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À PROPOS DE NOUS

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ABOUT US

The **International Journal of Digital and Data Law / Revue Internationale de droit des données et du numérique (RIDDN)** is an academic journal created and edited by Irène Bouhadana and William Gilles at IMODEV, the Institut du monde et du développement pour la bonne gouvernance publique.

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IMODEV is an international, independent, non-profit scientific organization created in 2009 that promotes good public governance in the context of the information and digital society. This network brings together experts and researchers from around the world who, through their work and actions, contribute to a better knowledge and understanding of the digital society at the local, national or international level by analyzing, on the one hand, the actions of public authorities in the context of the regulation of the data society and the digital economy and, on the other hand, the ways in which digital public policies are implemented within public administrations and open governments.

IMODEV regularly organizes conferences and symposiums on these topics, and in particular every year in November the Academic days on open government and digital issues, whose sessions are published online [ISSN: 2553-6931].

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UBERIZATION AND ARTIFICIAL INTELLIGENCE: AN ANALYSIS OF MAN-MACHINE LABOR RELATIONS AND INTELLECTUAL PROPERTY IN THE FOURTH INDUSTRIAL REVOLUTION

by **Juliana DUARTE**, Doctor of Law at Pontifical Catholic University of São Paulo – PUC-SP, Teacher & Lawyer, Member of the Human Rights Committee of the Lawyers Institute of São Paulo – IASP.

This article, through research on judicial decisions, laws and established doctrines, especially in the context of the United States, Brazil and the European Union, aims to analyze labor relations as part of the contemporary phenomenon of uberization, in times of the Fourth Industrial Revolution. The relevance of this debate is based on the current configuration of on-demand service provision carried out by the interconnection of artificial intelligence with human work, bringing to the light issues that are still unpublished for global society. Given the overcoming of the previous dilemma symbolized by the chess clash between Kasparov and Deep Blue that took place in 1996, artificial intelligence technology is now capable of autonomous prospecting, creation and alterations to its own hardware when subjected to new situations, represented under the dilemma established in the well-known and current clash over the Go game between Lee Sedol, multiple times world champion, and AlphaGo, Google's intelligence. Thus, the possibility or not of breaking the programming codes of intelligent uberization systems will be investigated, as well as the intellectual property on such systems and the new configurations of labor relations, increasingly disconnected from state control and requiring new responses around public policies and social rights. Such objects of analysis will be subject to investigation in order to enrich the legal doctrine on this unprecedented scenario, inserted in the complex system of global networks of human-machine interrelation.

§ 1 – CONCEPTUALIZING ALGORITHMS AND ITS DIRECT IMPACTS IN THE ORGANIZATION OF THE CONTEMPORARY SOCIETY

With the advent of Information and Communication Technologies, many control mechanisms shift from the manager to computerization, that is, there is a direct relationship between the development of such technologies and the changes that these new technologies carry out in the forms of control, on the worker and the consumer.

If before, therefore, the guarantee of control was affected in direct management by the management, now, especially in large economic conglomerates and companies in a monopoly or oligopoly situation of the most diverse sectors, especially those of information and communication technologies, said control it is carried out through algorithms, which in no way dispenses with the already old and known elements of subjection and subordination in labor and market relations.

An algorithm can very well be conceptualized as a standard system of rules, either in linearity, or, in a more complex way, it can be represented in the form of flowcharts, for the achievement of certain purposes, characterized as a management instrument through commands that determine the desired results.

The current Revolution 4.0, conditioned in large part by the development of digital, computerized systems and the increasing use and power of artificial intelligence, brought to the labor scene an extremely complex relationship between algorithms, capable of real-time analysis and prediction the behavior of both the worker (self-employed or not) and the consumer himself, in an unprecedented technological development capable of creating and innovating decision-making processes, with little or no direct human interference.

As Cristiana Sappa says, “Big Data, IoT and AI are the three interrelated elements of the algorithmic society, responsible for an unprecedented flourishing of”¹. Continues the jurist:

“Big Data is the huge amount of digital data generated from transactions and communication processes¹ collected in datasets, in particular via apps, sensors and other (smart) devices, which regularly lead to predictive analyses via complex algorithms and processors. The Internet of Things (IoT) is a network of interconnected physical objects, each embedded with sensors that collect and upload data to the Internet for analysis or monitoring and control, such as smart-city traffic and waste-management systems. IoT generates and is built upon Big Data. Artificial Intelligence (AI) is created by the interaction between intelligent agents, e.g. devices perceiving inputs from their environment and being able to reproduce methods and achieve aims. In other words, intelligent agents are able to reproduce cognitive human functions, such as learning and problem solving.”²

¹ C. SAPPA, “How data protection fits with the algorithmic society via two intellectual property rights – a comparative analysis”, *Journal of Intellectual Property Law & Practice*, 2019, Vol. 0, No. 0, p. 1.

