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The use of artificial intelligence techniques in institutions as an entry point to improve banking financial technology

savings and reserve bank - Tiaret –as model

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Abstract ;

This study aimed to determine the importance of using artificial intelligence techniques in financial institutions to improve the quality of financial technology Savings and Reserve Fund Tiaret agencies, where the descriptive and analytical approach was adopted to verify the approaches in the theoretical frameworks of the independent variable Artificial intelligence and its relationship to the dependent variable Financial technology The hypotheses were tested based on the statistical analysis programs PSs Through the design of an electronic questionnaire to survey the opinions of the study sample, which included 47 respondents from the employees of the bank under study, where the results showed a statistically significant relationship between the applications of artificial intelligence and improving the quality of financial technology in the bank under study at a significant level$\alpha \leq 0.05$

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- ✓ artificial intelligence
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- ✓ financial institutions
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1.Introduction:

The world is witnessing a digital revolution that greatly affects all aspects of human life, as with the tremendous and accelerated technological development in light of the Fourth Industrial Revolution, artificial intelligence will be the engine of growth and progress due to its versatility in the military, industrial, economic, medical, media and service fields.

This has prompted financial institutions to adapt to modern developments, especially those related to the use of computer software.

Based on the idea of excellence, the problem of the quality of financial services appears, and in order to solve it, it employed all available technical and scientific development that contributes to raising the quality of financial services, the most important of which is the use of artificial intelligence applications to generalize the link between the quality of financial services and achieve customer satisfaction and loyalty.

1.1.Problematic research: In this research, we will try to answer the following problem:

- To what extent do AI applications in financial institutions improve fintech?

1.2.Study hypotheses

- **The main hypothesis**:

- H 0 : There is noimportance of using artificial intelligence applications in financial institutions as an input to improve financial technology A case study of a group of national banks$0.05 \leq \alpha$
- H_1 : There importance of using artificial intelligence applications in financial institutions as an input to improve financial technology A case study of a group of national banks $\alpha > 0.05$

1.3.The importance of the study: The importance of the study lies in revealing the most important applications of artificial intelligence, as the application of this technology is an important source of creativity, innovation and excellence, as the presentation of artificial intelligence in the financial sector may bring a lot of positives that greatly serve all parties in the sector

1.4.Objectives of the study: This study aims to introduce artificial intelligence and financial technology and the role it plays in the financial field, as well as to highlight the importance of using artificial intelligence applications in enhancing and developing the quality of financial services to obtain competitive advantages.

1.5.Study Methodology: This research paper will be addressed by relying on the descriptive analytical approach by describing the terms of the study from a theoretical point of view using various previous studies and research in this field and then collecting the necessary data for the field study, where we chose the questionnaire as a basic tool for collecting data, and then it was analyzed statistically and then discussed the results reached.

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2. The conceptual framework of artificial intelligence:

Artificial intelligence is considered a major turning point in human history due to its new and modern methods in various fields and disciplines such as medicine, education, and even in the financial field.

2.1.The concept of artificial intelligence: Artificial intelligence has many definitions, the most important of which are:

- "Artificial intelligence is the part of computer science that is concerned with intelligent computer systems, those systems that possess characteristics related to intelligence and decision-making and are similar to some degree of human behavior in this field in terms of languages, learning, thinking, problem solving, etc. (Bashir, 2007, p. 09.).
- It also defined artificial intelligence as "the behavior and certain characteristics of computer programs that make them simulate the mental abilities of humans and their work patterns, the most important of these characteristics is the ability to learn, conclude and react to situations that were not programmed in this machine" (Rahman, 2018, p. 17)

In light of the above, artificial intelligence can be defined as a field in computer science that aims to create systems and programs that are able to simulate and perform tasks that require human intelligence.

2.2.Characteristics of artificial intelligence: Through the previous definitions, a set of characteristics can be monitored, including (Al-Najjar, 2010, p. 170.):

- The use of intelligence in solving the problems presented in the absence of complete information
- Ability to acquire and apply knowledge
- Ability to think and perceive
- Ability to learn and understand from past experiences and expertise
- Ability to use old experiences and employ them in new situations
- Ability to respond quickly to new situations and circumstances
- Ability to deal with ambiguous situations in the absence of information
- The ability to visualize, create, understand and perceive visual things
- Ability to provide information for attribution Administrative decisions

2.3.The importance of artificial intelligence: can be summarized as follows (Al-Lami, 2009, p. 58):

- Preserving experience that can be lost through retirement, use or death
- Creating a technique that has nothing to do with the subject of human feelings that represent stress and cost and be useful in business to benefit from counseling
- Improving the basis of the organization's knowledge by proposing solutions to complex problems by analyzing them in a short period of time
- Artificial intelligence increases business efficiency and speed of implementation
- Contributes to the development of tools and software related to the management of the institution's business

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2.4.Artificial intelligence systems: Among them we mention the following:

