

Emina Jerković*

THE FUTURE OF TAX ADMINISTRATION: ARTIFICIAL INTELLIGENCE IN THE SERVICE OF A MORE EFFICIENT PUBLIC ADMINISTRATION

Abstract

Public administration in the Republic of Croatia comprises numerous institutions and services whose primary role is to perform administrative and executive functions in the service of citizens and legal entities. One of the key institutions in this public administration system is the Tax Administration, which operates within the Ministry of Finance of the Republic of Croatia. The main task of the Tax Administration is to collect public revenue, implement tax laws and mandatory contribution laws, supervise taxpayers and their tax compliance, and fight against tax fraud and tax evasion.

The Tax Administration in Croatia is trying to continuously modernise its services through the digitalisation and computerisation of processes. In this regard, the eTax system was introduced along with other digital tools that enable citizens and legal entities to access services in a faster and easier way. However, along with digitalisation as a starting point, the application of advanced technologies, especially artificial intelligence (AI), is increasingly being considered in order to further improve efficiency, transparency and customer service.

Artificial intelligence in the context of tax administration can be used on several levels. First, machine learning algorithms can analyse large amounts of data to identify patterns that point to possible tax irregularities or fraud and evasion. This enables a more proactive approach to inspection supervision and a better allocation of resources. Second, AI can be used to automate administrative tasks, such as processing applications, verifying tax documents, and processing tax returns. It can also help to answer frequently asked questions via chatbots. In that way, AI can reduce the workload of tax officials and increase the efficiency of the Tax Administration. Lastly, AI-based predictive analysis can be useful for budget planning and assessing the fiscal impact of specific fiscal and tax measures, thereby enabling better strategic management of public finances and more effective planning of state and local revenue expenditures.

On the other side, the application of artificial intelligence in the tax system also poses certain challenges. Key legal and ethical questions include the protection of personal data of taxpayers (natural or legal entities), who bears the liability for incorrect algorithmic assessments

* Emina Jerković, PhD is Associate Professor and Chair of Commercial Law, Financial Law, Maritime and General Transport Law at the Faculty of Law Osijek, Josip Juraj Strossmayer University of Osijek, Croatia; e-mail: ekonjic@pravos.hr; ORCID: <https://orcid.org/0000-0003-2721-1898>.

conducted by AI, transparency in decision-making of the Tax Administration, and the risk of discrimination or incorrect profiling of taxpayers. In that regard, it is necessary to clearly define the regulatory framework and establish control mechanisms that will ensure respect for the fundamental and constitutional rights of citizens.

*The aim of this paper** is to explore the pros and cons of implementing artificial intelligence in the Tax Administration of the Republic of Croatia through analysis of examples of good (and bad) practice from European and international jurisdictions.*

Keywords: *artificial intelligence, eTax system, digitalization, Republic of Croatia, Tax Administration*

1. Introduction

The field of finance, accounting and strategic decision-making in business in general is one of those that is experiencing a dramatic change precisely thanks to the application of artificial intelligence (AI). Although the use of artificial intelligence in these areas brings great changes, it also hides serious challenges. It is increasingly common for the results and recommendations of AI models, such as large language models (LLM), to be accepted without critical examination and taken “for granted”.

Each organisation and regulatory institution has specific requirements and rules, so the "artificial worker" must be deeply familiar with the business and its specificities in order to generate reports at a certain level of quality.

The availability and ease of use of certain models (ChatGPT, Claude, even Microsoft's Copilot integrated in Office 365) bring numerous advantages on the one hand, but on the other hand also open up new risks that we are often not even aware of. In the best-case scenario, wrong decisions can significantly harm the business, and in the worst-case scenario, seriously question its viability.¹

Tax preparation and compliance is an area where the industry has applied AI with notable success. These processes rely on algorithms combing through large tax data sets to find patterns and identify anomalies.

These capabilities have already helped streamline processes like risk assessment and compliance — making them more efficient for accountants, auditors and tax collectors. For example, tax audits are a type of tax-related process. They undeniably require humans to

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¹ Ivana Živković Abraham, “Umjetna inteligencija i financije? Uzeti je ‘zdravo za gotovo’ može ozbiljno ugroziti poslovanje,” *Poslovni dnevnik*, 3. kolovoza 2025, <https://www.poslovni.hr/financije/umjetna-inteligencija-i-financije-uzeti-je-zdravo-za-gotovo-moze-ozbiljno-ugroziti-poslovanje-4495887>.

determine whether someone owes money on their tax return, or they fundamentally misunderstand how taxes work.

Audits make it difficult for computers to determine whether a person has deliberately misled the government or made an honest mistake in filing taxes. This is something that only human judgment can do well.

