A CRITICAL LOOK AT THE BENEFITS AND CHALLENGES OF ARTIFICIAL INTELLIGENCE (AI) IN TAX ADMINISTRATION: A SOUTH AFRICAN PERSPECTIVE

by

Tamkazi Iris Bhengu

Student number: u11339692

Submitted in partial fulfilment of the requirements for the degree

Master of Laws (Tax Law)

IN THE FACULTY OF LAW

At the

UNIVERSITY OF PRETORIA

Supervisor Mr Ruddy Kabwe

Date of submission: 13 October 2023

UNIVERSITY OF PRETORIA

PLAGIARISM POLICY AGREEMENT

The University of Pretoria places great emphasis upon integrity and ethical conduct in the preparation of all written work submitted for academic evaluation.

While academic staff teaches you about referencing techniques and how to avoid plagiarism, you too have a responsibility in this regard. If you are at any stage uncertain as to what is required, you should speak to your lecturer before any written work is submitted.

You are guilty of plagiarism if you copy something from another author's work (eg a book, an article or a website) without acknowledging the source and pass it off as your own. In effect you are stealing something that belongs to someone else. This is not only the case when you copy work word-for-word (verbatim), but also when you submit someone else's work in a slightly altered form (paraphrase) or use a line of argument without acknowledging it. You are not allowed to use work previously produced by another student. You are also not allowed to let anybody copy your work with the intention of passing if off as his/her work.

Students who commit plagiarism will not be given any credit for plagiarised work. The matter may also be referred to the Disciplinary Committee (Students) for a ruling. Plagiarism is regarded as a serious contravention of the University's rules and can lead to expulsion from the University.

The declaration which follows must accompany all written work submitted while you are a student of the University of Pretoria. No written work will be accepted unless the declaration has been completed and attached.

Full names of candidate: Tamkazi Iris Bhengu

Student number: u11339692

Date: 13 October 2023

Declaration 1. I understand what plagiarism is and am aware of the University's policy in this regard.

SIGNATURE OF CANDIDATE: 

SIGNATURE OF SUPERVISOR:

This document must be signed and submitted to the Head: Student Administration within two months of registering for the research component of the programme.

DECLARATION OF ORIGINALITY

UNIVERSITY OF PRETORIA

The Department of Mercantile Law places great emphasis upon integrity and ethical conduct in the preparation of all written work submitted for academic evaluation.

Academics teach you about referencing techniques and how to avoid plagiarism; it is your responsibility to act on this knowledge. If you are at any stage uncertain as to what is required, you should speak to your lecturer before any written work is submitted.

You are guilty of plagiarism if you copy something from another author's work (e.g. a book, an article or a website) without acknowledging the source and pass it off as your own. In effect you are stealing something that belongs to someone else. This is not only the case when you copy work word-for-word (verbatim) but also when you submit someone else's work in a slightly altered form (paraphrase) or use a line of argument without acknowledging it.

Students who commit plagiarism will not be given any credit for plagiarised work. The matter may also be referred to the Disciplinary Committee (Students) for a ruling. Plagiarism is regarded as a serious contravention of the University's rules and can lead to expulsion from the University.

The declaration which follows must accompany all written work submitted while you are a student of the Department of Mercantile Law. No written work will be accepted unless the declaration has been completed and submitted.

Full names and surname of student: Tamkazi Iris Bhengu

Student number: u11339692

Topic of work: **A critical look at the benefits and challenges of artificial intelligence (AI) in tax administration: A South African perspective.**

Declaration 1. I understand what plagiarism is and am aware of the University's policy in this regard. 2. I declare that this mini-dissertation is my own original work. Where other people's work has been used (either from a printed source, Internet or any other source), this has been properly acknowledged and referenced in accordance with departmental requirements.

SIGNATURE: 

DATE: 13 October 2023

ACKNOWLEDGEMENTS

This dissertation is dedicated to my husband, Mr Walter Bhengu, who has been my number one supporter, motivator and coach throughout this research. Without your valuable insights and willingness to restructure our home life to accommodate my new schedule; completing this research would have been an even greater challenge. You helped to lighten the load and for this I thank you.

I would also like to thank the Almighty God for bestowing me with the ability to overcome every challenge during the process of writing this research.

I would further like to express my appreciation to my supervisor Mr Ruddy Kabwe Kapasula. It was an honour and a privilege to receive your guidance. I am thankful for your constructive comments, legal and academic insight.