- **Expert systems:** The expert system in the computer is that system in which the computer is widely used to broadcast in many things and problems in the fields of medicine, agriculture, trade, etc., a software that seeks to represent the experience that makes a person an expert in a field, and this system consists of a knowledge base (can be extracted from the human expert) and a deductive machine (includes laws and logical processes that we reach by relying on them to issue judgments)

This system works according to pre-given rules - algorithms - belonging to each field in which it operates, and uses expert systems in various fields (Yassin, p. 225)

The application of expert systems in institutions has several benefits, including (Madkour, 2021, p. 139.) :

- Providing knowledge storage facilities, knowledge representation, knowledge retrieval, use of knowledge
- Provide direct support to the decision-making process
- Maintaining the accumulated knowledge and experience of knowledge workers
- Ensuring rationality and rationality when making decisions

- **Neural network:** are dynamic information systems formed and programmed throughout the development period dedicated to training and learning, that is, they learn from experience and gain their experiences and knowledge through training, learning and practice (Fathi, 2012, p. 169) .

- **Algorithm systems:** This technology is based on a practical idea for a computerized program in which possible solutions of the decision compete with each other, and is also used in the fields of financial and banking business, logistics operations and control of the movement of materials (Sabira & Falag, 2021, p. 274).

- **Automatic education**: It is a set of programmed techniques that allow the machine to adapt behavior to its environment without human intervention or partial intervention from it and is technically defined as the design of algorithms capable of making decisions independently without prior programming (Samia, Chehibi, & Kroush, 2018, p. 11).

- **Robotics and natural language processing:** As the robotics is among the mechanical and flexible devices that have the ability to hold and transport materials, and they carry out work and tasks that are dangerous to human life, and are characterized by accuracy, speed and strength.

Natural language processing is a sub-science of artificial intelligence, which in turn is a branch of informatics and overlaps significantly with linguistics that provides the required linguistic description of the computer, and is used in many fields such as machine reading of texts, text generation or automatic speech, translation techniques and text retouching (Othmania, 2019, p. 19).

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3: Conceptual framework for banking financial technology: Financial technology is a new field in financial management, as it has the ability to make financial services faster, cheaper, more secure and more transparent.

3.1- THE concept of banking financial technology: financial technology is often refered to as fintecg as an abbreviation for the word financial technology, and several definitions have been received, including:

- "It is the technical financial innovation that may lead to a new innovation in business models, applications, processes, products or services associated with them, which will have a material impact on the markets, financial institutions and the provision of financing" (Kawthar & Zawadi, 2023, p. 32)
- Banking financial technology is defined as "the sum of technological means and tools such as electronic devices and platforms, applications and information programs, which develop and facilitate banking services for consumers, and overcome time and place differences by providing banking activities in various forms" (Ali, Aqeel Alwan, & Abdul Mahdi, 2020, p. 246)

3.2 **Fintech goals**: can be summarized in the following points (Redha, Haider, & Harjan, 2020, p. 129)

- **Lower cost**: Fintech seeks to reduce the current cost, thus allowing more users to access financial services, especially companies and individuals who are not banked.
- **More privacy:** Fintech services and products are tailored to customers' personal desires.
- **Speed of implementation:** Financial technology relies on highly advanced techniques and technology that allow speeding up the implementation time of financial services.
- **Deployment:** Providing financial technology services across borders and not being tied to a narrow or limited geographical area.
- **Comparison:** Fintech services and products enable customers to compare them with banks and financial institutions regarding the nature and prices of financial services provided.

3.3 -Fintech Applications: Fintech technologies are employed and used in special areas such as finance, retail and wholesale payments, financial market infrastructure, investment management, insurance, credit facilities and corporate capital raising.

Among the most important applications of these digital financial technologies in the financial services sector, applications related to artificial intelligence, big data, cryptography, blockchain technology, and others, some of which are shown in the following table (Dhahabia, 2023, p. 818):

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Table (1): The most important applications of financial technology technologies in the financial services sector

Pedestals	Innovations	Applications
AI/Big Data	Machine Learning, Predictive Data Analysis	Consulting advice "robotics", credit decisions, regulatory technology, fraud detection
Distributed Computing	Distributed Digital Ledger (Blockchain)	Payments, Data Organization, Digital Assets
Encryption	Smart Contracts, Biometrics	Digitized processes, identity information protection, KYC
Mobile & Internet	Application software interfaces, digital wallets	Digital Wallets, Financial Performance Panel, Crowdfunding

Source : (Dhahabia, 2023, p. 818).

4.Case study of the Savings and Reserve Fund/Tiaret Bank of Agencies

4.1.Questionnaire Design and Study Population

- **Description of the study tool:** We relied as a source for collecting information and data on a questionnaire designed to serve the objectives of the study, which was distributed to a group of workers of the Savings and Reserve Fund / Tiaret Agencies Bank, in order to know the importance ofusing artificial intelligence applications in financial institutions as an input to improve financial technology

- To ensure the sincerity of the study tool, it was presented to a group of professors with competence and the questionnaire was judged so that it is clear and easy to understand

- The study tool consists of three axes, which are:

Axis 01: contains 05 paragraphs related to personal information about the demographic characteristics of the sample of gender, age, job position, experience and scientific qualification.

