

The Role of Digitization and Artificial Intelligence in Developing the Tax System in Algeria

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The **abstract** This study addresses the role of digitization in developing the tax system in Algeria. Its importance lies in the tax sector's role in generating public revenues and the significance of digitization in reducing costs and eliminating bureaucracy. The main goal is to examine the role of digitization and artificial intelligence in developing the tax system. The deductive approach was followed. The study found that the success of electronic administration in the tax system depends on taxpayers' information awareness. Despite the reforms and positive results that have led to significant improvements, the tax administration still faces many challenges. The rapid development of global finance, economy, and transcontinental technologies requires comprehensive reform of the fiscal system. Addressing these challenges can be achieved through digitization and artificial intelligence in tax administration. Artificial intelligence serves as a key driver for digitization, improving tax collection, and offering digital tax services that enhance efficiency and transparency.

Mots clés:

Mot clé.1: numérisation

Mot clé.2: système fiscal

Mot clé.3: collecte des impôts

Mot clé.4: services fiscaux numériques

Mot clé.5: l'intelligence artificielle

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Le **résumé** Cette étude examine le rôle de la numérisation dans le développement du système fiscal en Algérie. Elle met en évidence l'importance du secteur fiscal pour générer des recettes publiques et la numérisation pour réduire les coûts et éliminer la bureaucratie. L'objectif est d'analyser l'impact de la numérisation et de l'intelligence artificielle. L'approche déductive a été adoptée. Les résultats révèlent que le succès de l'administration électronique dépend de la sensibilisation des contribuables. Malgré les réformes et progrès réalisés, l'administration fiscale rencontre des défis majeurs. Le développement rapide des technologies et de la finance exige une réforme du système fiscal. La numérisation et l'intelligence artificielle sont des leviers pour relever ces défis, améliorer la collecte des impôts et offrir des services fiscaux numériques, renforçant l'efficacité et la transparence.

1- The introduction:

The world is facing a range of significant and diverse challenges, marked by rapid advancements in technology and science. These developments have driven governments to transition from traditional management methods to modern approaches to achieve their objectives more efficiently and effectively. Among these changes, digital transformation stands out for its substantial impact on various aspects of life and its influence on the operations and performance of administrations, particularly tax administration.

Taxes are among the most vital tools of macroeconomic policy, and the digitization of the tax system plays a pivotal role in expanding the tax base, combating tax evasion, and improving overall tax efficiency. Keeping pace with global advancements in digitization, Algeria has worked to modernize its public administrations, including its tax administration. This effort includes the implementation of tax information systems to digitize the Algerian tax system, notably through the adoption of the "Jibaytik" system, aimed at simplifying tax declaration and collection processes, with the possibility of using artificial intelligence as a mechanism to activate the digitization of tax administration. In light of this, the following central question arises:

What is the role of digitization and artificial intelligence in developing the tax system in Algeria?

1-1. Objectives of the Study

The main objective of this research is to explore the role of digitization and artificial intelligence in developing the tax system in Algeria. From this primary objective, the following secondary objectives emerge:

- Defining the concepts of the tax system and digitization.
- Clarifying the relationship between the tax system and digitization.
- Highlighting the impact of implementing digitization and artificial intelligence on the Algerian tax system.

1-2. Methodology of Research

To answer the main question and achieve the study's objectives, the deductive method was employed, using both descriptive and analytical tools.

1-3. Axes of the Study

The research was divided into three main axes:

First: Definition of the Tax System and Digitization.

Second: The relationship between the tax system and digitization.

Third: The impact of digitization and artificial intelligence on the tax system in Algeria.

2- Tax System and Digitization:

Through this section, we will address various concepts related to the tax system and digitization.

2-1. Tax System:

2-1-1. Definition of the Tax System:

Several definitions of the tax system have been provided, and some of them are as follows:

- The tax system can be described as a collection of taxes levied by the state on taxpayers during a specific period. It encompasses the legal and technical rules governing taxation, as well as the ideological, economic, and administrative factors that interact with one another (Al-Khursan, 2002).
- A number of economic issues that represent the wishes of the state and the goals of the authorities are seen to be mediated by the tax system. Thus, it is a set of guidelines that govern the tax community, which comprises the tax administration and taxpayers. It stands for the total amount of taxes that are actually levied inside the economy (Al-Majid, 2003).

