

Artificial Intelligence, Tax Law and (Intelligent?) Tax Administration

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ABSTRACT Artificial intelligence has entered our lives to change paradigms, create new methods for agents to act and allow the evolution of human interests. Its application by the tax administration is also an inevitability, allowing a better administration, a closer relationship with the taxpayer and a better management of the tax system. But the strong palpitations and the existing heterogeneity of application are issues that cannot fail to be analysed.

1. Introduction

The intersection of artificial intelligence with common, everyday life is today an undeniable reality. Think about the simple purchase of a piece of clothing on the internet, the consultation of news that we do on our smartphone, or the mere playback of music. Through the collection of personal data and the digital footprint left by these (and other acts) artificial intelligence and the mass processing of personal data can create an accurate profile about our tastes, lifestyles, and our own daily lives.

Man's ancestral yearning for perfection and his desire to control everything around him is today a truth that is not insignificant, and the application of artificial intelligence in the various relationships established by man is irrefutable proof of this desire. The search for perfection has led man to adopt systems of mechanisation of his own acts, namely through the automation of processes and procedures. Through the artificial replication of man's manual capacity, technological systems can perform the acts, conduct and actions included in each procedure, following mathematical and syllogistic models programmed sequentially in a computer programme, replacing the human function. But this "intelligence" goes further and can be classified as true "thinking machines", which are attributed the ability to imitate human thought, its cognitive reasoning and learning new formulas that can later be used to solve new problems.

However, the sectoral integration of systems capable of automating procedures and imitating human thinking has been varied. The

e-commerce and economic sectors have been priority areas in the application of these systems. But we cannot fail to mention that their importance is also growing in Public Administration itself. A good administration, close to the citizens and providing a good public service, is a requirement of contemporary States. Through the application of automated and artificially "intelligent" systems, it will be possible to achieve maximum efficiency and effectiveness, as well as savings in the costs inherent to administrative management. The administrative modernization cannot but be a constant, but we cannot fail to mention that its field of action does not bring something new. Therefore, artificial intelligence can (and should) be used to support the administration in the fulfilment of its tasks.

2. Terminological clarifications on artificial intelligence

A serious study of the theme involves concepts, qualifications, categories, and types that go far beyond the purposes of this paper.

Considering that artificial intelligence assumes different stages, classifications, or intensities, we can (and should) make a brief contextualization that allows us, in accordance with the degree and capacity of autonomous problem solving and its autonomy in relation to man, to delimit the concepts of artificial intelligence, from analogous and close concepts, but which are often used indistinctively.

In this sense, we can find an artificial intelligence of variable intensity, that is, whose classification can be made by

* Article submitted to double-blind peer review.

consideration of its ability to imitate man.¹ Thus, we can find a strict, strong artificial intelligence or superintelligence (*schwacher und starker Künstlicher Intelligenz*). According to this contextualisation, a strict artificial intelligence focuses on solving concrete application problems based on purely mathematical methods, replicating what is previously ordered by man. On the contrary, the strongest expression of artificial intelligence is supposedly configured with the ability to imitate man and his deductive and cognitive power.² If the latter is overcome, the result is a superintelligence, capable of surpassing the human being itself.

The classification into narrow artificial intelligence, strong artificial intelligence and artificial superintelligence has the same concrete objective, but distinguishable in one of administrative applicability. In narrow artificial intelligence, systems are developed for specific problems, whose solution usually requires a certain scope and a certain form of intelligence. A characteristic example is the verification of tax declarations, or mechanical application of previously programmed acts, whose contours do not show much discretionary or evaluative capacity. Intelligence artificial *strong and artificial superintelligence* pursue, in turn, the goal of building a system that has an intelligence comparable or superior to that of a human being.

This leads us to state that artificial intelligence, when applied to Law, is here understood as the non-human (machinal) aptitude to generate a probabilistic meaning to which certain legal effects are imputed. Therefore, when we speak of artificial intelligence applied to Tax Law, we speak, essentially, of a non-human aptitude, capable of foreseeing and anticipating conducts, of performing acts in a mechanized manner and to which legal-tax effects are attributed, constituting, or modifying the taxpayers' legal sphere. It is from this applicability and

interference in the legal sphere of the subjects that the Law will have to give shelter to the acts and conducts practiced by artificial intelligence. The intervention of Law will be necessary and unmistakably imperative when the acts of thinking machines interfere with the legally protected rights and interests of subjects.