Axis 02: It contains 12 items related to artificial intelligence applications, including expert systems - knowledge representation and reasoning - automatic learning

Axis 03: contains 10 paragraphs related tofinancial technology

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- Limits of the study population and sample test:

47 questionnaires were randomly distributed to the study sample, which represents the workers of the Savings and Reserve Fund / Tiaret Agencies Bank.

- Stages of study:

- **Study Methodology**: In our study, we relied on the descriptive analytical approach, so that the data was collected and analyzed once and in a specific time.

-. Statistical Processing:

In order to study and analyze the questionnaire, we relied on the statistical program version No. 26.0, and a set of different statistical methods were used according to the requirements of the study.

In the axes 02 and 03 in the questionnaire, the five-pointed Licart scale was used in the distribution of answer grades, which were distributed from the highest weight, which was given 05 degrees to the lowest weight, which was given 01 degrees.

- **Analysis and analysis ofthe results of the field study.**

This part includes a description of the personal characteristics of the study sample, as well as identifying the extent of the normal distribution of the study variables, presenting the results of the research, analyzing and interpreting it to answer the sub-questions of the study, and in the end we will test the hypotheses that we adopted in the study and interpret them.

- The first requirement: the stability and honesty of the research tool

The stability of the questionnaire will be verified by calculating the Cronbach alpha coefficient, which determines the level of acceptance of the measuring instrument at the level of 0.60 or more, where the results are as follows:

First: The stability coefficient of the questionnaire using the Cronbach alpha coefficient:

Table (2) :Stability coefficient of the questionnaire

Coefficient of stability	
Cronbach's alpha	Number of questions
0,733	22

Source : Prepared by the researcher depending on the outputs of SPSS

Second: Accuracy coefficient for the questionnaire using the Cronbach's alphacoefficient:

Table (3):Validity coefficient of the questionnaire

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Accuracy coefficient	
Cronbach's alpha	Number of questions
0.856	22

Source: Prepared by the researcher depending on the outputs of SPSS

We can see from the table above that the general questionnaire coefficient (Alpha Cronbach) is high (0.733), which is a value greater than the standard average (0.60), which means that the study in general is stable. In other words, 73.3% of the selected sample will be consistent in their answer if they are questioned again and under the same circumstances, a percentage that shows the credibility of the conclusions that can be drawn by 85.6.

- **Analysis of personal data**

The questionnaire was distributed to the employees of the National Savings and Reserve Bank and its agencies - the wilaya of Tiaret - the subject of the study, and the following is a presentation of the characteristics of the sample of the respondents obtained.

-: Gender variable analysis: Statistics and descriptive are used to extract frequencies, and the percentage of the gender variable description as shown in the table:

Table (4): Distribution of sample study by Gender

Variable	Categories	Iteration	Ratios
Gender	male	30	63,83%
	Female	17	36,17%
	Total	47	100,0%

Source: Prepared by the researcher depending on the outputs of SPSS

In terms of the distribution of the study sample according to gender: It is evident from the previous table that 30 workers represent 63.83% of the total study sample and are males, while 17 of them represent 36.17% and are females.

- : **Age variable analysis:** Statistics and descriptive statistics were used to extract frequencies, and the percentage to describe the age variable as shown in the table:

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Table (5): Distribution of study sample by age

Variable	Categories	Iteration	Ratios
Age	Less than or equal to 30 years	3	6,4%
	From 31 to 39 years	24	51,1%
	From 40 to 49 years old	15	31,9%
	More than 50 years	5	10,6%
	Total	47	100%

Source: Prepared by the researcher depending on the outputs of SPSS

. - **Regarding the distribution of the study sample by age:** The table above shows that the age group is less than Or equal to 30 years is the smallest percentage of 6.4% compared to 3 workers, while the category of 31 to 39 years is the category that represents the largest percentage of 51.1%corresponding to 24 workers, then we have a category from 40 to 49 years in second place with 31.9% corresponding to 15 workers, and in third place comes the category of over 50 years with 10.6 % compared to 5 workers.

-: **Analysis of the job position variable:** the use of descriptive statistics to extract the frequencies, and the percentage of the description of the age variable as shown in the table:

Table (6): Distribution of study sample by functional position

Variable	Categories	Iteration	Ratios
Job Position	Assigned to customers	11	23,40%
	Head of Department	20	42,55%
	In charge of studies	10	21,28%
	Other	6	12,77%
	Total	47	100,00%

Source: Prepared by the researcher depending on the outputs of SPSS

1- With regard to the distribution of the study sample by job position: The table above shows that the position is another smallest percentage of 12.77% corresponding to 6 workers, while the position is the head of a department that represents the largest percentage of 42.55% compared to 20 workers, then we have a position in charge of customers in second place with 23.40% corresponding to 11 workers, and in third place comes the position in charge of studies with 21.28% compared to 10 workers.

