

Editorial

AI-Based Profiling by Tax Authorities: Exploring GDPR Constraints and Explainability

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The article highlights growing legal concerns around the use of AI-based profiling by tax authorities, particularly regarding transparency and citizen rights. It emphasizes the General Data Protection Regulation's (GDPR's) prohibition of automated decision-making without human intervention, unless properly authorized and safeguarded. The CJEU clarified that 'meaningful information about the logic involved' must be provided in an accessible and intelligible way, not as complex formulas. Counterfactual explanations – offering 'what if' scenarios – are proposed as a promising technique to enhance transparency and meet GDPR requirements. The author advocates for more multidisciplinary collaboration to align AI-driven tax systems with legal principles, human rights, and technological advancement.

Keywords: Artificial Intelligence (AI), Tax Authorities, GDPR, Automated Decision-Making, Profiling, Transparency, Explainable AI (XAI), Counterfactual Explanations, European Court of Justice (CJEU), Multidisciplinary Research

1 INTRODUCTION

In my previous editorial, I addressed the growing application of artificial intelligence (AI) by tax authorities within the European Union, outlining its benefits, associated risks and the need for a suitable legal framework.¹ In this article, I focus on the transparency of automated profiling processes in response to a recent non-tax ruling by the Court of Justice.² This ruling points to a growing need for multidisciplinary scientific research.³

2 AI, PROFILING AND TRANSPARENCY

AI is often used for risk scoring. This involves an algorithm automatically assigning a risk value to a person,

organization or situation. For example, with a risk score, a bank can predict how likely someone is to repay a loan; a medical doctor can predict whether a patient is at increased health risk; and the tax authorities can predict whether a taxpayer is at a surged risk of fraud and should be subject to enhanced scrutiny.

AI tools used in this way by tax authorities are in any case subject to the requirements of the General Data Protection Regulation (hereinafter 'GDPR') which focusses on the processing of personal data, including data processing through AI (Article 2.1 of the GDPR).

The GDPR is based on a principled prohibition of automated decisions involving the processing of personal data where it could significantly affect citizens' lives. Article 22.1 of the GDPR⁴ outlines this prohibition and applies also to decisions that significantly affect taxpayers. In principle, such decisions may not be made solely through automated processing of personal data; human oversight remains essential.⁵ However, in certain well-defined situations and under certain conditions, it is allowed that individual decisions are taken without

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¹ B. Peeters, *European Law Restrictions on Tax Authorities' Use of Artificial Intelligence Systems: Reflections on Some Recent Developments*, 33(2) EC-Tax Review 54–57 (2024), doi: 10.54648/ECTA2024006. For a comprehensive overview of how tax authorities in the EU, OECD, and beyond are leveraging artificial intelligence (AI) algorithms, visit taxadmin.ai – an open-access, citizen-science repository initiated by D. Hadwick at the DigiTax Centre of Excellence, University of Antwerp <https://www.uantwerpen.be/en/projects/aitax/> (accessed 17 Jul. 2025).

² CJEU 27 Feb. 2025, C-203/22, *CK t. Magistrat der Stadt Wien, other party Dun & Bradstreet Austria GmbH*, ECLI:EU:C:2025:117 (hereafter the *Dun & Bradstreet* case).

³ See also the notable contributions on this subject by C. Brokelind, *Interdisciplinary or Multidisciplinary Studies of Taxation? The Case of DigiTax*, in *Liber Amicorum Bruno Peeters* vol. 1, 157–170 (A. Van de Vijver en S. De Raedt eds, Knops Publishing, Herentals 2025) and S. De Raedt, D. Martens & T. Calders, *Kruisbestuiving tussen het computerwetenschappelijk en het fiscaal-juridisch onderzoek: de DigiTax-Case in Liber Amicorum Bruno Peeters* vol. 1, 321–340 (A. Van de Vijver en S. De Raedt eds, Knops Publishing, Herentals 2025).

⁴ See e.g., CJEU, 7 Dec. 2023, C-634/21, *OQ v. Land Hessen, intervenier Schufa Holding AG*, ECL: EU:C:2023.957, para. 73: in this judgment the European Court of Justice held that Art. 22(1) of the GDPR must be interpreted as meaning that the automated establishment, by a credit information agency, of a probability value based on personal data relating to a person and concerning his or her ability to meet payment commitments in the future constitutes 'automated individual decision-making' within the meaning of that provision, where a third party, to which that probability value is transmitted, draws strongly on that probability value to establish, implement or terminate a contractual relationship with that person.