However, we cannot fail to delimit concepts that are similar but cannot be confused. In systematic terms, the German doctrine³ has been proliferating in this study, so we have drawn on his studies to refer to the following conceptual delimitations and terminological clarifications:

- "Artificial intelligence" (*Künstliche Intelligenz*): refers to the attempt to reproduce understanding and learning through an artefact, focusing mainly on thought and action, and aiming at a rational ideal or a replication of human capabilities.
- The "artificial intelligence technology" (*Künstliche Intelligenz Technologie*): refers to individual functions that can be implemented in computers to achieve certain goals, using artificial intelligence techniques (e.g. machine learning).
- The "artificial intelligence system" (*Künstliche Intelligenz System*): means a structured and contextualised combination of various artificial intelligence technologies, with the aim of achieving conclusions and results like those achieved by humans, but in a mechanised way.
- "Artificial intelligence decisions" (*Künstliche Intelligenz Entscheidungen*): are conclusions of artificial intelligence systems with real-world implications that depend on human decisions at the system design level, the strategic level (deciding how to use the system) and the tactical level (shaping the interaction with the person using the system).

Considering that the function of Law is not to regulate concepts, nor to refer to terminological notions, it is up to the academia and experts in the field to provide the necessary contribution for us to accurately understand the varied technological realities that are employed by society. Not understanding this would lead us into dangerous fields that we cannot avoid, falling

¹ In this sense, see the distinctions between "weak" (schwache KI, artificial narrow intelligence), "strong" (starke KI, artificial general intelligence), or "super strong" (Superintelligenz, artificial superintelligence) artificial intelligence. A. Bleckat, *Anwendbarkeit der Datenschutzgrundverordnung auf künstliche Intelligenz*, in *Datenschutz und Datensicherheit*, vol. 44, No. 3, 2020, 195.

² C. Würschinger, *Künstliche Intelligenz – Zwischen Wunsch und Wirklichkeit*, in *Wirtschaftsinformatik & Management*, 2020, 86.

³ C. Schmidt, *The Future Use of Artificial Intelligence in the German Tax Administration - Decision Support in the Context of Hybrid Case Processing*, in *EasyChair Preprint*, No. 7644, 2022, 4.

into a terminological redundancy that leads us in a conceptually erroneous direction.

3. Artificial intelligence, tax procedure and procedural automation

Focusing our speech on the integration of artificial intelligence in the scope of the tax procedure and process, it is assumed, first, that this analysis must include a clear notion of what we should understand by “tax procedure”. Only when this concept is assumed, can we make an analysis of the integration of artificial intelligence in it.

Using the teachings of Joaquim Freitas Da Rocha,⁴ the classic tax procedure is based on a set of acts, from distinct legal-tax actors, relatively autonomous and sequentially organized, directed to the production of a certain result, of which they are instrumental. By way of this notion, we refer that these volitional statements issued by administrative bodies with legitimacy for such, may be left to artificial intelligence systems, so that they may perform these tasks, according to mathematical and programmatic models delimited in the algorithm used by the computer system.⁵

It is understandable that this same procedure cannot escape the impulses of a post-modern society. The impulses of a society based on information and communication technologies - reaching futuristic contours - brings with it the need to reformulate the support used in the procedures

carried out by the tax administration, making them dematerialized and automated. Considering only the actions of the tax administration, it is enough to think, for instance, of notifications or summonses being served electronically, obliging some taxpayers to have an electronic domicile; of the automatic offsetting of tax credits and debits regarding a certain taxpayer; of the submission of electronic declarations, previously filled in and semiautomatic; of the commencement and processing of a tax enforcement procedure; of the electronic attachment order of pecuniary amounts to banks; or even of the electronic auction in the sale phase of a tax enforcement procedure. In all these cases, the physical materiality of the acts performed is waived, preferably emanating in the form of digitalised acts, and the biological will be directly waived, giving precedence to the practice of automatic acts.^{6,7}

However, and considering the terminological universe previously assumed, it cannot be said that the application of artificial intelligence in the context of tax management is achieved in a uniform way. This understanding leads us to differentiate artificial intelligence applied to tax management in two different ways: (i) procedural automation; (ii) artificially intelligent action of the administration; and (iii) artificially intelligent performance of the administration.⁸

⁴ J.M. Freitas Da Rocha, *Lições de Procedimento e Processo Tributário*, IV ed., Coimbra, Coimbra Editora, 2011, 83.

