

Axis paragraphs	Correlation coefficient	Significance value
The institution has laws and regulations that regulate the relationship between it and customers in its digital transactions.	0,762**	0.001
The customer gets financial services with ease and comfort, and it does not take much time.	0,800**	0.001
The institution provides its services via the Internet or mobile phone applications.	0,748**	0.001
The institution provides customers with the ability to pay and transfer money electronically at an acceptable cost.	0,804**	0.001
The bank offers bank cards and has an electronic platform with multiple uses.	0,729**	0.001
The institution has the necessary infrastructure to implement financial technology.	0,771**	0.001
The institution relies heavily on digital technology programmes to manage its services.	0,807**	0.001
The institution is updating its electronic services to meet the needs of customers and achieve their satisfaction.	0,790**	0.001

The results of the above table show that all Pearson correlation coefficients between the paragraphs of the first axis and the total degree of the first axis are statistically significant at the level of significance 0.01, where the minimum correlation coefficients were 0.729, and the maximum was 0.807, and therefore all paragraphs of the first axis are internally consistent with the axis to which they belong, which proves the sincerity of the internal consistency of the paragraphs of the first axis.

Table (03): Correlation coefficients between the grade of each paragraph and the grade of the second axis

Axis paragraphs	Correlation coefficient	Significance value
The organization's officials measure and evaluate performance on an ongoing basis based on digital data.	0,767**	0.001

Digitization has negatively impacted recruitment and training costs.	0,616**	0.001
Employees develop and continually improve their digital skills.	0,819**	0.001
The worker completes his work on time and with perfection, relying on modern digital technologies.	0,704**	0.001
The organization has highly qualified cadres whose mission is to implement digital transformation and help other workers keep pace with it.	0,806**	0.001
The bank provides programs for learning and training in the use of digital technologies.	0,704**	0.001
Digital transformation enhances banking innovation and creativity and creates a flexible work environment	0,772**	0.001
Employees adapt appropriately to digital transformation processes	0,737**	0.001

From the results of the above table, we find that all Pearson's correlation coefficients between the paragraphs of the second axis and the total degree of the second axis are statistically significant at a significant level of 0.01, where the minimum correlation coefficients were 0.61, while the maximum was 0.81, and therefore all paragraphs of the second axis are internally consistent with the axis to which they belong, which proves the sincerity of the internal consistency of the paragraphs of the second axis.

Table (04): Correlation coefficients between the degree of each paragraph and the degree of the third axis

Axis paragraphs	**Correlation coefficient**	**Significance value**
Digital technologies help protect customer data privacy and enhance customer trust.	0,759**	0.001
Digital technologies meet customer needs on time	0,743**	0.001
Digital channels provide direct and fast response in customer service.	0,829**	0.001
There are digital communication channels between the organization and customers to satisfy customers.	0,797**	0.001
Digitization has improved customer experience in Algerian financial institutions	0,872**	0.001
Digitizing CRM helps an organization track all interactions with customers, enabling them to build stronger, more lasting relationships and provide better support.	0,753**	0.001
Digitization provides greater opportunities for personal communication with customers, whether through offers, personalized messages, or quick response to inquiries.	0,831**	0.001
Through digitization, customer management processes can be improved and streamlined, saving employees time and effort, and helping them	0,761**	0.001

focus on more strategic tasks.		

From the results of the above table, we find that all Pearson's correlation coefficients between the paragraphs of the third axis and the total degree of the second axis are statistically significant at a significant level of 0.01, where the minimum correlation coefficients were 0.74, while the maximum was 0.87, and therefore all paragraphs of the second axis are internally consistent with the axis to which they belong, which proves the sincerity of the internal consistency of the paragraphs of the third axis.

Table (05): Correlation coefficients between the degree of each paragraph and the grade of the fourth axis

Axis paragraphs	**Correlation coefficient**	**Significance value**
There are enough bank branches to provide its financial services.	0,758**	0.001
The bank has sufficient ATMs to facilitate the customer's withdrawal of his money throughout the day.	0,704**	0.001
The institution provides financial products and services that suit all segments of society.	0,758**	0.001
The bank is keen to provide its customers with the possibility of obtaining electronic financial services.	0,705**	0.001
FinTech provides security and transparency in financial transactions and the safety of sensitive data.	0,590**	0.001
Through digitization, the Foundation aims to provide a wider range of services and access them in a sustainable and affordable manner.	0,705**	0.001
The Foundation is interested in achieving financial education to reach a financially educated society and enhance awareness levels among all segments of society and among employees.	0,666**	0.001
The institution provides guarantees for continuous access to its products and services.	0,819**	0.001

From the results of the above table, we find that all Pearson's correlation coefficients between the paragraphs of the fourth axis and the total degree of the fourth axis are statistically significant at a significant level of 0.01, where the minimum correlation coefficients were 0.59, while the maximum was 0.81, and therefore all paragraphs of the fourth axis are internally consistent with the axis to which they belong, which proves the sincerity of the internal consistency of the paragraphs of the fourth axis.

