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Obstacles to the Application of Artificial Intelligence in Palestinian Income Tax Departments

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Abstract: This study aimed to identify the obstacles to the application of artificial intelligence in the Palestinian income tax departments, including administrative, technical, human, and financial challenges. To achieve this goal, the researcher utilized primary sources and a questionnaire as the primary tool for data collection. The questionnaire, along with demographic variables, addressed four areas: the administrative field, the technical field, the human field, and the financial field. Each area contained a set of questions designed to address the study's research questions and hypotheses. The questionnaire was distributed to the study population, consisting of 115 employees in the Palestinian income tax departments in the West Bank. The collected data were statistically analyzed using SPSS, employing statistical techniques such as frequencies, percentages, arithmetic averages, and standard deviations to estimate the relative weight of the questionnaire items. Additionally, One-Way ANOVA was used to test hypotheses related to all variables, and the Cronbach Alpha equation was applied to assess the reliability of the questionnaire. The study revealed several key findings, including that one significant obstacle to applying artificial intelligence in the Palestinian income tax departments is the weak budget allocated for modernizing and developing electronic devices and software. One of the most important recommendations is to allocate sufficient funds for the purchase of modern devices and technologies that facilitate the application of electronic management.
Keywords: Artificial Intelligence, Income Tax, Tax Departments, Obstacles, Palestinian Income Tax Departments.

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1. Introduction

Artificial intelligence (AI) is a cornerstone of the modern industrial revolution. It encompasses computational actions and digital transactions performed by humans that require a high degree of knowledge and intelligence (Russell & Norvig, 2009). AI is not only utilized in the private sector but is also increasingly adopted in government work. However, the extent and scope of its use vary across sectors and countries due to a combination of financial, human, technical, and organizational impediments. Artificial intelligence is employed in various fields, including expert systems, voice recognition, image analysis, stock trading, automated control, scientific discoveries, and Internet search engines (Smith, 2020). It can also be integrated into different government services, such as income tax services. In many countries, electronic systems have replaced manual labor to achieve fundamental principles of taxation, such as the principle of economy (Joydeb, 2011). The use of AI simplifies the work of staff and saves time and effort. Consequently, many countries are transitioning from traditional systems to electronic systems. AI also eases the experience for taxpayers by reducing the need for physical

mobility, long waiting times at income tax offices, and reliance on paper files, which are prone to damage or loss. For taxpayers, AI improves efficiency by saving time, costs, and effort. Despite significant advancements in AI tools and continuous improvements in income tax laws worldwide, some countries, particularly developing ones, still rely heavily on paper-based processes. This is evident in the Palestinian case, where despite the introduction of advanced systems and programs in Palestinian income tax departments, AI is not yet fully integrated. This study will explore this issue in detail. The main objective of this research is to identify the obstacles to the application of artificial intelligence in Palestinian income tax departments by addressing the following topics: the concept of artificial intelligence, its applications in the tax field, hypothesis development, obstacles, and the results of the hypotheses.

2. Literature Review and Theoretical Background

2.1.The Concept of Artificial Intelligence

Artificial intelligence consists of two words: artificial and intelligence word, each of which has meaning, intelligence according to Webster's dictionary is the ability to understand new and changing circumstances or situations. That is, the ability to perceive, understand and learn about new circumstances, in other words, the keys to intelligence are perception, understanding, and learning. The word industrial or artificial is already associated with manufacture, and therefore the word is called all things that arise as a result of the activity or action that is done through the artificialization and formation of things to distinguish from the things that already exist and are generated naturally without the intervention of the human being. Based on this, artificial intelligence generally means the processes that man makes in a machine or computer, the intelligence that comes from man in the first place and then gives it to the machine or to the computer. Artificial intelligence is therefore a science known on the basis of its goal of making machines do things that need intelligence. (Haffiza, A. 2018). In Palestine, the obstacles to the application of artificial intelligence are: High manufacturing costs, lack of adequate infrastructure, human cadres prepared and trained to use artificial intelligence, and facing difficulty with the flexibility of moving to work on complex and intelligent applications. (Sadress, N. 2020)

2.2.Applications of Artificial Intelligence in the Tax Field

The tax field is one of the fertile areas for the use of expert systems in many tax activities, as accounting office’s take a lot of time in interpreting tax rules and instructions to determine their applicability to clients, and therefore simplifying the tax system using artificial intelligence technology will have a significant impact on the amount of time it takes to perform the service, the use of tax expert systems and the knowledge base of tax rules and provisions contribute to helping companies and individuals reduce their tax liability, as will become clear impact on the quality of services provided to the client. (Borthick, A. and Owen, D. 1987). It has been found from the study and analysis of expert systems that they are used in many tax fields such as tax planning, preparation of income tax, tax rules interpretation and instructions, preparation of tax returns and other regulations different tax. By 1990, the US Internal Revenue Service (IRS) had established and used approximately 13 expert systems, and conducted two training programs, one of which is concerned with training managers to evaluate the performance of external expert systems developers they have contracted. The other was concerned with training their

computer engineers and programmers to create their own expert system that, given the extent to which these systems are used in the tax field, the many advantages they will achieve (Ferdi, C. 2020). There are many expert systems used in the tax field, including the expert systems for international tax planning in the oil and gas industry, the value-added tax system, the tax system on shares and investments, as well as tax evasion solutions.