⁵ “The algorithm, in general terms, can be defined as a process, a sequence of operations that allow to solve a problem in a finite number of steps, in compliance with two requirements: i) each step of the sequence must already predefine the next step and ii) the result to which the sequence tends to must be concrete, real, useful”. A. Coiante, *The Automation of the Decision-making Process of the Public Administration in the Light of the Recent Opinion by the Italian Council of State Regarding the Draft of Regulations Concerning the Modalities of Digitalization in the Public Tender Procedures*, in *European Review of Digital Administration & Law*, vol. 2, No. 1, 2021, 239; L.M. Pica, *El uso de la Inteligencia Artificial por parte de las Administraciones Tributarias: ¿Una Necesidad o una Utopía?*, in F. Serrano Antón (ed.), *Inteligencia Artificial y Administración Tributaria: Eficiencia Administrativa y Defensa de los Derechos de los Contribuyentes*, Navarra, Thomson Reuters, 2021, 532; G. Avanzini, *Decisioni amministrative e algoritmi informatici. Predeterminazione, analisi predittiva e nuove forme di intelligibilità*, Naples, Editoriale Scientifica, 2019, 5.

⁶ It should be noted that, in all these cases, this artificially intelligent system does not have a natural or resultant will, but merely follows a predetermined sequence and externalizes a result, denoting an automated will without the possibility of choice, in view of the data inserted and the sequencing of previous actions. It is still possible to reconstitute the entire procedure and in it a human will can be glimpsed, albeit somewhat receded and accompanied by automatisms which, without transcending it, replace it operationally. Hence affirming that the purely biological will is dispensed with, but in an apparent way, since human action ends up being effectively materialized through the programming of the algorithm used by the artificial intelligence system. V. Pereira Da Silva states that “[é] o comportamento humano que condiciona e determina as operações automatizadas, pelo que, em última análise, a responsabilidade pelas decisões processadas por intermédio de computador é de imputar a indivíduos, e não a uma qualquer máquina”. V. Pereira Da Silva, *Em busca do Ato Administrativo Perdido*, Coimbra, Almedina, 1998, 483 ss.

⁷ J. López Camps, A. Gadea Carrera, *Una nueva Administración pública. Estrategias y métodos para mejorar la calidad y la eficiencia del e-Gobierno*, in *Instituto Vasco de Administración Pública*, 2001, 23.

⁸ C. Schmidt, *The Future Use of Artificial Intelligence in the German Tax Administration - Decision Support in*

When we talk about a (i) procedural automation, we cannot fail to mention the notion of classic procedure that underlies the understanding of the doctrine. The notion of procedural automation cannot but be based on this premise, consisting of the practice of a set of acts, sequentially organised and previously programmed by man and materialised in a computer algorithm, which will be used by a computerised system that, because of the input data, will determine the practice of a tax administrative act. Inevitably, the following are essential requirements for procedural automation: the existence of an algorithm which informatically materialises the legal-procedural rules; a computer system which will apply the algorithm, collecting and reading personal input data; finally, in accordance with the input data and the sequence predetermined in the algorithm, the acts will be performed in a fully automated manner and with little human intervention.⁹ We essentially speak of a strict or inappropriate artificial intelligence because the technologies are not so innovative, and their use is criticised. The automation of decisions is suggested as a preferable term.

On the contrary, the (ii) performance of an artificially intelligent administration develops through the integration of artificially intelligent systems, which will replace the human capacity of the agents and employees who integrate the administration and will lead to a purely mechanical activity of the administrative procedural activity. We speak, thus, of the replacement of the human capacity of the administration by a mechanical capacity capable of replacing man and his activity in the tax procedure.¹⁰

The tax administration cannot neglect its task of collecting tax revenue and cannot be held hostage to the dogmatic ties that underlie the classic performance of administrations. It is unquestionable that new techniques, new

tools, and new horizons are needed to respond to the needs of a globalised and open society. The public administration itself (and inherently the tax administration) is not immune to the evolution of new social demands. Therefore, the procedural automation, the integration of intelligent systems and the modification of the relationships established between the administration and the subjects must be rethought. It is up to the tax administration to know how to use them and how to make the best use of them. It will be by using machines capable of emulating human cognitive processing that it will be possible to achieve new ratios of efficiency and increased results to meet the constitutional requirements to which the State itself is bound.