Table (06): Correlation coefficients between the degree of each paragraph and the degree of the fifth axis

Axis paragraphs	**Correlation coefficient**	**Significance value**
Education level affects customer usage of digital financial services	0,580**	0.001
The bank's adoption of digital financial services contributes to reducing customer visits to the windows.	0,613**	0.001

The cost and fees for financial services imposed by the bank are acceptable.	0,746**	0.001
The use of foreign language in various banking documents and applications affects the customer's use of the available financial services.	0,657**	0.001
Customers have a digital culture in conducting their financial transactions.	0,671**	0.001
Customers prefer digital services and transactions over traditional transactions.	0,521**	0.001
The Foundation provides an online help center that provides guidance and solutions to common problems.	0,588**	0.001
The digital divide between urban and rural areas can limit everyone's access to digital financial services.	0,698**	0.001

From the results of the above table, we find that all Pearson's correlation coefficients between the paragraphs of the fifth axis and the total degree of the fifth axis are statistically significant at a significant level of 0.01, where the minimum correlation coefficients were 0.52, while the maximum was 0.74, and therefore all paragraphs of the fifth axis are internally consistent with the axis to which they belong, which proves the sincerity of the internal consistency of the paragraphs of the fifth axis.

Through the results of internal consistency and consistency in the previous tables, we are shown the stability of the study tool (questionnaire) to a high degree and the sincerity of its internal consistency, which allows us to apply it to the entire content of the study.

4. Statistical analysis methods used

· **Descriptive analysis of the questionnaire results**

the results related to demographic questions: In this table, the personal characteristics of the sample members will be presented as shown in terms of gender, age, years of experience, academic qualification and occupation, and this can be clarified through the following table:

Table 07: Personal characteristics of the sample members

	Variables	**number**	**(%) ratio**
Gender	Male	40	76.9
	Female	12	23.1
Age	18**to 30 years old**	11	21.2
	From 31 to 45 years	27	51.9
	More than 45 years	14	26.9
	University Applied Studies Certificate	1	1.9
	Bachelor's	10	19.2

Educational qualification	**Master's**	14	26.9
	Majester	1	1.9
	PhD	24	46.2
	Other qualifications	2	3.8
Professional experience	**Less than 05 years**	20	38.5
	From 5 years to 10 years	7	13.5
	More than 10 years	25	48.1
Function	**Bank Manager**	4	7.7
	Insurance Company Manager	4	7.7
	Deputy Bank Manager	2	3.8
	chief of Bank Department	6	11.5
	Internal Auditor	3	5.8
	Framework	21	40.4
	Other Administrative/Technical Position	8	15.4
	Other Position	4	7.7

Source: Researcher preparation based on SPSS27 program

It is clear from the above table that 40 of the study members represent 76.9% of the total members of the study sample, and they are the most group of the study members males, while 12 represent 13.1% females and their ages were from 31 to 45 years (51.9%), followed by 26.9% of the total members of the study sample aged more than 45 years, followed by 21.2% of the total members of the study sample aged from 18 to 30 years, and the academic qualification of the study sample members was High by 46.2% PhD, followed by 26.9% with a master's degree, followed by a category with bachelor's and master's qualifications with 19.2%, 1.9% on the assumption, their professional experience was more than 10 years by 48.1%, followed by 38.5% of the total members of the study sample with professional experience of less than 5 years, followed by 13.5% with professional experience from 5 to 10 years, they were occupying jobs, most of which are cadres for the study sample members by 40.4% , They are followed by 15.1% of the total members of the study sample who occupy the position of administrative/technical position, followed by 11.5% of the total members of the study sample whose positions are head of department in the bank, followed by the position of bank manager, insurance company manager and internal auditor with percentages of 7.7%, 7.7%, and 5.8% respectively, and these results are shown in the following figure:

Analysis of the paragraphs of the axis Digitization in financial institutions

Table (08): Descriptive statistics of the use of digital financial services (digitization in financial institutions)

Questions		Strongly opposed	Oppo setion	neutral	agree	Strongly agree	Arithmetic mean	Standard deviation	Arrangement	General trend
The institution	number	1	3	9	31	8	3.80	0.84107	3	**neutral**