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- **Analysis of the professional experience variable**: the use of statistics and descriptive extraction of frequencies, and the percentage of the description of the professional experience variable as shown in the table:

Table (7): Distribution of sample study by professional experience

Variable	Categories	Iteration	Lineage
Experience	Less than 5 years	4	8,5%
	5 to 10 years old	26	55,3%
	From 11 to 15 years old	14	29,8%
	More than 15 years	3	6,4%
	Total	47	100%

Source: Prepared by the researcher depending on the outputs of SPSS

- With regard to the distribution of the sample of the study by professional experience: The table above shows that the age group over 15 years is the smallest percentage of 6.4% compared to 3 workers, while the category of 5 to 10 years is the group that represents the largest percentage of 55.3% compared to 26 workers, then we have a category from 11 to 15 years old in second place with 29.8% corresponding to 14 workers, and in third place comes less than 5 years 8.5% compared to 4 workers.

- **Analysis of the academic qualification variable:** the use of descriptive statistics to extract the frequencies, and the percentage of the description of the academic level variable as shown in the table:

Table (8): Distribution of Study Sample by Qualification:

Variable	Categories	Iteration	Ratios
Qualification	High Technician	5	10,6%
	B.Sc.	13	61,7%
	Master	29	27,7%
	Total	47	100%

Source: Prepared by the researcher depending on the outputs of SPSS

- With regard to the distribution of the study sample by academic qualification: The table above shows that the secondary educational qualification is the smallest percentage of 10.6% corresponding to 5 workers, while the university level is the category that represents the largest

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percentage of 61.7% corresponding to 26 workers, then we have the postgraduate level in second place with 27.7% corresponding to 13 workers.

First Theme: Artificial Intelligence Applications

Domain	Figure	Statement	Arithmetic mean	Standard deviation	Direction	Weighted %	Grade
Expert Systems	1	Expert systems contribute to the development of solutions to various problems of the bank	3,51	0,953	Agree	70,21%	3
	2	Expert systems help in acquiring knowledge from the reality of databases stored in the systems in areas that support the capabilities of the Bank's senior management	3,79	0,858	Agree	75,74%	2
	3	Expert systems help managers in the planning and decision-making process in the bank	4,21	0,832	Strongly agree	84,26%	1
		First dimension	3,8369	0,55982	Agree	76,74%	
Representation of knowledge and reasoning	1	Artificial intelligence allows symbolic knowledge to be clearly represented such as graphs, semantic grids and text	3,51	0,930	Agree	70,21%	2
	2	Bank symbolic and inferential knowledge is characterized by the ability	3,53	0,905	Agree	70,64%	1

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		to extract information from complex data					
	3	Bank AI is characterized by the ability to adapt to its cognitive environment in the bank	3,43	0,853	Agree	68,51%	3
	4	Artificial intelligence allows knowledge to be stored quickly and sufficiently	3,32	0,980	neutral	66,38%	6
	5	Knowledge and inferences are represented according to criteria defined by the bank	3,34	1,069	neutral	66,81%	5
	6	Knowledge and inferences are kept safe to preserve them from any manipulation	3,40	0,901	Agree	68,09%	4
		Second dimension	3,4220	0,48883	Agree	68,44%	
Automatic learning	1	The bank's system can automatically address the problems it can encounter.	3,55	0,928	Agree	71,06%	1
	2	Systems within the bank update themselves periodically and automatically	3,43	0,853	Agree	68,51%	3
	3	The organization's systems are linked to each other at the same time and in an integrated and interactive manner	3,45	0,951	Agree	68,94%	2
		The third dimension	3,4752	0,58460	Agree	69,50%	
		The first axis	3,5390	0,42344	Agree	70,78%	

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First application: Expert Systems

Through the table, we note that the phrase Expert systems help managers in the planning process and make various decisions in the bank recorded the largest arithmetic average of 4.21 by 84.26 % of respondents tend to strongly agree

And then comes the help of expert systems in acquiring knowledge from the reality of databases stored in the systems in areas that support the capabilities of senior management in the bank in second place with an arithmetic average of 3.79 and a rate of 75.74% of the sample members corresponding to OK

In the last place, we have the phrase Expert systems contribute to the development of solutions to various problems at the bank with an arithmetic average of 3.51 or 70.21% of the sample members corresponding to the approval of the workers

In general, the first application tends to approve workers with an arithmetic average of 3.83, which corresponds to 76.74% of the respondents.

