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TAXATION OF ROBOTS AND AI – PROBLEM OF DEFINITION¹

Abstract

The article deals with definition problem of artificial intelligence (AI) and robots for tax purposes (also called as “definition problem of artificial intelligence/robots”). In the paper authors deal with three main methods for definition of technological objects for legislative purposes. Besides that, the article also analyses definition of AI that was introduced by European Union in new proposal for artificial intelligence regulation. Finally, the paper proposes new tax nomenclature for robots as a possible solution to the definition problem of artificial intelligence/robots and defines the basic variations of possible taxation of artificial intelligence/robots.

Key words: tax law, tax on AI and robots, EU, tax nomenclature of robots.

JEL Classification: K34

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1. Introduction

Constant technological progress is proceeded by mile steps on a global scale, and we have no choice but to state that many times the legislation and legal regulation of this progress does not manage to keep pace significantly. Therefore, unregulated relationships are created in society, which can more or less mean risk in several levels of collision of these relationships with regulated relationships. The issue of artificial intelligence and robots can undoubtedly be included in this category (low level regulation). On the other hand, their impact on traditional forms of trade and business is immeasurable. However, these two phenomena cannot be examined only from a technical point of view, from the point of view of general regulation, or other aspects, but it is possible to think about the possibilities of taxing artificial intelligence and robots as a tool of the state (or supranational organization), by which can greatly influence the current state, further development, and progress in these areas.

In this article we deal with the problem of legal qualification, classification and definition of robotic systems and artificial intelligence (hereinafter also "AI"). It should be noted at the preface that we pay attention to this classification, mainly because it is a necessary precondition for the introduction of specific tax instruments that will be targeted at the taxation of these systems. Such special tax instruments for the taxation of artificial intelligence (AI) and Robots will also be referred to as AI and robot tax (abbreviated as "AI/R tax").

The concept "AI/R tax" means any tax measure that specifically increases the tax burden in direct connection with the ownership, use or supply of a robot/robotic system and/or intelligent system (AI). For more details on the general conceptual features of the tax, see [Babčák 2019: 21-23].

In the case of robotics and intelligent systems, these are technological systems that are not exclusively located in a particular state. For this reason, there are voices calling for transnational regulation of intelligent systems. The need to introduce uniform rules for intelligent systems across the European Union (hereinafter also "EU") led to the presentation of the document: Proposal for a Regulation of the European Parliament and of the Council laying down Harmonised Rules on Artificial Intelligence (Artificial Intelligence Act) and amending certain Union Legislative Acts {SEC(2021) 167 final} - {SWD(2021) 84 final} - {SWD(2021) 85 final}, hereinafter also "Proposal for the AI Regulation"). The Proposal for the AI Regulation provides one of the first definitions of AI for regulatory purposes. We will take a closer look at this in the text of the article.

The aim of this paper is to use scientific methods of analysis, synthesis, induction and deduction, abstraction and comparison to point out various issues related to the correct definition of artificial intelligence and Robots for tax purposes, dealing with three main methods of defining technological objects for legislative purposes, take into account the proposed regulation of artificial intelligence at EU level and to present proposals for a possible way of taxing AI and Robots with regard to the definition problem of AI and Robots (and propose new tax nomenclature for Robots as a possible solution to the definition problem of AI/R).

The hypothesis that will be confirmed or refuted is that the theories and legal definitions of artificial intelligence and Robots currently presented are sufficient for the purposes of the legislative process and the regulation of the taxation of AI and Robots, whether at the national or supranational level.

We believe that AI taxation initiatives can be seen as part of emerging initiatives to introduce a broader AI regulatory framework. Therefore, the very introduction of tax instruments targeted at an artificial intelligence (AI) can be a unique opportunity to create and introduce new forms of EU budget own resources that could be eligible to meet all the evaluation criteria for such EU budget own resources and could be in line with current EU policies.