has laws and regulations that regulate the relationship between it and customers in its digital transactions.	%	%1.9	%5.8	%17.3	%59.6	%15.4				
The customer gets financial services with ease and comfort, and it does not take much time.	number	2	7	5	29	9	3.69	1.03920	6	**neutral**
	%	%3.8	%13.5	%9.6	%55.8	%17.3				
The institution provides its services via the Internet or mobile phone applications.	number	2	1	8	32	9	3.86	0.86385	2	**neutral**
	%	%3.8	%1.9	%15.4	%61.5	%17.3				
The institution provides customers with the ability to pay and transfer money electronically at an acceptable cost.	number	3	2	7	32	8	3.76	0.96234	4	**neutral**
	%	%5.8	%3.8	%13.5	%61.5	%15.4				
The bank offers bank cards and has an electronic platform with multiple uses.	number	1	2	11	21	17	3.98	0.93914	1	**neutral**
	%	%1.9	%3.8	%21.2	%40.4	%32.7				
The institution has the necessary infrastructure to implement financial technology.	number	0	10	13	23	6	3.48	0.93914	8	**neutral**
	%	0	%19.2	%25	%44.2	%11.5				
The organization relies heavily on digital technology programs to manage its services.	number	3	6	12	23	8	3.51	1.07540	7	**neutral**
	%	%5.8	%11.5	%23.1	%44.2	%15.4				
The institution is updating its electronic services to meet the needs of	number	0	5	14	21	12	3.76	0.92069	5	**neutral**
	%	0	%9.6	%26.9	%40.4	%23.1				

customers and achieve their satisfaction.										
Weighted average of the first axis									**3.61**	**neutral**

Source: Prepared by researchers based on SPSS27

It is clear from the above table that the frequencies and percentages of the responses of the study members on the first axis "digitization in financial institutions", as the first paragraph (the bank provides bank cards and owns an electronic platform with multiple uses) knew the largest arithmetic average estimated at 3.98, which corresponds to the trend "OK" in the estimated balance of the five-pointed Licart scale and a standard deviation estimated at 0.939, and came in second place the third paragraph, which states (the institution provides its services through the Internet or mobile applications.) with an average value 3.86 corresponds to the "OK" trend and a standard deviation of 0.863.

In last place came the paragraph that states (the institution has the necessary infrastructure to apply financial technology) and an arithmetic average of 3.48, which corresponds to the "OK" trend in the estimated balance of the Likert five-point scale with a standard deviation of 0.939.

It is clear from the table above that the weighted mean of the first axis was 3.61 with a standard deviation of 0.606, which corresponds to the balance of estimates of the five-pointed Licart scale "OK."

- Analysis of job performance paragraphs of employees

Table (09): Descriptive statistics Paragraphs of job performance of employees (performance evaluation in general)

Questions		Strongly opposed	Oppo setion	neutral	agree	Strongly agree	Arithmetic mean	Standard deviation	Arrangement	General trend
The organization's officials measure and evaluate performance on an ongoing basis based on digital .data	**number**	**1**	**6**	**22**	**19**	**4**	**3,365**	**0,86385**	**8**	**neutral**
	%	**1.9**	**11.5**	**42.3**	**36.5**	**7.7**				
Digitization has negatively impacted recruitment and training .costs	**number**	**5**	**16**	**18**	**11**	**2**	**2,788**	**1,01627**	**1**	**neutral**
	%	**9.6**	**30.8**	**34.6**	**21.2**	**3.8**				
Employees develop and continually improve their .digital skills	**number**	**1**	**8**	**11**	**28**	**4**	**3,500**	**0,91823**	**4**	**neutral**
	%	**1.9**	**15.4**	**21.2**	**53.6**	**7.7**				
The worker completes his work on time and with perfection, relying on	**number**	**1**	**4**	**22**	**21**	**4**	**3,442**	**0,82636**	**6**	**neutral**
	%	**1.9**	**7.7**	**42.3**	**40.4**	**7.7**				

modern digital technologies.										
The organization has highly qualified cadres whose mission is to implement digital transformation and help other workers keep pace with it.	**number**	**1**	**8**	**12**	**25**	**6**	**3,519**	**0,95979**	**3**	**neutral**
	%	**1.9**	**15.4**	**23.1**	**48.1**	**11.5**				
The bank provides programs for learning and training in the use of digital technologies.	**number**	**1**	**6**	**16**	**27**	**2**	**3,442**	**0,82637**	**5**	**neutral**
	%	**1.9**	**11.5**	**30.8**	**51.9**	**3.9**				
Digital transformation enhances banking innovation and creativity and creates a flexible work environment	**number**	**2**	**3**	**8**	**31**	**8**	**3,769**	**0,92069**	**2**	**neutral**
	%	**3.8**	**5.8**	**15.4**	**59.6**	**15.4**				
Employees adapt appropriately to digital transformation processes	**number**	**2**	**5**	**18**	**24**	**3**	**3,403**	**0,89134**	**7**	**neutral**
	%	**3.8**	**9.6**	**34.6**	**46.2**	**5.8**				
Weighted average of the second axis									**3,403**	**neutral**

Source: Prepared by researchers based on SPSS27

It is clear from the above table that the frequencies and percentages of the responses of the study members on the second axis "the job performance of employees (performance evaluation in general)", as the first paragraph (promotes digital transformation of innovation and banking creativity and the creation of a flexible work environment) knew the largest arithmetic average estimated at 3.76, which corresponds to the trend "OK" in the estimated balance of the five-pointed Licart scale and a standard deviation estimated at 0.920, and came in second place the third paragraph, which states (the institution has highly qualified cadres whose task is to apply digital transformation and helping other workers keep up with it) with an average value of 3.51 corresponding to the "OK" trend and a standard deviation of 0.959.