Fraudulent returns often require careful review by trained professionals who understand how people might cheat on their taxes using various loopholes.² For example, an AI system can calculate your income taxes in seconds by crunching through data. However, it takes someone with experience to know the types of deductions you're eligible for — and which expenses you can include in your business. In short, there will still be a need for tax professionals. However, they will have to adapt to the technology and learn new skills to become more efficient. They will also need to work with AI, meaning they must understand the software and train it in certain areas of expertise.³

2. Prerequisites for Using AI and Digitalisation in Public Administration/Tax Administration

Implementing artificial intelligence (AI) in public administration/tax administration requires meeting several prerequisites, including:

- **Data availability:** Sufficient, high-quality data is needed to train and deploy AI models. This data should be accurate, reliable, and representative of the population it serves.
- **Technical expertise:** Public agencies need to have technical expertise to develop, implement, and maintain AI systems. This includes data experts, software engineers, and IT professionals who understand AI algorithms and their applications.
- **Regulatory framework:** Clear and comprehensive regulations are needed to regulate the use of AI in public administration. These regulations should address issues such as data privacy, bias, and accountability.
- **Public trust and confidence:** The public needs to trust that AI systems are being used fairly and responsibly. This requires transparency, accountability, and oversight mechanisms.
- **Collaboration and partnership:** Public agencies need to collaborate with researchers, private sector companies, and civil society organisations to develop and implement AI solutions.
- **Continuous learning and adaptation:** AI systems must continuously learn and adapt to changing circumstances. This requires continuous data collection, analysis, and model improvement.
- **Addressing bias and fairness:** AI systems must be designed and implemented in a way that reduces bias and ensures fairness. This requires careful consideration of data quality, algorithm choices, and evaluation criteria.

² Zac Amos, "AI in the Tax Industry: Can Everything Be Automated?" *Unite.AI*, August 2025, <https://www.unite.ai/ai-in-the-tax-industry-can-everything-be-automated/>.

³ Amos, "AI in the Tax Industry: Can Everything Be Automated?"

- Explainability and transparency: AI systems should be explainable and transparent, allowing users to understand how decisions were made. This can help build trust and confidence in AI systems.
- Accountability: There must be clear mechanisms to hold AI systems accountable for their decisions. This may include establishing independent oversight bodies or including AI within existing accountability frameworks.
- Customer Service: AI can provide automated support for common tasks, such as responding to citizen inquiries and processing reports, freeing up human employees for more complex and strategic work.
- Fraud Detection: AI can analyse data from various sources to identify patterns that suggest fraudulent activity, such as suspicious transactions or multiple reports from the same person.⁴

It is evident that the prerequisites are numerous and essentially equally important, although in practice, they are not given the same level of attention.

Digitalisation of tax administration is a complex and dynamic process that, given its importance, should minimise the risk of errors while emphasising system security. At the same time, the digitalisation of the tax administration implies better compliance, lower costs, and increased efficiency. Although the focus can often be on tax policy makers, the burden of implementation in practice is on the tax administration. In order to examine the cause-and-effect relationship between an adequate tax system framework and its implementation, it is important to identify current opportunities and the (under) capacity of the tax administration.⁵

3. Tax Administration, Collecting Data and AI

New technologies are influencing the work of tax administrations, forcing them to reconsider the way they fulfil their tasks, the way they manage service and tax compliance risk, and how, in light of the rise of digitalisation and AI in all social spheres, they support the development of services that make tax compliance less of a burden on taxpayers.

Through AI algorithms, tax administrations are given the opportunity to extract better business value out of collected data so they can share the support they provide to taxpayers in meeting their tax commitments while at the same time improve tax compliance, potentially reduce taxpayers burden, and hopefully increase the level of taxpayers trust in the institution itself. Without data, artificial intelligence-driven systems would make no sense, so it can be safely said that data is a kind of fuel that is the key driver of cognitive technologies.

“Data with possible relevance for public institutions comes from many different sources and can be acquired in many different ways. Government organisations, citizens, businesses, researchers and other societal stakeholders all, knowingly and unknowingly,

⁴ Velibor Božić, *Umjetna inteligencija u javnoj upravi*, <https://www.udruga-gradova.hr/umjetna-inteligencija-i-kako-je-iskoristiti/>.

⁵ Lejla Ramić, “Tax Administration Toward Digitalization in the COVID-19 Environment—Case Study Bosnia and Herzegovina,” in *Economic Analysis of Law in European Legal Scholarship* (Springer Nature Switzerland, 2023), http://dx.doi.org/10.1007/978-3-031-25059-0_6.

contribute to the generation of data, in open and closed formats, in big and small quantities, with and without structure, and of personal and non-personal nature.”⁶