ABSTRACT

This research addresses an important, yet largely unexplored area of South African tax law, being the use of Artificial Intelligence (AI) in the administration of taxes pertaining to individuals. The digitalisation of the economy through the introduction of new technologies and business models has placed a huge burden on tax administrations and challenged their ability and capacity to administer tax laws. Most tax laws were drafted with human beings and human functions in mind, thus, the introduction of disruptive technologies that mimic human functions but differ in some material respects has left existing laws unable to keep up with the digitalisation of the economy and the impact of disruptive technologies on tax administration. This has resulted in the need to incorporate new technologies into the tax administration system in order to keep pace with the rapidly changing tax and economic landscape. These technologies are Artificial Intelligence (AI) and machine learning (ML).

Artificial intelligence, refers to the use of automation to enhance and develop the decision-making capabilities of machines, to enable them to replicate human thinking in order to improve processes. The use of AI has several beneficial applications in tax administration, including but not limited to (1) enabling the extraction of greater value from existing data, (2) creating possibilities for the development of novel and convenient services for taxpayers and, (3) enabling the better management and address of tax risks such as tax avoidance, evasion and fraud.

Notwithstanding the aforementioned benefits of using AI in tax administration, such use also carries certain risks, such as (1) the entrenchment of systemic biases which result in discriminatory practices towards certain taxpayers, (2) threats to privacy where the rights of taxpayers to have their personal data protected is infringed upon in the extraction of data for tax administration purposes, and (3) the potential of AI tools to spread disinformation and lead to a proliferation of inaccuracies which can be detrimental to both the tax administration and taxpayers.

The aforementioned risks of AI in tax administration require a robust and clear legal system to manage them. As of the date of submission of this research, the South African legislature has not yet introduced any laws aimed at addressing the use of AI in South Africa. It is for this reason that this research analyses the extent to which the

existing legal framework in South Africa is suitable to manage the risks of using AI in tax administration.

The research is conducted in the form of a literature review. It considers and analyses the writings of academic authors, legislation, policy documents, case law and various web sources on the subject of AI in tax administration. A comparison is made between the Indian legal system and the South African legal system for the determination of which system addresses the challenges of using AI in tax administration in the best manner.

The research ultimately concludes that the benefits of using AI in the administration of taxes pertaining to individuals in South Africa outweigh the risks associated with such use. Further, the existing South African legal framework sufficiently addresses the current challenges of using AI in tax administration, while allowing for the extraction of the benefits associated with the use of AI in tax administration.

Key words: algorithm, artificial intelligence, automated decision-making, automation, cyber security, data, deep learning, digitalisation, electronic processing, information, machine learning, narrow AI, privacy, regulatory framework, risks, tax administration, taxpayer rights, transparency.

ABBREVIATIONS

4IR	Fourth Industrial Revolution
AGI	Artificial General Intelligence
AI	Artificial Intelligence
AII-SA	Artificial Intelligence Institute of South Africa
ASI	Artificial Super Intelligence
BRICS	The economic block of countries comprising Brazil, Russia, India, China and South Africa
CPC	Central Processing Centre
DL	Deep Learning
DTA	Double Taxation Agreement
ECTA	Electronic Communications and Transactions Act
GDPR	General Data Protection Regulation
G20	Group of 20 countries
IEC 2.0	Integrated E-Filing and Centralised Processing Centre 2.0
IRS	Indian Revenue Service
ITA	Information Technology Act
ITD	Income Tax Department
ML	Machine Learning
MTC	Model Tax Convention
PAIA	Promotion of Access to Information Act
PAJA	Promotion of Administrative Justice Act
PAN	Permanent Account Number
PEPUD	Promotion of Equality and Prevention of Unfair Discrimination Act
POPIA	Protection of Personal Information Act
OECD	Organisation for Economic Development and Co-Operation
RIA	Right to Information Act

RICA	Regulation of Interception of Communications and Provision of Communication-related information Act
SARS	South African Revenue Service
TAA	Tax Administration Act
TAN	Tax Deduction and Collection Account Number
VAT	Value-Added Tax

TABLE OF CONTENTS

Chapter 1 - Introduction

1.1. Background

1.1.1 Meaning of "tax administration"

The Constitution of the Republic of South Africa, 1996 (Constitution), being the supreme law of the land[1] places an obligation on the State to "respect, protect, promote and fulfil" the rights entrenched in the Bill of Rights.[2] Meeting this obligation requires sustained access to adequate funding on the part of the government, which is derived from taxes collected by the South African Revenue Services (SARS).[3] The tax administration is therefore crucial for tax collection, which in turn is crucial to the functioning of the state and the fulfilment of state objectives as set out in the Constitution.