Therefore, a broad and varied collection of taxes levied by the government to accomplish a number of objectives within a specified time period can be used to provide a thorough characterization of the tax system.

2-1-2. Characteristics of the Tax System

The following characteristics can be extracted:

- **A tax is a monetary deduction:** this means that the taxpayer pays it to the state in cash, unlike the previous system where taxes were collected in kind. In the past, individuals were required to give a portion of their agricultural output or work for a few days for the state. However, the in-kind tax system was deemed unfair because it taxed total production without taking into account the costs and efforts of the taxpayer.
- **A tax is imposed without compensation:** historically, taxes were seen as a contribution paid by taxpayers to the state in exchange for protection of their lives and property. However, modern financial thinking views taxes as a form of social solidarity, meaning they are imposed on all individuals regardless of the direct benefits they receive from the state's role in economic and social activities.

- **A tax is imposed by the state:** taxes are levied on everyone who is financially able to pay, based on their financial capacity. Taxation is a way of distributing public burdens among individuals according to their ability to contribute.
- A tax is an obligatory duty: this means that individuals do not have the freedom to choose whether or not to pay the tax, nor to decide its amount, how it is paid, or when it is due. They are compelled to pay it, which distinguishes taxes from other types of financial revenues.

The foundations of the tax system:

A tax system is built on an integrated set of taxes, carefully selected to align with the state's objectives of achieving economic and social well-being. The key elements for building an efficient and effective tax system include (Mustafa, 2022):

- **Tax policy:** This policy is a component of fiscal policy, which is a key tool of economic policy. It consists of a series of programs developed by the state, utilizing both its actual and potential tax resources, to produce favorable economic, social, and political outcomes, while minimizing any undesirable effects. The ultimate aim is to achieve the social, economic, and political objectives of society.
- **Tax administration:** This body is in charge of putting tax laws into effect and making sure they are applied correctly to safeguard the interests of taxpayers and the state. It also suggests tax laws and adjustments to increase the effectiveness of the tax system. Therefore, a sound tax environment that enhances the efficiency of the tax system is created in large part by the tax administration.

2-2. Digitization:

2-2-1. Definition of Digitization:

- Digitization is the process of converting information from its traditional format into a digital one. The goal of this process is to ensure broader access to information for extended periods and to make it available to a wider audience globally (Nasira, December 2021).

- The process by which businesses move from a traditional business model to one that uses digital technologies to develop management and marketing strategies, as well as products and services, is known as digitization. It also entails establishing a digital strategy to generate new cash streams. Only by evaluating digital capabilities, examining the need for digital investment, taking into account digital marketing initiatives, and having managerial support for digital transformation can this shift take place (Lakhdar, 2022).

According to the aforementioned, the digitalization of the tax system is the process of replacing paper-based transactions with an electronic information system that completes all tax-related duties and functions consecutively and in real-time in order to accomplish all the intended goals.

2-2-2. Characteristics of Digitization:

Digitization contributes to achieving the following characteristics (Batat, 2021):

- **Preservation:** Digital media are less prone to damage and deterioration compared to paper-based media, which are exposed to a range of risks.
- **Storage:** The digital conversion process provides greater storage capacity, as a single compact disc can store thousands of pages.
- **Sharing (Participation):** Digitization allows multiple individuals to view the same documents simultaneously through the internet.
- **Speed of retrieval and ease of use:** Rapid retrieval times are a hallmark of digital systems. Documents and office supplies that have been converted to digital format can be recovered in a matter of seconds as opposed to hours or minutes.
- **Ease of delivery:** Information is provided to the recipient without human intervention, and there is financial gain through the sale of digital products, whether on storage media or made available online, with the goal of covering costs and ensuring the continuity of operations.

2-2-3. Advantages of Digitization:

If businesses want to stay up to date with technology changes, they must implement digital transformation plans. Initiatives for digital transformation have the following benefits ("Talal Abu-Ghazaleh for Knowledge Media, 2024):

- **Improving productivity :**

Cloud services and other emerging technologies can increase productivity and save time in a variety of corporate activities. For instance, personnel can concentrate on jobs requiring creativity and problem-solving skills when digital technologies like artificial intelligence are used. In a similar vein, using machine learning to analyze data might yield fresh perspectives that speed up the accomplishment of corporate objectives.