4. Artificial intelligence in tax management

Trying to locate the concrete applicability of artificial intelligence with reference to the considerations above, it is easy to see that an artificially “intelligent” tax procedure is one that seeks to support its decision-making acts in automatic schemes and support the activity of agents and officials who make up the administration. The conception of an activity supported by intelligent systems allows its integration according to a double dimension: i) a purely external dimension, in which the activities performed by intelligent support systems are visible to taxpayers; ii) an internal dimension, through which, the acts performed and the internal and routine activities - which are the core of the tax administration’s activity - are not so visible to taxpayers.

On the other hand, the possibility of collecting and processing personal data and information at an incredibly fast pace ends up allowing a supervision and control over taxpayers’ acts, also allowing the creation of risk patterns (profiles) that lead to conclusions, for a future action of the administration.¹¹

Let us look at each of them in detail.

the Context of Hybrid Case Processing, 4.

⁹ We cannot fail to mention that in order to carry out these acts, the following must be achieved beforehand: the programming of the system through the pre-sequencing of legally foreseen stages, which translates into what the legal doctrine calls the “computerisation of legal rules”; the insertion of data and input information; and the access of legally qualified individuals, through registration and authentication, all taking place in a network, in a mechanical and automatic environment.

¹⁰ L.M. Pica, *El uso de la Inteligencia Artificial por parte de las Administraciones Tributarias: ¿Una Necesidad o una Utopía?*, 532.

¹¹ L.M. Pica, *The new challenges of artificial intelligence, profiling and bigdata analysis by tax administrations: will the right to meet these new challenges be shown?*, in *Top 10 Challenges of Big Data*, Nova Editora, 87; L. Scarcella, *Tax compliance and privacy rights in profiling and automated decision making*, in *Internet Policy Review*, vol. 8, No. 4, 2019, 1; S. Stefanelli, *Diritto e Intelligenza artificiale. Alcune riflessioni nell’ambito del paradigma argomentativo*, in *Informatica e diritto*, vol.VIII, No. 1, 1999.

4.1. The applicability of artificial intelligence in front-office and back-office activities

The discursive anchoring should now be directed to the concrete application of artificial intelligence in tax management. In this sense, we cannot fail to mention that the activity of artificial intelligence requires a huge amount of information, which is essential for the full operation of an artificially intelligent administration. We are talking about a large volume of personal data of (and about) taxpayers, without which the use of artificial intelligence systems (either strictly or super strong) is inoperable and without functional content that allows compliance with the requested requirements.

Public administration in general - and financial administration in particular - has such personal data, through various sources. Due to the large amount of data that is collected annually through the procedures of mass collection of personal data, together with the typically established and largely standardized and structured processes in the various legal systems, this administrative area is predestined for the use of artificial intelligence.¹²

However, a useful differentiation could lead us to its application in (i) socially external activities (front-office) and (ii) socially internal activities (back-office).¹³ Within both, we can find as primary activities of use of artificial intelligence, the application of intelligent systems through decision support measures and/or through instruments aimed at the automation of the procedure itself and administrative decision-making:

1) When we talk about socially external

activities (front-office), we refer to the fact that artificial intelligence systems can serve as support in receiving and supporting taxpayers. In other words, the focus is on contact with taxpayers and, the greater the guidance given by artificial intelligence in supporting taxpayers' questions and doubts, the stronger will be the access to good administration and the achievement of this desideratum, since taxpayers will be easily corresponded to their needs and expectations.¹⁴ We are talking, therefore, about a digital access in which the thinking machine is conceived, predominantly, as a source of information and support for taxpayers. The use of artificial intelligence by the administration thus opens completely new possibilities for taxpayers' contact with the administration to be simple and uncomplicated, uncomplicating relations and earning taxpayers the most pleasant attention possible.

