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Compliance programs and artificial intelligence

Introduction

In recent years much has been discussed about the possibilities of interaction between human beings and artificial intelligence, as well as how this new technology can help in the development and management of entrepreneurial activities. Systems and robots controlled by artificial intelligence have been used directly in business environments, and the tendency is for this interaction to become increasingly present and sophisticated, being part of both the day-to-day life of organizations and the most varied human relationships.

The central question of this study goes through the following inquiry: Does the use of artificial intelligence in the development of internal compliance controls give greater guarantee of isonomy when analyzing human decisions issued in the business environment? In view of this, eventually, such technologies will have to make decisions and define paths, which, many times, will come up

against ethical issues, which will not necessarily be identified by these entities or questioned about this prism.

The complex development in the making of business decisions: the interference of artificial intelligence

The first step towards innovation is the creativity of those who make decisions in an organization, at all hierarchical levels. The creativity of the strategic decision, in its turn, depends mainly on the process and the competence of those who participate in the decision. Creating original and viable alternatives is a fundamental step in the decision-making process, responsible, in large scale, for the desired quality.[1]

Operating or managing a business company involves constantly making important decisions. These decisions can compromise an entire budget, harm the well-being of employees and have immeasurable impacts. A bad choice can lead a company to force it to cut costs abruptly or even go bankrupt. Therefore, rationalizing decision-making systems represents an increasingly relevant task. Undoubtedly, an important ally for this activity is Artificial Intelligence[2], which, through its algorithms[3] and the input of provided data, will be able to present possible answers, in addition to proposing mathematically more advantageous strategies for the problems at hand.

The promise we are proposing here is bold: it is believed that the machine can fail less than the human being. This means that it is possible to think about the use of artificial intelligence in different areas of a company: from marketing, with the analysis of behavior patterns for carrying out advertising campaigns, to the option of deciding with whom to hire or how and where to invest, that is, algorithms offer, based on data, what is the best partner to do business with or which businesses are worth the risk.[4]

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[1]   T.M. Amabile, C.N. Hadley, S.J. Kramer, *Creativity under the gun*, "Harvard Business Review" 2002, Vol. 80, no. 8, pp. 52–61.

[2]   "Algorithms give computers guidance on how to solve problems. There is no artificial intelligence without algorithms. 'Algorithms are, in part, our opinions embedded in code.' They are 'often elegant and incredibly useful tools' used to accomplish tasks"; R. Mckenzie, *Bots, Bias and Big Data: Artificial Intelligence, Algorithmic Bias and Disparate Impact Liability in Hiring Practices*, "Arkansas Law Review" 2018, vol. 71, no. 2, pp. 532–533.

[3]   An algorithm can be defined as a set of rules that define a sequence of operations. Algorithm sets can be used for a variety of purposes, such as developing models for predicting scenarios and behaviors. Or, a set of mathematical instructions or rules that, especially if given to a computer, will help to calculate an answer to a problem.

[4]   R.A.F. Zanatta, *Profiling, Discrimination and Rights: from the Consumer Protection Code to the General Personal Data Protection Law* [*Perfilização, Discriminação e Direitos: do Código de Defesa do Consumidor à Lei Geral de Proteção de Dados Pessoais*] February 2019, https://www. researchgate.net/publication/331287708 [accessed: 2.12.2020].

Thirty years ago, artificial intelligence in South America was largely limited to universities. It didn't reach companies. This scenario has changed in recent years. Currently, artificial intelligence has different technologies combined to perceive, understand and act, with the ability to learn through experience adapting with time, perception as a computer vision, which recognizes the world around it, by capturing and processing images, sounds and voice.[5]

One of the most perverse consequences of data capitalism is market concentration, supposedly derived from three effects: scale, which reduces costs; network or "network externality", which expands membership (the greater the number of users the greater the number of new members)[6]; and frequent feedback, which improves the product and generates efficiency gains. Endorsing the thesis of economists Ariel Ezrachi and Maurice Stucke that machine learning systems are undermining competition.[7]