Figure 2. Government Data Value Cycle

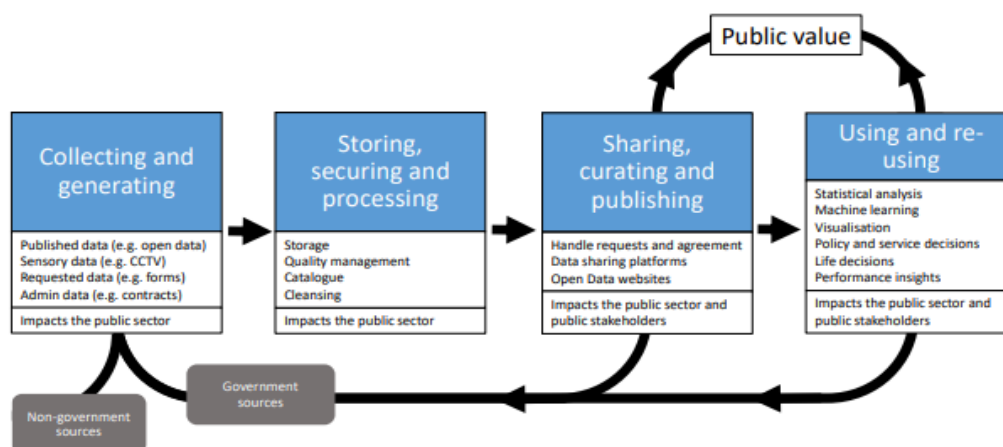


Figure 1. Government Data Value Cycle⁷

The improved management of the government data value cycle (Figure 2) can help policy makers and public officials increase their effectiveness by enhancing their capability to gather insight on existing policy problems and different stakeholders; foresee new trends and needs; design and adapt innovative policy approaches; monitor the activities undertaken and policies implemented; and manage the resources (financial, time, human and material) mobilised to address policy challenges.⁸

Tax administrations around the world are increasingly using AI in four key areas:

1. Tax return processing and administrative automation - Automated systems enable faster document processing, declaration validation and claim categorisation. This reduces the need for human intervention and speeds up the entire tax cycle.
2. Detecting tax fraud and risky behaviour - Advanced AI models are used to identify complex behavioural patterns that may indicate tax evasion. For example, a mismatch between reported profits and economic indicators is often the first indicator for closer monitoring.
3. Improving communication with taxpayers - Chatbots and digital assistants help citizens understand their tax obligations, remind them of deadlines and direct them to relevant documents or services.
4. Analytical support for fiscal policymaking - Artificial intelligence can identify micro and macroeconomic trends based on tax data, thus helping to create better-targeted and more effective public policies.

⁶ Charlotte van Ooijen, Barbara Ubaldi, and Benjamin Welby, *A Data-Driven Public Sector: Enabling the Strategic Use of Data for Productive, Inclusive and Trustworthy Governance*, OECD Working Papers on Public Governance, no. 33 (Paris: OECD Publishing, 2019), <https://doi.org/10.1787/09ab162c-en>, p. 12.

⁷ Source: van Ooijen, Ubaldi, and Welby, *A Data-Driven Public Sector*

⁸ van Ooijen, Ubaldi, and Welby, *A Data-Driven Public Sector*, p. 11.

Governments are experimenting with how Artificial Intelligence can add value to policy making and service delivery, whilst data analytics are being successfully used to support taxation, census activities, and security and policing.⁹

The application of data offers new ways of addressing the tax gap, lowering procurement costs and detecting erroneous, illegal and unethical behaviour in ways that reduce fraud, corruption and error, and increase government revenues and reduce expenditures. For example, in the United Kingdom, the Digital Economy Bill makes provision to enable data sharing for the detection and prevention of fraudulent activity in order to reduce the financial loss to the government that is happening each year.¹⁰

Analytics is being used to encourage greater acceptance of digital channels. This, in turn, is expected to create new opportunities for analytics, as tracking and experimentation are simpler and less costly in the digital environment. A range of tax administrations – including Canada, Ireland, Norway and the United Kingdom – are using a mix of predictive and prescriptive analytics techniques to manage which channels taxpayers use for inbound communications.

One particularly innovative service analytics project was highlighted in Singapore, where the text of incoming customer emails is mined to classify, analyse, and gain insights into taxpayer inquiries. This insight is then used to devise and prioritise initiatives to improve service delivery. This initiative is the subject of a more detailed case study below. Based on this analysis, the Inland Revenue Authority of Singapore (IRAS) was able to launch appropriate campaigns in a timely manner, provide more guidance on the IRAS website, and proactively update taxpayers, thereby reducing the need for taxpayers to contact IRAS. Text mining has now replaced the manual tracking of email enquiries, which has saved time and improved staff productivity. It has also enabled the IRAS to track the nature of enquiries more objectively, avoiding the inconsistencies of interpretation typical of manual tracking.¹¹

New Zealand applies similar tools for sentiment analysis and question extraction, and has also worked to achieve a customer-centric view of its data, integrating customer complaints, survey results, and risk management data to offer a more rounded picture of each taxpayer. This provides a platform for new operational practices – for example, fully customer-centric data makes it possible to treat complaints from compliant taxpayers differently from complaints from their non-compliant counterparts.¹²

It is important to emphasise that digitally mature taxpayers increasingly expect to be serviced rather than informed. Increasingly, taxpayers would rather be offered a service that can, for example, calculate a deduction and feed this information into the tax process for them, than to have to understand the information and processes in order to perform their own calculation, which they then feed into the tax process. Digital technologies offer tax administrations the

⁹ van Ooijen, Ubaldi, and Welby, *A Data-Driven Public Sector*.p. 14.