2. Definition problem

With the introduction of any legal institute, it is assumed that we will achieve the effective incorporation of its subject of regulation into the legal norm. This means that when applying the law, it will be clear which objects in the outside world fall within the scope of legal regulation. This is achieved through factual expressions. In this respect, it is possible to point out the conclusions of Jozef Sábó: "*In the language structure of substantive legal norms, it is possible to identify concepts that are not logical constants or logical conjunction. These terms refer to objects or phenomena that occur in objective reality*" [Sábó 2020: 16]. The interpretation of these terms is often based on the fact that: "Factual expressions are terms that are used in ordinary language to describe everyday life experience." [Sábó 2020: 17]. In the case of the concept "robot" or the term "artificial intelligence (AI)", it is not possible by using a simple grammatical interpretation/common experience to find out what should be covered (what it should express) by these terms (expressions). Therefore, the effective regulation of such new systems (of which they are a part) requires a more precise definition.

Defining the term "AI" or the concept "Robot" for legal purposes is not a trivial matter at all, as:

- the definition of the term 'AI' and the concept 'Robot' is, by its very nature, largely technical and must be based on the technical characteristics of those systems;
- on the other hand, too specific technical terminology may not be appropriate for the implementation of legal regulation, which should be general and should cover the full range of these objects of regulation across society and regulate the social relations arising within the system;
- the complexity of the issue of AI and Robots can be an obstacle in creating a simple and understandable legislation.

The problem of the normative definition of AI and Robots for the purposes of law will be referred to below as the **definition problem of AI/R**. Solving this definition problem is key to the introduction of any legal regulation of AI and Robots. It is particularly important for tax legislation. Taxation is characterized by an increased emphasis on the legal certainty of the entities concerned, and thus also on the precise and clear definition of the objects of taxation (on the negative consequences of the creation and implementation of tax legislation, see also [Popovič 2019: 295-309]). This follows from the principle of legality of taxation, where any ambiguity in tax law is (should be) interpreted in favor of the taxpayer.

Humans usually think of robots as anthropomorphic beings (thus human-like beings). This error of reasoning is used to refer to an **anthropomorphic distortion ("android bias")**. In fact, units performing an autonomous activity (which are capable of replacing human labor) may not resemble a human being at all. We have many examples of this: autonomous motor vehicles that can replace human drivers, industrial robots that can replace production operators on the production line, and more. **Therefore, we must ask ourselves: how to distinguish between different types of automated systems?**

As there are several very different systems performing different activities, it would be necessary to establish a single concept, resp. the designation covering these systems. Such a general category may be the term "**agent**".

Based on the definition of Stuart Russell and Peter Norvig, we can qualify an agent as: "(...) *a system that perceives its surroundings and can intervene in it*" [Russell, Norvig 2021: 36]. In general, it is possible to distinguish between two broad categories of agents:

- robotic agent (i.e., "Robot"),
- software agent (i.e., "Bot").

In order to define the term Bot, it is possible to imagine any software solution that independently performs certain computational operations, on the basis of which it makes decisions, selects data, or performs certain activities. On the other hand, AI is a distinctive form of the Bot that is characterized by sophisticated rational decision-making and/or action that can easily replace human action.

For the purposes of taxation, it is particularly important to be able to legally define the types of agents that are to be subject to taxation (i.e. a definition is needed to enable them to be "found" in the causal world). At the same time, such a definition should be based on the correct qualification and classification and distinction between potential objects of taxation. An incorrect legal definition may evoke a situation in which these objects may also be taxed, which did not a tax policy maker intend to tax, or, conversely, objects for which it was intended may not be subject to the scope of taxation. An example of the first situation is the definition, which expresses that all objects performing a calculation activity are subject to taxation. In such a case, almost all intelligent appliances should be subject to taxation, including, for example, a robotic vacuum cleaner or a robotic lawnmower. However, this is not the intended purpose. If only certain specific devices (such as specific automated CNC machine tools such as a milling machine, drill or lathe) were to be subject to taxation, such taxation would not be sufficiently general and could be in conflict with the requirement of tax neutrality.