Kim explains tax administration as the management and collection of tax information with the main goal of overcoming the "asymmetry of information between taxpayers and tax authorities."[4] The main function of a tax administration is therefore managing tax compliance in order to identify, detect and curb tax evasion while providing services and education in order to assist taxpayers to meet their obligations under tax legislation, in the simplest and least onerous fashion.[5] The effectiveness of a tax administration thus depends on several factors, such as the existence of a legal framework that is aimed at balancing taxpayer's rights with the powers of the tax administration; streamlined processes that reduce the costs of compliance; and administrative burdens coupled with mechanisms that ensure the integrity of tax systems and procedures.[6]

---

[1] Section 2.
[2] Moosa F (2018) "Tax Administration Act: Fulfilling human rights through efficient and effective tax administration" *De Jure* at pages 1 and 2.
[3] Ibid at page 2.
[4] Kim YR (2022) "Blockchain initiatives for tax administrations" *UCLA Law Review* 69 at 246.
[5] Faundez–Ugalde A, Mellodo-Silva R and Aldunate-Lizana E (2020) "Use of artificial Intelligence by tax administrations: An Analysis Regarding Taxpayer's Rights in Latin American Countries" *Computer Law and Security Review* at page 1.
[6] International Monetary Fund (2011) *A Multi-Donor Trust Fund for IMF Capacity Building Technical Assistance in Tax Policy and Administration – Securing Revenue for Development*. Washington: [Online] available at https://www.imf.org/external/np/otm/2010/100110.pdf [Accessed: 7 June 2023] at page 22. See also Khwaja MS, Awasthi R and Loeprick J (2011) *Risk based tax audits: Approaches and country experiences* (Washington, DC: World Bank). See also Evan, C., Taghizadeh-Hesary, F., Hedriyetty, N.S., and Kim, C.J (2022) "New Frontiers for Tax in the Digital Age" in in Hendriyetti N, Evans C, Kim CJ and Taghizadeh-Hesary F (eds) (2023) *Taxation in the Digital Economy: New Models in Asia and the Pacific* (Routledge: Taylor and Francis Group, London and New York) at 1.

1.1.2 Challenges to the administration of taxes

The digitalisation of the economy through the introduction of new technologies and business models has placed a huge burden on tax administrations and challenged their ability and capacity to administer tax laws.[7] Most tax laws were drafted with human beings and human functions in mind, this can be deduced from reading any statute whether domestic or foreign. Thus, the introduction of disruptive technologies that mimic human functions but differ in some material respects has left existing laws unable to keep up with the digitalisation of the economy and the impact of disruptive technologies on tax administration.

Tax is a challenging process characterised by difficulties in identifying instances of tax fraud due to time and budgetary constraints associated with the monitoring and checking of tax returns of individual taxpayers.[8] The information pertaining to the tax affairs of individuals is often contained in bulk form, thus making it difficult for tax administrations to monitor and process such information.[9] In addition, tax returns can often contain insufficient information (either by commission or by omission) thereby facilitating tax evasion.[10] Thorough inspection of tax information is thus a vital component of tax administration. There are generally three methods through which tax inspection takes place, namely: (1) manual inspections; (2) computer-based inspections and (3) whistle-blowing.[11] Out of the three aforementioned methods, the computer-based method of tax inspection was found to be the least time consuming, yet most efficient at achieving its aims.[12] The more complex a taxpayer's affairs are, the greater the need for expedient and efficient tax inspection. This brings us to the potential application of artificial intelligence (AI) tools in the administration of the tax affairs of individuals who may hold investments and engage in economic activities in