What we need to understand is that the algorithms, by themselves, are not enough to allow small competitors and new competitors to be on the same level of established companies, because the algorithms are not the raw material. Regulators who want to ensure competitive markets must demand data sharing. The comparative advantage would be in the possession of the data, and not in the knowledge of the algorithms.[8]

One of the main differences between the market and the company is the way in which decisions are made: in the market, decentralized and shared among the participants; in the company, centralized and invested in a relatively limited number of executives. In the corporate environment, information flows, decisions and the communicative structure remain concentrated at the highest levels of management. As a result, it is possible to point out two potential benefits of Artificial Intelligence that are not being appropriated by companies: (a) automation in decision processes, a function that creates relatively little data generation associated with decisions in management functions, that is, lack of sufficient data for the learning processes of intelligent systems; and (b) radical innovation, due to the fact that new ideas are not contained in the data, that is, Artificial Intelligence systems have no reference points in order to learn and propose.[9]

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[5]   J. Atkinson, *Challenges of Artificial Intelligence for the economy of Chile* [*Desafíos de la Inteligencia Artificial para la economía de Chile*], "Capital Magazine", 20.09.2017, https://www.capital.cl/desafios-de-la-inteligencia-artificial-para-la-economia-de-chile [accessed: 1.11.2020].

[6]   A.-L., Barabási, *Linked: the new science of networks* [*Linked: a nova ciência dos networks*], Leopardo, São Paulo 2009.

[7]   V. Mayer-Schönberger, T. Ramge, *Reinventing capitalism in the age of big data*, John Murray, London 2018.

[8]   *Ibidem.*

[9]   *Ibidem.*

It has been noted that there is a gradual incorporation of Artificial Intelligence in the internal operation of companies, apparently privileging, with automation, the effects of efficiency and cost reduction of processes. There are, rarely, experiences that lead to disruptive transformations in business models. It is also possible to assign Artificial Intelligence technologies a role in reducing forecasting costs, from designing an inventory to training autonomous cars (forecasting human action, given certain conditions).[10]

Within this entire outlined panorama, it is important to establish guidelines to be followed. It seems like an easy task, but in fact, due to the current market dynamics, reaching a minimum level of ethics in business has become a very complicated objective to be achieved. Not because of the activity itself, nor because of the entrepreneur's conscious wish to break the rules of good conduct, but because of the need to achieve goals and obtain even greater profits. This liveliness and ambition are not something fully accepted by the doctrine, on the contrary, business activity is essentially based on profit, however, it does not mean that these two objectives cannot be achieved in parallel.

Ethical business conduct, development of internal controls and artificial intelligence

The entrepreneur plays an important role regarding the degree of reliability that society places in the company and the responsibility that the legal entity must reflect. Thus, in addition to small daily actions, companies adopt the social report, which "[...] is done exactly to provide public knowledge and transparency. Through it, it is possible for society to monitor and evaluate the ethical level of a particular corporation." This balance is adopted by companies that fulfill the social function "[...] as a management and information tool for shareholders and the whole of society. This instrument reveals the actions that were developed in the socioeconomic field. It is accountability to stakeholders".[11]

It is worth mentioning that the need to contain the ethical deficit of companies is world-class, because "companies have to promote a junction between

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10   A. Agrawal, J. Gans, A. Goldfarb, *Prediction machines: the simple economics of artificial intelligence*, Harvard Business Review Press, Boston, MA 2018.

11   H. Baracho Urquiza, M.A. Cecato Baroni, *From the company's social function to social responsibility: reflections on the community and the environment* [*Da função social da empresa à responsabilidade social: reflexos na comunidade e no meio ambiente*], "Law and Development Magazine" 2016, Vol. 7, no. 2, https://periodicos.unipe.br/indez.php/direitoedesenvolvimento/article/view/320/300 [accessed: 1.12.2020].

morality, advertising, legality, efficiency, impersonality, proportionality and objective responsibility."[12]

Starting from the economic analysis of the law, "the severity of the ethical deficit that affects the functioning of public and private institutions should not be ignored," "starting from the junction of these two crises, [...] it is also a legal analysis of the economy, adopted as a premise that the pursuit of profit does not justify the sacrifice of ethical values"[13]. Especially when we are using a machine to manage a complex system of organizational decisions, it illuminates "the need for the creation of cooperation mechanisms that are not mere databases that exchange information or comply with due diligence, but true devices of intelligence with administrative, investigative and executive capacity"[14] raising the efficiency of artificial intelligence.