2) On the contrary, the use of artificial intelligence for socially internal sectors (back-office), appears as a more reserved measure and of application to support and back up the agents and officials of the administration. The application of intelligent systems by the tax administration seeks support and massive collection of personal data, as well as support for internal processes. It is one of the most important uses by the tax administration, as internal processes are becoming more and more important as administrative structures, economic relations and relations between society become more complex.

In both situations presented, the use of artificial intelligence in the context of tax management, the support processes do not generate the creation of value, but they allow and/or promote that the procedures are profitable, according to a greater criterion of efficiency.¹⁵ Considering that the

¹² Such personal data may be collected through several modalities. We may refer to the classic collection of personal data, namely through the information procedures available to the administration and enshrined by the legislator since the beginning of the so-called "privatisation" of the tax management system (e.g. tax inspection procedures, declarations of taxpayers and third parties, etc.); but, we may also refer to the innovative models of tax information collection, namely through social network profiles and the creation of profiles and cataloguing of activities or third parties.); but we can also mention the innovative models for collecting tax information, particularly through social network profiles, the creation of profiles and cataloguing of risk activities or subjects, or even through the widespread automatic exchange of information between states, with the collaboration of taxpayers and third parties.

¹³ C. Schmidt, *The Future Use of Artificial Intelligence in the German Tax Administration - Decision Support in the Context of Hybrid Case Processing*, 6.

¹⁴ European Commission, *Plano Coordenado para a Inteligência Artificial*, Com (2018), 795 final, Brussels, 7 December 2018, 21, available at <https://eur-lex.europa.eu/legal-content/PT/TXT/?uri=COM:2018:795:FIN>.

¹⁵ "La transformación digital se entiende como la integración de nuevas tecnologías en las entidades para cambiar su forma de funcionar. Es claro que el trasfondo de este concepto corresponde a acciones que llevan a optimizar procesos en el que se requieren menos recursos para lograr excelentes resultados. También en mejorar la productividad donde buscamos

administration's resources are limited, the aim is to make the most of them, to make the most of them.

Therefore, it is of great interest to simplify procedures, namely through their automation. The objective of using artificial intelligence is, therefore, to relieve human resources from assistance activities and administration support processes. The aim is for support procedures to be carried out by machines, as they achieve a more prolific result and, as a counterpart, a better result in available human capacities, as they are reallocated to sectors or activities where they can perform suitable and less tedious and bureaucratic tasks.

Furthermore, the procedural decisions that derive from an analysis by mechanical systems can be classified as more effective, more objective, and less susceptible to being syndicated based on subjectivism or human error. The evaluation of the data and information that are framed by the corresponding tax legislation is more efficient and effective if done by intelligent systems. First and foremost, we are talking about the fact that man can be assisted in making the

corresponding decision, with the machine in this situation "advising" on the correct decision-making according to the data and information provided (e.g. providing recommendations on the course of the procedure and on any (discretionary) room for manoeuvre that can be directly taken into account in the decision-making process).

In a more utopian perspective, the agents and officials legally entitled to take the corresponding decisions, as well as the agents and officials in charge of the instruction of the tax procedure/proceedings, may be completely replaced using artificial intelligence. During full automation, the human being is completely removed from the decision-making procedure/process and binding decisions are taken autonomously by entities endowed with artificial intelligence. Human resources are thus freed from monotonous work (perceived as irritating and tedious), leaving these tasks exclusively to machines and converting the procedure into a machinelike automated procedure.

4.2. Extraction of personal data from receipts, tax returns and public databases

A significant measure in favour of the digitalisation of the taxation procedure is the recent conversion of the obligation to file documents and declarations - which are part of the tax legal relationship through accessory obligations - into a fully digital and dematerialised form. We are talking about the duty to file income tax returns, to file VAT returns, to issue invoices or to communicate relevant legal facts that are carried out through digital portals and in a totally dematerialised way.