- **Improve customer experience:**

In the post-pandemic period, customers expect continuous service availability across multiple channels. They also desire user-friendly websites and communication systems that are compatible with mobile devices. Here are some digital transformations that have a direct impact on customer experience:

- Developing mobile applications and workflows;
- Adopting smart sensing technology to track and fulfill orders faster;
- Using artificial intelligence to interact with customers in real time;
- Enhancing customer support and service through automation.

- **Reducing operational costs :**

Ongoing operating expenses can be considerably decreased by investing in digital technology. Additionally, it can lower expenses and enhance existing workflows in the following ways:

- Equipment maintenance.
- Logistics and delivery services.
- Energy expenses.
- Human resources costs.
- Customer support expenses.

3- The Relationship between the Tax System and Digitization:

Through this section, we will attempt to understand the stages of implementing digitization in tax collection, explore the various benefits the

tax system will gain, and deduce the relationship between the tax system and digitization.

3-1. Reasons for Digitizing Tax Administrations:

The most important motives that led to the digitization of tax administrations are in the following points (Khlouaz, 2021):

- The growing volume of tax collection-related complaints has caused mistrust and a lack of openness, which has ultimately damaged the tax system's reputation.
- Determining an individual's income and assets has become more challenging due to the incomplete coordination of information and interactions across several departments.
- The lack of precise tax data for the tax base, which is caused by a reluctance to pay taxes because of the debilitating bureaucracy, necessitates the eradication of all manipulation and inefficiencies.
- Lack of transparency and realism in dealings related to the factory and importer's permit.

3-2. Stages of the Tax Collection Digitization System:

The transition to electronic tax collection involves several essential stages, including the planning and preparation phase for project execution, the design and development of the documentation for the tax collection digitization system, and the testing, implementation, and quality assessment phase of the electronic tax collection system, as detailed below (El-Faran, 2021):

- Planning and Preparation Stage for Tax Collection Digitization:

The planning and preparation phase for digitizing tax collection is a key stage in the entire electronic tax collection system, as it plays a significant role in determining the success of the transformation. This phase focuses on developing strategic plans and national goals for digitizing tax collection, redesigning the procedures for all stages of the tax collection process, identifying the essential components for the transition, and outlining the changes needed in the regulatory and institutional frameworks that support this shift.

- Designing and Building Documents for the Tax Collection Digitization System:

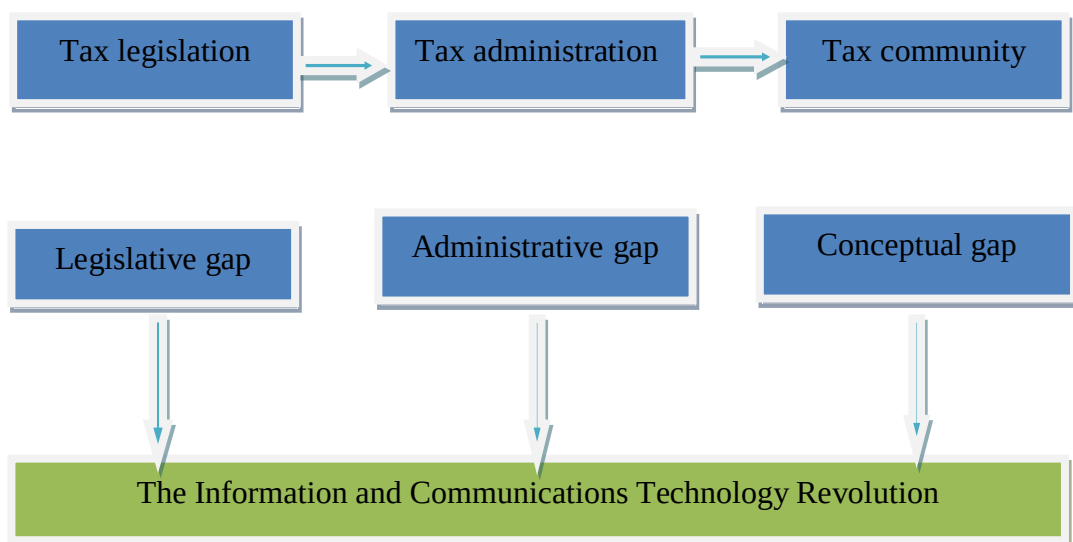
The process of creating and developing documents and a system for digitizing tax collection focuses on identifying the differences between

electronic and traditional tax collection systems. It also involves putting electronic tax collection digitization projects into action by choosing suitable applications, testing them, and analyzing their performance levels.