The practice of building controls within the basic activities of the company helps to make the act of creating controls necessary for new lines of business automatic. Such automatic reaction makes the company more agile and competitive[15]. That is, internal controls represent, in an organization of a procedures set, methods or routines with the objective of protecting assets, producing reliable accounting data and helping management in the orderly conduct of the company's business.[16]

Internal control is not an event or circumstance, but a series of actions that permeate an organization's activities, actions inherent to the style adopted by the organization's management in conducting business[17]. The importance of internal control becomes evident when it becomes impossible to conceive

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[12] E. Gabardo, G. Castella Morettini, *The new anti-corruption law and the importance of compliance for companies that relate to the Public Administration* [*A nova lei anticorrupção e a importância do compliance para as empresas que se relacionam com a Administração Pública*], "A&C – Administrative & Constitutional Law Magazine" 2015, no. 60, pp. 129–147, http://www.editoraforum.com.br/wp-content/uploads/2015/08/lei-anticorrupcao-compliance.pdf [accessed: 30.11.2020].

[13] F. Vecchio Bon, D. Vieira Manke, *Tax compliance and the crime of money laundering: legal analysis of ethical and sanctioning measures* [*Compliance tributário e o crime de lavagem de dinheiro: análise legal das medidas éticas e sancionatórias*] "J2 Jornal Jurídico" 2019, Vol. 2, no. 2, pp. 7–30.

[14] J. Torres Pereira Jr, T. Boia Marçal, *Compliance: legal analysis of the economy* [*Compliance: análise jurídica da economia*], "LEC Legal, Ethics & Compliance", 31.03.2017, www.lecnews.com/artigos/2017/03/31/compliance-analise-jurdica-da-economia [accessed: 29.11.2020].

[15] M. D'Avila, M. Oliveira, *Organizational and Internal Control Concepts and Techniques* [*Conceitos e Técnicas de Controle Interno de Organizaçõe*], Nobel, São Paulo 2002, p. 28.

[16] *Ibidem*, p. 26.

[17] *Ibidem*.

a company that does not have controls that can guarantee the continuity of the flow of operations and information.[18]

Techniques such as machine learning and big data analytics are concepts that can be used to optimize the exercise of external control and compliance mechanisms. They are extremely advanced techniques, using artificial intelligence systems. Such tools are already being used by several governments and companies around the world, in order to optimize public and private activities. The United States government, for example, used the data analysis technique to combat tax fraud. Professionals involved in projects using artificial intelligence report that they are very effective in combating the occurrence of fraud and protecting the budget. Pianko highlights some practical applications of artificial intelligence in the detection of tax fraud, such as the user identification verification system, which analyzes the probability (the risk) of practicing fraud; the detection of the probability of fraud occurring before and after payment, identified based on business rules or legal criteria, for the purpose of predictive modeling; identifying employee threats; and robust reporting capabilities for all levels of the organization.[19]

Neural networks can also be used for routing and classifying irregularities in Special Account-taking processes – in the case of price offers and attributes of bidding objects – through the recognition of textual and logical patterns in documents from different sources unstructured data. This process consists of conducting unsupervised training, carried out on a large number of documents in order to find semantic groups that can later be associated with groups of irregularities in such processes. After associating such groups with the meanings identified by specialists, it is possible to create supervised neural models capable of performing the same type of classification and forwarding of new documents that were not part of the initial training.[20]

At a time when different sectors of the world economy are undergoing the process of digital transformation[21] and when artificial intelligence tools have the power to significantly increase the accuracy, speed and efficiency of compli-

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[18]   W. Attie, *Auditing: concepts and applications* [*Auditoria: conceitos e aplicações*], 6th ed., Atlas, São Paulo 2011.

