



UNIVERSITY OF AMSTERDAM
Amsterdam Centre for Tax Law

**CPT
Conference**



**Towards
eXplainable
Artificial Intelligence
(XAI) in Taxation:
*The Future of Good
Tax Governance***

10 March 2023





Designing the tax system for a cashless, platform-based and technology-driven society

“Towards eXplainable Artificial Intelligence (XAI) in Taxation: *The Future of Good Tax Governance*”

Although AI is a global phenomenon with powerful implications for almost every aspect of our daily lives, including taxation, little has been done yet in terms of regulating the use of AI in the least harmful way (harmful to all interested parties, including taxpayers, tax authorities and the developers of AI systems). The use of AI in tax domain (tax AI) is one of the more conspicuous regulatory gaps in that regard. To ensure successful outcomes, **tax and human rights lawyers and computer scientists should work together on approaches that address the potential harm of using AI technologies in taxation.** This Conference focuses on one such approach: explainable AI (XAI), that is, the development of techniques that make the functioning of an AI system understandable for a given audience. The problem with tax XAI is exacerbated by the technical complexity of the world’s most efficient AI systems, which rely on vast amounts of data and machine learning algorithms, typically deep neural networks. The path towards XAI in tax law would therefore appear to be cluttered with unsurmountable legal and technical obstacles. The present Conference aims to show, however, that these obstacles not only should be overcome but also can be overcome, albeit with major efforts on the part of the international research community, national legislators, tax administrations and companies providing tax AI tools. The ultimate goal is to **strike a balance between minimizing the potential harm to taxpayers and maximizing the efficiency of tax authorities**, which could be achieved by following XAI guidelines in the design, deployment and implementation of tax AI. Striking that balance aims to path a way to the **future of good tax governance.**

This Conference is organized by the Amsterdam Centre for Tax Law (ACTL) of the University of Amsterdam (UvA) under the umbrella of the research project “Designing the tax system for a Cashless, Platform-based and Technology-driven society” ([CPT project](#)) and is also supported in part by [The Notre Dame-IBM Tech Ethics Lab’s scientific grant](#).

10 March 2023

CPT Conference

Towards eXplainable Artificial Intelligence (XAI) in Taxation: *The Future of Good Tax Governance*

Chairpersons, Moderators and Speakers

1. **Prof. Dr. Dennis Weber** (UvA/Loyens & Loeff)
2. **Prof. Dr. Peter Fettke** (Saarland University / German Research Center for Artificial Intelligence (DFKI))
3. **Prof. Dr. Francesca Lagioia** (European University Institute and University of Bologna)
4. **Dr. Giulia Gentile** (LSE Law School)
5. **Dr. Melanie Fink** (Leiden University)
6. **Dr. Błażej Kuźniacki** (UvA/PwC Netherlands)
7. **Dr. Łukasz Górski** (University of Warsaw)
8. **Dr. Jean-Christoph Gaasch** (German Federal Central Tax Office)
9. **Mr. Arthur van der Linden** (University of Tilburg/ the Dutch tax authorities)
10. **Mr. Dieter Brughmans** (University of Antwerp)
11. **Mr. Marco Almada** (European University Institute)
12. **Mr. Kamil Tyliński** (University College London)
13. **Mr. Jan Winterhalter** (University of Leipzig)
14. **Ms. Evelyn Liivamägi** (Ministry of Finance of Estonia)
15. **Mr. Paolo Valerio Barbantini** (Italian Revenue Agency)
16. **Mr. Krzysztof Śledzikowski** (Poland's National Revenue Administration)
17. **Ms. Anita Kruczkowska-Lassak** (Poland's National Revenue Administration)
18. **Ms. Valentina Ion** (Microsoft Corporation)



Program

8:50 – 9:00 OPENING

Prof. Dr. Dennis Weber (UvA/Loyens & Loeff)
& **Dr. Błażej Kuźniacki** (UvA/PwC Netherlands)

9:00 – 9:45 KEYNOTE SPEECH

Prof. Dr. Peter Fettke (Professor of Business Informatics, Saarland University, and German Research Center for Artificial Intelligence (DFKI), Germany)
“Explainable Artificial Intelligence (XAI) Supporting Public Administration Processes – On the Potential of XAI in Tax Audit”