3. Conceptual Framework and Development of Hypothesis

3.1.Conceptual Framework

The researcher wrote the conceptual framework based on primary and secondary sources, and it addressed the obstacles to the application of artificial intelligence represented in human, financial, technical and administrative obstacles, which are the dependent variables, while the application of artificial intelligence was the independent variable (Table 1).

Table 1: Research framework

Dependent variable	**Intervening variables**	**Independent variable**
Human constraints	Scientific qualification	Application of AI
Financial constraints	Specialization	
Technical constraints	Job Title	
Regulatory constraints	**Years of experience**	
	Training courses in AI	

3.2.Hypotheses Development

Based on the design of the questionnaire and previous literature, the following hypotheses were formulated. Awwad's study (2021), titled "The Impact of Organizational Change on the Performance of Workers in Tax Departments in Palestine," aimed to examine the relationship between organizational change and the performance of employees in Palestinian tax departments. The study found a positive correlation between organizational change and the performance of workers in tax departments (Joydeb, 2011). Therefore, we formulate the following hypothesis:

First hypothesis: There are no statistically significant differences at the significance level ($\alpha \geq 0.05$) between the average responses of the study sample members regarding the obstacles to applying artificial intelligence in Palestinian income tax departments due to the educational qualification variable.

Abdulrahman and Tadros' study (2020), titled "Obstacles to the Application of Electronic Management and Future Aspirations for Its Circulation," aimed to identify these obstacles and ways to overcome them. The study's most important finding was that human limitations were the main obstacle in applying electronic tools. Therefore, we formulate the following hypothesis:

Second hypothesis: There are no statistically significant differences at the significance level ($\alpha \geq 0.05$) between the average responses of the study sample members regarding the obstacles to applying artificial intelligence in Palestinian income tax departments due to the job title variable.

Third hypothesis: There are no statistically significant differences at the significance level ($\alpha \geq 0.05$) between the average responses of the study sample members regarding the obstacles to applying artificial intelligence in Palestinian income tax departments due to the specialization variable.

Stephan's study (2020), titled "The AI Economist: Improving Equality and Productivity with AI-Driven Tax Policies," aimed to train social planners to discover tax policies in dynamic economies that effectively balance economic equality and productivity. The study's most significant finding was that tackling real-world socio-economic challenges requires designing and testing economic policies. Therefore, we formulate the following hypothesis:

Fourth hypothesis: There are no statistically significant differences at the significance level ($\alpha \geq 0.05$) between the average responses of the study sample members regarding the obstacles to applying artificial intelligence in Palestinian income tax departments due to the variable years of experience.

4. Study Methodology

4.1.Study Approach

For the purposes of this study, the researcher used the descriptive analytical method.

4.2.Study Community

The community in this study comprises all employees of the income tax departments in Palestine, totaling 115 employees. These include general managers, department managers, department heads, and assessment officers, distributed across the governorates of the West Bank according to the records of the Palestinian tax departments. The questionnaire was distributed to all employees, of which 100 questionnaires were returned. After excluding 4 questionnaires, the final sample size was 96 valid responses for analysis. Table 2 presents the demographic characteristics of the study community.

Table 2 : The demographic characteristics of the study population

Variable	Variable Categories	Number	Percentage
Qualification	Diploma	8	8.3
	Bachelor's	71	74.0
	Master's	17	17.7
	PhD	0	0
	Total	96	100.0
Specialization	Information Technology	4	4.2
	Computer Engineering	6	6.3
	Economics and Management Sciences	58	60.4
	Other	28	29.2
	Total	96	100.0
Job Title	Director general	2	2.1
	Director of the Department	14	14.6
	Head of the Department	36	37.5
	Appreciation officer	44	45.8

	Total	96	100.0
Years of Experience	Less than 5 years	28	29.2
	From 5-10 years	13	13.5
	From 11-15 years	6	6.3
	More than 15 years	49	51.0
	Total	96	100.0
Artificial intelligence training courses	No courses	46	47.9
	From one to two courses	17	17.7
	More than two sessions	33	34.4
	Total	96	100.0

Table 2 shows that the majority of the responses were from the category of bachelor's degree holders, where their percentage reached (74%), and it was found that (60.4%) of them were majoring in economics and administrative sciences, and that the largest percentage of them had a job title as tax officer, as this percentage amounted to (45.8%) The percentage of more than 15 years of experience reached (51%), and it was found that the almost vast majority of them did not attend courses in the field of artificial intelligence, as the percentage of this category was (47.9%) of the total sample of the study. The researcher believes that the reason for this is the lack of interest in the concept of artificial intelligence, or the scarcity of specialists in this field who are qualified to give training courses.