- Testing, Operating and Quality Testing Phase of the Electronic Tax Collection System:

The integrity and integration of electronic tax collection systems with other relevant national systems—most notably, those for taxpayer registration, customs, and electronic payments—are the main objectives of this phase. It also performs quality assurance checks and guarantees that support services and routine maintenance are available for these systems. In order to guarantee taxpayers' favorable interaction with these services, this phase also places a strong emphasis on increasing taxpayer knowledge of them.

Figure No 1, The relationship between the structure of the tax system and digital applications



Source: Cabinet Information and Decision Support Center, Egypt

3-3. The Benefits of the Tax System from Utilizing Digitization:

The increase in 'digitization' and the development of new analytical tools have led to a significant rise in the efficiency and effectiveness of management for various segments of taxpayers, whether larger or smaller. These benefits can be represented in the following diagram:

Figure No 2, The importance of digital transformation for tax collection



Source: Prepared by researchers based on the Information and Decision Support Center of the Cabinet, Egypt.

From the diagram, we observe that using digitization allows the tax system to achieve several benefits, which can be outlined as follows:

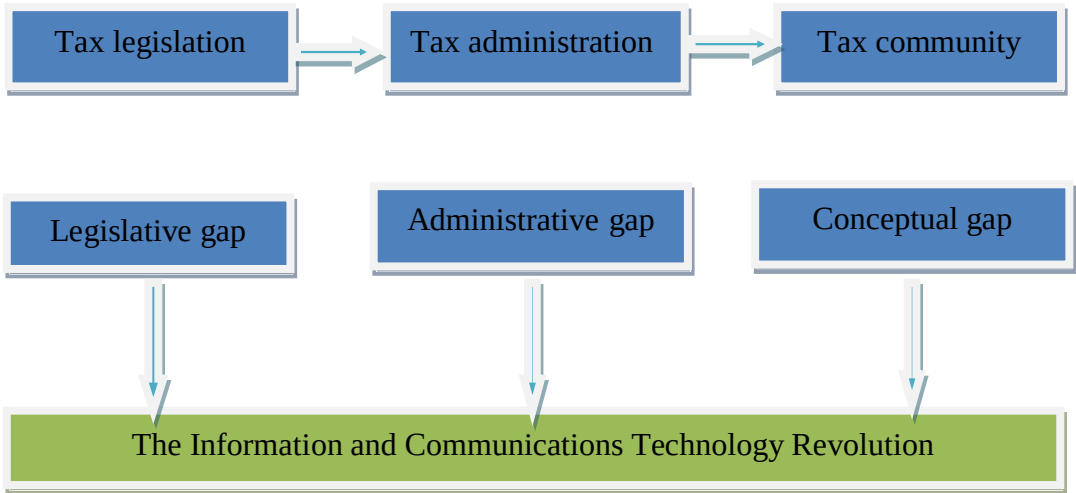
- Incorporating a greater degree of verified reporting through third parties, such as integrating information into administrative processes from financial intermediaries, other parts of the government, other taxpayers, and other tax administrations.
- Adopting more reliable reporting systems, such as digitizing VAT invoices, online cash registers, and building core tax databases within accounting software.
- Improved risk assessment modeling uses vast amounts of digital data and sophisticated analytics approaches to detect any non-compliance.
- Enhancements to taxpayer services through online self-service tools, electronic filing and payments, and focused support like live online chats.