9:45 – 10:45 PRESENTATION OF RESEARCH OUTCOMES ON TAX XAI

Theoretical (Legal) and Empirical (Technological) Aspects of Tax XAI

Legal Analysis

“Towards eXplainable Artificial Intelligence (XAI) in Tax Law: The Need for a Minimum Legal Standard”, as published in the World Tax Journal

- **Dr. Błażej Kuźniacki** (Assistant Professor in Tax & Technology at the Amsterdam Centre for Tax Law, School of Law, University of Amsterdam, Advisor at PwC Global Tax Policy and Senior Manager at International Tax Services PwC Netherlands)
- **Mr. Marco Almada** (Researcher at Department of Law, European University Institute, Florence, Italy)

Technological Insights

“Exploring Explanation Methods in Tax AI: Case Study based on Synthetically Generated Taxpayer’s Data Provided by the Buenos Aires Tax Authorities” (submitted to the publisher)

- **Dr. Łukasz Górski** (Assistant Professor at Interdisciplinary Centre for Mathematical and Computational Modelling, University of Warsaw, Poland)
- **Mr. Kamil Tyliński** (Lecturer, University College London)

10.45 – 11.00 COFFEE BREAK



11:00 – 12:30

INSIGHTS FROM ACADEMICS AND TAX AUTHORITIES ON AI AND XAI – Part I

Chair

Dr. Błażej Kuźniacki (Assistant Professor in Tax & Technology at the Amsterdam Centre for Tax Law, School of Law, University of Amsterdam, Advisor at PwC Global Tax Policy and Senior Manager at International Tax Services PwC Netherlands)

Presenters and topics

- **Dr. Melanie Fink** (Assistant Professor at Leiden University – Europa Institute – and APART-GSK Fellow of the Austrian Academy of Sciences at the Central European University – Department of Legal Studies) *“Reasoned A(I)dmistration: Explanation Requirements in EU Law and the Automation of Public Administration”*
- **Mr. Krzysztof Śledzikowski** (Data Analyst and Expert at the Poland’s National Revenue Administration) and **Ms. Anita Kruczkowska-Lassak** (Head of Combating Carousel VAT Frauds Unit at the Poland’s Ministry of Finance and Member of Operational Team in the Transaction Network Analysis (TNA) Project) *“How to explain inexplicable – the use of graphs and graph databases in big data analysis”*
- **Mr. Dieter Brughmans** (PhD Research Fellow in Departement Engineering Management at the University of Antwerp) *“Explainable Techniques to Contribute to More Fair and Transparent Tax AI”*

12:30 – 13:30

LUNCH BREAK





13:30 – 15:30

INSIGHTS FROM ACADEMICS, TAX AUTHORITIES AND TECH INDUSTRY REPRESENTATIVE ON AI AND XAI

Part II

Chair

Prof. Dr. Francesca Lagioia (Senior Research Fellow at the European University Institute (EUI), Florence (Italy) and Adjunct Professor in Legal Informatics and AI and Law and Internet Law and Society, at the University of Bologna, Department of Legal Studies)

Presenters and topics

- **Dr. Giulia Gentile** (Fellow in Law at the LSE Law School) *"The European Convention of Human Right and the EU Charter: Effective Legal Protection Against Abuse of AI in Public Domain?"*
- **Ms. Evelyn Liivamägi** (Deputy Secretary General for Financial and Tax Policy Ministry of Finance of Estonia) *"Risk Analyses Tools Supporting Estonian Tax Authority in Detecting Tax Fraud"*
- **Dr. Jean-Christoph Gaasch** (Deputy Head of Section IT-Management, German Federal Central Tax Office) *"First experiences with AI driven tax data analytics in the Federal Central Tax Office: Functionality and Code of Conduct"*
- **Ms. Valentina Ion** (Director, Strategy Public Finance Industry, Microsoft Corporation) *"Co-innovating with the Government: building industry AI models to help improve tax compliance: the journey, learning and output"*

Panel discussion and Q&A

15:30 – 16:00

BREAK (time for refreshments)