¹⁰ van Ooijen, Ubaldi, and Welby, *A Data-Driven Public Sector*.p. 23.

¹¹ OECD, *Advanced Analytics for Better Tax Administration: Putting Data to Work* (Paris: OECD Publishing, 2016), <http://dx.doi.org/10.1787/9789264256453-en>. pp.27.-28.

¹² OECD, *Advanced Analytics for Better Tax Administration*., p. 27.

opportunity to push a range of new service options to taxpayers, rather than simply providing them with access to forms or calculators.¹³

With the majority of taxpayers neither interested in the internal operation of government nor generally wanting to invest their time and effort in learning details of how to comply with tax laws and regulations, revenue bodies need to consider how they position their services to assist and guide taxpayers to meet tax obligations or receive the entitlements they might administer.¹⁴

Of course, because of the cost of developing new technologies, already developed technologies are more feasible for developing countries. However, to take full advantage, the vision and determination of the holders of economic and political powers are necessary.¹⁵

3.1. Tax Administration, AI, and taxpayer trust

AI models can produce outcomes that are unexplainable not only to taxpayers but also to auditors. When taxpayers don't understand the decisions or the decisions can't be challenged, the institutional credibility of the Tax Administration suffers.

„Participants agreed that a major ethical risk in tax AI systems lies not in their complexity but in their potential opacity. Even relatively straightforward models (those using 20 to 100 data points) can become “black boxes” if tax officials and taxpayers can't understand or audit the basis of decisions.“¹⁶

This can be seen in the example of a case with a scandalous outcome from the Netherlands, which is discussed more in subchapter 4.5.

„AI changes the role of the tax administrator hopefully for the better, but new technologies demand new skills and inclusive governance structures. AI tools are altering how tax professionals work. Risk detection, assessments and procedural decisions are increasingly assisted by AI, requiring staff to interpret and contextualize model outputs. This, participants noted, raises the bar for training and procedural clarity. Tax administrators will need to understand not only tax law, but the structure, logic and limitations of the models they rely on. The blending of statistical reasoning with legal judgment creates a new kind of complexity — one many institutions are not yet ready for.“¹⁷

One of the concerns lies in the question of which officials have access to AI tools. Given that managing AI tools requires knowledge and skills in certain tax administrations, access to AI algorithms and tools is limited to a narrow circle of tax officials.

AI is perceived as a global technology, but when it comes to regulatory fragmentation, local laws are applied. Tax data is transferred across borders on a daily basis, so potential difficulties can be posed by National AI Strategies that differ from country to country.

¹³ OECD, *Advanced Analytics for Better Tax Administration.*, p. 27.

¹⁴ OECD, *Advanced Analytics for Better Tax Administration.*, p. 26.

¹⁵ Ramić, “Tax Administration Toward Digitalization.”

¹⁶ KPMG, “AI and Ethics in Tax Administration,” *Responsible Tax*, accessed October 29, 2025, <https://responsibletax.kpmg.com/article/ai-and-ethics-in-tax-administration>

¹⁷ KPMG, “AI and Ethics in Tax Administration.”

„Participants (tax officials and taxpayers) emphasize the growing divergence in regulatory approaches. The EU’s AI Act takes a risk-based stance, while the US has adopted more deregulatory postures in some domains. Meanwhile, countries like Japan, Australia and Chile are piloting lighter-touch or sector-specific approaches. This patchwork increases the risk of regulatory arbitrage (particularly problematic in taxation, where digital data and corporate structures often span multiple jurisdictions). It also complicates the prospects for coordinated standards on transparency, fairness and accountability.“¹⁸

Both tax officials and taxpayers deem that functional regulation governing specific uses of AI is a necessity. Thus, they call for principles that are going to be internationally coordinated and principles that emphasise human oversight and due process.

4. Experiences of Tax Administrations of Other Countries with Digitalization of Tax Administration

Developed countries use artificial intelligence and digitalisation in all areas important for state governance, and the use of AI in tax administrations is no exception. Digitalisation and the use of AI in tax administrations demonstrate the technological progress of a particular country and are no longer a luxury but a common occurrence. As a rule, positive examples are cited; however, if an example of the use of AI is negative, it has far-reaching, serious consequences that spill over into the entire population and the entire economy of a particular country.

4.1. Estonia: A digital pioneer

Estonia is often cited as a model of a successful digital state. For more than two decades, this Baltic country has been successful in using technology to guide its public administration. The digital ID penetration is close to 100 per cent; 30 per cent of votes are cast digitally (in both local and national elections); almost all personal income tax declarations and medical prescriptions are done online, and most medical records held by hospitals and family doctors are accessible online. The Estonian Tax and Customs Board (ETCB) uses integrated digital systems that enable fully automated preparation and submission of tax returns – a process that often takes less than five minutes for a citizen.¹⁹

4.2. Canada Revenue Agency (CRA)

The Canada Revenue Agency (CRA) uses artificial intelligence to analyse risks, assess tax refunds, and identify irregularities in financial flows. Sophisticated machine learning algorithms are used in combination with rules based on legal norms. Furthermore, CRA uses natural language processing (NLP) to process large amounts of unstructured data from emails, documents and forms, thereby further enhancing its ability to recognise suspicious patterns in taxpayers' behaviour.