In last place was the paragraph that states (digitization has negatively affected recruitment and training costs.) and an arithmetic mean of 2.78, which corresponds to the "OK" trend in the estimated balance of the five-pointed Lekarth scale with a standard deviation of 1.016.

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It is clear from the table above that the weighted mean of the first axis was 3.40 with a standard deviation of 0.606, which corresponds to the balance of estimates of the five-point Lecarth scale "OK."

- **Customer digitization and relationship analysis**

Table 10: Descriptive statistics Customer numbering and relationships

Questions		Strongly opposed	Oppo setion	neutral	agree	Strongly agree	Arithmetic mean	Standard deviation	Arrangement	General trend
Digital technologies help protect customer data privacy and enhance customer trust by adopting advanced security technologies.	number	2	2	13	27	8	3,711	0,91473	5	**neutral**
	%	3.8	3.8	25	51.9	15.4				
The organization provides a digital customer management system that provides what is necessary to fully meet the needs of customers.	number	2	5	14	26	5	3,519	0,93914	7	**neutral**
	%	3.8	9.6	26.9	50	9.6				
Digital channels provide direct and fast response in customer service.	number	1	2	9	33	7	3,826	0,78519	2	**neutral**
	%	1.9	3.8	17.3	63.5	13.5				
There are digital communication channels between the organization and customers that contribute to improving the quality of our services and increasing customer satisfaction.	number	2	8	12	25	5	3,442	0,99830	8	**neutral**
	%	3.8	15.4	23.1	48.1	9.6				
Digitization	number	1	4	14	28	5	3,615	0,84375	6	**neutral**

has improved the customer experience in Algerian financial institutions by providing efficient and flexible means of interaction.	%	1.9	7.7	26.9	53.8	9.6				
Digitizing CRM helps an organization track all interactions with customers, enabling them to build stronger, more lasting relationships, provide better support, personalize offerings, and predict future customer needs.	number	3	2	11	24	12	3,769	1,04065	4	neutral
	%	5.8	3.8	21.2	46.2	23.1				
Digitization provides greater opportunities for personal communication with customers, whether through offers, personalized messages, or quick responses to inquiries, which strengthens relationships and increases customer loyalty.	number	2	3	7	31	9	3,807	0,92965	3	**neutral**
	%	3.8	5.8	13.5	59.6	17.3				
Through digitization, customer management processes can be improved and streamlined, saving employees	number	3	0	9	22	18	4,000	1,02899	1	neutral
	%	5.8	0	17.3	42.3	34.6				

time and effort, and helping them focus on more strategic tasks.										
Weighted average of the third axis									**3,711**	**neutral**

Source: Prepared by researchers based on SPSS27

It is clear from the table above that the frequencies and percentages of the responses of the study subjects around the third axis "customer digitization and relationships", as the eighth paragraph (thanks to digitization, customer management processes can be improved and simplified, saving time and effort for employees, and helping them focus on the most strategic tasks). I knew the largest arithmetic mean of 4.00, which corresponds to the trend "OK" in the estimated balance of the five-pointed Lekarth scale and a standard deviation of 1.028, and came in second place the third paragraph, which states (digital channels provide direct and rapid response in customer service) with an average value of 3.82, which corresponds to the trend "OK" and a standard deviation estimated at 0.785.

In last place came the fourth paragraph, which states (there are digital communication channels between the institution and customers that contribute to improving the quality of our services and increasing customer satisfaction) and an arithmetic average of 3.44, which corresponds to the "OK" trend in the estimated balance of the five-pointed Lekarth scale with a standard deviation of 0.998.

It is clear from the table above that the weighted mean of the first axis was 3.71 with a standard deviation of 0.606, which corresponds to the balance of estimates of the five-point Lecarth scale "OK."