Facilitating the relationship between the administration and its users is the goal of digitization. One of these steps to streamline operations at the General Directorate of Taxes is the removal of the physical component of tax procedures. The simplification of procedures, which subtly include making the administration's terminology easier to understand, reflects this link. On the other side, taxpayers may find it difficult to understand technical words used in tax determinations. The General Directorate of Taxes has shifted to choosing forms that enable information to be rewritten

more clearly by a group specifically tasked with this effort in order to simplify the language in administrative forms. To make access to these papers easier, a financial dictionary is also posted on the portal and on the homepage of the General Directorate of Taxes' website (Kouadri, 2022).

The relationship between the tax system and digital applications can be represented in the following figure:

Figure No 3, The relationship between the structure of the tax system and digital applications



Source: Cabinet Information and Decision Support Center, Egypt

4- The Impact of Digitization and Artificial Intelligence on the Tax System in Algeria

Through this section, we will discuss the most important reforms that have affected the Algerian tax system in Algeria in order to implement digitization, the digital technologies used in the Algerian tax system, as well as the importance of artificial intelligence as a driver of digitization in tax administration and the challenges of its implementation

4-1. Reforms of the Algerian Tax System for the Use of Digitization

The tax administration has initiated fundamental reforms aimed at transitioning from traditional management methods to electronic management. The steps taken to achieve an electronic administration, in particular, are as follows (Ouchan, 2017):

- The extensive use of remote internet connectivity among tax administration services to improve coordination and collaboration between them and make it easier for each service to obtain the information it needs based on its area of expertise.
- The creation of a website for the General Directorate of Taxes, serving as an information portal for tax-related publications

- Tax declarations, laws, journals, etc., and to interact with internet users and convey their concerns
- The use of social media platforms and the creation of pages on platforms like Twitter and Facebook to publish updates and respond to taxpayers' concerns through these channels.
- The creation of a new electronic portal titled 'I Create My Enterprise,' which provides all the necessary facilitation, laws, regulations, and guidance for establishing a business.
- Adoption of a new technology to obtain a tax identification number within 48 hours by submitting a request through the designated electronic portal. This facilitates the taxpayer's ability to quickly obtain this number via the website or through email.

4-2. Digital Technologies used in the Algerian Tax System

The integration of modern information and communication technologies within the tax administration is a crucial phase in continuing the modernization program. Some of these programs include the following :

- **Tax Information System SAP :**

With an emphasis on defining the information technology solution and managing the information developments related to the operational needs of the General Directorate of Taxes, it is a system composed of multiple integrated modules that typically satisfy the requirements of the specific tasks of the tax administration. The following results are anticipated from this system, which has been programmed using its own computer systems (for taxes, www.mfdgi.gov.dz):

- ✓ Reducing the volume of tasks performed by staff members.
- ✓ Eliminating the physical nature of all tax operations, starting from taxpayer reception, establishing tax bases, collection, and managing the tax file
- ✓ Allowing all staff members access to the information system through controlled authorizations
- ✓ Enabling the rapid exchange of data-related information between departments and with other institutional entities through the development of multiple interfaces.
- ✓ Providing concise and credible data for conducting forward-looking studies, analysis, and decision-making.
- ✓ Better control of tax resources.
- ✓ Combatting the informal and illegal economy.
- ✓ Fighting all forms of fraud, regardless of their type.
- ✓ Facilitating the process for taxpayers to access their tax accounts through monitored access certificates.

- **Tax Information System "Jibaya'tic":**

On April 4, 2017, the Directorate of Taxes 'Alger East' officially launched a pilot application, with plans to expand it to all tax structures by the beginning of 2020. Its advantages are as follows (General Directorate of Taxes, 2017/85, p.07):

- **Regarding management:**

- ✓ Complete automation of all administrative procedures, starting from taxpayer reception to establishing the tax base, collection, and managing the tax file
- ✓ Rapid exchange of information between departments and with various institutional entities through the development of multiple interfaces.
- ✓ Digitization of tax management processes
- ✓ Automation of accounting operations, treasury operations, distribution of the professional activity tax, and the actual calculation of the principal amount for declarations and taxpayer identification
- ✓ Digitization of notifications directed to taxpayers, with investigators being given the ability to perform a comparison between the incoming information after the creation of the forms
- ✓ Timely access to statistical tables that would allow for the evaluation of the performance of departments based on tax categories and business sectors
- ✓ Providing reliable summary data for foresight and analytical studies, as well as decision-making
- ✓ Reducing the costs associated with requests for tax forms.