¹⁸ KPMG, “AI and Ethics in Tax Administration.”

¹⁹ Rainer Kattel and Ines Mergel, *Estonia’s Digital Transformation: Mission Mystique and the Hiding Hand*, UCL Institute for Innovation and Public Purpose Working Paper Series (IIPP WP 2018-09), 2018, <https://www.ucl.ac.uk/bartlett/public-purpose/wp2018-09>.

The Canadian approach emphasises ethical guidelines and transparency – all AI systems must undergo a human rights and privacy impact assessment before being put into operation.²⁰ The CRA also has AI ethics teams that participate in the design of each new AI initiative. It is important to note that the AI tools at the CRA are auxiliary, i.e., they do not make final decisions. Their main purpose is to suggest priorities for taking action to tax officials. This way, human responsibility is preserved, and the risk of automated error is reduced. This approach has proven to be an effective compromise between efficiency and procedural safeguards.

4.3. United Kingdom: Customer Experience and Digital Assistants

Her Majesty's Revenue and Customs (HMRC) uses artificial intelligence primarily to improve user experience. Advanced chatbots based on NLP technologies have been introduced that answer users' frequently asked questions, provide assistance with applications and enable easier navigation through tax obligations.²¹

In addition, HMRC uses predictive models to identify high-risk tax returns and thereby direct inspection capacity more effectively. Digital assistants are trained on real citizen queries and use feedback to improve their responses.

4.4. France

The French Tax Department have experienced a generous financial boost following the uncovering of thousands of undisclosed private swimming pools in the country, all thanks to the innovative use of AI. Google and French consultancy firm Capgemini developed an AI software, which identified the pools through aerial imagery from nine French regions during a trial run in October 2021. According to Statista, there were over 3.2 million private swimming pools in France in 2020, with a surge in installations due to employees working from home during the Covid pandemic. Over 20,000 concealed pools were detected by AI, resulting in an estimated 10 million euro windfall. And that's because under French law, pools must be declared as they can increase property value and subsequently raise property taxes. Le Parisien newspaper reports that an average 30 square metre pool is taxed at €200 per year. This AI technology could potentially be implemented worldwide. Software developed by Google and Capgemini can find pools in aerial imagery and compare them to land registry databases.²²

4.5. Netherlands

One of the biggest scandals happened in the Netherlands. The "Toeslagenaffaire" was a scandal related to the payment of child benefits. "Between 2005 and 2019, the Dutch Tax and Customs Administration (Belastingdienst) wrongfully accused approximately 26 000 families of fraudulently claiming childcare benefits, due to the use of flawed data and a skewed

²⁰ Government of Canada, *Directive on Automated Decision-Making*, 2020, <https://www.tbs-sct.canada.ca/pol/doc-eng.aspx?id=32592>.

²¹ UK Government, "Government's Experimental AI Chatbot to Help People Set Up Small Businesses and Find Support," *GOV.UK*, accessed October 29, 2025, <https://www.gov.uk/government/news/governments-experimental-ai-chatbot-to-help-people-set-up-small-businesses-and-find-support>.

²² "AI and Business Support Systems," *Essendon Accounts Blog*, accessed October 29, 2025, https://blog.essendonaccounts.co.uk/V1/MyAccount_USR_SuperEditor_BlogPosts_Precis_VIE.asp?ID=1620.

algorithm.”²³ The Dutch system SyRI (Systeem Risico Indicatie) was used to identify suspicious citizens who were potentially abusing social benefits. AI algorithms analysed various data (e.g., demographic information, employment patterns, and place of residence) and created a “risk profile.”

Many of these 26 000 families were targeted due to administrative errors, e.g. missing signatures. Also, the algorithm disproportionately targeted families with dual nationality or migrant backgrounds. As a consequence, these families were forced to repay tens of thousands of euros in benefits, so they ended up with considerable financial hardship, with some losing their houses and jobs. In some extreme cases, children were removed from their families. In 2020, a Dutch court declared the system unconstitutional due to the violation of the right to privacy and the non-transparency of the algorithms. The Court noted that citizens were unable to understand or challenge decisions based on algorithmic assessment, and that there was a significant risk of discrimination. The scandal resulted in the resignation of the government.

Following the Toeslagenaffaire, the Dutch Ministry of the Interior and Kingdom Relations tasked researchers at Utrecht University to develop the Human Rights and Algorithms Impact Assessment (IAMA). In 2022, the Dutch House of Representatives approved a motion to “make it mandatory to conduct this impact assessment before using algorithms when algorithms are used to make evaluations or decisions about people.”²⁴

The experience of the Netherlands with the application of artificial intelligence in public administration warns of possible negative consequences. This case highlighted the need for a clear legislative framework and oversight mechanisms for the use of AI in public bodies. It also illustrates the importance of balancing technological innovation with the protection of fundamental rights.