This opens a set of possibilities and potentialities that cannot be negligible to the administration. The possibility for taxpayers to transmit information digitally (for example, scanned documents or electronic invoices) to the tax authorities allows the massive collection and processing of a huge amount of information. On the other hand, easily collected information is collected and stored in large databases, through easily manipulated media and can be easily translated and transmitted to foreign counterparts, within the framework of international agreements and European legislation in force. On the other hand, the processing of any huge text data associated with this is a task that cannot be

que la entidad sea más efectiva a la hora de prestar sus servicios y que estos tengan un mayor valor agregado. Hacer más fácil la vida de los ciudadanos en su interacción con el Estado mediante el uso de tecnologías digitales implica cambiar la forma de pensar". M. Llanes Font, M. Díaz De Ceballos and Y. Salvador Hernández, *Administración pública y cuarta revolución industrial. ¿Qué nos lleva hasta allí?*, in *XXXIII Concurso del CLAD sobre Reforma del Estado y Modernización de la Administración Pública "La cuarta revolución industrial en la administración pública"*, Caracas, 2020, 10, available at <https://clad.org/wp-content/uploads/2020/12/Mención-Honor%C3%ADfica-Lorena-Mariluz-Llenez-et-al.pdf>.

"Incorporar las tecnologías de forma instrumental, a saber, para cubrir el objetivo de la cuarta revolución industrial que favorece la gestión procesal en el menor tiempo posible y con el menor gasto". S. Barona Vilar, *Inteligencia artificial o la algoritmización de la vida y de la justicia: ¿solución o problema?*, in *Rev. Boliv. de Derecho*, No. 28, 2019, 39. "Nas últimas três décadas, o desenvolvimento das tecnologias de informação (TI) e a sua integração nos processos de produção trouxeram benefícios ao nível de toda cadeia de valor. A evolução na capacidade das tecnologias alavancaram a produtividade industrial, reduzindo os custos de produção e fornecendo soluções eficazes para atender os clientes com qualidade, velocidade e melhor custo/benefício. Atualmente, a introdução de novos conceitos como a produção baseada na Internet não só permite melhorar a comunicação entre fabricantes, clientes e fornecedores como cria maneiras de atender os clientes através de novos modelos de negócios". B. Santos, A. Alberto and T. Lima, *Indústria 4.0: Desafios e Oportunidades*, in *Revista Produção e Desenvolvimento*, No. 4, 2018, 112.

efficiently managed by human capacity.

Therefore, it is entirely appropriate that the procedure of collecting, processing, and extracting the information and data in these delivered documents should be automated to discover their value. A suitable and potentially applicable method for this is Text Mining.¹⁶ Here, information can be extracted from both structured and unstructured data text files. The approach is used, for example in pattern extraction, as text mining analyses large amounts of data and helps identify patterns, or during literature examination, as the method can process the text in question, define its subject matter and/or highlight the most frequently used terms.¹⁷

In contrast to natural language processing,¹⁸ here no semantic features are considered. However, the search for information patterns or the identification of corresponding structures can be carried out with text mining. Relationships between words in the text are shown, word frequencies and patterns used are analysed. Therefore, the procedure is an irreplaceable method for identifying statistical features. As a result of detail extraction, text

mining enables the provision of accurate information from the text.

4.3. The prevention of pathological acts

One of the strategic objectives of the Tax Administration revolves around the promotion of compliance by taxpayers and the fight against tax evasion and fraud by those taxable persons who do not comply with their tax obligations. Improved compliance should be achieved through a wide range of core tasks of tax administration officials, including the investigation and detection of tax evasion and fraud.¹⁹ To this end, it is necessary to carry out an exhaustive analysis of the results of the control actions of the effects that they induce in the taxpayers' fiscal behaviour, to achieve that the ideal of regularisation of tax obligations becomes an additional tool now of achieving an improvement in the voluntary fulfilment of those obligations.

The digitalisation of society as a whole and of economic activity specifically, are producing a significant change in the way the business sector and large organisations are organised, particularly in an economic and functional context. In order to respond to these new needs, the tax administration must implement mechanisms that allow structured information retrieval systems aimed at facilitating tax data relating to the control and supervision of acts in tax matters relating to income tax and VAT, in order to allow a more simplistic management of tax obligations, the restriction of the use of business information processing systems that allow the concealment of sales or activities, with a special focus on the activity of online platforms dedicated to the intermediation or direct sale of goods or services. Obtaining information, systematising, and analysing it, carrying out concrete activities or fostering national and international cooperation to act on this digital world that is constantly developing, and evolving is a necessity that cannot be neglected here.