4.3.Study Tool

Through reviewing the theoretical literature and previous local, Arab and foreign studies, a questionnaire was developed to be the main study tool for collecting its data. Its design took into account the Palestinian condition, with the aim of identifying the obstacles to the application of artificial intelligence in the Palestinian income tax departments. Table 3 shows the areas of the questionnaire and the number of paragraphs for each field.

Table 3:Resolution areas and number of paragraphs

Domain	**Axis**	**Number of paragraphs**
1.	Administrative constraints	10
2.	Technical constraints	10
3.	Human constraints	4
4.	Financial constraints	4
5.	Mechanisms to overcome obstacles to the application of artificial intelligence	11
Total Paragraph Tool		39

The answer key to the paragraphs of this section is designed on the basis of the five-dimensional Likert scale, as shown below: Classification Too high (5) High (4) Middle (3) Low (2) Very low (1)

4.4.Tool Stability

The stability of the study tool was confirmed by the use of the Cronbach Alpha equation and table 4 showing the persistence coefficients of the study tool and its fields.

Table 4: Persistence coefficients of axes and areas of resolution and total grade

No. Domain	Axis	Constant parameter
1	Administrative constraints	0.90
2	Technical constraints	0.88
3	Human constraints	0.82
4	Financial constraints	0.93
Total degree		0.95
Mechanisms to overcome obstacles to the application of artificial intelligence		0.96

Table 4 shows that the constant coefficients of the resolution axes were good as they were on the first field. It was on the second field (0.88) and it was on the third field (0.90). The fourth area was 0.82 and the constant factor for the total degree of handicap was 0.93. (0.95) While the persistence of the field of mechanisms for overcoming obstacles to the application of artificial intelligence, all such stability factors are high and meet the purposes of this study, their results can be disseminated with credibility.

4.5.Statistical Processors

The data were statistically processed using the Social Sciences Statistical Packet Program (SPPS), using the following statistical treatments:

- Iterations, percentages, arithmetic averages, and standard deviations to estimate the relative weight of resolution paragraphs.
- One Way ANOVA analysis in testing hypotheses for all variables.
- The Cronbach Alpha equation calculates resolution stability.

5. Results

In order to interpret the results, the following indicators were adopted for the arithmetic averages, as shown in Table 5

Table 1: Key to interpreting arithmetic averages

Arithmetic Average	Description of satisfaction
4.2 and above	Very High
(3.4 _ less than 4.2)	High
(2.6 _ less than 3.4)	Middle
(1.8 _ less than 2.6)	Low
(Less than 1.8)	Very Low

5.1.Obstacles results

The main question: What are the obstacles to the application of artificial intelligence in the Palestinian income tax departments? In order to answer this question, the arithmetic averages and standard deviations of the obstacles to the application of artificial intelligence in the Palestinian income tax departments were extracted in its four fields, which included their responses for sub-paragraphs totaling 29 and includes table No. (5) The results of that are as follows:

Table 6: Obstacles to the application of artificial intelligence

Domain	Arithmetic Average	Standard Deviation	Disabled Grade
Financial Obstacles	4.0469	0.91213	High
Human Obstacles	3.8646	0.84208	High
Technical Obstacles	3.8573	0.71932	High
Administrative Obstacles	3.7219	0.71601	High
Total	3.8427	0.65470	High

Below are the details of the results of the study related to its sub-questions, as it turns out that the degree of obstacles to the application of artificial intelligence in the Palestinian income tax departments in its various fields was generally high and was also high in all fields, and this indicates the existence of a large gap in the application of artificial intelligence in the income tax departments, where the four obstacles were close and their degrees were high.

First sub-question: What is the level of administrative obstacles that prevent the application of artificial intelligence in the Palestinian income tax departments?

To answer this question, the arithmetic averages and standard deviations of the degree of administrative obstacles that prevent the application of artificial intelligence in the Palestinian income tax departments were extracted, and Table 7 shows this.