5. THE TAX ADMINISTRATION OF THE REPUBLIC OF CROATIA

The Tax Administration is the administrative organisation within the Ministry of Finance whose basic task is to implement tax regulations and regulations concerning the payment of obligatory contributions.

“The Tax Administration in the performance of its business activities cooperates with many public bodies such as the Financial Police, Croatian National Institute for Health Insurance, Croatian Pension Insurance Institute, the State Attorney's Office, other judiciary bodies, local and regional self-government bodies and other bodies with public authority and work on determining, collecting and controlling public revenues primarily taxes and obligatory contributions.”²⁵

²³ OECD, *Governing with Artificial Intelligence: The State of Play and Way Forward in Core Government Functions* (Paris: OECD, 2025)., p. 174.

²⁴ OECD, *Governing with Artificial Intelligence*.p. 174.

²⁵ Emina Jerković, “Reducing the Tax Compliance Gap by Improving Tax Administration,” in *Interdisciplinary Management Research XIV* (Osijek: Faculty of Economics in Osijek; Hochschule Pforzheim University; Croatian Academy of Sciences and Arts, 2018).erković, “Reducing the Tax Compliance Gap.”, p. 989.

“With most tax authorities facing significant reductions in human resources and operational budgets, there is a clear need to improve efficiency. Furthermore, in both the EU and global markets, Member States’ tax authorities have become increasingly dependent on each other in the area of tax collection. In particular, they have shared responsibility for ensuring correct tax collection in all Member States. In view of this, improving the effectiveness of the tax administration system has become more important than ever.”²⁶

5.1. Tasks of Tax Administration in the Republic of Croatia

According to Article 3 of the Tax Administration Act, the main duties of the Tax Administration are:

1. Normative activities - preparation and drafting laws and other regulations in the area of taxes and obligatory contributions, providing official opinions and interpretations in individual cases on implementation of regulations within the Tax Administration's scope of work.
2. Keeping the tax registers and issuing documents on facts maintained in official records, determining and assigning personal identification number, exchange data with other public authorities and international data exchange.
3. Assessment and collection of taxes and obligatory contributions - gathering and processing data on taxes and obligatory contributions, assessing tax base and tax liability and liability for obligatory contributions, collection of assessed liabilities.
4. Tax audit - conducting a tax audit and supervision of the calculation for obligatory contributions.
5. Enforced collection - conducting enforced collection in order to collect taxes and obligatory contributions, conducting enforced collection of national budget revenue determined by the Ministry of Finance and enforced collection of other public levies upon the request of other public authorities and courts in accordance with special laws.
6. Taxpayers services - development and maintenance of the taxpayers service system to facilitate the fulfilment of the rights and obligations of taxpayers.
7. Misdemeanour procedure - filing charges and conducting misdemeanour procedure of first instance due to violation of tax laws, regulations on obligatory contributions payments and regulations on personal identification numbers.
8. Monitoring the implementation and drafting laws within the scope of games of chance and entertainment games.

²⁶ *Tax Reforms in EU Member States 2015: Tax Policy Challenges for Economic Growth and Fiscal Sustainability, Institutional Paper 008* (September 2015), https://economy-finance.ec.europa.eu/document/download/f0d0c065-92b4-4f2f-8866-93b2a5b61105_en?filename=ip008_en.pdf, p. 75.

9. The Tax Administration can perform tasks related to recording, determining, monitoring, collecting, and enforcing the collection of taxes which belong entirely to the local and regional government and other public levies stipulated by law.²⁷

6. Communication Between the Tax Administration and Taxpayers

Communication between the Tax Administration and taxpayers today takes place in both directions and it is not limited to traditional channels such as telephone or physical visits to offices. Instead of that, an increasing number of taxpayers use different digital channels for communication, such as Internet portal, e-mail or chatting with chatbots.

6.1. ePorezna

“The portal of the Tax Administration (ePorezna) is the central place where taxpayers can access the electronic services of the Tax Administration. The one-stop-shop principle has been fulfilled with establishing this unique portal of the Tax Administration. Through this system, Tax Administration will improve business processes using information technology and reduce compliance costs.²⁸ Available services include the management of taxpayers' information, receipt of documents, submission of forms and requests and many other services.”²⁹

Through the ePorezna system, taxpayers, contribution payers etc. can promptly and simply use Electronic Tax Administration services whenever and from anywhere. The Tax Administration guarantees that the use of the application is safe, and that the collected data is confidential and inviolability of the data is guaranteed.