Second application: representation of knowledge and reasoning

Through the table, we note that the phrase is characterized by symbolic and inferential knowledge The bank is able to extract information from complex data tops the list with an arithmetic average of 3.53 and 70.21 % of the sample members agree

Artificial intelligence allows the representation of symbolic knowledge clearly such as graphs, semantic networks and text with an arithmetic average of 3.51and represents 71.06% of workers who agree

At the end of the phrase, artificial intelligence allows the storage of knowledge quickly and sufficiently with an arithmetic average of 3.32 (66.38%) tend to be neutral

Finally, we note that the second application is moving towards approval with an arithmetic average of 3.42 with a percentage of 68.44% of the respondents' sample.

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Table (10)Second Theme: Fintech

Figure	Statement	Arithmetic mean	Standard deviation	Direction	Weighted %	Grade
1	The bank provides a large number of ATMs	3,26	1,010	neutral	65,11%	9
2	The bank constantly checks the ATM to avoid expected malfunctions.	3,70	0,907	Agree	74,04%	4
3	The bank provides continuous ATMs available daily throughout the week.	3,91	0,905	Agree	78,30%	2
4	The bank provides its customers with a balance check service over the phone.	3,96	0,690	Agree	79,15%	1
5	The bank provides its customers with a payment and bill payment service over the phone.	3,43	0,903	Agree	68,51%	7
6	The bank provides an application that facilitates the process of transferring money.	3,70	0,832	Agree	74,04%	3
7	The bank provides electronic payment cards.	3,32	0,911	neutral	66,38%	8
8	The bank distributes payment machines at various points of sale at major shops.	3,47	1,060	Agree	69,36%	6
9	The bank has a website.	2,89	1,088	neutral	57,87%	10
10	The bank offers various online services.	3,55	0,904	Agree	71,06%	5
	The second axis	3,5191	0,37570	Agree	70,38%	

In this field that studies financial technology, and through the table above, we notice that the Statements ranged between OK and neutral.

So that the Statement; the bank provides its customers with the service of knowing the balance over the phone. It was in the first place with an OK score with an arithmetic average of 3.96 and corresponding to 79.15 % of the respondents' sample

Followed in second place by the StatementThe bank provides ATMs that are continuous service per day throughout the week with a degree of OK, which is equivalent to an arithmetic average of 3.91 and a percentage of 78.30% of the workers

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And in the penultimate place we have the Statement; The bank provides a large number of neutral ATMs, where the arithmetic mean was estimated at 3.26 and a standard deviation of 1,010, this translates into 65.11% of the study sample were neutral, and we note that this neutrality tends to the degree of rejection ofan Standard deviation greater than 1

In last place we have the Statement; The bank has a website that tends to be neutral with an arithmetic mean of 2.89, a standard deviation of 1.184 and a percentage of 57.87 %, and since the standard deviation is greater than 1, the result tends to be opposed.

We note that financial technology, which is the second axis, tends to the degree of approval with an arithmetic average of 3.51, which corresponds to 70.30% of the sample members.

4.2-: Testing the hypotheses of the study:

- Pearson's correlation coefficient:

Through Pearson's coefficient to correlate with knowing the importance of using artificial intelligence applications in financial institutions as an input to improve financial technology, a case study of a group of national banks, as shown in the following tables:

- **Pearson Correlation Coefficient:** Using artificial intelligence applications in financial institutions to improve financial technology.

Table (11) Pearson's correlation coefficient Using AI applications in financial institutions to improve fintech.

Link			
		Axis1	Axis2
Axis1	Pearson's deceleration coefficient	1	,590**
	Significance level		0,000
Axis2	Pearson's correlation coefficient	,590**	1
	Significance level	0,000	
	N	47	47
Correlation is statistically significant at 0.01			

source : Prepared by the researcher depending on the outputs of SPSS

Through the test, we note the Pearson correlation coefficient, which was estimated at 0.590 at the significance level of 0.000, which is a statistically significant value that confirms the existence of

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a statistically significant correlation between the applications of artificial intelligence and financial technology among the workers of the National Savings and Reserve Fund and its agencies - the state of Tiaret, and thus we make sure that the hypothesis that states that there is a statistically significant correlation between artificial intelligence applications and Financial technology, that is, artificial intelligence applications contribute to improving financial technology within the organization, but it did not push thisfinancial technologyto a large degree, but at an average level

- **Pearson Correlation Coefficient:** Using expert systems in financial institutions to improve financial technology.

Table (12) Pearson's correlation coefficient Using expert systems in financial institutions to improve financial technology.

Link			
		Axis1	Expert Systems
Axis1	Pearson's deceleration coefficient	1	,429**
	Significance level		0,003
Expert Systems	Pearson's correlation coefficient	,429**	1
	Significance level	0,003	
	N	47	47
Correlation is statistically significant at 0.01			

Prepared by the researcher depending on the outputs of SPSS

We note through the test the Pearson correlation coefficient, which was estimated at 0.429 at the level of significance 0.003, which is a statistically significant value that confirms the existence of a statistically significant correlation between expert systems and financial technology among the workers of the National Savings and Reserve Bank and its agencies - the state of Tiaret, and thus we make sure that the hypothesis that states that there is a statistically significant correlation between expert systems and financial technology is achieved, that is, Expert systems contribute to improving fintech within the organization, but it has not pushed for improvement in fintech to a large degree, but rather at an average level.

