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CIVIL LIABILITY FOR DAMAGE CAUSED BY AUTONOMOUS CARS

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Abstract: This article aims to analyze civil liability arising from damage caused by autonomous vehicles, whose degree of artificial intelligence and autonomy may vary. Thus, we start from a theoretical analysis of the case, checking the legal institutes applicable to the case, to conclude that, especially in Brazil, there is no obstacle for such vehicles to be used, however, any damage caused by them may generate liability. civil liability for its owner or manufacturer, but the vehicle itself can never be held responsible, as it cannot be considered a legal entity.

Keywords: autonomous vehicles; artificial intelligence; civil responsibility;

INTRODUCTION

New technologies, mainly linked to artificial intelligence, call into question some legal concepts and terminologies that must be reviewed by the legal-scientific community.

This is because the Legislative Branch acts by issuing rules governing future conduct, by attributing values (positive, negative or permissive) to past conduct.

However, even though the normative act is naturally vague, aiming to cover as many human behaviors as possible, without the need to change the norm, there are social developments that are simply unpredictable to the legislator.

This is the case, for example, of artificial intelligence technologies, which have no legislative definition, resulting in true legal uncertainty.

One of today's great innovations is the possibility of autonomous cars, that is, with enough artificial intelligence to be driven without the intervention of a human being.

Faced with such innovation, the debate on civil liability arising from possible damages

caused by such vehicles is brought to the fore, as we will explore in this work.

In this scenario, the present work uses a doctrinal analysis on the topic, analyzing the current perspectives on artificial intelligence, its classification and civil liability arising from accidents with autonomous motor vehicles, whether facing the owner or third parties.

ARTIFICIAL INTELLIGENCE AND PERSONALITY

So that we can begin to approach the topic, it is imperative to define whether mechanisms with artificial intelligence, including autonomous cars or any others with even greater autonomy, can have personality and, therefore, be held directly responsible for the acts carried out.

Well, the Civil Code, despite bringing rules regarding the natural or legal person, fails to conceptualize such terms, but, even so, Law (epistemology or legal science) defines them, through doctrine. As Orlando Gomes well defines: "the legal order admits two types of people: natural persons, also called natural persons, and legal persons [...] Natural or natural persons are human beings. Every man is a person"¹. "It is not just natural persons who can be subjects of law. Entities formed by a group of men, for specific purposes, acquire personalities distinct from their components. The law recognizes their ability to have rights and contract obligations."².

In this case, robots or mechanisms with artificial intelligence would not fit into any of the definitions, as they cannot be considered as natural people, much less as an entity "with an objective purpose, its own organization and duration that cannot be confused with individual life." of its members"³.

1. GOMES, Orlando. Introduction to civil law: revised, updated and expanded, in accordance with the 2002 Civil Code, by Edvaldo Brito and Reginalda Paranhos de Brito. Rio de Janeiro: Forense, 2008, p. 127

2. Op cit. 168

3. DINIZ, Maria Helena. Compendium of introduction to the science of law: introduction to the general theory of law, the

Not fitting into any of the categories of people, these mechanisms do not have personality, which “expresses the generic ability to acquire rights and contract obligations”⁴, therefore they are not subjects of law, but only objects of law. As Thatiane Cristina Fontão Pires and Rafael Peteffi da Silva highlight:

Even more advanced legislative projects on the subject do not attribute legal personality to AI. An explanatory note from the UNCITRAL Secretariat, regarding the United Nations Convention on the Use of Electronic Communications in International Contracts, establishes, in its article 12, the principle that the person, natural or legal, in whose name a computer has been programmed, must be responsible for any message generated by the machine⁵.

Therefore, even in countries where there is already an imminence of daily activities carried out by mechanisms with artificial intelligence, there is still no definition of these machines as autonomous legal entities, with civil capacity, even if limited, so that it is possible to affirm that any inquiry regarding Responsibility arising from any damage caused by a mechanism with artificial intelligence must fall on its owner (in relation to the third party) or on its manufacturer (in relation to the owner).