In this way, the creation of ratios and risk indicators offers the Tax Administration bodies greater control, both in terms of encouraging compliance with tax obligations, and in terms of supervision and control over

¹⁶ "Data or text mining" is the activity that involves collecting personal data using artificial intelligence systems and storing it in a bigdata context. By processing this data and converting it into computerized information, it will be possible to create statistical and mathematical methods that produce concrete results that are intended for application in certain contexts. It is essentially considered the ability to assess future conduct and based on statistics and probabilities, being assessed by virtue of presumptions created through probabilistic maxims based on purely mathematical criteria.

¹⁷ Automated decisions and profiling emerge as one of the great technological advances of a post-modern and technological society. From the analysis of mega data and its automatic learning it is possible, by collecting information and understanding the profile of its holder, to formulate hypotheses and patterns that will be mathematically and statistically probable, understanding its routine performance and daily habits. Think of frequent donations, daily meals in a certain establishment, or the simple consumption of a coffee at the same time every day. By processing these personal data, it is possible to determine an assertive profile of the data subject and achieve certain interests that may be positive or negative for them. M.D. Masseno, *Como A União Europeia Procura Proteger os Cidadãos - Consumidores em Tempos de Big Data*, in *Revista Eletrônica do Curso de Direito da UFSM*, vol. 14, No. 3, 2019, 2, available at <https://periodicos.ufsm.br/revistadireito/article/view/41708>.

¹⁸ We refer, essentially, to the classic activity of manual information gathering and processing done by reading and storing the information, to be later applied and used in the corresponding administrative procedures.

¹⁹ J. Calderón Carrero and J.S. Ribeiro, *Limites ao uso da inteligência artificial no controlo fiscal: a experiência francesa (Decision No. 2019-796 DC)*, in *Cadernos de Justiça Tributária*, No. 26, 2019, 3.

the true contributory capacity of the same in relation to what has been declared. It is in this field that big data and artificial intelligence prove to be a real asset in the management of this data analysis and in the automatic performance of acts that prove to be convenient for the intended purposes, achieving a swift and efficient action in relation to the data processed and the results intended to be achieved. Thus, whenever the intelligence systems detect signs of non-compliance that are clear, it will be entirely appropriate for the same to act in conformity with what is appropriate, counteracting the harmful effects resulting from non-compliance or omissions.

In the context presented, it should be noted that bigdata and social analytics will seek priority action in a set of tasks that will allow an improvement in strategic sectors in the fight against tax evasion and fraud, namely:

1) Information sources and technological advances aimed at risk analysis, which are the basis of any taxpayer selection process. To this end, planning processes will be necessary that act on different sources of information, both domestic and international, to strategically facilitate the selection models of the data obtained by the Tax Administration. At international level, in view of the new international standard for the exchange of information driven by the Global Forum on Transparency in tax information, automatic models for the exchange of tax information are gaining increased importance, enabling important analysis and optimization work to be carried out on the tax information obtained, in order to ensure greater transparency, which is intended to become a reality and consequently lead to greater difficulty in concealing assets and wealth, so as to ensure the correct taxation and declaration of existing and previous wealth of different financial assets located abroad. The information received by the Tax Administration has been gradually increased due to the presentation of the so-called “country-for-country”, to prevent the erosion of tax bases and the transfer of benefits (BEPS) to more fiscally favourable States, countries, or territories. Also, the models implemented by the Council Directive 2016/881 of 25 May 2016, whose focus was directed to large multinationals, collects many activities as

to the territories in which they operate. Based on this data, it is possible to create profiles and risk detection systems that systematise and delimit risks and allow for better monitoring of these risky activities.²⁰

- 2) Controls of internal taxes through automated systems of risk analysis on transfer pricing based on a whole range of information available on related transactions that the Tax Administration currently has, making effective use of the data and information available to the inspection means because of the BEPS project, both within the scope of the OECD and the European Union, among which we highlight the procedures for automatic exchange of information on various facts.
- 3) Control in relation to the granting and maintenance of tax benefits, making it possible to verify applications for the granting of tax exemptions or benefits, as well as their maintenance. This will seek to intensify control activities aimed at proving proper compliance with the specific requirements laid down for the correct application of the special tax regime that grants these benefits and exemptions. Control in the taxpayers’ actions and in the analysis of information, since the economic activity has in recent years been in a constantly evolving environment, deserving the analysis of business models by the Tax Administration, which cannot neglect the activity of those with a higher tax risk profile. It is axiomatic that there is a need to consolidate the different ways of