Based on the above, the following requirements for the legal definition of the term "agent" can be defined for tax law purposes:

- should be specific enough to exclude the taxation of those objects of the causal world which, according to tax policy, should not be subject to taxation;
- should not be too narrow in material scope, as in such a case taxation would not be efficient and tax neutral;
- must strictly comply with the requirement of legal certainty for taxable persons;
- it must be sufficiently definite and comprehensible while maintaining the greatest possible simplicity of the wording of the terminology.

3. Different approach to the definition of the "agent"

There is no uniform and comprehensive consensus in the scientific community regarding the definition of AI/Robot (see for example: [Dafoe 2018; Martinez 2019: 1015-1042; Samoili 2020: 7-16; Wang 2019]. Jonas Schuett proposed the following methods (qualification criteria) as possible approaches to the definition of agents [Schuett 2021]:

- *Definition based on capabilities* – i.e., what the agent can do?
- *Definition based on use* – i.e., for what activity the agent is used?
- *Definition based on design* – i.e., how the agent is made?

In the case of the **definition based on capabilities**, we can distinguish between Bots and Robots based on several different characteristics. The Robot, unlike the Bot, is individualized in the outside world; it cannot be copied and directly affects its surroundings. In relation to Robots, it is possible to distinguish other aspects of their abilities and include them in their definition. In this context, reference may be made to a study *European Civil Law Rules in Robotics* [European Civil Law Rules in Robotics: Study for the JURI Committee 2016: 8], which introduces the following features of the robots: *acquires autonomy through sensors and/or by exchanging data with its environment (inter-connectivity); trades and analyses data; is self-learning (optional criterion); has a physical support; adapts its behaviour and actions to its environment*. A skill-based definition may be appropriate to distinguish between bots and robots, but its use for classification within these categories is questionable. This does not allow us to distinguish between several different types of robots - for example, medical robots, manufacturing robots, etc. This definition also does not allow us to distinguish between several types of bots, which can form a wide range of different possibilities and forms of existence (programming), from simple search algorithms to sophisticated self-learning systems.

In pursuance of the **definition based on use**, we can distinguish between similar objects with respect to what they are intended for. In this way, we can distinguish the camera for common recording from the camera, which is designed for automatic face recognition. Similarly, we can distinguish a motor vehicle from an autonomous means of transport (since the use of an autonomous vehicle does not preclude human intervention). We believe that the use of this criterion seems to be appropriate for the purpose of distinguishing between several types of robots. A problem in this regard may be the fact that the specific use of a particular robot may not be the only one but may involve several possible uses for a particular type of robot, which may be combined in different ways. Individual types of robots, from the classification point of view related to the use, can therefore be characterized by different levels of functionality, equipment, and capabilities, which may impair to a greater or lesser extent the effectiveness of the use of this definition.

The last consideration is the **definition based on design**. According to this definition, agents would be taxed on the basis of the software/engineering procedures used to construct them. Thus, the object of the tax would depend on the technology on which the

agent is built. To date, several specific approaches to AI development have emerged. In this way, agents using neural networks, machine learning, etc. could be particularly taxed. However, most of the definitions by design are too narrow. In this respect, there will always be systems that use such specific technology that they will not be subject to any taxation. In our view, the use of the definition based on design is very problematic and is not in itself sufficient. It is a similar problem like to saying that we will tax all flour products. How can we then distinguish between the taxation of cakes and bread? Or, if it were not flour but semi-coarse/rye/spelled flour, would the product still be taxable? The use of the definition based on design (when taxing AI and Robots) also faces the same limit based on a similar logic.