“Through the ePorezna system, taxpayers and authorised taxpayers can efficiently: - manage the taxpayer's data, - review tax and other information in the Tax Administration Register, - bear the patterns, - bear the demands, - seek refund of taxes, - request connection of unrelated payments to the JOPPD form, - achieve electronic communication with the Tax Administration in order to meet the tax obligations, - receive acts electronically, - receive notifications and information, and other.”³⁰

“The main advantages of ePorezna are numerous: 1. Monitoring of standards and development of information / information society; 2. Improve business processes by using information technology; 3. Facilitate, simplify and speed up the fulfilment of the obligations towards the Tax Department; 4. Ensure better information on rights and obligations.”³¹

“Through ePorezna users can fill in, sign and send electronic forms. Likewise, by adapting its accounting programs, it is possible for the user to open previously generated

²⁷ *Tax Administration Law, Official Gazette*, Nos. 115/16, 98/19, 155/23, 152/24, <https://porezna-uprava.gov.hr/>.

²⁸ *Strategy of the Tax Administration for the Period 2016–2020* (Zagreb: Ministry of Finance, Tax Administration, 2016).

²⁹ Jerković, “Reducing the Tax Compliance Gap.”, pp. 989-990.

³⁰ Jerković, “Reducing the Tax Compliance Gap.”, p. 990.

³¹ *ePorezna*, <https://e-porezna.porezna-uprava.hr/Pages/Ousluzi.aspx>.

files from the accounting software into the ePorezna-JPPU application, signing and sending the same.”³²

6.2. mPorezna

The mPorezna mobile application improves the accessibility of electronic services of the Ministry of Finance and the Tax Administration for taxpayers, while at the same time reducing the costs associated with fulfilling tax obligations.

The application allows you to view the status of your tax card, download 2D barcodes for payment, view submitted forms and requests, and track deadlines through a personalised tax calendar. Users can also submit requests to change data on their tax card, issue a debt status certificate, and use other services. A prerequisite for use is having an appropriate mobile device with a supported version of the application.

6.3. Chatbots

Virtual assistants that use communication menus allow users to get information and answers to predefined questions at any time. These assistants relieve officers of the need to answer routine questions, allowing them to focus on more complex business tasks.

Since December 9, 2021, a virtual assistant Chatbot of the Tax Administration has been available on the ePorezna portal. This Chatbot assists users with questions regarding registration, application, authorisation, issuance, and modification of the Tax Card, as well as procedures for submitting, correcting, and deleting forms and requests.

6.4. Fiscalisation

According to Law on Fiscalisation in Cash Transactions³³ the fiscalisation in cash transactions includes a series of measures whose main objective is to control cash transactions. Each issued invoice is connected to the Tax Administration's central server via an application that generates a unique alphanumeric record, abbreviated as JIR. Cash transactions refer to payment for purchased goods or provided services with banknotes, coins, cards, checks or similar means unless the payment is made through a transaction account in a bank. When an entity that is obliged to fiscalise cash transactions creates an invoice, it electronically signs all its elements and sends them to the Tax Administration via an internet connection. The Tax Administration then checks whether all the prescribed elements of the invoice are included and whether they are correctly signed with a digital certificate. If all conditions are met, the Tax Administration assigns a unique identifier (JIR) and returns it to the taxpayer via the same electronic connection.³⁴

Reports are submitted via e-Tax, where they are automatically recorded in the Tax Administration Information System. Liabilities are recorded on the Tax Accounting Card, and all these actions take place without the need for activities by Tax Administration officials.

³² Jerković, “Reducing the Tax Compliance Gap.”, p. 991

³³ *Law on Fiscalisation in Cash Transactions, Official Gazette*, Nos. 133/12, 115/16, 106/18, 121/19, 138/20, 114/23.

³⁴ Ružica Krizmanić, “Pravilnik o dopunama Pravilnika o fiskalizaciji u prometu gotovinom,” *Porezni vjesnik*, br. 12/22 (Institut za javne financije), 2022.

6.5. Determining annual income in the regular procedure

Taxpayers who must submit an annual tax return under the Income Tax Act are: 1. Taxpayers who earn income from self-employment in the tax period pursuant to Article 29 and Articles 30 to 35 of the Act; 2. Taxpayers – residents who earn income from employment as a member of a ship's crew in international navigation, pursuant to a special law; 3. Also, an annual tax return must be submitted by a taxpayer from whom the Tax Administration has requested subsequent payment of income tax.³⁵

„Taxpayers who are required to submit an annual tax return under the Act must do so by the end of February of the current year for the previous year.“³⁶ The return can be submitted electronically via the e-Tax system or on paper.

6.6. Determining annual income in a special procedure

According to the Income Tax Act, annual income is the total income that a taxpayer earns in a tax period. This includes income from employment, self-employment, and other non-final income. This income is calculated on the basis of an annual tax return or through a special procedure for determining annual income tax.³⁷

This calculation is generated using algorithms based on the available information about each taxpayer. The aim of the procedure is to determine whether the taxpayer is entitled to a refund of the excess income tax paid for the calculation period.