² C. SAPPA. How data protection fits with the algorithmic society via two intellectual property rights – a comparative analysis. *Journal of Intellectual Property Law & Practice*, 2019, Vol. 0, No. 0, p. 1.

From the programming, from the stipulation of rules and commands preordained and changeable by its programmer, the worker is responsible for the ability to react in real time to the signals sent to him to achieve the objectives indicated by the program. The objectives assigned to it, moreover, are so intrinsically permeated in the complex business systems of algorithms that their responsive actions during the performance of their activities appear as simple bureaucratic commands, overshadowed as diffuse to a general internal system of deep control and wide collection of data.

A noun often used to represent the radical and factual changes of these technological evolutions in labor relations is the so-called uberization, which encompasses in its concept the current configuration of on-demand service provision, carried out by the interconnection of artificial intelligence with human work, constantly bringing to the surface new issues for global society.

Uber Technologies Inc. (Uber), a provider of electronic services in the area of urban private transport, uses algorithms to seek personalized incentives for drivers and distribute them to areas of greater or lesser demand in cities.

The algorithms - which characterize the method used to perform a calculation, used mainly for automated decisions - transpose a vision of impartiality, but in fact they are directly controlled by programmers and by the algorithms of your system, enabling the direction of drivers to actions desired by the company.

The declared function of the company's dynamic tariff, for example, is regulate supply and demand from customers and drivers. Uber distributes the product-commodity through cities showing drivers the areas where prices are highest. On the other hand, it is not possible for the client and the worker to know the exact calculation formula. About dynamic pricing, the general manager of the company explained that dynamic pricing was activated by an algorithm.

However, the operations manager informed that one of his functions was to turn off this system in exceptional cases, such as on the day of the taxi drivers' demonstrations, to prevent the price from becoming more expensive. Such data indicate that the price charged is not directly related to demand, once again moving away from Uber's collaborative economy business model³.

These challenges, of lack of transparency in algorithms, of control of artificial intelligence over the work of human beings, especially in scenarios of flexibilization of labor rights, are latent in our complex society, with uberization being a paradigmatic phenomenon of a still uncertain future and that, therefore, it must

³ R. L. CARELLI, "The Uber case and control by programming: hitchhiking to the 19th century", in A.C.R.P. LEME, B.A. RODRIGUES, J.E.R. CHAVES JUNIOR, *Disruptive technologies and the exploitation of human labor*, São Paulo: LTr, 2017. pp. 130-146.

be under the light of public policies and observance of the serious legal and ethical consequences of this new work order. As stated, the lack of transparency regarding the charging criteria initially disclosed as strictly related to demand, does not allow Uber to be considered an effective collaborative economic platform.

A) Brazilian Judgments and Transparency

In addition, the lack of transparency in relation to the techniques used by the algorithms to determine the amounts charged, distances traveled, and even the assessment of drivers, are not consistent with the best contractual labor practice, as they omit aspects that are extremely relevant to understanding the business signed, resulting in information whose lack of transparency ensure that technical aspects oriented to uphold broad decision-making powers to the aforementioned company are omitted, to the detriment of the lack of knowledge of both the drivers and the consumers themselves.

Therefore, the Brazilian Regional Labor Court of the 1st Region (Rio de Janeiro) recognized the employment relationship between a female worker and the Uber company, in addition to supporting the decision that determined the performance of judicial technical expertise in an algorithm used by the judicial platform for the purposes of determination of subordination.

In the decision, the Court understood that the secrecy defending Uber falls short of the public social interest, and that the expert evidence must be linked to the analysis of the instructions, criteria and algorithms inserted in the application's source code.

Regarding this, several lawyers understand that transparency in the decision-making process of algorithms is necessary, mainly to enable collective bargaining, since only then will unions be able to offer valid and effective counterproposals.