At the same time, it is necessary to ask whether it is desirable to proceed differently in the definition of Robot and in the definition of Bot. In the end, these are not so different objects (in terms of their technological capabilities). In principle, it is possible to look at the Robot as a physical manifestation of the Bot (i.e. the software that controls the behavior of the Robot). This does not only apply to Robots, which necessarily require a human operator. Other higher sophisticated types of Robots (which can be expected to appear in the future) will no longer need such an operator. In such a case, the decisive factor for the implementation of the functions of Robots in production will be the relationship between Bot (e.g. AI controlling the production of motor vehicles) and its physical components that allow its interaction with the outside world (e.g. physical assembling of motor vehicle components).

We believe that it is natural to expect a different approach to the definition of Robots and Bots. Above all, Robots have a physical nature, so they can be easily grasped and quantified. It is the quantification of the object of taxation that is the second important step in taxation, as it leads to the determination of the tax base. The possible quantification of AI is difficult compared to Robots in this respect.

Therefore, it can be expected that several approaches to the classification and quantification of AI and Robots for tax purposes will be gradually developed in tax legislation, which in both cases may not be identical in the methods used. We expect that the final emphasis will be on the taxation of AI as opposed to the possible taxation of Robots as physical units, as Bot and thus computer software is crucial in the actual implementation of activities in the causal world.

4. Definition used by EU in proposed regulation on AI

In 2021, the Commission presented the first proposal for a legal act regulating AI. This was the above-mentioned Proposal for the AI Regulation. Among the reasons for this Proposal for the AI Regulation, the Commission has set out a number of objectives: *ensure that AI systems placed on the Union market and used are safe and respect existing law on fundamental rights and Union values; ensure legal certainty to facilitate investment and innovation in AI; enhance governance and effective enforcement of existing law on fundamental rights and safety requirements applicable to AI systems and also facilitate the development of a single market for lawful, safe and trustworthy AI applications and prevent market fragmentation.* As this is a legal act regulating AI, it is one of the first pieces of legislation that should use the definition of AI.

In the definition of AI, the Proposal for the AI Regulation follows the work of the working group *High-Level Expert Group on Artificial Intelligence (HLEG)* [Communication on Fostering a European approach to Artificial Intelligence]. HLEG introduced the document *Ethics guidelines for trustworthy AI* [Ethics guidelines for trustworthy AI] devoted to the ethical use of AI. As a part of her work, HLEG defined her defining understanding of the term AI in the document *A definition of AI: Main capabilities and scientific disciplines* [A definition of AI: Main capabilities and scientific disciplines].

The Proposal or the AI Regulation itself deals with the definition of AI in Article 3 (1), in which stipulates: "(...) '*artificial intelligence system*' (AI system) means software that is developed with one or more of the techniques and approaches listed in Annex I and can, for a given set of human-defined objectives, generate outputs such as content, predictions, recommendations, or decisions influencing the environments they interact with".

The definition quoted above contains several important elements. First and foremost, the definition of an artificial intelligence system requires that the AI be software. Software, resp. a computer program is currently a factual expression which is sufficiently established for the purposes of law. For example, according to § 87 par. 1 of Act no. 185/2015 Coll. Copyright Act as amended, the software can be defined as follows: "*A computer program, which is a set of commands and instructions expressed in any form used directly or indirectly on a computer or similar technical device, is protected under this Act if it is the result of the author's creative intellectual activity. Commands and instructions can be written or expressed in source code or machine code. The computer program also includes the background material used to create it. The ideas and principles on which an element of a computer program is based, including those underlying its interface, are not protected under this Act*". From the above, it is

clear that, in common sense, a computer program appears as an intangible set of abstract instructions. The definition in the Proposal for the AI Regulation therefore does not include the definition of Robots. In the case of such autonomous physical systems, it will be an AI only in so far as their control software is concerned, if it exhibits the specified characteristics of an artificial intelligence system.