AUTONOMOUS CARS: DEFINITION OF THE TOPIC

It is important to emphasize that there are different levels of vehicle automation, with the National Highway Traffic Safety Administration – NHTSA (National Highway Traffic Safety Administration) in the United

States⁶, qualifies them at 6 levels, being: (i) level 0, where the driver practices all driving tasks; (ii) level 1, when the vehicle is driven by the driver, but some assistant tasks are performed by the vehicle system; (iii) level 2, when the vehicle is driven by the driver, but the vehicle system performs combined automatic functions; (iv) level 3, the automated system can perform several functions, and the driver is still necessary and must be prepared to take control of the vehicle at any time; (v) level 4, when the vehicle’s automated system is capable of carrying out all activities related to driving the vehicle under certain circumstances, with control by the driver being optional; (vi) level 5, when the vehicle’s automated system is capable of carrying out all activities related to driving the vehicle under any circumstances, with control by the driver being optional.

Currently, companies such as Uber, Tesla, and even established brands in the vehicle market, such as Ford, are working on the development of artificial intelligence technologies in vehicles, so that they can drive without a physical person as a driver, these are called cars. autonomous, related to NHTSA automation level 4 and 5.

It is true that these companies already use their prototypes in several locations around the world, mainly on the European and North American continent, however, this technology, sooner or later, will arrive in Brazil.

It is also evident that the use of autonomous cars is not a synonym for safer public roads, even though in Brazil, according to the Institute for Applied Economic Research (IPEA), there are more than 43 thousand deaths per year related to traffic accidents. Traffic⁷, it is important to highlight that it is

philosophy of law, legal sociology, legal logic, legal norms and application of law. 26th Edition. São Paulo: Saraiva. 2018, p. 546
4. Op cit. 537

5. PIRES, Thatiane Cristina Fontão; SILVA, Rafael Peteffi da. Civil liability for autonomous acts of artificial intelligence: initial notes on the European Parliament resolution. *Rev. Bras. Polit. Públicas*, Brasília, v. 7, no. 3, 2017 p. 238-254. P247.

6. <https://www.nhtsa.gov/technology-innovation/automated-vehicles-safety>. Accessed on: Jan 14 2019.

7. Traffic accidents on Brazilian federal highways: characterization, trends and costs for society. Research Report. Brasília: IPEA, 2015.

not possible, at least not scientifically, to accept the simple indication that these accidents are largely due to human factors.

Now, most accidents are the result of a confluence of factors that may or may not include the human factor. As you remember:

But the fact is that, if there is a predisposition to condemn drivers for falling into potholes, factors other than “human” ones will hardly be found to attribute the convictions. The trinomial “man-via-vehicle” provides a true semantic trap, convenient for conclusions that place the blame for accidents on the road user. Since the “human” factor is etymologically identified in the man of the formula, such rationality refers, by logical consequence, the engineering of the vehicle and the road to an “a-human” sphere, safe from subjectivity. Furthermore, “to make mistakes...”, says common sense, “...is human”. Thus, the discourse of “human failure”, already based on scientific approval, receives as a finishing touch the legitimizing support of social representations. We have, in this context, the necessary ingredients for the media, already prone to trivialization, to contribute to the dissemination of myths that, ironically, are reproduced by the victims themselves⁸.

The indication that the use of autonomous cars will lead to a reduction in motor vehicle accidents is illusory, even because, if we are excluding the “human factor” in driving the vehicle, we are including it in the development of systems, in the creation of artificial intelligence, and others. In other words, we did not exclude it from the operation, we just relocated it to another point.

Proof of this fact is the existence, currently, of several reports of vehicle accidents resulting from the use of autonomous cars and, with the widespread implementation of this technology, it is certain that the number of accidents will proliferate.

CIVIL LIABILITY IN ACCIDENTS WITH AUTONOMOUS CARS

In order for us to configure civil liability in Brazil, there is a need to demonstrate four assumptions, being the illicit act resulting from human conduct, guilt in the broadest sense, damage and causal link.

Some relationships impose liability regardless of fault, this is the case of objective liability, applied to cases expressly provided for by law or arising from the natural risk of the commercial activity carried out by the person causing the damage.

Under these conditions, we began to analyze the assumptions of civil liability according to the relationship established with the possible damages arising from the use of autonomous vehicles.

We emphasize that we will not address the assumption of damage related to the activity of autonomous vehicles, since this, in truth, is no different from any other vehicular accident, and the circumstances that caused the accident may vary, but not the result itself.

ILLEGAL ACT

The Brazilian Traffic Code is legislation enacted in 1998 and, despite numerous regulatory updates, including recent ones (2016), it does not specifically address the possibility or not of autonomous vehicles being used in the national territory.