Table 7:Arithmetic averages and standard deviations of the degree of administrative obstacles

Paragraphs	Arithmetic Average	Standard deviation	Disabled Grade
Existing organizational structures do not comply with the requirements of electronic management.	3.91	0.859	High
Routine at work delays the transition to electronic management.	3.85	1.086	High
Lack of strategic plans for the transition to electronic management.	3.83	1.023	High
The job description in the income tax departments needs to be reviewed and developed in line with the electronic administration.	3.80	0.902	High
Unavailability of plans to convert to the application of electronic management.	3.80	1.032	High
The weakness of the administrative and organizational structure affects the development of electronic administration in the income taxdepartments.	3.76	0.778	High
Central in the work of the income tax departments.	3.67	1.073	High
Lack of clarity in the future vision of the application of electronic management.	3.60	0.946	High
Routine at work prevents the transition to electronic management.	3.55	0.972	High
Administrative procedures do not help the transition to electronic administration in the income tax departments.	3.44	1.003	Middle
Total Degree	3.7219	0.71601	High

It is clear from Table 7 that the level of administrative obstacles that prevent the application of artificial intelligence in the Palestinian income tax departments was high, and the arithmetic averages for them ranged between (3.91-3.44). The facility of administrative obstacles that prevent the application of artificial intelligence in the Palestinian income tax departments came with an arithmetic mean (3.72) and a standard deviation (0.71), and this confirms that the level of administrative obstacles that prevent the application of artificial intelligence in the Palestinian income tax departments was medium, and the results show that the most important administrative obstacles that prevent the application of artificial intelligence in the Palestinian income tax departments were that there is no compatibility in the existing organizational structures with the requirements of electronic management, and that there is a routine at work that delays the transition process towards electronic management., as well as the absence of strategic plans to shift towards electronic management.

Second question: What is the level of technical obstacles that prevent the application of artificial intelligence in the Palestinian income tax departments?

To answer this question, the arithmetic averages and standard deviations were extracted, and Table 8 shows this.

Table 8: Arithmetic averages and standard deviations of the degree of technical obstacles

Paragraphs	**Arithmetic Average**	**Standard deviation**	**Disabled Grade**
Failure to take into account the design of offices and halls equipped in the Palestinian income tax departments to suit electronic management techniques.	4.19	0.786	High
Weakness of the infrastructure necessary for the application of electronic management.	4.18	0.808	High
Poor internet service in the income tax departments.	4.06	0.904	High
Lack of advanced and modern equipment.	4.04	0.917	High
Not enough databases.	3.82	0.973	High
Lack of tracking of development in computer technologies.	3.81	0.966	High
Rapid change in information technology and the difficulty of keeping pace.	3.77	1.090	High
The availability of new software in Arabic that is suitable for the work of the income tax departments.	3.75	1.086	High
Poor maintenance and follow-up of computers.	3.65	1.076	High
Most of the programs available in tax departments are not localized.	3.30	1.415	Middle
Total Degree	3.8573	.719320	High

Table 8 shows that the degree of technical impediments to the application of artificial intelligence in Palestinian income tax services was significant, with computational averages ranging from between. (4.19-3.30) It is notable that the highest paragraph was high and the lowest paragraph was average. This confirms that the degree of technical impediments to the application of artificial intelligence in the Palestinian income tax services has been significant, and shows that the main technical impediments to the application of artificial intelligence in the Palestinian income tax services have been the failure to take into account the design of offices and halls equipped in the Palestinian

income tax services in line with e-management techniques, as well as poor infrastructure for the application of e-governance, poor Internet service in income tax services, lack of sophisticated and up-to-date devices, and inadequate databases.

Third question: What is the degree of human obstacles that prevent the application of artificial intelligence in the Palestinian income tax departments?

To answer this question, the arithmetic averages and standard deviations were extracted, and Table 9 shows this.

Table 9: Arithmetic averages and standard deviations of the degree of human obstacles

No.	Rank	Paragraphs	Arithmetic Average	Standard deviation	Disabled Grade
1.	1	Lack of knowledge of electronic management techniques.	4.04	0.893	High
2.	4	Failure to qualify and train employees to use electronic technologies.	3.90	1.081	High
3.	3	Weakness in the English language among some employees.	3.86	1.032	High
4.	2	The small number of employees specialized in operating and maintaining computers.	3.66	1.141	High
Total Degree			3.86	0.842	High

It is clear from Table 9 that the degree of human obstacles that prevent the application of artificial intelligence in the Palestinian income tax departments was high, as the arithmetic averages on them ranged between (4.04-3.66). The degree of human obstacles that prevent the application of artificial intelligence in the Palestinian income tax departments has come with an arithmetic mean (3.86) and a standard deviation (0.84), and this confirms that the degree of human obstacles that prevent the application of artificial intelligence in the Palestinian income tax departments was high, It was found that the most important human obstacles that prevent the application of artificial intelligence in the Palestinian income tax departments were the lack of knowledge of electronic management techniques, and then the lack of qualification and training of employees to use electronic technologies, and the weakness of the English language among some employees, as well as the small number of employees specialized in operating and maintenance of computers.

