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THE APPLICATION OF ARTIFICIAL INTELLIGENCE IN TAXATION IN MEXICO

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Abstract: The objective of this work is to make taxpayers who have a micro and small business in the city of Ocotlán, Jalisco aware of the new way of working of the tax authorities. The population consisted of 50 companies mentioned above, of which only 30 agreed to answer the questionnaire, The type of study was qualitative, a questionnaire of 15 questions was applied and to obtain the results we used the SPSS system and it is concluded that most of the owners of the companies do not have the knowledge of how the tax authority uses artificial intelligence to support and control the operations of the companies in question.

Keywords: 1.- Artificial intelligence 2.- Digital tools 3.

INTRODUCTION

Nowadays technology has advanced exponentially and as an example we have Artificial Intelligence (AI), together with different technologies such as robotics, data in the cloud, the use of the internet, all this is making changes in economies, industries and leading to the transformation of disciplines.

By OCD (2023), artificial intelligence is revolutionizing the way we live and work, and offers extraordinary advantages to our societies and economies. However, it also poses new challenges and raises uncertainty and ethical concerns.

Carrasco I, 2017 tells us that tax law is the set of legal rules that are responsible for regulating contributions in their various manifestations.(p. 4).

The present research has to do with the use of artificial intelligence in the tax authority's auditing systems.

PROBLEM STATEMENT

The present analysis is based on a qualitative study, with respect to the new way of working of the tax authorities aided by artificial intelligence in the auditing of the information presented by taxpayers, so it must be taken into account how to carry out the operations within the company to anticipate any controversy with the tax authority.

Artificial intelligence has been studied by several scholars of the subject among them we have those belonging to the Ministries of Education of Cuba and the Dominican Republic, the University of Computer Science, the Computer Club supported by UNESCO, have published four books for the web, which are called Development and challenges of artificial intelligence, Artificial Intelligence as a computer science, What studies Artificial Intelligence and Applications of Artificial Intelligence, have developed courses for teachers. There are also studies on how the Ministry of Finance and Public Credit makes use of this tool for tax collection, among them we have Margarita Palomino Guerrero (2022), who published Artificial Intelligence: a mechanism to curb tax evasion without violating the rights of taxpayers.

Tirado (2020) comments that robotics is a system capable of performing tasks at the service of human beings that capture information from the environment, analyzing it and obtaining a response from that analysis (p. 46). There are virtual assistants and chat-bots that, in their page of the SAT, also the accountants' associations have carried out studies about this phenomenon that affects all the activities that have to be carried out before the SAT.

Fernando Serrano Antón, (2021), wrote about Artificial Intelligence and tax administration, about administrative efficiency and taxpayers' defense,

Once studied the previous authors, this study aims to make taxpayers aware of the new way of working of the tax authorities, because micro and small companies lack the knowledge of how the authority analyzes the operations that companies perform in their day to day, with the help of artificial intelligence in the audit of their taxes.

DELIMITATION OF THE RESEARCH PROBLEM

The sample is made up of 50 micro and small companies in the city of Ocotlán, Jalisco. Of which the instrument was applied to 30 micro and small enterprises, which agreed to answer our data collection instrument.

METHODOLOGY

Ramírez (2023) mentions that qualitative methodology is: inductive, since it explores, describes, analyzes, understands and generates theoretical explanation approaches; it is flexible, it is adaptable to the research, where conceptual theoretical bases are built that arise from those data obtained from the direct relationship between the research subject and the researcher. It was aided by the application of a questionnaire with questions referring to artificial intelligence and the contributions that the tax authorities require from us, they were structured using the Likert scale, and Cronbach's Alpha which was applied to 30 micro and small companies, which supported us to measure the variables and object of study, which will allow us to demonstrate the validity and reliability of the research.

DEVELOPMENT

For the Organization for Economic Cooperation and Development (OECD), artificial intelligence is revolutionizing the way we live and work, and offers extraordinary advantages to our societies and economies. However, it also poses new challenges and raises un-

certainty and ethical concerns. It is therefore incumbent on governments to ensure that the design of AI systems respects our values and laws, so that people can be confident that their security and privacy will be a priority consideration.

The following is the opinion of several authors on Artificial Intelligence and oversight. Rafael O. (2021), comments that the objective of artificial intelligence is to develop techniques that allow computers to learn (machine learning), i.e. that their performance improves with experience. Algorithms are used to convert data samples into computer programs that allow generalizing behaviors and inferences for a set of data. This type of algorithmic programming uses black box models or other associated concepts, such as Deep Learning or ensemble Learning. What should be understood as black box is complex programming in conjunction with models that are not so easy to decipher, even for the algorithm developer. It is also necessary to know what big data is, this refers not only to the enormous volume of data accumulated in the daily internet traffic, together with information and communication technologies such as speed, constant updating and variety of data.

Delgado G and Oliver C., (2017 pp 101-124) Comment that the information that the tax administration currently obtains comes from the immediate information supply (SII), with which the authority knows how many invoices are issued, how many are received, what is held in investment goods and with this in the tax administration systems are configured and can make cross-references of information.

García B, (2020), refers that the use of big data and artificial intelligence have to do with taxpayer assistance. Nowadays, all the procedures are done virtually (p 303).

Academics Stuart and Peter, (2020 p 2), classify artificial intelligence into four types:

Systems that think like humans: these systems try to emulate human thinking by automating activities that we link to human thought processes, i.e. decision making and learning. An example of this would be artificial neural networks.

Systems that act like humans: These systems try to act like humans; that is, they mimic human behavior, by studying how to get computers to perform tasks that humans do today. An example would be robotics.