From the analysis of the legislation, we can conclude that there are no impediments to the use of autonomous vehicles, however it is clear that an update and specific legislation on the issue would be necessary. We have some incompatibilities to be overcome, for example, the fact that the Brazilian Traffic Code does not require the driver to be, necessarily, a natural person, but determines that only those with a license can drive. Or, even, the fact that the

8. SON, Roberto Victor Pavarino. Aspects of traffic education arising from the propositions of safety theories – Problems and alternatives. *Transportes Magazine*, São Paulo, v. XII, no. 1, p.59-68, June 2004. P 65

driver must have control of the vehicle at all times (article 28 of the aforementioned legal diploma), but we can consider that the driver, even if not driving, has control of the vehicle.

In view of this, it is possible to interpret the current Brazilian traffic legislation and state that there is no legal impediment for autonomous cars to be driven in Brazil, however there is a legal requirement that there be a driver under control of the vehicle, and such an individual must have license to drive a specific vehicle type.

There will only be civil liability when an autonomous vehicle causes damage to another, which is considered an unlawful act.

And Sérgio Cavalieri Filho remembers:

The illicit act will never be what criminalists call a crime of mere conduct; It will always be a material crime, resulting in damage. Without damages there may be criminal liability, but there is no civil liability. Compensation without damages would result in illicit enrichment; unjust enrichment for whoever received it and a penalty for whoever paid it, since the objective of compensation, as we all know, is to repair the loss suffered by the victim, to restore him to the state he was in before the illicit act was committed. And, if the victim did not suffer any damage, clearly, there will be nothing to compensate. Hence the statement, common to practically all authors, that the damage is not only the constitutive fact, but also the determining factor of the duty to compensate⁹

It must be noted that civil liability always arises from human conduct, whether commission or omission. In the words of Carlos Roberto Gonçalves:

In order for liability for omission to be established, there must be a legal duty to perform a certain act (not to omit) and it must be demonstrated that, with its practice, the damage could have been avoided. The

legal duty not to omit may be imposed by law (duty to help victims of accidents imposed on all vehicle drivers) or result from convention (duty of custody, surveillance, custody) and even the creation of some situation special danger¹⁰

Therefore, regarding accidents involving autonomous vehicles, we can have two hypotheses in mind, the illicit act could be one related to the human person who took irregular action in driving the vehicle or omitted to drive the vehicle, causing damage to a third party. As well as defects related to the product, when the vehicle accident is caused by a failure of the equipment itself, causing damage to the human driver.

FAULT

Fault in a broad sense is also a prerequisite for civil liability to occur, except when we are faced with objective liability, as in cases expressly provided for by law or when the activity normally carried out by the perpetrator of the damage implies, by its nature, a risk to the rights from another, under the terms of article 927, sole paragraph of the Civil Code.

José de Aguiar Dias, when quoting Savatier, highlights:

Guilt (*faute*) is the failure to perform a duty that the agent could know and observe. If you actually knew it and deliberately violated it, there is a civil offense or, in matters of contract, contractual fraud. If the violation of duty, which can be known and avoided, is involuntary, it constitutes simple guilt, called, outside the contractual matter, a quasi-delict¹¹.

The general rule in Brazilian Civil Law is that there is no civil liability disconnected from proof of guilt (intent or simple guilt) of the person who committed the illicit act in carrying out the damage to the detriment of the victim.

9. CAVALIERI FILHO, Sérgio. Civil liability program. 7. ed. rev. and ampl. São Paulo: Atlas, 2008.

10. GONÇALVES, Carlos Roberto. Brazilian Civil Law, volume 1: General Part/ Carlos Roberto Gonçalves. – 15. ed. – São Paulo: Saraiva, 2017.

11. DIAS, José de Aguiar. Civil liability. 2.ed.t. I and II. Rio de Janeiro: Forense, 1950, p.124.

DAMAGE

Damage is the presupposition of civil liability where the loss observed due to the illicit act caused by the fault (intentional or simple) of another person will be expressed. Such loss may be caused by tangible or intangible assets, however, if there is no type of loss (damage) we will also not have civil liability.

It is important to emphasize that, as Sérgio Cavalieri Filho points out: “There can be responsibility without fault, but there cannot be responsibility without damage”¹².

Thus, for example, the simple fact that a person owns an autonomous vehicle and, when driving, lets it be guided completely independently, without any control over the vehicle – disrespecting traffic legislation – is not a fact for which there is civil liability, because even if we are faced with an illicit act, carried out with fault, as long as there was no actual damage to others, there will be no compensation.