Fourth question: What is the level of financial obstacles that prevent the application of artificial intelligence in the Palestinian income tax departments?

In order to answer this question, the arithmetic means and standard deviations were extracted, and the table 10 shows that:

Table 10: Arithmetic averages and standard deviations of the degree of financial obstacles

No.	Rank	Paragraphs	Arithmetic Average	Standard deviation	Disabled Grade
1.	4	Weak budget allocated to modernizing and developing electronic devices and programs.	4.20	0.829	Very High
2.	3	Lack of financial allocations for the purchase and development of software.	4.03	0.945	High

3.	1	Lack of financial capabilities necessary for the application of electronic management.	4.02	1.026	High
4.	2	The rise in the price of electronic software.	3.94	1.159	High
Total Degree			4.046	.9120	High

It is clear from Table 10 that the degree of financial obstacles that prevent the application of artificial intelligence in the Palestinian income tax departments was high, as the arithmetic averages on them ranged between (4.20-3.94). It is noted that the highest paragraph score was very high and the lowest was a large degree. The overall degree of the degree of financial obstacles that prevents the application of artificial intelligence in the Palestinian income tax departments came with an arithmetic mean (4.06) and a standard deviation (0.91) this confirms that the degree of financial obstacles that prevent the application of artificial intelligence in the Palestinian income tax departments was high, and it was found that the most important financial obstacles that prevent the application of artificial intelligence in the Palestinian income tax departments were the weakness of the budget allocated to modernizing and developing electronic devices and programs, and from Then the lack of financial allocations for the purchase and development of software, and the lack of financial capabilities necessary for the application of electronic management.

Fifth questions: What are the most prominent mechanisms through which the obstacles to the application of artificial intelligence in the Palestinian income tax departments can be overcome?

To answer this question, the arithmetic means and standard deviations were extracted, and the table 11 shows that:

Table 11: Arithmetic averages and standard deviations of the most prominent mechanisms through which the obstacles to the application of artificial intelligence

No.	Rank	Paragraphs	Arithmetic Average	Standard deviation	Disabled Grade
1.	11	Keeping up with the purchase of the latest electronic devices and technologies.	4.16	0.838	High
2.	10	Interest in purchasing the latest electronic devices and technologies.	4.06	0.927	High
3.	8	Training employees to use modern and advanced technologies.	4.02	0.973	High
4.	1	Senior management support for the application of electronic management.	4.00	0.883	High
5.	7	Intensify localization efforts for computerized programs and applications.	4.00	0.858	High
6.	9	Provide adequate material support for the application of electronic management.	3.97	0.923	High
7.	2	Increasing awareness of the concept of electronic management and its importance.	3.93	0.885	High

8.	3	Training employees to deal with electronic management applications.	3.91	0.952	High
9.	4	Building a unified information base at the level of income tax departments that is accurate and comprehensive.	3.89	0.869	High
10.	6	Use of information security technologies.	3.86	0.947	High
11.	5	Develop strategic plans for cooperation and coordination between the different departments in the income tax departments.	3.76	0.949	High

Table 11 shows the most prominent mechanisms through which the obstacles to the application of artificial intelligence in the Palestinian income tax departments can be overcome, as they were ranked in descending order. The Palestinian income was as follows:

1. Keeping up with the purchase of the latest electronic devices and technologies.
2. Interest in purchasing the latest electronic devices and technologies.
3. Training employees to use modern and advanced technologies
4. Senior management support for the application of electronic management.
5. Intensify localization efforts for computerized programs and applications.

Fifth question: Are there statistically significant differences between the average responses of the study sample members about the obstacles to applying artificial intelligence in the Palestinian income tax departments due to its variables (educational qualification, specialization, job title, years of experience)?

To answer this question, this question was transformed into hypotheses and were as follows:

5.2.Hypotheses results

First hypothesis: There are no statistically significant differences at the significance level ($\alpha \geq 0.05$) between the average responses of the study sample members towards the obstacles to applying artificial intelligence in the Palestinian income tax departments due to the educational qualification variable. To test the hypothesis, the researcher used One Way ANOVA for the samples, and the results were as shown in the following two tables 12 and 13:

Table 12: Arithmetic averages due to the educational qualification variable

Domains	**Variable**	**Number**	**Arithmetic Average**	**Standard Deviation**
Administrative Obstacles	Diploma	8	4.4250	0.41662
	Bachelor's	71	3.6493	0.68845
	Master's	17	3.6941	0.78936
	PhD	96	3.7219	0.71601
	Total Summation	8	4.4000	0.32950
Technical Obstacles	Diploma	71	3.8197	0.71547
	Bachelor's	17	3.7588	0.78824
	Master's	96	3.8573	0.71932