Another requirement is that one of the defined range of techniques specified in Annex I of the Proposal for the AI Regulation should be used in the development of AI, and in Annex I we encounter the following definition of techniques: "a) *Machine learning approaches, including supervised, unsupervised and reinforcement learning, using a wide variety of methods including deep learning; b) Logic- and knowledge-based approaches, including knowledge representation, inductive (logic) programming, knowledge bases, inference and deductive engines, (symbolic) reasoning and expert systems; c) Statistical approaches, Bayesian estimation, search and optimization methods*" [Proposal for the AI Regulation]. As can be seen, these is a wide range of technological methods. The technological methods of software development defined in this way cover a large part of the methods, if not all the methods used in the current AI research. It is therefore questionable to what extent the inclusion of this element in the definition is necessary.

At the same time, AI as a software *should take into account a set of goals defined by humans*. By definition, it should only be a system whose goals are always defined by humans. Obviously, this is not a situation in which the software itself should autonomously create / determine a set of goals for its activities. Therefore, such a view on AI is focused primarily on *weak AI* and not *strong AI*. In this respect, the definition seems to be too limited, as there may be situations where AI itself will modify or supplement the goals that were originally defined by humans. Accordingly, *de lege ferenda*, it would be desirable to extend this definition *to take into account the set of objectives defined by humans, and/or the set of objectives set on the basis of objectives originally defined by humans*.

For a given set of goals (human-defined goals), AI can produce outputs set out, for example, as *predictions, recommendations, or decisions* (a rational aspect of how AI works). At the same time, they should be outputs *affecting the environment with which they interact*. From the grammatical interpretation of the sentence, it can be concluded that the sign "*influencing the environment*" is a cumulative condition that must be met by the outputs generated by AI. From the above, it can be concluded that it is only software capable of autonomous intervention in the environment with which it interacts. Crucial to this part of the definition is the scope of the definition of the term "*environment*". This term allows a narrow interpretation in terms of the physical / causal world, or a broader interpretation of

the environment as a software interface. In the case of a software interface, it is appropriate to ask yourself what all belongs to the "influence" of the environment when performing the program. Does this term include writing data to the program database, displaying data, or must it be an active change to certain parameters of the software environment or user interface? This element of interaction with the environment is not entirely clear.

Finally, it can be stated that the above-mentioned definition of AI is a mixed definition. Part of the definition elements is based on the method Definition based on Design. This is an element that requires software to be developed by a range of pre-defined techniques as defined in Annex I, of the Proposal of the AI Regulation. It is questionable whether the inclusion of this element in the definition of AI is necessary and expedient. As mentioned above, this is a very wide range of possible techniques and technologies, and therefore virtually any software solution will be subject to this definition². The other elements of the definition, which are based on the method Definition based on Capabilities, are therefore crucial for the definition.

At the same time, it is a very broad definition. This is given primarily by the purpose of the Proposal of the AI Regulation, which is primarily the enforcing of security and protection of the rights of persons which may be affected by the using the AI. For this reason, the Proposal of the AI Regulation classifies some artificial intelligence systems as high-risk and sets stricter conditions for their use (these include within Annex III of the Proposal of the AI Regulation - according to definition based on use - artificial intelligence systems for *biometric identification and categorisation of natural persons; management and operation of critical infrastructure; education and vocational training; employment, workers management and access to self-employment, and others*). The broader general definition of the artificial intelligence system is thus to some narrowed extent down to certain categories of AI according to the purpose of their use.

We believe that the above-mentioned definition is too broad to be used for AI taxation purposes. We do not think that all AI systems should be subject to taxation, to which, in principle, the introduction of such a general definition would lead.

² This solution seems to be appropriate if general taxation of AI - software solutions were envisaged, and thus all types of software and AI would be subject to taxation (which, however, is difficult to imagine with regard to other taxation limits, such as the principle of elimination of double taxation, etc.).

5. Possible solutions to the definition problem of robots and their taxation

We have outlined above the different ways in which AI or Robots can be defined for the purposes of legal regulation. At the same time, we stated that these approaches may differ in the definition of AI and Robots for tax purposes.

In this section, we would like to mention one of the possible approaches to the definition of the term "Robot" for tax purposes. For this purpose, we propose the use of the **robot tax nomenclature**.