- **Analysis of financial inclusion and digitization paragraphs**

Table 11: Descriptive Statistics Financial Inclusion and Digitization

Questions		Strongly opposed	Oppo setion	neutral	agree	Strongly agree	Arithmetic mean	Standard deviation	Arrangement	General trend
There are sufficient branches of the bank that allow obtaining its financial services	number	2	10	14	19	7	3,365	1,06695	8	**neutral**
	%	3.8	19.2	26.9	38.6	13.5				
The bank has sufficient ATMs to facilitate the customer's withdrawal of his money throughout the day.	number	1	10	6	25	10	3,634	1,06695	5	**neutral**
	%	1.9	19.2	11.5	48.1	19.2				
The institution provides financial products and services that	number	0	10	10	25	7	3,557	0,95821	7	**neutral**
	%	0	19.2	19.2	48.1	13.5				

suit all segments of society.										
The bank is keen to provide its customers with the possibility of obtaining electronic financial services.	number	0	1	7	36	8	3,980	0,61006	3	**neutral**
	%	0	1.9	13.5	69.2	15.4				
FinTech provides security and transparency in financial transactions and the safety of sensitive data.	number	1	1	5	33	12	4,038	0,76598	2	**neutral**
	%	1.9	9.6	63.5	63.5	23.1				
Through digitization, the Foundation aims to provide a wider range of services and access them in a sustainable and affordable manner.	number	0	1	5	31	15	4,153	0,66817	1	**neutral**
	%	0	1.9	9.6	59.6	26.8				
The Foundation is interested in achieving financial education to reach a financially educated society and enhance awareness levels among all segments of society and among employees.	number	3	1	13	21	14	3,807	1,04859	4	**neutral**
	%	5.8	1.9	25	40.4	26.9				
The institution provides guarantees	number	2	1	19	23	7	3,615	0,88901	6	**neutral**
	%	3.8	1.9	36.5	44.2	13.5				

for continuous access to its products and services.										
Weighted average of the fourth axis									**3,769**	**neutral**

Source: Prepared by researchers based on SPSS27

It is clear from the above table that the frequencies and percentages of the responses of the study subjects on the fourth axis "financial inclusion and digitization", as the sixth paragraph (Through digitization, the institution aims to provide a wider range of services and access to them in a sustainable and affordable manner.) I knew the largest arithmetic mean of 4.15, which corresponds to the trend "OK" in the estimated balance of the five-pointed Licart scale and a standard deviation estimated at 0.668, and came in second place the fifth paragraph, which states (financial technology provides security and transparency in financial transactions and the safety of sensitive data) with an average value of 4.03, which corresponds to the trend "OK" and a standard deviation estimated at 0.765.

In last place came the first paragraph, which states (there are sufficient branches of the bank that allow access to its financial services.) and an arithmetic average of 3.36, which corresponds to the "OK" trend in the estimated balance of the Likert five-point scale with a standard deviation of 1.066.

It is clear from the table above that the weighted mean of the first axis was 3.76 with a standard deviation of 0.606, which corresponds to the Licart five-point scale "OK" scale estimates.

-Analysis of access to financial services paragraphs

Table 12: Descriptive Statistics Access to Financial Services

	Questions	**Strongly opposed**	**Opposetion**	**neutral**	**agree**	**Strongly agree**	**Arithmetic mean**	**Standard deviation**	**Arrangement**	**General trend**
Education level affects customer usage of digital financial services	number	1	3	8	16	24	4,134	1,01032	1	neutral
	%	1.9	5.8	15.4	30.8	46.2				
The bank's adoption of digital financial services contributes to reducing customer visits to the windows.	number	1	1	11	16	23	4,134	0,95031	2	neutral
	%	1.9	1.9	21.2	30.8	44.2				
The cost and fees for financial services imposed by the bank are acceptable.	number	5	1	13	23	9	3,538	1,16251	6	neutral
	%	11.5	1.9	25	44.2	17.3				
The use of foreign language in various banking documents and applications affects the customer's use of the available financial services.	number	0	5	10	20	17	3,942	0,95821	3	**neutral**
	%	0	9.6	19.2	38.5	32.7				
Customers have a digital	number	3	17	9	19	4	3,076	1,11753	8	**neutral**

culture in conducting their financial transactions.	%	5.8	32.7	17.3	36.5	7.7				
Customers prefer digital services and transactions over traditional transactions.	number	2	6	10	21	13	3,711	1,09072	5	**neutral**
	%	3.8	11.5	19.2	40.4	25				
The Foundation provides an online help center that provides guidance and solutions to common problems.	number	3	6	18	16	9	3,423	1,09089	7	**neutral**
	%	5.8	11.5	34.6	30.8	17.3				
The digital divide between urban and rural areas can limit everyone's access to digital financial services.	number	2	3	8	24	15	3,903	1,01479	4	**neutral**
	%	3.8	5.8	15.4	46.2	28.8				
Weighted average of the fifth axis									**3,733**	**neutral**

Source: Prepared by researchers based on SPSS27

It is clear from the above table that the frequencies and percentages of the responses of the study subjects on the fifth axis "access to financial services", as the first paragraph (the educational level affects the percentage of customer use of digital financial services) and the second paragraph (the bank's adoption of digital financial services contributes to reducing customer visits to the windows) knew the largest arithmetic average estimated at 4.13, which corresponds to the trend "OK" in the estimated balance of the five-pointed Licart scale and a standard deviation estimated at 1.010 and 0.950 respectively, and came in second place. The fourth paragraph, which states: "The use of a foreign language in various banking documents and applications affects the customer's use of available financial services.) with an average value of 3.94 corresponding to the trend "OK" and a standard deviation of 0.958.