	PhD	8	3.3750	0.95431
	Total Summation	71	3.9014	0.72393
Human Obstacles	Diploma	17	3.9412	1.17769
	Bachelor's	96	3.8646	0.84208
	Master's	8	4.1250	1.32961
	PhD	71	4.1338	0.75691
	Total Summation	17	3.6471	1.20565
Financial Obstacles	Diploma	96	4.0469	0.91213
	Bachelor's	8	4.2500	0.33318
	Master's	71	3.8193	0.61415
	PhD	17	3.7485	0.86686
	Total Summation	96	3.8427	0.65470
Total marks	Diploma	8	4.4250	0.41662
	Bachelor's	71	3.6493	0.68845
	Master's	17	3.6941	0.78936
	PhD	96	3.7219	0.71601
	Total Summation	8	4.4000	0.32950

It is evident from Table 12 that there are differences in the arithmetic averages of the categories of educational qualification levels, where the highest arithmetic averages were in favor of the diploma and the lowest for the bachelor's, to verify whether the differences in the arithmetic averages have reached the level of statistical significance, the researcher used the One Way ANOVA, and Table 13 illustrates this.

Table 13: One-Way ANOVA due to the educational qualification variable

Domain	**Contrast Source**	**Total Squares**	**Degrees of Freedom**	**Average squares**	**Value (F)**	**Signal Level**
Administrative Obstacles	Squares between Categories	4.342	2	2.171	4.551	0.013
	Inner Squares	44.362	93	.477		
	Total Summation	48.704	95			
Technical Obstacles	Squares between Categories	2.621	2	1.311	2.619	0.078
	Inner Squares	46.534	93	.500		
	Total Summation	49.155	95			
Human Obstacles	Squares between Categories	2.114	2	1.057	0.506	0.227
	Inner Squares	65.251	93	.702		
	Total Summation	67.365	95			
Financial Obstacles	Squares between Categories	3.303	2	1.651	2.028	0.137
	Inner Squares	75.736	93	.814		
	Total Summation	79.039	95			
Total marks	Squares between Categories	1.517	2	.758	1.799	0.171
	Inner Squares	39.203	93	.422		
	Total Summation	40.720	95			

*Statistically significant at the significance level ($0.05 \geq \alpha$)

Table 13 shows that there are no statistically significant differences at the significance level ($\alpha \geq 0.05$) between the average responses of the study sample members towards the obstacles to applying artificial intelligence in the Palestinian income tax departments. The domains are higher than the value specified in the hypothesis, and the value of the significance level of the total score is (0.17) and this value is higher than the value specified in the hypothesis, and for this reason, the hypothesis related to the educational qualification variable was not rejected.

Second hypothesis: There are no statistically significant differences at the significance level ($\alpha \geq 0.05$) between the average responses of the study sample members towards the obstacles to applying artificial intelligence in Palestinian income tax departments due to the job title variable.

To test this hypothesis, the researcher used a one-way analysis of variance (ANOVA) for the samples, and the results were as shown in the following two tables (14, 15):

Table 14: Arithmetic averages due to the job title variable

Domains	Variable	Number	Arithmetic Average	Standard Deviation
Administrative Obstacles	Director general	2	3.9000	.00000
	Director of theDepartment	14	3.9714	.54692
	Head of the Department	36	3.6917	.86400
	Appreciation Officer	44	3.6591	.63879
	Total Summation	96	3.7219	.71601
Technical Obstacles	Director general	2	4.0000	.00000
	Director of the Department	14	3.9857	.48016
	Head of the Department	36	3.8361	.83603
	Appreciation Officer	44	3.8273	.70492
	Total Summation	96	3.8573	.71932
Human Obstacles	Director general	2	4.0000	.00000
	Director of the Department	14	4.3929	.47752
	Head of the Department	36	3.8472	1.01994
	Appreciation Officer	44	3.7045	.72991
	Total Summation	96	3.8646	.84208
Financial Obstacles	Director general	2	2.0000	.00000
	Director of the Department	14	3.7857	1.10007
	Head of the Department	36	4.2083	.93063
	Appreciation Officer	44	4.0909	.72555
	Total Summation	96	4.0469	.91213
Total marks	Director general	2	3.7241	.00000
	Director of the Department	14	4.0099	.57374
	Head of the Department	36	3.8429	.81407
	Appreciation Officer	44	3.7947	.54400
	Total Summation	96	3.8427	.65470

It is clear from table 14 that tere are differences in the arithmeti averages of the functional name level categories, wit the highest and lowest arithmetic averages for the Director of the Service and the Director-General. In order to ascertain whether the differences in the arithmetic averages reached the level of statistical connotation, the researcher used the One-Way ANOVA analysis, and table 15 shows this.