The classification in the tax nomenclature would be made on the basis of two attributes. The first attribute is based on the definition by use. Thus, in the tax nomenclature of robots, robots would be classified separately **according to the purpose for which the robot can be used**, for example: *production robots, mining robots, agricultural robots, medical robots, etc.* If a particular robot were intended for several different uses, it would be assigned several nomenclature numbers under which such a robot could belong. In the case of a universal multipurpose robot (i.e., a robot that can perform a different activity depending on its program, or in principle any activity), it would have a separate nomenclature number and its taxation would depend on its actual use (which would be demonstrated in a credible manner when declaring the performed activity of such a robot, which it would possibly record and process itself).

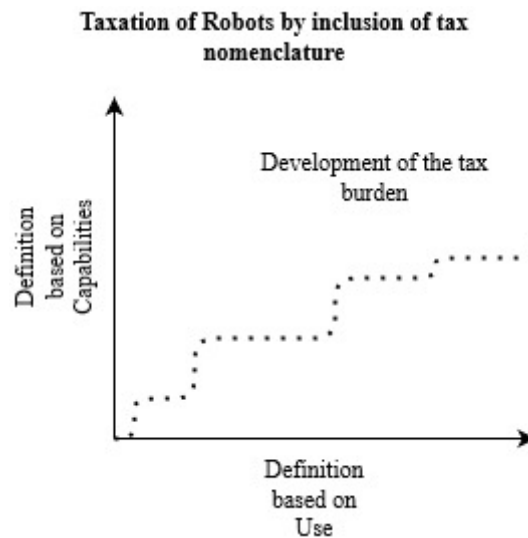
The second element for inclusion in the tax nomenclature of robots would be the degree of autonomy of the robot concerned (i.e., in this respect it would be an element based on the definition according to capabilities). In this way, the tax nomenclature of robots would make it possible to classify robots **according to the need for cooperation with the human element**. Three basic categories of robots come into consideration in this regard, for example: *a robot with a human operator* (necessary constant supervision and guidance of the robot's activity); *a robot in which the human operator must make an initial setting when changing activities* (for example, enter a design that the robot then implements - typical example may be a CNC machine); *robot without human operator*.

We believe that the tax nomenclature offers several benefits. A clear classification of a certain type of robot in the category of the **tax nomenclature of robots** under a certain **nomenclature number** would make it possible, without further doubt, to define such an object of taxation in the causal world. Considering the parameter of cooperation with the human element would make it possible to subject to progressive taxation those robots which are characterized by a higher element of autonomy compared to human operators.

This would lead to an increase in tax revenues, especially where there is a reduction of tax revenues from the taxation of human labor.

For a better imagination, within the selection of a specific variant of the possibility of such taxation, it would be possible to create a graph consisting of two vectors, while the **horizontal vector (X axis)** would represent a set of tax objects (taxation according to the purpose for which the robot can be deployed) and the **vertical vector (Y axis)** would express a set expressing at each point of the X-axis a specific classification according to the extent and scope of taxation of an individual taxation object (taxation based on abilities graded, for example, according to the need for cooperation with the human element). By substituting specific data on individual vectors, it would be possible to monitor the development of the tax burden of individual tax objects classified by purpose with regard to the ability of the tax object and the need for cooperation with the human element (Graph 1).

Graph 1. Taxation of robots by inclusion of tax nomenclature



Source: Authors own elaboration.

The basic question when classifying robots in the tax nomenclature is who should be the authority that decides on this classification. We would not recommend leaving this decision to the discretion of the tax administrator – as this would conflict the AI/R tax with the principle of legality and legal certainty for the addressees of tax legal norms.

A suitable alternative seems to be the **transfer of the obligation to classify robots into individual classes to robot manufacturers**, as it is these persons who have (and should)

know the parameters of the robots they manufacture (which is the most rational assumption). Persons producing robots in a certain volume, resp. with a certain turnover, they would be required to register as robot taxpayers. In addition to registration obligations, with this system would be associated evidential obligations (including the assignment of a nomenclature number to a certain robot) or the obligation to collect the tax applied on the basis of tax - the price of the robot (in case the legislator decides to indirectly tax robots with excise duty). In the event that this classification proves to be incorrect (inspection by the tax administrator of a customer using a robot for a purpose other than that specified by the manufacturer), these persons could also be the guarantors of such a robot tax.