In last place came the fifth paragraph, which states (customers have the digital culture in the implementation of their financial transactions) with an arithmetic average of 3.07, which corresponds to the "OK" trend in the estimated balance of the Likert five-point scale with a standard deviation of 1.117.

It is clear from the table above that the weighted mean of the first axis was 3.73 with a standard deviation of 0.606, which corresponds to the balance of estimates of the Licart five-point scale "OK."

.4Analyze and discuss the results of the study

- **•Testing study hypotheses**

-Multiple Regression Results Analysis

-Hypothesis zero H0: The regression model is insignificant, i.e. the independent variables (digital openness, employee performance, customer digitization and service access) do not affect the dependent variable (financial inclusion).

-Alternative hypothesis H1: The regression model is significant, i.e. independent variables (digital openness, employee performance, customer digitization and access to service) affect the dependent variable (financial inclusion).

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Table (13): Variance Amplification Coefficients

Variables	Tolerance	VIF
F1 Digital openness	0.406	2.463
F2 Employee or worker performance	0.396	2.526
F3 Customer Digitization	0.715	1.400
F5 Access to Financial Services	0,770	1.299

Source: Prepared by researchers based on SPSS 27 program.

The previous table shows the value of the variance inflation coefficients (VIF): VIF=1/Tolerance, which shows that there is no problem of linear multiplicity between variables, as the inflation coefficients were less than 3.

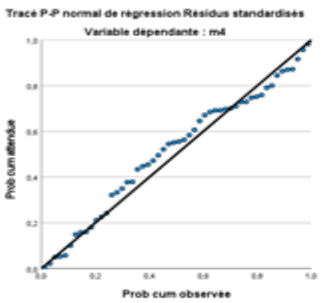
Dependent variable	Explanatory variables	(R)	(R^2)	value (F)	Significance (F)	Beta (β)	value (t)	Significance (t)	Variance inflation coefficient
Financial inclusion	F1 Digital Openness	**0.760**	**0.578**	**16.095**	**0.001**	**0.395**	**3.095**	**0.003**	2.463
	F2 Employee or worker performance					**-0.104**	**-0.726**	**0.471**	2.526
	F3 Customer Digitization					-0.028	-0.295	0.769	1.400
	F5 Access to Financial Services					0.511	5.001	0.001	1.299

Table (14): Multiple Regression Results

Source: Prepared by researchers based on SPSS 27 program**.**

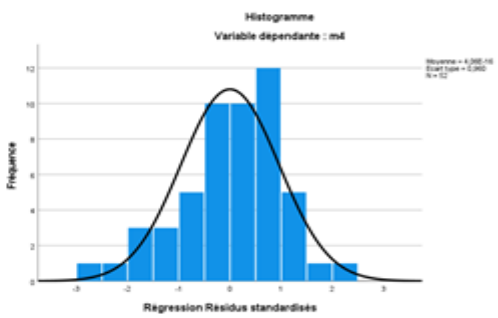
Figure (01) shows the moderation of the distribution of the residues, and Figure (02) shows the aggregation of data about the straight line, so the residuals follow the normal distribution, which is one of the conditions for the correctness of performing multiple regression analysis.

Figure N (02): Data distribution



Source: Prepared by researchers based on SPSS 27

Figure N (01): Distribution of residuals



Source: Prepared by researchers based on SPSS 27

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In order to know the relationship between financial inclusion and independent variables (digital openness, employee performance, customer digitization and service access), a multiple linear regression model was used (Table 12), in which digital openness, employee performance, customer digitization and access to service were considered as explanatory variables and the financial inclusion variable as a dependent variable, the results of the regression model showed that the regression model is significant through the value of (F) of (16.095) with a significant level of (0.001), which is smaller than the level of morality (0.05), and the results explain that the

interpreted variables 57.8% of the variation in digital transformation is explained by looking at the coefficient of determination (R^2), and the beta value (β) that illustrates the relationship between financial inclusion and F5 Access to financial services with a value of (0.511) is statistically significant, Where this can be deduced from the value of (t) and the significance associated with it, and this means that the better P5 access to financial services by the amount of the unit of financial inclusion by (0.511) units and expresses a positive relationship, as well as the value of beta (β) for the variable F1 digital openness with a value of (0.395) D statistically, the more V1 digital openness by the amount of the unit of financial inclusion by (0.395) units, which indicates a positive relationship, followed by the value of beta (β) for the variable F3 digitization of customers with a value of (-0.028) D, the more V3 digitization Customers by the amount of financial inclusion unit by (-0.028) units, which indicates an inverse relationship, followed by the beta value (β) for the variable F2 The performance of employees or workers with a value of (-0.104) D, the more P2 the performance of employees or workers by the amount of the financial inclusion unit by (-0.104) units, which indicates an inverse relationship, as the table shows the results of the multilinear test, Where the result revealed that the statement inflation factor for the model was between (1.299 and 2.526), which is less than 3, which indicates that there is no linear multilinear problem between the model variables, and we can write the regression equation as follows:

Digital transformation (expected) = 0.842 + 0.395 * F1 Digital openness - 0.104 * P2 Performance of employees or employees – 0.028 * P3 Digitization of customers + 0.511 * F5 Access to financial services + prediction error

The normal distribution curve also showed that the residues are normally distributed through Figure (01), and the Dorian Watson test to detect autocorrelation with a value of 1.488 with a significant level greater than 0.05, meaning that the model is acceptable and there is no subjective correlation between the variables, and the independent variables can be arranged according to the strength of the impact on the dependent variable based on the absolute value of the (t) test, as it is clear from the previous table that the most powerful independent variable affecting the success of digital transformation is access to services Digital followed by the independent variable digital openness then digitization of customers and finally the performance of employees or employees.

We can see from Table (14) that all the values of the independent variables are statistically significant with a significant level less than (0.05), and this indicates that all variables had an impact on digital transformation.

-Discussion and interpretation of the results of the hypotheses of the study

The first main hypothesis (H1): There is a statistically significant effect at the level of significance ($\alpha \leq 0.05$) of digital openness in financial institutions on achieving financial inclusion in Algeria From the results of the study reached with regard to the variables of the first hypothesis, we find that digital openness in financial institutions has an important role in achieving the advantage of financial inclusion, and this explains the role of spreading digitization or digital education is very important to achieve inclusion features, which start from the openness of financial services to technology so that it can reach customers.

The second main hypothesis (H2): The digitization of customer relations with financial institutions in Algeria has a statistically significant impact at the level of significance ($\alpha \leq 0.05$) on enhancing the elements of achieving financial inclusion, here it appears that the largest indicator of the success of achieving the advantage of financial inclusion also depends on the ability of financial institutions to achieve the desires of customers and a wider awareness of obtaining these services, the criterion of growth, progress and acceptance of financial services is measured by customer satisfaction whenever the bank succeeds in supporting The client's desires in this field had a great impact on achieving financial inclusion.

The third main hypothesis (H3): The job performance of workers in financial institutions in Algeria has a statistically significant impact at the level of significance (α≤0.05) on enhancing the achievement of financial inclusion, here it can be said that the effectiveness of the application of digitization as well as the effectiveness of digitization of customers depends primarily on the extent of awareness and culture of digital workers in financial institutions, which is explained by the extent to which employees are able to have a first degree of digital openness so that transactions can be transferred to customers effectively and then reach the advantage of financial inclusion.

The fourth main hypothesis (H4): There is a statistically significant impact at the level of significance (α≤0.05) of access to financial services in financial institutions in Algeria on achieving financial inclusion, it appears that the factor of access to financial services has a very significant impact on achieving the advantage of financial inclusion, and this is explained by the role played by financial institutions in raising the efficiency of their employees as well as improving methods and techniques of digital openness, which allows facilitating access to financial services to customers and thus achieving financial inclusion.

Therefore, by reading and interpreting the results of the study, we find that the variable of access to services ranks first among the variables of the independent study on the dependent variable, which is to achieve the advantage of financial inclusion, followed by the degree of digital openness variable, then digitization of customers and finally the performance of employees to a lesser degree.

Conclusion:

One of the most prominent achievements of digital transformation and one of its most important goals is to reach the maximum geographical area and to the largest possible category of customers, the main goal of financial institutions is their market shares and raising the value of their turnover, which is called the advantage of financial inclusion, financial institutions in Algeria strive to reach this by working to encourage education and digital openness as well as achieving customer satisfaction in providing their services by facilitating access to them through the mobilization of workers and employees on These techniques.

Therefore, the success of achieving the advantage of financial inclusion has become dependent on the degree of digital awareness and legislative and regulatory challenges, and also because the Algerian banking system is one of its challenges to get out of the control of public regulation in the process of independence of the device in the first place by creating an appropriate legislative environment and opening the field of internal and external financial investment to benefit from international experiences.

Also, achieving the advantage of financial inclusion depends on the environment, infrastructure and exploiting the advantages of modern digital technology. Based on the above, the study reached the following results to fill the scientific gap for which it was completed:

- The results of the first main hypothesis showed that there is a statistically significant effect at the level of significance (α≤0.05) of digital openness in financial institutions on achieving financial inclusion in Algeria.
- The results of the second main hypothesis confirm that the digitization of customer relations with financial institutions in Algeria has a statistically significant impact at the level of significance (α≤0.05) on enhancing the elements of achieving financial inclusion.
- The third main hypothesis is that the job performance of employees in financial institutions in Algeria has a statistically significant impact at the level of significance (α≤0.05) on promoting financial inclusion.
- The results of the fourth main hypothesis show that there is a statistically significant impact at the level of significance (α≤0.05) of access to financial services in financial institutions in Algeria on achieving financial inclusion.
- Modern technological techniques have helped financial institutions to publicize their products on a large scale.
- Digital technology has saved customers effort and time by adopting digital innovations to provide financial services in Algeria.
- There is a gradual transition that is very acceptable to financial institutions in Algeria towards the adoption of digitization in their transactions based on digitization technologies.