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- Pearson's correlation coefficient: Using knowledge representation and reasoning of financial institutions to improve financial technology.

Table (13) Pearson's correlation coefficient Usingknowledge representation and reasoning of financial institutions to improve fintech.

Link			
		Axis1	Representation of knowledge and reasoning
Axis1	Pearson's deceleration coefficient	1	,561**
	Significance level		0,000
Representation of knowledge and reasoning	Pearson's correlation coefficient	,561**	1
	Significance level	0,000	
	N	47	47
Correlation is statistically significant at 0.01			

Source: Prepared by the researcher depending on the outputs of SPSS

Through the test of the Pearson correlation coefficient, which was estimated at 0.561 at the level of significance 0.000, which is a statistically significant value that confirms the existence of a statistically significant correlation between the representation of knowledge, reasoning and financial technology among the workers of the National Savings and Reserve Bank and its agencies - the wilaya of Tiaret, and thus we make sure that the hypothesis that states that there is a statistically significant correlation between the representation of knowledge, reasoning and financial technology , i.e.Representing knowledge and reasoning as a contribution to fintech among workers within the organization, but it did not drive improvement in fintech to a large degree, but rather at an average level

- Pearson's correlation coefficient: Using knowledge representation and reasoning of financial institutions to improve financial technology.

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Table (14) Pearson's correlation coefficient Usingautomatic learning in financial institutions to improve financial technology.

Link			
		Axis1	Automatic learning
Axis1	Pearson's deceleration coefficient	1	,360**
	Significance level		0.013
Automatic learning	Pearson's correlation coefficient	,360**	1
	Significance level	0.013	
	N	47	47
Correlation is statistically significant at 0.05			

Source: Prepared by the researcher depending on the outputs of SPSS

Through the test of the Pearson correlation coefficient, which was estimated at 0.360 at the level of significance 0.013, which is a statistically significant value that confirms the existence of a statistically significant correlation between automatic learning and financial technology among the workers of the National Savings and Reserve Bank and its agencies - the state of Tiaret, and thus we make sure that the hypothesis that states that there is a statistically significant correlation between automatic learning and financial technology, that is,forautomatic learningA contribution to financial technology among workers inside the organization, but it did not push for improvement in financial technology to a large degree, but at an average level .

-Simple linear regression:

- Inserted/Deleted Variables

We need to know if all the variables studied are included in the simple linear regression and the table below shows that

Table (15) Listed/deleted variables.

Inserted/deleted variables			
Prototype	Included variables	Deleted variables	Method
1	Axis 2		Listed
A- Axis 1: Independent Variable			
B- All required variables have been included			

Source: Prepared by the researcher depending on the outputs of SPSS

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- Testing the main hypothesis of the study

This part comes through which we aim to theimportance of using artificial intelligence applications in financial institutions as an entry point to improve financial technology, in pursuit of achieving the basic objectives to ensure the validity of the hypotheses on which this scientific research is based.

-*The main hypothesis test of the study: Significance level a=0.05-*

H 0 : There is noimportance of using artificial intelligence applications in financial institutions as an input to improve financial technology A case study of a group of national banks0.05≤α

H_1 : There is importance of using artificial intelligence applications in financial institutions as an input to improve financial technology A case study of a group of national banks α> 0.05

Table (16) Analysis of variance for regression.

ANOVA Regression Variance Analysis					
Contrast source	Sum of squares	Degree of freedom	Average squares	Calculated F value	Significance level
Regression	2.257	1	2.257	23.983	,000[b]
Error	4.235	45	0,094		
Total	6,493	46			

Source: Prepared by the researcher depending on the outputs of SPSS

We have a calculated F value of 23.983, and the significance value of the test is estimated at 0.000, which is the lowest significance level of 0.05 means the existence of statistical significance, and therefore we accept the alternative hypothesis that states the importance of using artificial intelligence applications in financial institutions as an input to improve financial technology Case Study of the National Savings and Reserve Bank and its agencies - Tiaret

Table (17) Correlation coefficient and determination.

prototype	Correlation coefficient	Coefficient of determination	Adjusted coefficient of determination	Estimated standard error
1	,590[a]	0,348	0,333	0,30679

Source: Prepared by the researcher depending on the outputs of SPSS

We find that the correlation coefficient between the AIapplications axis andfinancial technology as a whole is 0.590, which indicates an average direct correlation between the two variables.

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Note that the coefficient of determination is equal to 0.348, which means that 34.8% of the changes that occur on the fintech axisare explained by the AI applications axis, and the rest is due to other factors, including random errors.