In connection with the above mentioned, the question arises whether the proposed transfer of the obligation to classify to manufacturers is not just a circular definition - that is, how do we know which entity manufactures robots, when it is this entity that should classify certain physical units as robots? In fact, this is not a definition of a circle. The condition setting the registration obligation for a certain entity would be based on a different definition than the subsequent inclusion of robots in the tax nomenclature. In this regard, a condition based on capability definition seems appropriate. With reference to what we have mentioned above, a robot manufacturer could be, for example, a person producing a unit *acquires autonomy through sensors and/or by exchanging data with its environment (inter-connectivity); trades and analyses data; is self-learning (optional criterion); has a physical support; adapts its behaviours and actions to its environment*. A definition of a more general nature seems to be applicable in this case, as the radius of these persons could be further narrowed by additional criteria (such as turnover and / or number of produced robots). Subsequently, the robot manufacturers thus registered would carry out the actual classification of the robots produced for the purposes of the robot tax nomenclature.

In the above-mentioned way, robots would become object of taxation already during their production, resp. when the robot is "released for free circulation" for the first time³.

³ This distinction and awareness of the different situations in which tax-determining facts arise (production or release for free circulation) is important, especially in view of the existence of the EU's single internal market and the highly globalized world trade and their mutual interactions. The production of (not only) robots takes place not only within the EU, but also outside its borders.

6. Conclusion

In this paper, we have addressed the definition problem of AI/R, i.e., the problem of qualification and classification of AI and Robots for tax purposes. In the first part, we presented several methods that can be used to classify robots and/or AI for the purposes of legal regulation. At the same time, we pointed out that these methods may differ from each other at AI and Robots.

Subsequently, we approached the definition of AI presented by the EU in the Proposal of the AI Regulation. We criticized the proposal for an element of the definition of an artificial intelligence system (Article 3 (1) of the Proposal of the AI Regulation) as software that takes into account *a set of human-defined goals, and we have proposed to extend this to a set of human-defined goals, **and/or the set of objectives set on the basis of objectives originally defined by humans***. Then we stated that such a definition is not appropriate for the purposes of tax legislation.

In the last part of the paper, we proposed the introduction of a tax nomenclature of robots, which would take into account two attributes. The first is the range of activities (purpose) for which the robot can be deployed. The second attribute is the degree of the robot's own autonomy from depending on the human element. At the same time, we have proposed that for the purposes of this tax nomenclature of robots, the relevant classification should be carried out by entities registered as robot manufacturers (and they could act as tax guarantors if an incorrect classification of a certain type of robot is found).

In view of the above mentioned, it is possible to refute the hypothesis established in the introduction, and therefore current theories and legal definitions of artificial intelligence and Robots are not sufficient for the purposes of a comprehensive legislative process and regulation of AI and Robot taxation, either at the national or supranational level. Many questions and areas remain to be addressed before the hypothesis can be described as confirmed.

In the article, we did not suggest a procedure for classifying AI for tax purposes. This will need to be further investigated and researched. In addition, another important question seems to be at what level and in what way the taxation of AI and Robots could be implemented. With regard to the interconnection and membership of the Slovak Republic in the EU, the issue of taxation of AI and Robots at the national or supranational level (in which case taxation at the EU level is possible) can be examined in further research on the basis of the results achieved in this paper. Closely linked to these options is the examination of legislative limits and options for the introduction of different methods of

taxation and their scope, also with regard to the different variations in the determination of tax elements and the tax technique used in constructing such a tax. Finally, the possibility of examining such taxation as an own resource of the EU budget is being considered, and such an evaluation will require a comprehensive assessment of legislative options, evaluation criteria, political will of EU Member States and EU policies.