The National Recovery and Resilience Plan for 2021 allocated funds to the Tax Administration in the amount of 56,572,762.36 euros. The main objectives of this investment include modernising the Tax Administration's information system, ensuring its long-term sustainability with the development of technology, more efficient business processes, better communication with taxpayers, improving electronic services, ensuring continuity in crisis situations, increasing the security of the ICT infrastructure, and consolidating and optimising this infrastructure. These funds represent a significant incentive for the further digitalisation of the Tax Administration.³⁸

7. Concluding Remarks

Artificial intelligence uses large amounts of data to train models and recognise patterns. In the context of tax administration, this includes extremely sensitive personal, financial and business information that must be protected to the highest standards of information security and privacy. Additionally, the problem concerns inter-institutional data exchange: if AI systems are based on combining data from different sources (e.g., social welfare, business registers, customs), this requires a precise legal basis.

³⁵ *Personal Income Tax Act, Official Gazette*, Nos. 115/16, 106/18, 121/19, 114/23, 152/24.

³⁶ *e-Citizens: Information and Services*, <https://gov.hr/en/annual-income-tax-calculation/1460?cv=1&session-id=76a1b0db6c164922aa2654dbc6ed6746>.

³⁷ *Personal Income Tax Act*.

³⁸ *National Recovery and Resilience Plan 2021–2026* (Zagreb: Government of the Republic of Croatia, 2021), p. 2

On the other hand, the application of artificial intelligence enables complex analyses of data on income, consumption, industries, and tax behaviour, which can provide a valuable basis for fiscal policy. Furthermore, real-time data analysis can help take corrective measures more quickly in the event of extraordinary circumstances, such as pandemics, natural disasters, or economic shocks.

However, with high potential comes high risk. The adoption of artificial intelligence in public administration/tax administration has enormous potential to transform the way governments work, improve service delivery to citizens, and enhance the overall quality of life. As AI technology continues to evolve, we can expect even more innovative applications that will further revolutionise the public sector. It is important that governments recognise and harness the transformative potential of AI to make their operations more efficient, effective, and responsive to citizens' needs.

While the adoption of artificial intelligence in public administration/tax administration has enormous potential to transform the way governments operate, several research limitations need to be addressed to fully realise this potential. These limitations include:

1. Data availability and quality. Effective use of AI in public administration requires access to large amounts of high-quality data. However, many governments lack adequate data infrastructure and can struggle to collect, manage, and analyse the data needed to power AI applications.
2. Bias and fairness of algorithms. AI algorithms can retain biases inherent in the data on which they are trained. This can lead to unfair and discriminatory outcomes, such as depriving deserving citizens of benefits or subjecting individuals to targeted surveillance.
3. Explainability and transparency. AI systems can be complex and opaque, making it difficult for people to understand how they make decisions. This lack of explainability can undermine public trust and make it difficult to hold AI systems accountable for their actions.
4. Human oversight and control. AI systems should be subject to human oversight and control to ensure responsible and ethical use. However, it can be challenging to effectively oversee AI systems that operate at scale and make autonomous decisions.
5. Regulatory frameworks. As AI becomes more pervasive in public administration, there is a need for clear and comprehensive regulatory frameworks to govern its development and use. These frameworks should address issues such as data privacy, bias, and accountability.

The introduction of AI into the tax system also raises several legal issues. Algorithmic decisions may have legal consequences for taxpayers, raising questions about compliance with the right to a fair trial and effective legal protection.

New technologies are influencing the work of tax administrations, forcing them to reconsider the way they fulfil their tasks, the way they manage service and tax compliance risk, and how in light of the rise of digitalisation and AI in all social spheres, they support the development of services that make tax compliance less of a burden on taxpayers.

The introduction of artificial intelligence in the tax administration of the Republic of Croatia represents a significant opportunity to modernise public administration, increase efficiency, improve user experience and strengthen the fight against tax fraud. The experiences of countries such as Estonia, Canada and the United Kingdom show that artificial intelligence has already become an integral part of administrative practices in advanced fiscal systems, where it brings measurable benefits with a high level of oversight and legal certainty. However, the benefits of artificial intelligence in tax administration can only be achieved if the normative, institutional and ethical assumptions for its safe and fair application are simultaneously developed. In the Croatian context, this means adopting a special regulatory framework, strengthening the capacities of the Tax Administration, ensuring the protection of citizens' fundamental rights and applying the principles of transparency, accountability and impartiality.

The Croatian Tax Administration already has basic digital capabilities, but a full step towards algorithmically supported administration requires strategic planning, pilot projects and interdepartmental cooperation. This is precisely where the challenge and opportunity lie: to direct technological progress at the service of better, more accessible and fairer public administration/tax administration, and not allow it to become a tool of unfair or non-transparent control. Considering all of the above, the integration of artificial intelligence into the Croatian Tax Administration could significantly improve its efficiency and resilience, but only if it is implemented carefully, responsibly and in accordance with legal and ethical standards.

The real challenge is to develop effective collaboration between humans and computers to maximise benefits and minimise risks. Therefore, the role of financial and accounting professionals (tax officials) is indispensable, as they can ensure the relevance and accuracy of financial indicators and the decisions based on them. Therefore, the basic message is that artificial intelligence is not a replacement for human reason and experience, but a tool that requires careful monitoring and continuous verification.

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