⁵ Guidelines on Automated individual decision-making and Profiling for the purposes of Regulation 2016/679 (wp251rev.01), <https://ec.europa.eu/newsroom/article29/items/612053> (accessed 17 Jul. 2025).

human intervention (Article 22(2) of the GDPR). According to Article 22 (2) b GDPR public authorities, including tax authorities, can take automated decisions without human intervention if this is 'authorised by Union or Member State law to which the controller is subject' (Article 22(2)(b) GDPR). In that case, however, the law must provide 'suitable measures to safeguard the data subject's rights and freedoms and legitimate interests (Article 22(2) b GDPR). At first sight the GDPR leaves Member States a great deal of discretion in choosing these measures. However, recital 71 *in fine* of the preliminary considerations of the GDPR provides some guidance on what measures could be considered, including a call for transparency: automated processing (including profiling⁶) 'should be subject to suitable safeguards, which should include specific information to the data subject and the right to obtain human intervention, to express his or her point of view, **to obtain an explanation of the decision reached after such assessment** and to challenge the decision' (emphasis added).

One of the basic principles governing the protection of personal data is the principle of transparency.⁷ This principle must enable data subjects to verify compliance with the other principles relating to the protection of personal data and ensure that the processing of their personal data does not violate their fundamental rights (including the right not to be discriminated against). In the case of automated decision-making, for example, the controller responsible for processing personal data is required to provide 'meaningful information about the logic involved, as well as the significance and envisaged consequences of such processing for the data subject'. (Article 15.1 h) of the GDPR).

This raises the question of what is meant by 'meaningful information about the logic involved' (see *infra* sub 3)

3 'MEANINGFUL INFORMATION ABOUT THE LOGIC INVOLVED'

3.1 European Data Protection Board and the Former Article 29 Working Party

In its Opinion 28/2024 of 17 December 2024⁸ the European Data Protection Board (hereafter: EDPB)

has indicated that considering the complexity of the technologies involved, information on the processing of personal data within AI models should be provided in an accessible, understandable and user-friendly way. In this respect the EDPB refers also to the findings of the former Article 29 Working Party (hereafter: WP 29).⁹ The growth and complexity of machine-learning can make it challenging to understand how an automated decision-making process or profiling works. According to the WP 29:

*the controller should find simple ways to tell the data subject about the rationale behind, or the criteria relied on in reaching the decision. The GDPR requires the controller to provide meaningful information about the logic involved, not necessarily a complex explanation of the algorithms used or a disclosure of the full algorithm. The information provided should, however, be sufficiently comprehensive for the data subject to understand the reasons for the decision.*¹⁰

3.2 European Court of Justice

In the aforementioned Dun & Bradstreet judgment of 27 February 2025, the Court of Justice ruled on the right to transparency in the context of automated data processing, including profiling, in a non-tax dispute. In this case, a mobile phone contract was denied to an Austrian citizen (CK) due to a negative credit assessment. This assessment was carried out automatically by Dun & Bradstreet Austria GmbH, a credit rating agency. Having had no prior financial issues, CK challenged the decision and sought an

Dec. 2024, n° 63 https://www.edpb.europa.eu/our-work-tools/our-documents/opinion-board-art-64/opinion-282024-certain-data-protection-aspects_en (accessed 17 Jul. 2025).

⁹ More specifically the Art. 29 Working Party ('WP 29') Guidelines on Automated individual decision-making and Profiling for the purposes of Regulation 2016/679 (see EDPB, Opinion 28/2024, *supra* n. 8, at 10). The Art. 29 Working Party officially ceased to exist on 25 May 2018- the same day the GDPR came into force. It was replaced by the EDPB which now carries forward its mission of ensuring consistent application of data protection rules across the EU.

¹⁰ WP 29, Guidelines on Automated individual decision-making and Profiling for the purposes of Regulation 2016/679, at 25, <https://ec.europa.eu/newsroom/article29/items/612053/en> (accessed 17 Jul. 2025). Also the so called Artificial Intelligence Act imposes a comparable transparency obligation for high-risk AI-systems (Art. 13.1 Regulation (EU) 2024/1689 of the European Parliament and of the Council of 13 Jun. 2024 laying down harmonized rules on artificial intelligence and amending Regulations (EC) No 300/2008, (EU) No 167/2013, (EU) No 168/2013, (EU) 2018/858, (EU) 2018/1139 and (EU) 2019/2144 and Directives 2014/90/EU, (EU) 2016/797 and (EU) 2020/1828 (hereafter AI Act). However, recital 59 preceding the AI Act suggests that an AI model that detects tax fraud is not considered a high-risk AI model, at least not to the extent that it is used by tax authorities rather than criminal justice authorities ('AI systems specifically intended to be used for administrative proceedings by tax and customs authorities as well as by financial intelligence units carrying out administrative tasks analysing information pursuant to Union anti-money laundering law should not be classified as high-risk AI systems used by law enforcement authorities for the purpose of prevention, detection, investigation and prosecution of criminal offences').