- **Regarding taxpayers:**

- ✓ Conducting operations from the office with the General Directorate of Taxes and avoiding travel for submitting tax declarations.
- ✓ Accessing the tax administration 24/7 throughout the week.
- ✓ Providing taxpayers with updated information on their tax calendar and obligations.
- ✓ Accessing and reviewing submitted tax forms.
- ✓ Paying taxes and fees online.
- ✓ Viewing the total tax debt.
- ✓ Requesting tax certificates.
- ✓ Submitting appeals: regional, central, conditional reductions, and others.
- ✓ Requesting tax exemptions.
- ✓

➤ **General privileges:**

- ✓ Providing the General Directorate of Taxes with support in the field of information technology to complete its tasks and achieve its objectives.
- ✓ Ensuring data protection by utilizing appropriate communication technologies.
- ✓ Providing user-friendly applications that allow users to perform their responsibilities with the required efficiency and effectiveness.
- ✓ Ensuring the availability of accurate data for all authorized users.
- ✓ Putting in place a plan to keep staff as knowledgeable as possible about contemporary information and communication technologies in accordance with their duties.
- ✓ Simplifying procedures, especially those applied by taxpayers.
- ✓ Seeking to improve performance through continuous auditing of the systems in place.

• **Creating a Website for the Tax Administration:**

The building of a website for the tax administration has been facilitated by the advancement of information and communication technology as well as the tax administration's link to computers and the internet. Tax rules, financial laws, practical taxpayer guides, tax texts, circulars, and other instructions are all available to taxpayers on this website. By establishing an interactive online environment, the tax administration hopes to fulfill taxpayers' expectations and concerns while also disseminating tax information.

• **Online Tax Registration:**

Beginning on May 8, 2016, economic operators can use the General Directorate of Taxes' dedicated website to complete the process of obtaining a Tax Identification Number (NIF) online. The following URL will take you to this service: <https://nifenligne.mfdgi.gov.dz>. In this regard, the Tax Directorate has promoted the use of this streamlined and user-friendly platform by economic operators, enabling a more dynamic process for completing their tax registration requirements. You can submit the request by completing an online NIF application. The taxpayer can then start downloading their certificate from the website and sending it to the appropriate tax authorities for signature. After this certificate has been signed, it can be used for all transactions with the appropriate organizations (banking, customs, taxes, and commerce).

• **The Official Launch of the Digital Platform "Tabiakom":**

While maintaining the security of transactions and data privacy, the digital platform "Tabiakom" seeks to streamline and expedite processes, remove the inconvenience of travel, and lessen the load on businesses and citizens. First, it enables citizens to use payment cards like the Gold Card and Interbank Payment

Card (CIB) to pay stamp duties associated with passports, national identity cards, and biometric driver's licenses that are issued domestically. The following link will allow citizens to access the services provided by this new platform: <https://tabioucom.mf.gov.dz>. Other administrative documents such as foreign passports, travel visas, commercial registries, transport contracts, temporary residency permits, and consular certifications will soon be included to the service. The Ministry of Finance, the Ministry of Interior, Local Governments, and Urban Planning, the Ministry of Post and Telecommunications, the Automated Payment Group (GIE Monétique), the Automated Payment and Interbank Transactions Company (SATIM), and the Digital Development Support Institution (EADN) have all worked tirelessly to provide this service, which is offered by the General Directorate of Taxes (General Directorate of Taxes, 2024).

- **Create a Call Center:**

A nationwide call center is being planned to answer all citizen-requested tax-related questions in addition to the toll-free number 1025. This program seeks to significantly enhance public-tax administration communication by offering taxpayers easily accessible and effective assistance.

4-3. Artificial Intelligence (AI) as a Driver of Digital Transformation in Tax Administration

The ability of robots to mimic human cognitive functions like learning, reasoning, and problem-solving is the most basic definition of artificial intelligence (Magdy, 2020). AI can be used to carry out a variety of intricate activities in the context of tax administration, improving the accuracy and efficiency of tax-related procedures.