Table 15: One-Way ANOVA analysis due to the so-called functional variable

Domain	Contrast Source	Total Squares	Degrees of Freedom	Average squares	Value (F)	Signal Level
Administrative Obstacles	Squares between Categories	1.142	3	.381	.736	.533
	Inner Squares	47.562	92	.517		
	Total Summation	48.704	95			
Technical Obstacles	Squares between Categories	.327	3	.109	.206	.892
	Inner Squares	48.827	92	.531		
	Total Summation	49.155	95			
Human Obstacles	Squares between Categories	5.081	3	1.694	2.2	.064
	Inner Squares	62.283	92	.677		
	Total Summation	67.365	95			
Financial Obstacles	Squares between Categories	10.358	3	3.453	4.625	.005
	Inner Squares	68.681	92	.747		
	Total Summation	79.039	95			
Total marks	Squares between Categories	.521	3	.174	.397	.755
	Inner Squares	40.199	92	.437		
	Total Summation	40.720	95			

*Statistically significant at the significance level (0.05≥α)

Table 15 shows that there are statistically significant differences at the significance level (α≥ 0.05) between the average responses of the study sample members towards the obstacles to applying artificial intelligence in the Palestinian income tax departments due to the job title variable. The significance level for all domains is higher than the value specified in the hypothesis, and the value of the significance level for the total degree is (0.75) and this value is less than the value specified in the hypothesis and for this reason the hypothesis related to the job title variable was not accepted.

Third hypothesis: There are no statistically significant differences at the level of significance (α≥ 0.05) between the average responses of the study sample members to the obstacles to applying artificial intelligence in the Palestinian income tax departments due to the specialization variable.

To test this hypothesis, the researcher used the One-Way ANOVA for the samples, and the results were as shown in the following two tables (16, 17):

Table 16: Arithmetic averages due to the variable of specialization

Domains	Variable	Number	Arithmetic Average	Standard Deviation
Administrative Obstacles	Information Technology	4	4.6000	.00000
	Computer Engineering	6	4.2000	.61968
	economics and management sciences	58	3.8276	.70631
	Other	28	3.2750	.53238

	Total Summation	96	3.7219	.71601
Technical Obstacles	Information Technology	4	4.5000	.00000
	Computer Engineering	6	3.8000	.92952
	economics and management sciences	58	3.8931	.79336
	Other	28	3.7036	.49252
	Total Summation	96	3.8573	.71932
Human Obstacles	Information Technology	4	5.0000	.00000
	Computer Engineering	6	3.8333	.90370
	economics and management sciences	58	3.8578	.94371
	Other	28	3.7232	.50157
	Total Summation	96	3.8646	.84208
Financial Obstacles	Information Technology	4	5.0000	.00000
	Computer Engineering	6	4.1667	.64550
	economics and management sciences	58	4.1724	.93448
	Other	28	3.6250	.80651
	Total Summation	96	4.0469	.91213
Total marks	Information Technology	4	4.6897	.00000
	Computer Engineering	6	4.0115	.76569
	economics and management sciences	58	3.9156	.68422
	Other	28	3.5345	.43441
	Total Summation	96	3.8427	.65470

It is clear from Table 16 that there are differences in the arithmetic averages of the categories of levels of specialization, where the highest arithmetic averages were in favor of information technology, and the lowest for others. Way ANOVA), and Table 17 illustrates this.

Table 17: One-Way ANOVA due to the job title variable

Domain	**Contrast Source**	**Total Squares**	**Degrees of Freedom**	**Average squares**	**Value (F)**	**Signal Level**
Administrative Obstacles	Squares between Categories	10.696	3	3.565	8.630	.000
	Inner Squares	38.008	92	.413		
	Total Summation	48.704	95			
Technical Obstacles	Squares between Categories	2.408	3	.803	1.580	.200
	Inner Squares	46.747	92	.508		
	Total Summation	49.155	95			

Human Obstacles	Squares between Categories	5.725	3	1.908	2.848	.042
	Inner Squares	61.640	92	.670		
	Total Summation	67.365	95			
Financial Obstacles	Squares between Categories	9.617	3	3.206	4.248	.007
	Inner Squares	69.422	92	.755		
	Total Summatin	79.039	95			
Total marks	Squares between Categories	6.008	3	2.003	5.308	.002
	Inner Squares	34.712	92	.377		
	Total Summation	40.70	95			

*Statistically significant at the significance level (0.05 ≥α)

Table 17 shows that there are statistically significant differences at the significance level (α≥ 0.05) between the average responses of the study sample members towards the obstacles to applying artificial intelligence in the Palestinian income tax departments due to the job title variable. The significance level for all domains and the total degree is greater than the value specified in the hypothesis, and the value of the significance level for the total degree is (0.002) and this value is less than the value specified in the hypothesis and for this reason the hypothesis related to the job variable was not rejected.