Systems that think rationally: By means of logic, they try to imitate the rational thinking of human beings; for example, expert systems.

Systems that act rationally: They try to rationally emulate human behavior; it is related to intelligent behaviors in artifacts. For example, intelligent agents.

Tax administrations have incorporated digital technology into their activities in order to improve efficiency in their internal processes and those vis-à-vis taxpayers. Technology creates opportunities and offers solutions to reduce administrative burdens, facilitate collaboration between tax authorities and combat tax evasion (European Commission, 2018).

Among the most significant advances that technology has enabled for tax administrations to meet are objectives, it is possible to name the following:

Improvements in the websites of tax administrations, providing different services 24/7 remotely.

Obligation for individuals to register as taxpayers through the Internet.

Obligation to file tax returns online.

Obligation to issue tax documents, such as invoices or bills, in electronic format.

Obligation to keep digital accounting and tax books.

Development of applications for smart phones that allow various procedures to be carried out.

Electronic files of taxpayers.

According to Osando from (Seco and Zambrano, 2020, p 33), Disruptive technologies are innovations that come to replace a process, a product or a technology that is already established, originating a new form of operation, either for consumers, organizations or for both. disruptive technologies such as artificial intelligence have a fundamental role, since they not only facilitate data collection, but also allow tax administrations to stop investing in traditional data crossing techniques to invest in more advanced tools.

After analyzing several authors, we will talk about the Secretariat of Tax Administration (SAT), to audit the payment of taxes, it makes use of macro data or big data, and is aided by artificial intelligence (AI), it uses a subset of artificial intelligence called Machine Learning, which allows collecting a large volume of data, specifically from electronic invoices to formulate statistics, trends and expectations related to auditing.

Since 2017 it has invested in buying technology and installing it in its equipment (facturador.com, 2022). The Ministry of Finance and Public Credit (SHCP) no longer works with third parties because it invests in technologies, automation and strengthen itself with robots and artificial intelligence.

The Ministry of Finance and Public Credit (SAT) in its page are the movements that a taxpayer can perform and that serve for the SAT to carry out the audit, are mentioned in the part below.

- a) Electronic invoicing of both income and expenses (CFDI).
- b) Keeping accounting records and sending them electronically
- c) CFDI for payment of salaries
- d) Use the tax mailbox
- e) Electronic reviews for individuals

- f) Informative declarations that are filed electronically on a monthly or annual basis.
- g) Banks have the obligation to inform about the movements that the taxpayer makes in these institutions.
- h) In order to open a bank account, it is necessary to have the taxpayer's federal registry (RFC).
- i) To have an electronic signature (FIEL).

We can then say that the tax authority has technological platforms that provide them with sufficient information to be able to audit the taxpayer, since all of the above is presented through electronic means and at any time the tax authority knows if the taxpayer is complying with his tax obligations.

When the tax authority has all the information and decides to perform an audit, we must first know what are the types of acts of the tax authority, it is divided into two types: Verification (inspection, verification, determination or liquidation) and the other is Management (Assistance, control or surveillance).

Article 42 of the Federal Tax Code (CFF), talks about the acts of the tax authority have the purpose of inspecting, verifying, determining or liquidating the referred obligations.

RESULTS

A questionnaire containing 15 questions on a Likert scale was applied and its validity was obtained through the application of the CRONBACH ALPHA, obtaining the following results:

As can be seen, the most outstanding questions and those that give the highest reliability were the ones shown in the table above. Which leads us to demonstrate that most of the people who own a business have heard of artificial intelligence, but they do not really interact with the digital tools that the SAT uses to

inspect their operations within the company, they have specialized personnel such as the accountant, of the 30 companies surveyed 20 of them have technology within their facilities and all invoices and CFD are made and their statements are presented and the other 10 are assisted by accounting firms that offer this service, The 20 companies that do have technology have personnel who are prepared to work with the SAT tools and comply with the company's obligations, but they do not know how the authorities' way of auditing the companies is structured; they comply with what the accountant tells them that they must present and how they must carry out each operation and what they must take into consideration to be able to correctly carry out the activities within the company.

CONCLUSIONS

In these times we are living in a world full of technological advances, by the tax authorities as the use of artificial intelligence and which have created different technologies such as machine learning, the use of logarithms, hardware, software and data storage, big data, the internet, the use of the cloud, robotics, etc., All of this has allowed information systems to be perfected and the tax administration secretariat has taken advantage of these advances and has invested in technology to be at the forefront in obtaining information on the movements that taxpayers carry out day by day, this allows the tax authority to detect more quickly the non-compliance in tax matters by the user who performs tax operations, it also allows the tax authority to prevent fraud and evasion.

Summary of case processing			
Cases		N	%
	Valid	30	100.0
	Excluded	0	.0
	Total	30	100.0

a. Elimination by list is based on all variables in the procedure.

Reliability statistics	
Cronbach's alpha	N of items
.810	8

Source:SPSS

Item total statistics				
	Scale mean if item has been suppressed	Scale variance if item is suppressed	Corrected total item correlation	Cronbach's alpha if the item has been deleted
Question 3	25.4333	19.426	.212	.830
Question 4	25.8667	18.464	.363	.810
Question 7	25.9000	19.541	.118	.855
Question 10	23.0667	15.926	.845	.746
Question12	23.0667	15.926	.845	.746
Question13	23.2000	16.234	.662	.768
Question14	23.2333	15.426	.655	.767
Question15	23.2000	16.028	.737	.757

Source: SPSS

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