References

- Babčák, V., Daňové právo na Slovensku a v EÚ [Tax law in Slovakia and in the EU], Bratislava: EPOS, 2019
- Dafoe, A., AI governance: A research agenda, Centre for the Governance of AI – Future of Humanity Institute, Oxford: University of Oxford, 2018
Available at:
<https://www.fhi.ox.ac.uk/wp-content/uploads/GovAI-Agenda.pdf>, accessed: 28th August 2021
- Martinez, R.: Artificial intelligence: Distinguishing between types & definitions, Nevada Law Journal, vol. 19, no. 3, 2019
- Popovič, A., Negatívne dôsledky tvorby a realizácie slovenského daňového zákonodarstva [Negative consequences of the creation and implementation of Slovak tax legislation], in: 3. slovensko-české dni daňového práva: pozitívna a negatívna stimulácia štátu v oblasti zdaňovania [3rd Slovak-Czech days of tax law], Košice: Vydavateľstvo ŠafárikPress UPJŠ [Publishers Šafárik Press UPJŠ], 2019
- Russell, S., Norvig, P., Artificial Intelligence A Modern Approach 4th ed., Hoboken: Pearson, 2021
- Samoili, S., López Cobo, M., Gómez, E., De Prato, G., Martínez-Plumed, F., Delipetrev, B., AI watch – Defining artificial intelligence: towards an operational definition and taxonomy of artificial intelligence, Joint Research Centre (European Commission), 2020
- Sábo, J., Hodnotenie dôkazov v daňovom práve [Evaluation of Evidence in the Tax Law], Košice: Vydavateľstvo ŠafárikPress UPJŠ [Publishers ŠafárikPress UPJŠ], 2020
- Schuett, J., Defining the scope of AI regulations
Available at:
<http://dx.doi.org/10.2139/ssrn.3453632>, accessed: 28th August 2021
- Wang, P.: On defining artificial intelligence, Journal of Artificial General Intelligence, vol. 10, no. 2, 2019

Legal Acts

- Proposal for a Regulation of the European Parliament and of the Council laying down Harmonised Rules on Artificial Intelligence (Artificial Intelligence Act) and amending certain Union Legislative Acts {SEC(2021) 167 final} - {SWD(2021) 84 final} - {SWD(2021) 85 final}.
- ANNEXES to the Proposal for a Regulation of the European Parliament and of the Council laying down Harmonised Rules on Artificial Intelligence (Artificial Intelligence Act) and amending certain Union Legislative Acts {SEC(2021) 167 final} - {SWD(2021) 84 final} - {SWD(2021) 85 final}.
- Zákon č. 185/2015 Z. z. autorský zákon v znení neskorších predpisov [Act no. 185/2015 Coll. Copyright Act as amended].

Other Official Documents

- A definition of AI: Main capabilities and scientific disciplines
Available at:
<https://digital-strategy.ec.europa.eu/en/library/ethics-guidelines-trustworthy-ai>, accessed: 28th August 2021
- Communication on Fostering a European approach to Artificial Intelligence.
Available at:
<https://digital-strategy.ec.europa.eu/en/library/coordinated-plan-artificial-intelligence-2021-review>, accessed: 28th August 2021
- Directorate-General for Internal Policies – Policy Department Citizens' Rights and Constitutional Affairs – European Civil Law Rules in Robotics: Study for the JURI Committee, 2016
Available at:
[https://www.europarl.europa.eu/RegData/etudes/STUD/2016/571379/IPOL_STU\(2016\)571379_EN.pdf](https://www.europarl.europa.eu/RegData/etudes/STUD/2016/571379/IPOL_STU(2016)571379_EN.pdf), accessed: 28th August 2021
- Ethics guidelines for trustworthy AI.
Available at:
<https://digital-strategy.ec.europa.eu/en/library/ethics-guidelines-trustworthy-ai>, accessed: 28th August 2021