***-Regression line equation:**

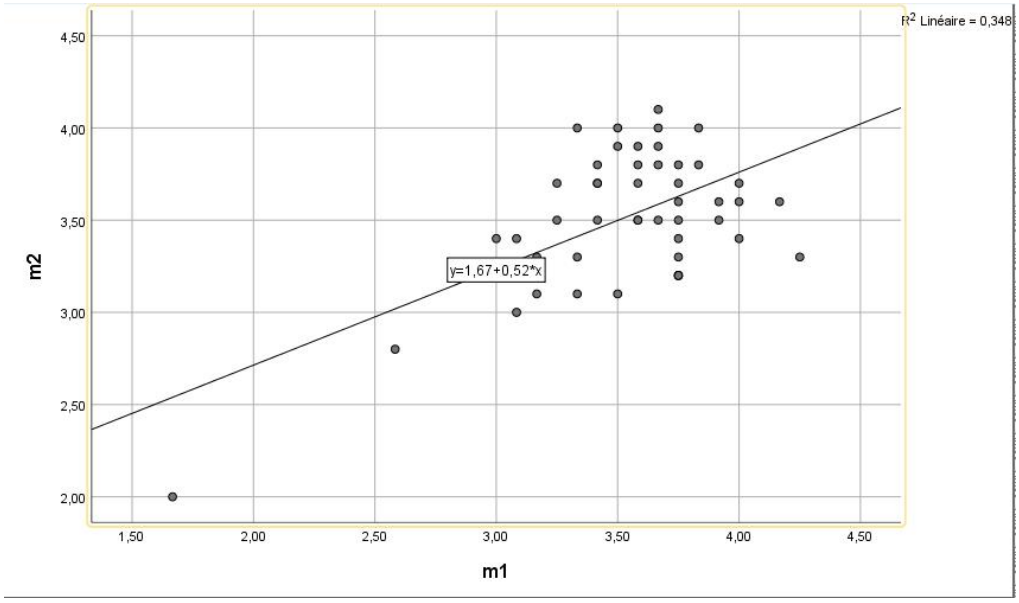
Table(18) Regression line equation coefficients.

Transactions							
Prototype		b		Standard error	Correlation coefficient	t	Significance level
1	Axis 1	B_0	1,668	0,381		4.381	0,000
	Axis2	B_1	0,523	0,107	0,590	4.897	0,000

$Y=b_0+b_1X$ =<Y=1.668+0.523X

Source: Prepared by the researcher depending on the outputs of SPSS

Figure(01) Regression line equation curve and equation



Source: Prepared by the researcher depending on the outputs of SPSS

Through the equation and the graph, we conclude that there is a regression and impact between the dependent variable - financial technology - and the independent variable - artificial intelligence applications - *in* the National Savings and Reserve Fund and its agencies - the wilaya of Tiaret

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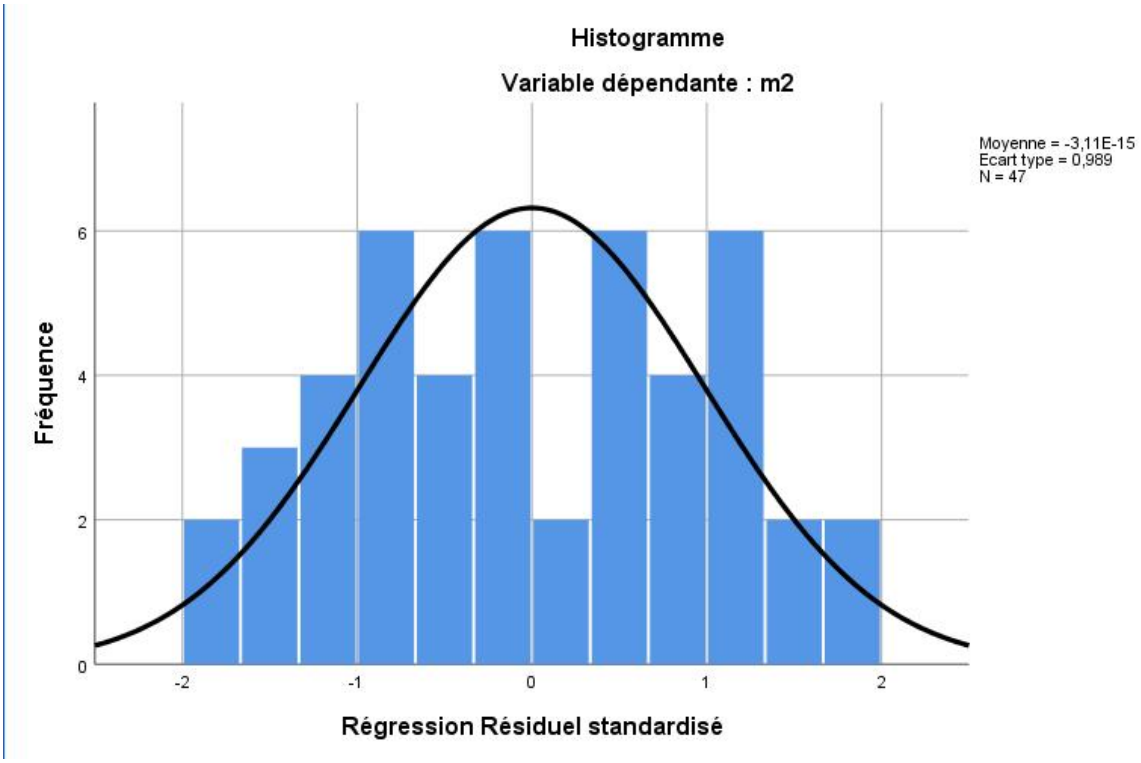
Figure (02): Relationship between standard errors and real values of the hypothesis -