In light of the results of this study, some recommendations can be made:

- The need to attach the utmost importance to access financial services in terms of creating a strong digital infrastructure of the Internet, devices and digital education
- Respect the suggestions, opinions and experiences of customers with expertise in digital transactions at the global level
- Simulation of industry-leading experiences and ways of success.
- Training Training and establishment of centers for research, development and technical innovation in the fields of digital financial transactions.

Appendix 01: Business Models for Fintech Technologies in the Banking Sector

Classify technology by business model	Subcategories	Technical description
Digital Payments	Cash wallets / mobile money / P2P transfers.	It is a mobile solution for transferring and managing money through modern technology devices such as phones and mobile devices.
	Money Transfers and International Money Transfers	Mobile electronic solutions designed to send money to companies or individuals abroad.
	Payment Gateways / Aggregators	Solutions for accepting, authorizing and processing payments on digital platforms.
	Mobile Point of Sale (MPOS) and Point of Sale (POS.(	Mobile POS terminals for small businesses.
Digital Lending	Commercial Lending Balance Sheet	Platforms run by credit providers that provide credit directly over the internet.
	Consumer Lending Balance Sheet	Platforms operated by entities that provide credit directly to customers over the internet.
	P2P Business Lending	Online platforms through which individuals and institutions offer loans to businesses.
	Peer to Peer Consumer Lending	Online platforms through which individuals and institutions offer loans to consumers.
	factoring or invoice lending	Online platforms through which individuals and entities purchase invoices or accounts payable for other businesses.
Crowdfunding Investment	Equity Crowdfunding	A platform that allows customers or individuals to finance or invest in private companies.
	Crowdfunding donations (crowd funding through donations.(	A platform that allows customers or individuals to finance or invest in private companies.
	Crowdfunding Rewards	Platforms through which people contribute funding to individuals, projects or companies in exchange for financial dues or rewards.
	Real Estate Crowdfunding	A platform through which clients finance and earn shares in real estate projects.
Artificial Intelligence/ML/Big Data Analysis.	Alternative credit rating.	Alternative solutions for measuring credit risk for individuals and companies.
	Data Analysis/MKTG	Data analysis solutions to improve customer targeting and gain customer intelligence.
	Customer Support/AI Chatbots	AI/ML based chatbot to provide assistance to customers.
Digital Asset Management	Digital Wealth Management	Online platforms for providing various asset management services.
	Social commerce	Platforms that provide investment advice through a social network.
	Robo-advisors	Automated asset management solutions based on algorithms or artificial intelligence.
Trading and Capital Markets	FX (forex) solutions	Forex trading solutions for individuals or companies.
	Stock Exchange Solutions	Solutions that allow trading in stocks, bonds and electronic exchanges of securities.

Personal Money Management	Savings	Digital tools for consumers that allow them to manage savings and organize spending, also covering micro-savings solutions.
	Financial comparison websites	Online and mobile platforms that allow comparison between different financial products and their features.
Enterprise Technology for Financial Institutions	Digital ID/Biometrics	Personal verification and authentication solutions to access and authorize financial transactions
	KCY solutions know your customer.	Solutions for identifying customers in relation to service providers.
	Fraud prevention and risk management.	Solutions focus on fraud prevention and operational risk management for financial institutions.
	Credit banking programs.	Software solutions for banking infrastructure.
	Regulatory Technology Solutions.	Makes management more efficient and effective with regulatory and compliance requirements.
Corporate Financial Management	Electronic bills	Electronic platforms for issuing and managing invoices
	Digital accounting.	Online platforms for accounting and tax calculation.
	Financial management and business intelligence.	Online platforms for financial management and providing business performance analytics.
	Collect payments.	Digital solutions to simplify or manage corporate account receivables.
Insurance Technology	Partial insurance.	Solutions for small or partial insurance
	P2P insurance platform.	A platform that provides insurance based on the people and other institutions in which it invests.
	Compare insurance.	Comparison sites and choosing the best insurance products.

Source: Miguel Soriano, and all ; **THE ASEAN FINTECH ECOSYSTEM BENCHMARKING STUDY**; report of Cambridge Centre for Alternative Finance (CCAF) at the University of Cambridge Judge Business School in collaboration with the Asian Development Bank Institute (ADBI) and FinTechSpace; 2019; https://www.jbs.cam.ac.uk; (04/01/2022).

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