Fourth hypothesis: There are no statistically significant differences at the level of significance (α≥ 0.05) between the average responses of the study sample members towards the obstacles to applying artificial intelligence in the Palestinian income tax departments due to the variable years of experience.

To test the hypothesis, the researcher used One Way ANOVA for the samples, and the results were as shown in the following two tables (18, 19):

Table 18: Arithmetic averages due to the variable years of experience

Domains	**Variable**	**Number**	**Arithmetic Average**	**Standard Deviation**
Administrative Obstacles	Less than 5 years	28	3.4071	.60549
	From 5-10 years	13	3.6615	.23288
	From 11-15 years	6	4.1333	.72296
	More than 15 years	49	3.8673	.79932
	Total Summation	96	3.7219	.71601
Technical Obstacles	Less than 5 years	28	3.5929	.75959
	From 5-10 years	13	3.8538	.45573
	From 11-15 years	6	4.2000	.46476
	More than 15 years	49	3.9673	.74649
	Total Summation	96	3.8573	.71932
Human Obstacles	Less than 5 years	28	3.6607	.51467
	From 5-10 years	13	3.9423	.76481
	From 11-15 years	6	4.7500	.38730
	More than 15 years	49	3.8520	.98414

	Total Summation	96	3.8646	.84208
Financial Obstacles	Less than 5 years	28	3.6786	.84123
	From 5-10 years	13	4.7692	.36029
	From 11-15 years	6	4.5833	.64550
	More than 15 years	49	4.0000	.95607
	Total Summation	96	4.0469	.91213
Total marks	Less than 5 years	28	3.5616	.53196
	From 5-10 years	13	3.9416	.32298
	From 11-15 years	6	4.3218	.56982
	More than 15 years	49	3.9184	.73889
	Total Summation	96	3.8427	.65470

It is clear from Table 18 that there are differences in the arithmetic averages for the categories of years of experience, where the highest arithmetic averages were in favor of 11-15 years and the lowest for less than 5 levels. To verify whether the differences in the arithmetic averages have reached the level of statistical significance, the researcher used One Way ANOVA, and Table 19 illustrates this.

Table 19: One-Way ANOVA due to the variable years of experience

Domain	**Contrast Source**	**Total Squares**	**Degrees of Freedom**	**Average squares**	**Value (F)**	**Signal Level**
Administrative Obstacles	Squares between Categories	4.874	3	1.625	3.410	.021
	Inner Squares	43.830	92	.476		
	Total Summation	48.704	95			
Technical Obstacles	Squares between Categories	3.256	3	1.085	2.176	.096
	Inner Squares	45.899	92	.499		
	Total Summation	49.155	95			
Human Obstacles	Squares between Categories	5.954	3	1.985	2.973	.036
	Inner Squares	61.411	92	.668		
	Total Summation	67.365	95			
Financial Obstacles	Squares between Categories	12.416	3	4.139	5.715	.001
	Inner Squares	66.623	92	.724		
	Total Summation	79.039	95			

Total marks	Squares between Categories	3.998	3	1.333	3.339	.023
	Inner Squares	36.722	92	.399		
	Total Summation	40.720	95			

*Statistically significant at the significance level (0.05 ≥)

Table 19 shows that there are statistically significant differences at the significance level (α≥ 0.05) between the average responses of the study sample members towards the obstacles to applying artificial intelligence in the Palestinian income tax departments due to the variable years of experience, where the value of The significance level for all fields and the total degree is less than the value specified in the hypothesis, and the value of the significance level for the total degree was (0.02) and this value is less than the value specified in the hypothesis and for this reason the hypothesis related to the years of experience variable was rejected.

6.Results and Recommendations

6.1. Results

In light of the statistical analysis, the following results were reached:

1. The organizational structures applied in the Palestinian income tax departments do not comply with the requirements of electronic administration.
2. The Palestinian income tax departments are still suffering from red tape at work.
3. The lack of space for the offices of Palestinian income tax employees and the weakness of the infrastructure necessary for the transition to the application of electronic administration.
4. Insufficient knowledge of Palestinian income tax officials in electronic administration applications.
5. Lack of interest in and not keeping pace with the purchase of modern equipment and electronic management techniques.
6. Using a computer program with limited capabilities

6.2.Recommendations

In light of the results that have been reached, the researcher recommends the following:

1. The need to restructure the Palestinian income tax departments in line with technical developments and workload.
2. Develop strategic plans to move towards the application of artificial intelligence away from routine at work.
3. The necessity for preparing infrastructure for advanced programming uses, with the availability of spaces and offices that facilitate this.
4. Holding specialized courses in the field of artificial intelligence.
5. Allocating sufficient funds to purchase modern devices and technologies that help in the application of electronic management.

6. The necessity of keeping pace with the development in computerized programs and modern technologies.
7. Removing the human, technical, financial and organizational restrictions from the Palestinian income tax departments

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