Thus, one of the paradigmatic debates is the possibility of having in privileged conditions the principle of secrecy of algorithm systems in view of the human right of the security contractor and transparency as to what is negotiated, which would legally guarantee the oligopolized transport supplier market. This segment favors the automotive industry in contrast to the increasing supply of labor for the effective performance of such services, a condition that is transparent in several countries, especially in those with an economic scenario and a context of unemployment close to Brazilians.

After this judgment, the subject was covered by decision of another instance, the 3rd Panel of the Superior Labor Court. Most of its ministers voted in favor of recognizing an employment relationship between a driver and Uber.

For the rapporteur, the control that Uber exercises over the provision of services is deeper than those provided for in the

consolidated Brazilian labor legislation - Consolidation of Labor Laws.

The decision was made in the sense that drivers who use Uber are permanently monitored through the algorithms, and, in addition, there is the possibility of customers contacting the platform to complain about the service. Such control, for decision-making ministers, indicates the existence of subordination.

In addition, 625 proceedings against 14 application companies are still awaiting decision, having as defendant companies Uber, iFood, Rappi, 99 Tecnologia, Loggi, Cabify, Parafuzo, Shippify, Wappa, Lalamove, Ixia, Project A TI, Delivery and Levoo.

The request in the actions revolves mainly around the recognition of the relationship between workers and digital platforms, with the guarantee of social labor, insurance and social security rights.

From the moment that the complex digital combination of algorithms enters as a deliberately omitted instrument of control over the worker, who is willing to the contractual clauses prescribing positions whose competence is to assume command and supervision of their functions, the review basic principles of contract and labor law becomes urgent for the most current analysis, doctrinal, legal and jurisprudential.

B) Balkin and his Algorithm's Compliance Laws

Thus, the assertion of Jack M. Balkin, jurist and professor of law at Yale University, is very pertinent when he says:

“We are rapidly moving from the age of the Internet to the Algorithmic Society, and soon we will look back on the digital age as the precursor to the Algorithmic Society. What do I mean by the Algorithmic Society? I mean a society organized around social and economic decision-making by algorithms, robots, and AI agents, who not only make the decisions but also, in some cases, carry them out. The use of robots and AI, therefore, is just a special case of the Algorithmic Society. Big Data, too, is a feature of the Algorithmic Society.”⁴

This proposal by Balkin to define the current society as an Algorithmic Society is not a mere alteration of adjectives. Its formulation is based on the necessary perspective on the relational complexity between multiple algorithms, their creators, companies, patents and other aspects that, due to the possibility of data compilation and intersections, bring countless ethical and legal problems.

⁴ J. M. BALKIN, “2016 Sidley Austin Distinguished Lecture on Big Data Law and Policy: The Three Laws of Robotics in the Age of Big Data”, *Ohio State Journal*, Vol. 78, n° 5, p. 1219.

In this way, Balkin contradicts the proposal of some scholars in the area, including Isaac Asimov, about legal regulation that should be centered on technology itself – Artificial Intelligence. Balkin, then, maintains that the normative and regulatory order must necessarily be centered on the subjects who formulate the algorithms and their intertwined and complex related systems. In terms of it:

“[...] rather than Asimov’s laws of robotics, what we really need are laws of robotics designers and operators. The laws of robotics that we need in our Algorithmic Society are laws that control and direct the human beings who create, design, and employ robots, AI agents, and algorithms. And because algorithms without data are empty, these are also the laws that control the collection, collation, use, distribution and sale of the data that make these algorithms work. In sum, the laws of robotics that we need are laws governing the humans who make and use robots and the data that robots use.”⁵

Jack Balkin thus verified that Asimov’s laws of robotics were directed at robots and their codes. Thus, it assumes that, behind robots, AI agents and algorithms, are the social relationships between human beings and groups of human beings.

Therefore, the laws we need are fair dealing obligations, non-manipulation, and non-discrimination between those who make and use the algorithms and those who are governed by them.

Thus, Balkin, when questioning what the duties of algorithmic users to society are, practically considers the ambition of today’s technological society for an omniscient governance of society.

And this ambition results in multiple damages (in addition to the possibility of physical damage, violations of privacy, exposure, damage to reputation, discrimination, manipulation, among others).

The Algorithmic Society is a way of governing populations in a predictive way never seen before: the people who control the algorithms analyze, observe, direct, order and shape the data subjects, as well as others indirectly.

Thus, the power of this sophisticated technological development, of complex systems of interconnection and communion between countless algorithms, allows its analysts to rigorously classify, select and understand entire societies and groups, constituting such power in final decisions of the possibility of inducing society in a rigorous way. observed of new cultural, economic, individual, etc. practices.