Source: Prepared by the researcher depending on the outputs of SPSS

Distribution of natural distribution .

Note: Based on that, we accept the alternative hypothesis H1 and reject the null hypothesis H0. There is importance of using artificial intelligence applications in financial institutions as an input to improve financial technology is confirmed by the case study of the Savings and Reserve Bank / Tiaret Agencies Bankat the significance level of 0.05. Addressed to the staff ofthe Savings and Reserve Bank/Tiaret Agencies Bank

5.Conclusion: Digital development is one of the most important pillars of the banking sector, as the financial technology sector has formed a revolution in financial systems by providing a range of diverse financial services represented in payment services, digital currencies, money transfer, lending and crowdfunding, in addition to insurance services, and artificial intelligence-based tools have helped develop financial institutions and facilitate transactions, as well as contributed to reducing costs and increasing efficiency.

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5.1.The study reached the following results:

- The existence of a positive correlation between the variables of the study of the banking agencies under study

- In light of progress, speed and change, artificial intelligence and financial technology must be used in order to provide advanced and modern services

- The use of artificial intelligence contributes to improving the financial performance of banks, and financial technology contributes to achieving financial stability

- The study confirmed that relying on artificial intelligence contributes to reducing the costs borne by customers as well as increasing efficiency.

5.2.From the above, the study recommends the following:

- The state's interest in providing advanced infrastructure in order to benefit more from technological development such as artificial intelligence and financial technology
- Training bank workers on the best use of artificial intelligence and fintech applications
- Encouraging cooperation and spreading the culture of using technology among individuals and institutions by introducing its characteristics and benefits.

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Bibliographie

Ali, M. H., Aqeel Alwan, M., & Abdul Mahdi, R. H. (2020). The new trends of the banking industry in light of financial globalization and its role in enhancing the entrepreneurial banking trend, an applied study in Rafidain Bank, Karbala branch. *Iraqui journal administrative sciences , 16* (64).

Al-Lami, G. Q. (2009). *Information Technology in the Business System, (Uses and Applications).* Amman, Jordan: Dar Al-Warraq.

Al-Najjar, F. J. (2010). *Management Information Systems, Administrative Perspective.* Jordan, Amman: Dar Hamed.

Bashir, A. (2007). *Artificial Intelligence.* Cairo, Egypt, : Dar Al-Sahab.

Dhahabia, L. (2023). An analytical study of the opportunities and concerns of financial technology on financial stability. *Journal of Financial and Business Economics , 08* (01).

Fathi, A. I. (2012). *Building Expert Systems and Their Applications in Fires.* Saudi Arabia: Naif Arab University for Security Sciences.

Kawthar, T., & Zawadi, N. (2023). Fintech Innovations in the Development of Islamic Financial Services - Kuwait Finance House - as a Model. *Journal of Studies in Islamic Finance and Development* (32).

Madkour, M. (2021). Artificial Intelligence and the Future of Distance Education. *Journal of Studies in Development and Society , 06* (03).

Othmania, A. (2019). *Applications of Artificial Intelligence, as a Modern Trend to Enhance the Competitiveness of Business Organizations.* Berlin, Germany: Arab Center for Strategic, Political and Economic Studies.

Rahman, O. A. (2018). *Artificial Intelligence and its Risks.* Egypt: Dar Zholler Knowledge and Blessing.

Redha, M. S., Haider, M. K., & Harjan, S. A. (2020). Financial technology and its role in achieving sustainable development, an exploratory study of a sample of Baghdad Commercial and Trade Iraqi employees. *Social and Humanitarian journal , 04* (02).

Sabira, S., & Falag, S. (2021). Adopting Artificial Intelligence in Insurance Companies as a Mechanism to Enhance Financial Inclusion, AXA Case Study. *Algerian Journal of Economics, Management , 15* (01).

Samia, Q., Chehibi, M. B., & Kroush, J. International Forum on Artificial Intelligence. *Artificial Intelligence between Realityand Hoped, A Technical and Field Study.* Algeria.

Yassin, S. G. *Decision Support Systems.* Amman, Jordan: Dar Al-Minhaj.

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