[19]   D. Pianko, *Analytics to fight tax fraud: challenges, opportunities and the value of tax fraud analytics*, International Institute for Analytics, March 2018, https://www.sas.com/en_us/whitepapers/iia-analytics-to-fight-tax-frau-108220.html [accessed: 1.11.2020].

[20]   L.A. Dutra e Silva, *Use of deep learning in control actions* [*Utilização de deep learning em ações de controle*], "TCU (Federal Court of Auditors)Magazine" 2016, Vol. 48, no. 135, pp. 18–23, http://revista.tcu.gov.br/ojs/index.php/RTCU/article/view/1321 [accessed: 1.11.2020].

[21]   G. Rometty, *Digital today, cognitive tomorrow*, "MIT Sloan Management Review", 12.09.2016, https://sloanreview.mit.edu/article/digital-todaycognitive-tomorrow [accessed: 1.11.2020].

ance programs[22], organizations, institutions and even the public sector should rethink their processes and optimize their activities. The compliance policy is shaped by the promise of transforming the internal culture to operationalize all business activities ethically and correctly, making it also possible to pursue social objectives, such as reducing inequalities and also investing in corporate policies that can benefit the community in which they are inserted.

Concluding remarks

The exploration of algorithms for the most diverse purposes is found in the context of a multi-billion-dollar market, whose proposal is to replace human decisions, considered naturally flawed and biased by processes that use algorithmic choices, seen as more efficient, objective and impartial. Large companies invest heavily in this segment to guide their own internal decision-making processes. The central argument in defense of the use of artificial intelligence is that the machine would make more efficient, objective and impartial choices, whereas human decisions would tend to be biased and would be more subject to failure.

Thus, the potential of automated decisions for internal control of business activities is perceived, obviously when observing the fulfillment of certain ethical parameters that guarantee their transparency, possibility of control, and the participation of the individual in the scope of the decision-making process, in addition to correction of the data that serve as input to the algorithm. Sophisticated computers are essential for the competitiveness of current and future markets. Currently with accelerated development of artificial intelligence, these new tools are ready to change the competitive landscape and the nature of competitive restrictions.

We are moving from a world in which the human hand is a fundamental part of all management processes to a new reality where algorithms monitor and adjust to market data and the entire operational phases of business organizations' activities. We can no longer remain indifferent to the enormous possibilities that are envisaged with the advent of new technologies that also affect algorithmic decision-making processes, reinforcing once again the idea that the machine supplies the subjectivity inherent in human decisions and that they can be well programmed to maintain a ethical standard, and be used in compliance processes.

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[22]   G. Aalbers, *Artificial intelligence and big data in the fight against corruption* [*Inteligência artificial e big data no combate à corrupção*], "Valor Econômico", 21.05.2018, http://www.valor.com.br/opiniao/5537063/inteligenciaartificial-e-big-data-no-combate-corrupcao [accessed: 29.11.2020].

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Abstract
Compliance programs and artificial intelligence

Nowadays we have been dealing with a significant increase in decisions based, solely, on Big Data and algorithms, which means that many processes are fully automated. Every organization that adopts compliance systems must follow parameters. These parameters are better controlled when used by artificial intelligence, since there is no direct involvement of human beings and, consequently, less chance of error, intentional or not. This illustrates a scenario where the use of artificial intelligence can be more efficient and less costly than other tools, in addition to being more accurate. It is not surprising, therefore, that more and more people talk about algorithmic decisions. Although there have already been several studies on cognitive biases, there are numerous difficulties in dealing with the topic, as many of those who are involved in organizational decisions are considered partial or biased and may not reflect the expected ethical standard. It is believed that the machine tends to fail less, according as it replaces human decisions – considered naturally flawed and impartial. Is it, therefore, an efficient and safe substitute for the implementation and maintenance of compliance systems in organizations?

Key words: business decisions, artificial intelligence, big data, compliance, Internal controls