16:00 – 18:00

INSIGHTS FROM ACADEMICS AND TAX AUTHORITIES ON AI AND XAI – Part III

Chair

Dr. Melanie Fink (Assistant Professor at Leiden University – Europa Institute – and APART-GSK Fellow of the Austrian Academy of Sciences at the Central European University – Department of Legal Studies)

Presenters and topics

- **Prof. Dr. Francesca Lagioia** (Senior Research Fellow at the European University Institute (EUI), Florence (Italy) and Adjunct Professor in Legal Informatics and AI and Law and Internet Law and Society, at the University of Bologna, Department of Legal Studies), *“Algorithmic fairness through group parities? The case of COMPAS-SAPMOC – A Lesson to Use of AI in Tax Domain”*
- **Mr. Jan Winterhalter** (PhD Research Fellow of the Heinrich Böll Foundation at the University of Leipzig), *“Documentation of the digital economy: Perspective of law and technology on creating a digital twin for XAI”*
- **Mr. Paolo Valerio Barbantini** (Deputy Director General of Agenzia delle Entrate - Italian Revenue Agency) *“The use of AI/ML by the Italian Revenue Agency: ensuring the right balance between explainable and non-supervised algorithms”*
- **Mr. Arthur van der Linden** (Lecturer and Coordinator for the course Introduction Tax Technology at Tilburg University and a Specialist Advisor Tax & Technology at the Dutch Tax Authorities) *“Selecting risky tax returns with the use of machine learning and rules based (If This Then That, IFTTT) approach by the Dutch tax authorities”*

18:00 – 18:10

CLOSING REMARKS

Prof. Dr. Dennis Weber (UvA/Loyens & Loeff)
& **Dr. Błażej Kuźniacki** (UvA/PwC Netherlands)

18:10

DRINKS



Location

University of Amsterdam - Roeterseilandcampus

CREA | Music Hall
Nieuwe Achtergracht 170
1018 WV Amsterdam

Registration

You can register via actl.uva.nl > News & Events

- The participation fee is 150 euro for non-students. For UvA students, attendance to the seminar is free (registration mandatory)
- This conference qualifies for 6 NOB PE hours.

Organisation/sponsors

This Conference is organized by the Amsterdam Centre for Tax Law (ACTL) of the University of Amsterdam (UvA) under the umbrella of the research project "Designing the tax system for a Cashless, Platform-based and Technology-driven society" ([CPT project](#)) and is also supported in part by [The Notre Dame-IBM Tech Ethics Lab's scientific grant](#).

About the CPT-project

Whenever major economic or social changes occur, tax systems must follow suit. Working from the assumption that society is in the process of transitioning to a new economic model, accelerated by the corona crisis, the CPT project examines how tax systems can be designed and structured for a society based primarily on cashless payment methods, online platforms and digital technologies, such as artificial intelligence and blockchain. The ultimate goal of the CPT project is to arrive at concrete recommendations to help governments, businesses and NGOs address problems under current tax systems and/or introduce structural tax reforms. The project also aims at providing guidelines and/or minimum standards for the redesign of modern tax systems. As an independent and inclusive initiative with a strong impact on society, the CPT project is financed with University funding and with funds provided by external stakeholders (i.e. businesses and governments) who are interested in supporting academic research to design fair, efficient and fraud-proof tax systems. Stakeholders participating and financing this project include the private commercial organizations **Ernst & Young (EY), Gatti Pavesi Bianchi Ludovici, Loyens & Loeff, Maisto e Associati, Microsoft, Netflix and NEXI Group**; Other organizations supporting this initiative are the **Dutch Association of Tax Advisers (NOB)** and the **Dutch Branch of the International Fiscal Association (IFA)**.

Part of the CPT project is also financed by the **Netherlands legal research agenda 2019–2025** on Digital Legal Studies, and the project forms part of Amsterdam Law School '[Digital Transformation of Decision-Making](#)' initiative.

Other (non-commercial) partners of the CPT project are the academic institutions the **University of Cape Town (UCT)** from South Africa and the **Chulalongkorn University** from Thailand; and the **tax authority of the Autonomous City of Buenos Aires (AGIP)**.

More information

See for more information the [CPT project website](#)