⁵ J. M. BALKIN, “2016 Sidley Austin Distinguished Lecture on Big Data Law and Policy: The Three Laws of Robotics in the Age of Big Data”, *Ohio State Journal*, Vol. 78, n° 5, p. 1226.

Thus, this relationship is not simply a market profit relationship. It is also a governance relationship.

Thus, the asymmetry of information and power between users and holders of such algorithmic systems and platforms is clear and worrisome.

In addition, another point that deserves to be highlighted is this same asymmetry between the private agents holding such technologies and the Government, in all its spheres, determining the latter to promote new and radical changes in its activities and its regulatory and normative assumptions, decision-making and public policies, and must be rigorously updated in order to continuously sustain the dictates of human and fundamental rights.

Jack M. Balkin, then, presents 3 legal principles that he considers necessary to be observed for the regulation of the current Algorithmic Society, calling them the principles for fair governance, in favor of ensuring the basic rights of all:

“(1) With respect to clients, customers, and end-users, algorithm users are information fiduciaries.

(2) With respect to those who are not clients, customers, and end-users, algorithm users have public duties. If they are governments, this follows from their nature as governments. If they are private actors, their businesses are affected with a public interest, as constitutional lawyers would have said during the 1930s.

(3) The central public duty of algorithm users is to avoid externalizing the costs (harms) of their operations. The best analogy for the harms of algorithmic decision-making is not intentional discrimination, but socially unjustified pollution. Obligations of transparency, interpretability, due process and accountability flow from these three substantive requirements.

Transparency and its cousins, due process, accountability, and interpretability, apply in different ways with respect to all three principles.”⁶

As noted, such principles are invariably linked to proposals for establishing compliance instruments in companies of the most diverse sizes and complexities.

The possible reading is that Balkin has a strong belief in the regulatory action of promoting ethical corporate governance techniques for a rigorous observance of clearly human rights dictates in the formulation of digital algorithms, these today with high creative and innovative capacity even within its own system

⁶ J. M. BALKIN, “2016 Sidley Austin Distinguished Lecture on Big Data Law and Policy: The Three Laws of Robotics in the Age of Big Data”, *Ohio State Journal*, Vol. 78, n° 5, p. 1227.

complex: codes capable of internal mutation of their own codes for adaptation according to the context and the analyzed object. It is noteworthy that the complexity of the work of algorithms increases with the increasing use of machine learning techniques. With them, the algorithm is able to reorganize its inner workings based on the data it is analyzing.

§2 – ALGORITHMS AND MACHINE LEARNING

Machine learning algorithms are algorithms that make other algorithms, and it is not an easy task for the scientist working with data or for those writing algorithms to describe the steps taken by an algorithm to produce a given result, even if only in abstract terms.

Thus, a new element to the algorithms' information chain is its opacity, which is usually associated with the difficulty of decoding its result. Human beings are becoming less and less able to understand, explain or predict the inner workings, biases and possible problems of algorithms.

Concern has been growing in the face of situations in which we rely on algorithms to make important, even fundamental, decisions that affect our lives, to the point that many academic works and public campaigns are calling for an increasing transparency of algorithms and their respective accountability for what they do.

At the same time, there are non-technical justifications for its opacity, based on intellectual property, where in some countries the law protects the intellectual property of companies in this sector. Another reason for not opening up certain algorithms is the possibility of being hacked and deconstructed in view of their initial purposes.

As can be seen, this opacity has not been able to stop its wide adoption in several domains. In fact, they are no longer seen as just the trick that makes search engines work or as something that helps e-commerce garner customer preference.

They are also already essential components of self-driving vehicles, crime prediction systems and tests to diagnose various diseases, along with so many new applications of great importance and with direct impacts on society, such as providing support for more accurate medical diagnoses or providing greater rationality to court decisions.

It is important to remember that such oversight and preview projects do not prescribe a destination that would be determined by some type of property intrinsic to the algorithms. They are the result of a series of socio-technical arrangements that can be altered or at least disturbed. Some authors consider any type of control and management of the future to be impossible, which also makes it difficult, on the other hand, to effectively treat the supervision and accountability of the violence they exert,

especially in view of privacy and the numerous failures and breakdowns to which these systems are subject.

Its political danger lies, among other things, in the performative dimension of its preview. Anticipation in many cases ends up “performing” and making effective what was predicted.