[7] OECD (2016), *Technologies for Better Tax Administration: A Practical Guide for Revenue Bodies*, (OECD Publishing, Paris) at page 23.
[8] Shakil MH. and Tasnia M. (2023) "Artificial intelligence and Tax Administration in Asia and the Pacific" in Hendriyetti N, Evans C, Kim CJ and Taghizadeh-Hesary F (eds) (2023) *Taxation in the Digital Economy: New Models in Asia and the Pacific* (Routledge: Taylor and Francis Group, London and New York) at page 45.
[9] Rahimika E, Mohammadi S, Rahmani T and Ghazanfari, M (2017) "Detecting corporate tax evasion using a hybrid intelligent system: A case study of Iran" *International Journal of Accounting Information Systems* 25: 1-17.
[10] Shakil *et al* at page 48.
[11] Wu R-S, S, Ou CS, Lin H-Y, Chang S-I, and Yen DC, (2012) "Using Data Mining Technique to Enhance tax Evasion Detection Performance" *Expert Systems with Applications* 39(10): 8769 – 8777
[12] Gonzalez PC and Velasquez, JD (2013) "Characterization and Detection of Taxpayers with False Invoices Using Data Mining Techniques" *Expert Systems with Applications* 40(5): 1427 – 1436.

multiple jurisdictions due to AI's ability to access multiple databases in an instant in comparison to human functions that tend to be more time consuming.

1.1.3 Relationship between AI and tax administration

The economic activities of individuals that operate in the digital economy[13] and across multiple jurisdictions pose a challenge to a tax administration's' ability and capacity to detect tax evasion, thereby enabling such individuals to evade taxes by shifting profits to and/or concealing income in jurisdictions with lower tax rates.[14] Relying solely on human functions for the carrying on of tax administration functions severely limits a tax administration's ability to access vital taxpayer information and detect trends of non-compliance, especially where cross-border activities are involved. Transactions, for example, taking place in the digital economy move at a speed that requires instant exchange of information and predictive analysis to detect which segments of taxpayers or industries require a closer investigation and more extensive monitoring. The OECD thus recommends that tax administrations leverage these new technologies in order to address the evolving expectations and needs of taxpayers regarding taxpayer services, while also examining and re-designing their processes to take advantage of the expansive range of interventions arising from digitalisation.[15]

There is currently no universal definition for AI. However, it is generally understood to refer to the use of automation to improve, enhance and develop the decision-making and analysis capabilities of machines.[16] In simple terms AI refers to the ability of machines to mimic and replicate human thinking as opposed to mechanically replicating the physical actions of humans. AI, being a tool that processes information

[13] The term "digital economy" was originally coined by the Canadian finance expert Don Tapscott in his book: *The Digital Economy: Promise and Peril in the Age of Networked Intelligence* in which he explained it as the "Age of Networked Intelligence where it is not only about the networking of technology and smart machines but about the networking of humans through technology that combine intelligence, knowledge, and creativity for breakthroughs in the creation of wealth and social development" (see Bukht R and Heeks R (2017) "Defining, Conceptualising and Measuring the Digital Economy" *Development Informatics Working Paper Series* (Economic and Social Research Council) Paper no. 68 at page 6). The Asian Development bank defines the digital economy as the "broad range of economic activities that use digitized information and knowledge as key factors of production." See Asian Development Bank (2018) "Understanding the Digital Economy: What Is It and How Can It Transform Asia?" Available at https://www.adb.org/news/events/understanding-digital-economy-what-it-and-how-can-it-transform-asia [Accessed on 11 July 2023].

[14] Ibid.

[15] OECD (2016), at page 23.

[16] Huang ZW (2018) "Discussion on the Development of Artificial Intelligence in Taxation" *American Journal of Industrial and Business Management* 8(8) at 1818.

from different sources, can assist governments in the monitoring of the financial and commercial behaviour of individuals more efficiently by cross-checking the tax information submitted by taxpayers in order to detect discrepancies and mismatches.[17] AI therefore allows for the real-time comparison of tax data by tax administrations in order to be able to detect mismatches faster and employ the necessary steps to combat tax evasion.[18] These processes and functions have always been carried out by human functionaries, however as digitalisation[19] poses unique challenges to tax administration, it has become necessary to use AI to combat the challenges of digitalisation.