²⁰ “Tax information, which often includes a taxpayer’s income and other details about an individual’s personal circumstances, is a particularly sensitive form of personal information. Tax information may reveal, among other things, information about income, spending and savings, employment status, personal belongings, disability status, associations and club memberships, donations to charities, mortgage costs, child support and alimony, and the amount and size of gifts to family members and others. This detailed personal information may be used to construct a detailed profile of an individual’s identity, including her religious beliefs, political alliances, and personal behavior”. A. Cockfield, *Protecting Taxpayer Privacy Rights Under Enhanced Cross-Border Tax Information Exchange: Toward a Multilateral Taxpayer Bill of Rights*, in *University of British Columbia Law Review*, vol. 42, 2010, 42, especially 437.

²¹ E. Politou, *Profiling tax and financial behaviour with big data under the GDPR*, in *Computer Law & Security Review*, vol. 35, No. 3, 2019, 306, especially 307; D.E. Holmes, *Big data: a very short introduction*, Oxford, Oxford University Press, 2017.

obtaining information which provide information on the amounts, nature and identification of the parties involved in the commercial relationship in a wide range of economic activity. The required data is thus necessary for the Tax Administration to perform an exhaustive control of the correct taxation of these businesses, avoiding harmful conducts of tax evasion and fraud.

These guidelines or interventionist maxims that the Tax Administration has been marking, considerably, the functional activity of the Tax Administration, revealing a migration to an activity eminently dependent on personal data and on the use of computerized and automated means, seeking in the various matters to take advantage of these for a better efficiency of the functional activity and the achievement of the results to be pursued.²² But the common denominator to all these concrete directives where the analysis of a large volume of information and the automated processing of data allows the Tax Administration to act better resides in the personal data and the ways in which they are obtained, in this case, the automatic exchange of information procedure being one of the most relevant mechanisms and instruments.

5. Conclusion

So as can be seen, the rise of artificial intelligence systems and the consequent mechanisation of administrative procedures is today an undeniable reality. The ease of application and the benefits that are obtained through the “machining activity” of administrative procedures bring us two conclusions that prove to be indisputable, and which we should assume without hesitation.

The first conclusion arises from the need

that administrations must adopt procedural mechanisation systems. The phenomena of globalisation, the opening of markets and the complexification of relations between subjects and public and private entities have brought about a clear paradigm shift. What was previously considered sufficient according to the rules and relationships established, today, these instruments are clearly insufficient.

The second conclusion to be drawn is that the artificial intelligence systems, allow an optimisation and rationalisation of the available means, enabling a better performance of the existing mechanisms, reaching maximum administrative efficiency and effectiveness that improve the administration’s activity.

But, because we cannot fail to consider only the positive aspects, we must start from the assumed positivity’s to, in articulation with other studies, identify the negative points that must be considered when integrating these systems of artificial intelligence. Aspects such as the dignity of the human person, the right to informative self-determination, or the right to privacy of the subjects are legal realities that must be considered. To neglect this is to assume only one vertex of a long pyramid. Therefore, it is up to the academy and scholars to identify and study concrete measures that allow a proper articulation and respect for all those involved, respecting what is essential and central to the social and legal order: the human being.

²² J.M. Freitas Da Rocha, *A administração tributária odiosa (repensando os fins e atuações do fisco)*, 7, available at <https://repositorium.sdum.uminho.pt/bitstream/1822/61950/1/AT%20odiosa.pdf>; J. Casalta Nabais, *O Princípio da Legalidade Fiscal e os Actuais Desafios da Tributação*, in *Boletim da Faculdade de Direito*, Volume Comemorativo, Coimbra, Universidade de Coimbra, 2003, 1008; A.F. Brás Carlos, *Impostos, Teoria Geral*, Coimbra, Almedina, 2010, 162; N. De Sá Gomes, *Lições de Direito Fiscal*, in *Cadernos de Ciência e Técnica Fiscal*, Centro de Estudos Fiscais, Direção-Geral das Contribuições e Imposto, Ministério das Finanças, vol. II, No. 134, 151; F. Peña Álvarez, *Principios de la Imposición en una economía abierta*, in *Manual de Fiscalidad Internacional*, III ed., vol. I, Instituto de Estudios Fiscales, Escuela de Hacienda Pública, 68.