An excellent chance to make tax administration a more effective and transparent system is presented by artificial intelligence. However, in order to overcome obstacles and collaborate to create a more equitable and transparent tax management future, accomplishing this goal calls for the combined efforts of the government and pertinent institutions, investments in technology and infrastructure, employee training, and cybersecurity strengthening (Nahab, Second Semester, 2024):

- **Improving data accuracy:** Artificial intelligence can detect errors and inconsistencies in tax data, which increases the accuracy of tax calculations.
- **Personalizing tax services:** AI can customize tax services to meet the specific needs of each taxpayer.
- **Increasing efficiency and transparency:** AI-powered systems are able to produce comprehensive tax procedure reports. Furthermore, AI technologies promote efficiency and transparency in tax administration by automating numerous repetitive operations, enhancing data accuracy, and lowering human error.

- **Tax evasion detection:** Detecting and combating tax evasion by analyzing large amounts of data and identifying suspicious patterns in tax data, helping in the fight against tax evasion.
- **Improving the taxpayer experience:** This is demonstrated by giving individualized tax services, streamlining processes, cutting down on the time and effort needed to resolve tax issues, as well as by providing user-friendly interfaces and prompt assistance.
- **Assessing tax risks faced by businesses and individuals,** helping the tax administration prioritize its actions.
- **Creating new job opportunities:** Despite concerns about replacing human jobs with machines, artificial intelligence may create new job opportunities in various fields.

To improve its efficiency and transparency in this regard, the General Directorate of Taxes plans to keep digitizing its services and implementing cutting-edge technology like artificial intelligence. This will be accomplished by introducing a new artificial intelligence service in the form of a "chatbot," which is scheduled for the first half of 2025, as a first step in the information and communication space.

Despite the numerous benefits offered by artificial intelligence, there are several challenges that the tax administration must consider and overcome in its pursuit of digital transformation, including:

- The price of funding the creation of AI-supporting solutions, since creating sophisticated security systems and AI calls for large infrastructure and technological expenditures that may be prohibitive.
- **Employee training:** Digital transformation requires retraining employees on the new skills needed for the digital work environment.
- **Cybersecurity:** One of the biggest obstacles to the tax administration's digital transformation is cybersecurity, which guards against breaches of tax data. This necessitates taking all required precautions to protect tax data from online threats. Data privacy and the possibility of leaks are at danger since AI models are trained using enormous volumes of user-provided data in order to enhance performance and continuously grow capabilities. Employees must thus receive cybersecurity training in order to identify and prevent technological risks.
- **Legislative regulation:** It is necessary to keep a close eye on technological developments and establish a clear legal framework to regulate the use of modern digital technologies in tax administration, guaranteeing fairness and transparency in decision-making, given the gap between the development of these technologies and the laws and regulations governing them.

5- Conclusion:

After studying the topic of our research, which is the digitization in the development of the tax system in Algeria, the following results were concluded:

- Taxes are mandatory contributions levied by the government without any kind of reimbursement, therefore the taxpayer is forced to pay them as required by law. It is also regarded as one of the most significant sources of government funding.
- The need to accept new approaches and tactics made possible by the digital revolution and contemporary technologies in place of more conventional ones in the educational process.
- Digitization aims to simplify the relationships between the tax administration and its users.
- By automating services, cutting down on travel time, eliminating lines, and enhancing workflow transparency, modernizing the tax system facilitates communication between taxpayers and the tax administration while also saving time and effort.
- The success of e-government in the tax system is based on the information awareness of the taxpayers.
- The tax administration still faces many challenges and inadequacies, even with the reforms it has experienced and the improvements it has made, which have resulted in a qualitative improvement over the past. It faces many difficulties, particularly in light of the quick and amazing growth of the financial and economic sectors as well as the cross-border modern technologies whose scope keeps growing. To address the difficulties of the present era, this calls for taking into account a thorough and well considered overhaul of the entire tax system.
- The General Directorate of Taxes intends to continue digitizing its services and adopting modern technologies such as artificial intelligence in order to enhance its efficiency and transparency.

Based on the previous results, we make the following recommendations:

- The necessity of establishing infrastructure to enable the application of digitalization in the tax administration.
- The necessity of proper training for employees to adapt to digital transformation.
- There is a need to extend digitization across all financial and judicial sectors to improve the efficiency of the tax system by streamlining tax collection processes and facilitating dispute resolution in a cost-effective and timely manner.

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