The damage, loss, may exist both in the relationship between the driver of the autonomous vehicle and the third party, victim of an accident, as well as in the relationship between the driver and the manufacturer of the vehicle that caused the accident through fault.

CAUSALITY

Nehemias Domingos de Melo defines the causal link: “the cause and effect relationship that links the damage to the causer (subjective responsibility) or to the person responsible for the activity (objective responsibility)”¹³.

In this case, for civil liability arising from autonomous car accidents to exist, it is essential that, in addition to the damage, it is demonstrated that there is a direct relationship

between an act taken by the autonomous vehicle and the damage, a possible vehicle accident. In other words, if we are faced with a car that went through a red traffic light and collided with an autonomous vehicle, we will not have a causal link, therefore, we will not have civil liability.

RESPONSIBILITY TOWARDS THIRD PARTIES AND THE OWNER

Civil liability arising from damage caused by autonomous vehicles can still be verified on two different levels, namely: (i) liability towards third parties; (ii) responsibility towards the vehicle owner.

This is because both the vehicle owner and third parties can be victimized and, in each case, different people will be held responsible.

In the relationship between the owner and the vehicle manufacturer, as a rule, the Consumer Protection Code applies, applicable to the vast majority of vehicle purchases and sales, so that the entire supply chain would be held responsible (system manufacturer of artificial intelligence, vehicle manufacturer, seller, etc.) is jointly and severally liable (article 7 of the Consumer Protection Code), given the fact of the product (article 12, §1, II), excluding such liability only the incident due to the exclusive fault of the consumer or third parties or when it is proven that the vehicle did not have defects (article 12, §3, II and III).

In this sense, we have:

Liability for the product or service basically arises from damage caused by a manufacturing defect, or damage caused by the provision of insufficient and inadequate information about the use and risks of the product. It arises from the occurrence of a consumer accident capable of damaging the

12. CAVALIERI FILHO, Sérgio. Civil liability program. 9.ed. São Paulo: Atlas, 2010, p.73.

13. MELO, Nehemias Domingos de. Civil liability for medical error – doctrine and jurisprudence. 2nd ed. São Paulo: Atlas, 2013, p.46.

consumer's physical or mental integrity, or sufficient to damage their property.¹⁴

However, this conclusion does not cover all possible implications, as we may still see cases of inapplicability of the Consumer Protection Code or, even if applicable, the occurrence of vehicle accidents due to the sole fault of the owner/driver, which would exclude liability of the Supplier.

Without prejudice, regarding liability towards third parties, victims of damages resulting from accidents involving autonomous vehicles, there is a need to verify guilt and causal link.

If it is proven that the damage arises from the autonomous vehicle, liability to third parties would be carried out by the owner, without prejudice to the owner seeking the right of recourse against the manufacturer, if the accident arises from a defect attributable to the manufacturer.

CONCLUSION

Given the issues analyzed, it is possible to state that Brazilian traffic legislation does not, in itself, prevent the use of autonomous cars, with a greater or lesser degree of artificial intelligence, as the law does not have any express prohibition in this regard. It is only important that the driver of the vehicle remains in control of it.

With this possibility, liability arising from damage to autonomous vehicles must be

14. SILVA, Jorge Alberto Quadros de Carvalho. Consumer protection code noted. São Paulo: Saraiva, 2001 p.53.

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analyzed according to the specific case, and may vary according to the applicable degree of artificial intelligence, as this area includes both vehicles that have specific programming pre-determined by the manufacturer such as those that can collect information from the owner/driver and create autonomous learning mechanisms.

In any case, whatever the scenario, concluding that a possible damage resulted from an event due to the fault of the autonomous vehicle, this, in itself, cannot be held responsible, as it does not qualify as a legal or natural person, being considered a mere asset belonging to a natural or legal person.

Thus, liability will always fall on the owner/driver, in cases where it is proven that the damage to a third-party result from a failure of the vehicle or driver, or it may fall to the manufacturers, covering the entire production chain, when the injured party is the owner/driver of the vehicle.

Therefore, we conclude that the topic requires greater legislative regulation, which, however, does not preclude its concrete application in Brazil, so that it is possible to use a vehicle with artificial intelligence capable of driving the vehicle autonomously, respecting considerations about the control of the vehicle, and, in case of damage, liability will be possible in accordance with the rules of Civil Law and Consumer Law, when applicable

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