⁶ According to Art. 4 point 4 of the GDPR 'profiling' means any form of automated processing of personal data consisting of the use of personal data to evaluate certain personal aspects relating to a natural person, in particular to analyse or predict aspects concerning that natural person's performance at work, economic situation, health, personal preferences, interests, reliability, behaviour, location or movement.

⁷ According to recital 58 of the preliminary observations of the GDPR the principle of transparency requires that any information addressed to the public or to the data subject be concise, easily accessible and easy to understand, and that clear and plain language and, additionally, where appropriate, visualization be used. De Raedt, Martens & Calders, *supra* n. 3, at 335.

⁸ EDPB, Opinion 28/2024 on certain data protection aspects related to the processing of personal data in the context of AI models 17

explanation of the logic behind the automated profiling. He requested access to information under Article 15(1)(h) of the GDPR, which guarantees the right to ‘meaningful information about the logic involved’ in automated decision-making.

According to the Court of Justice Article 15 (1)(h) of the GDPR must be interpreted:

*as meaning that, in the case of automated decision-making, including profiling, within the meaning of Article 22(1) of that regulation, the data subject may require the controller, as ‘meaningful information about the logic involved’, to explain, by means of relevant information and in a concise, transparent, intelligible and easily accessible form, the procedure and principles actually applied in order to use, by automated means, the personal data concerning that person with a view to obtaining a specific result, such as a credit profile.*¹¹ (emphasis added)

The wording of Article 15(1)(h) of the GDPR covers all relevant information relating to the use of personal data by automated means for the purpose of obtaining a specific result, and the principles and procedures involved. This also includes information relating to automated decision-making (see paragraphs 43 and 48).

The Court emphasized that these requirements cannot be met either by simply sharing a complex mathematical formula, such as an algorithm, or detailing every step in the automated decision-making; such disclosures lack the necessary clarity and accessibility (paragraph 59). The controller should find simple ways to tell the data subject about the rationale behind, or the criteria relied on in reaching the automated decision. The Court refers also to the above mentioned WP 29 Guidelines requiring the controller to provide meaningful information about the logic involved in that decision but ‘not necessarily a complex explanation of the algorithms used or disclosure of the full algorithm’ (paragraph 60).

Specifically with regard to the profiling process, the Court of Justice suggests that ‘the referring court could, inter alia, find that it is sufficiently transparent and intelligible to inform the data subject of the extent to which a variation in the personal data taken into account would have led to a different result’ (paragraph 62). This last consideration is particularly interesting because it seems to refer to the possibilities offered by Explainable AI (XAI), and in particular by counterfactual explanations (see *infra* sub 4).

¹¹ CJEU 27 Feb. 2025, C-203/22, CK t. Magistrat der Stadt Wien, other party Dun & Bradstreet Austria GmbH, ECLI:EU:C:2025:117, para. 71.1. When asked how this right to useful information about the underlying logic relates to the protection of trade secrets or third-party data, the Court ruled that the controller must provide the allegedly protected information to the competent supervisory authority or court where appropriate. This authority or court must then balance the rights and interests at issue to determine the extent of the data subject’s right of access under Art. 15 of the GDPR (CJEU 27 Feb. 2025, C-203/22, CK t. Magistrat der Stadt Wien, other party Dun & Bradstreet Austria GmbH, ECLI:EU:C:2025:117, para. 71.2). I will not discuss this last point in any further detail here.

4 COUNTERFACTUAL EXPLANATIONS

A frequently heard objection to AI applications is that they function as a kind of black box, making it difficult or even impossible to determine why a particular decision was made. On the other hand, tax authorities object that a detailed explanation of the automated decision-making process allows taxpayers to adjust their behaviour and remain under the radar, while still engaging in tax non-compliance. As a result, there is much hard work¹² but also discussion¹³ going into the ‘explainability’ of AI applications, also in the tax domain. Recent literature suggest that XAI can play an important role in complying with legal transparency obligations in general and the transparency obligations of the GDPR in particular, which apply when deploying AI.¹⁴

Essentially, XAI revolves around providing explanations for complex AI models, at both the level of individual predictions and the level of how the models themselves function.¹⁵ An interesting part of XAI is the so-called ‘counterfactual explanation’, which is a type of explanation that is used to explain why something did not happen, as opposed to explaining what happened. Rather than unpacking the complex inner workings of an algorithm, counterfactual explanations offer hypothetical alternatives to demonstrate how minor changes in input could have led to a different outcome. In essence, it is about answering the question: What changes would have been necessary to produce a different outcome from the AI model?

