Future Taxation of Robots: An EU Perspective

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1. Introduction

The rapid advancement of robotics and artificial intelligence (AI) has sparked global discussions about their economic and social implications, particularly their impact on the labour market and tax systems. Concerns have emerged regarding technological unemployment, economic inequality and the erosion of the labour tax base due to widespread human-machine substitution. One key debate is whether, in light of the current technological revolution and in response to the above-mentioned economic shift, taxation on robots should be implemented and, if so, how it should be structured. This note examines whether robots could be classified as taxable persons under EU law from a direct and indirect tax perspective and explores potential future tax frameworks for robotics.

2. Robots as Taxable Persons from a Direct Tax Perspective

Why would it matter?

As automation continues to reshape the workforce, policymakers have explored the possibility of imposing a direct tax on robots to offset revenue losses from declining human employment.

One of the most widely discussed proposals is the taxation of robot labour – a measure aimed at compensating for reduced income tax revenues as machines replace human workers. In sectors such as manufacturing and the service industries, robots are increasingly performing roles traditionally held by people, as in the case of robotic servers in restaurants and automated assembly-line workers in factories. Since fewer human employees would be paying income tax and social security contributions, governments could as a result face significant shortfalls in public revenues. A tax on robots' earnings – similar to how wages are taxed – has been suggested as a way to ensure that businesses continue to contribute to public finances even as they automate their workforces.

Legal and technical considerations

However, implementing a tax on robot labour presents several challenges. The first challenge is the legal status of a robot and, subsequently, its liability to taxation, which effectively leads to the fundamental "subject-to-tax" question. Direct taxes are typically imposed on individuals or entities with legal personality. Without legal personality, robots cannot be viewed as potentially subject to tax. Granting legal personality to robots would require a fundamental shift in EU law, raising complex legal and ethical questions. Moreover, if the European Union were to pursue this route, a harmonized legal framework would be necessary to prevent tax disparities among Member States, ensuring businesses do not relocate to jurisdictions with more favourable tax treatment.

The second challenge comes from defining and measuring the income from robots. Even if robots were granted legal personality, a fundamental question arises: how should their "income" be calculated? Should it be based on the wages they replace, the cost savings they provide or another metric entirely? Unlike human workers, robots do not receive salaries, benefits or personal income, making traditional taxation models difficult to apply.

The third challenge concerns the economic and administrative considerations. The imposition of a labour tax on robots could lead to unintended economic consequences. If the tax is too high, it could discourage automation and slow technological progress, potentially harming innovation and economic growth. Additionally, implementing and enforcing such a tax would require substantial administrative oversight, adding to the compliance burden for businesses and tax authorities.

Open questions and policy considerations

While taxing robot labour may seem like a viable solution to address declining income tax revenues, it raises significant legal, economic and administrative challenges. The lack of legal personality for robots makes their classification as taxable persons difficult, while defining their taxable income remains highly complex. Furthermore, a poorly designed tax could stifle innovation and create burdensome compliance requirements. As automation advances, policymakers will need to carefully balance the goals of tax fairness, economic efficiency and technological progress in any potential taxation framework

3. Robots as Taxable Persons from a VAT Perspective

Setting the background

From a VAT perspective, robots could potentially be subject to indirect taxation as "objects of taxation" – that is, in cases in which they are involved in the supply of goods or services. However, an open question remains: could robots themselves be liable for VAT in the capacity of legal persons? Before exploring the feasibility of imposing VAT on robots as legal persons, it is important to take a step back and examine the conceptual basis for such a framework.

Legal and technical considerations

Article 113 of the Treaty on the Functioning of the European Union (TFEU) provides the legal basis for the European Union to establish common rules on indirect taxation, including VAT. It allows the European Union to adopt directives to ensure the uniform application of VAT across Member States.

For robots to be subject to VAT, they need to be recognized as taxable persons, which first requires granting them legal personality. VAT is a tax on the value added at each stage of the supply chain by taxable persons. Without legal personality, it becomes challenging to attribute the value added by robots and ensure proper tax collection. For the purposes of this analysis, it is assumed that legal personality can be attributed to robots, which in turn leads to the second step of the analysis, i.e. examining whether they can be seen as taxable persons.

Article 9(1) of the VAT Directive (2006/112) introduces the concept of a taxable person for VAT purposes, defining it as any person who independently carries out any economic activity, regardless of the purpose or results of that activity. The term "person" is interpreted broadly for VAT purposes, as shown by the ECJ judgments in Cases *C-340/15, Nigl* and *C-276/14, Gmina Wroclaw*. These judgments indicate that there are no specific limitations on what constitutes a person for VAT purposes, whether natural or legal, public or private, or even entities without legal personality, as long as they meet the relevant VAT provisions. This allows for a broad definition of "person". However, there is no consistent EU case law or uniform EU legislative measures addressing whether robots can be considered taxable persons for VAT purposes.

A key requirement for VAT liability is the performance of "independent economic activity". For robots to be considered taxable persons, they must independently engage in economic activities such as production or service provision. This ensures that the value added by their activities can be properly taxed. Without economic activity, it would be challenging to attribute to and collect VAT from robots. This means that robots would not only need to be treated as persons but would also need to act with their own legal capacity. According to Xavier Oberson in Taxing Robots (2019), future trends might see robots becoming "smart" enough to be considered independent. However, this is currently challenging, as robots remain under human control, even if they can fully perform certain activities.

- Open questions and policy considerations

Assuming robots could be deemed taxable persons for VAT purposes, despite the technical obstacles touched upon earlier, several challenges would arise, such as the issuance of invoices, the submission of VAT declarations and the possibility of VAT refunds. Given current VAT provisions, it is difficult to imagine robots handling these tasks autonomously.

In summary, while it is not theoretically forbidden for robots to be taxable persons for VAT purposes due to the broad definition of "person", significant challenges remain. These include robots' relationships with customers and their ability to identify themselves as the "real" suppliers. It is advisable to further develop case law and potentially amend applicable VAT provisions to clearly outline the possibility of robots having their own rights and obligations for VAT purposes. Ultimately, the key question remains whether such measures would positively impact the EU VAT system as a whole – a question that has yet to be answered.

4. Conclusion

The increasing automation of the workforce raises critical questions about how robots should be treated within the European Union's taxation framework. From an indirect taxation perspective, applying VAT to robots would necessitate classifying them as taxable persons, which would first require granting them legal personality. Even if they were recognized as such, defining their economic activity and ensuring compliance with VAT regulations would present significant administrative challenges.

Similarly, from a direct taxation perspective, imposing a labour tax on robots is complex, due to their lack of legal personality, uncertainties regarding their subject-to-tax status and the difficulty in determining their taxable income. While such a tax could help offset declining income tax revenues caused by automation, it could also create unintended economic consequences, discouraging innovation and placing a compliance burden on businesses.

Both direct and indirect taxation approaches face fundamental legal, economic and administrative obstacles. For taxation on robots to be feasible, the European Union would need to redefine and expand the concept of legal personality, establish clear tax rules and ensure harmonization across Member States. As automation continues to evolve, policymakers must strike a balance between fiscal sustainability, technological progress and economic fairness in any future taxation framework.

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