In the Dun & Bradstreet case discussed above, it appears that the Court of Justice allows the referring court to decide that the requirement of transparency and intelligibility within the meaning of Article 15. 1 of the GDPR is met if the data subject is provided with a counterfactual explanation showing the extent to which a different result would have been obtained if other personal data had been considered.

¹² A. o: Ł. Górski, B. Kuźniacki, M. Almada, K. Tyliński, M. Calvo, P. M. Asnaghi, L. Almada, H. Iñiguez, F. Rubianes, O. Pera & J. I. Nigrelli, *Exploring Explainable AI in the Tax Domain*, Artificial Intelligence & L. (2024), doi: 10.1007/s10506-024-09395-w (accessed 17 Jul. 2025); D. Brughmans, *Counterfactual Explanations for Real-World Applications*, Doctoral thesis, University of Antwerp, xiv, 164 (2023); D. Brughmans, L. Melis & D. Martens, *Disagreement Amongst Counterfactual Explanations: How Transparency Can Be Misleading*, 32 Top 429–462 (2024), doi: 10.1007/s11750-024-00670-2; S. De Raedt, D. Brughmans and D. Martens, *Waarom krijg ik fiscale controle? Naar meer transparantie bij de geautomatiseerde besluitvorming bij de fiscale overheid* 607–612 (Tijdschrift voor Fiscaal Recht 2021); S. Wachter, B. Mittelstadt & C. Russel, *Counterfactual Explanations Without Opening the Black Box: Automated Decisions and the GDPR*, 31(2) Harv. J. L. Tech. (2018), doi: 10.2139/ssrn.3063289.

¹³ Not everyone is equally enthusiastic about the possibilities offered by Machine Learning explanations as an answer to the ‘meaningful information about the involved logic of processing’ required by the GDPR, see L. Edwards & M. Veal, *Slave to the Algorithm? Why a ‘Right to an Explanation’ is Probably Not The remedy You Are Looking for* 18–84 (Duke Law and Technology 2017), <https://scholarship.law.duke.edu/dlir/vol16/iss1/2> (accessed 17 Jul. 2025).

¹⁴ See footnote 13.

¹⁵ De Raedt, Martens & Calders, *supra* n. 3, at 335.

5 EVALUATION

In interpreting the principle of transparency, and more specifically in assessing whether the requirement to provide ‘meaningful information about the logic involved’ under Article 15(1)(h) of the GDPR is met, it is to be welcomed that the Court of Justice leaves room for new technical developments, such as counterfactual explanations. However, research shows that in the field of XAI, different methods can generate different explanations for a single prediction made by a predictive algorithm.¹⁶

This raises the question of what criteria an explanation of an algorithm-driven decision must meet to comply with the GDPR’s transparency requirements. Recently, it is suggested that these criteria should be determined from the perspective of the transparency principle’s objective in the GDPR. Data subjects should be able to verify that the other GDPR principles have been respected, including the principles of proportionality and the prohibition of processing sensitive data, as well as fundamental rights such as the right not to be discriminated against. However, it is unclear whether

this objective can be achieved with a single explanation.¹⁷

As the above makes clear, implementing a transparent taxation model involving complex algorithmic decisions requires a thorough examination of the legal principles that (should) govern it. This must take into account technological advances and ever-evolving insights from data science. The legislation does not specify which techniques should be used. Conversely, research in AI has not yet reached a consensus on methods to ensure transparency, explainability, and non-discrimination. To arrive at a taxation model that aligns with technological progress while also taking fundamental rights and freedoms into account, thorough legal and technical cooperation is required.¹⁸

With this call for more multidisciplinary research in the field of taxation I would like to conclude my farewell editorial for EC-Tax Review. It has been an honour to serve on the editorial board of this journal since 2008. I extend my sincere wishes for a prosperous future to all editorial board members and readers.

¹⁶ Brughmans, Melis & Martens, *supra* n. 12, at 429–462.

¹⁷ De Raedt, Martens & Calders, *supra* n. 3, at 335.

¹⁸ See also De Raedt, Martens & Calders, *supra* n. 3, at 336 and C. Brokelind, *Interdisciplinary or Multidisciplinary Studies of Taxation? The Case of Digitax (2025)*, *l.c.*, at 169–170.