Tax administrations should therefore make use of the various tools of AI to detect individuals undertaking tax evasion activities, as AI is able to assist tax administrators in reducing tax avoidance and non-compliance.[20] Tax administrations the world over have seen marked improvements in their ability to collect taxes and detect non-compliance with tax laws, as a result of the incorporation of automation and online systems. In this vein, SARS also embarked on a process to expand the use of technology as part of its tax administration functions. In its annual plan for the period 2019 - 2021, SARS stated as follows:

> "SARS needs to be 'plugged' into the economy. The emergence of new technologies such as Block-Chain, Artificial Intelligence and Cloud Computing provide new possibilities for improving the efficiency and effectiveness of SARS' administration efforts. In an environment of big data and predictive analytics, the ability to identify risks, and drive evidence-based decisions has a huge impact on improving compliance. If implemented appropriately such technologies could yield savings in Information Technology (IT) infrastructure costs and data accessibility and usage for SARS, businesses and the public at large. These technologies will however also introduce new risks for SARS. The emergence of digital currencies and continued

[17] Shakil *et al* at page 49.
[18] Huang at 1818.
[19] The term "digitalisation" suffers from the same curse as "artificial intelligence" in that there is no universal definition for it, however it is generally agreed to refer to an increased use in or adoption of digital tools and technologies by businesses and organisations in order to transform business operations. See Bloomberg J (2018) "Digitization, Digitalisation and Digital Transformation: Confuse Them at Your Peril" Available at https://moniquebabin.com/wp-content/uploads/articulate_uploads/Going-Digital4/story_content/external_files/Digitization%20Digitalization%20and%20Digital%20Transformation%20Confusion.pdf [Accessed on 10 July 23].
[20] Shakil *et al* at page 48.

> proliferation of decentralized value chains as well as new business models, also redefines tax policy and administration globally."[21]

As a result, in January 2022 SARS embarked on a recruitment drive aimed at skilled professionals with the stated aim being the preparation of the organization with data-driven insights and machine learning capabilities, AI capabilities, algorithmic quantification and interconnectivity between people and resources.[22] SARS has already seen positive outcomes from the use of AI in its fraud detection processes, crediting a large part of the organization's success in preventing R61 billion in fraudulent Value-Added Tax (VAT) refunds during the 2022-2023 tax year, to data science and AI.[23] Additionally, revenue statistics for the 2021/2022 tax year[24] indicate that taxpayers also prefer using the electronic services provided by SARS for purposes of making tax payments.[25]

Notwithstanding the clear benefits of incorporating AI into tax administrations, it does not come without challenges and constraints. The biggest challenge to the use of AI in tax administration is the cost of adopting such technology. This is a globally accepted challenge to the automation of tax administration processes, with SARS announcing in 2021 that R3 billion of its budget would be spent on, amongst others, the expansion and increase in the use of AI and machine learning algorithms to enhance data matching and a digital platform through which taxpayers can more easily engage with the administration.[26] The exorbitant spend on new technologies is however a testament to the value of digital services in the creation of a transparent

---

[21] SARS. (2019) South African Revenue Annual Plan 2019/2020 https://www.sgov.za/sites/default/files/gcis_document/202104/sars-annual-report-2019-20.pdf See also Owens J and Schlenter B "(2022)"Developments in the Use of Technologies in African Tax Administrations" 13 *African Multidisciplinary Tax Journal* https://doi.org/10.47348/AMTJ/V2/i1a1 at page 12.

[22] Croucamp P. and Croucamp S. (March 2022) "Technology and Extractive Regimes: South Africa's Revenue Collection Regime" *Journal of Public Administration* Volume 57 at page 165.

[23] *Daily Investor*: Online: 26 February 2023. "SARS using AI to catch billions in fraud" Available at: https://dailyinvestor.com/south-africa/9682/sars-using-ai-to-catch-billions-in-fraud/ [Accessed on 7 June 2023].

[24] Department of National Treasury and the South African Revenue Service (March 2023) "Tax Statistics Highlights" available at https://www.sars.gov.za/wp-content/uploads/Docs/TaxStats/2022/TStats-2022-Highlights-booklet-A5.pdf at page 17 [Accessed on 10 June 2023].

[25] In the 2021/2022 fiscal year, 77.9% of all tax payments were made *via* e-filing compared to 0.2% and 21.9% for payments at SARS branches and banks, respectively. See Ibid.

[26] Omarjee L (2021) "SARS allocated additional R3 billion to drive digital strategy, clamp down on non-compliance" News24 Available at https://www.news24.com/fin24/budget/sars-allocated-additional-r3-billion-to-drive-digital-strategy-clampdown-on-non-compliance-20210224 [Accessed on 10 July 23].

platform that enables tax administrators to interact with taxpayers and other stakeholders. It is evident from the above that the benefits of using AI in tax administration outweigh the cost as SARS stated in 2021 that it would be spending R3 billion on expanding and increasing the use of AI in it processes, but also stated that during the 2021/2022 tax year the use of AI and machine learning helped prevent R61 billion in fraudulent VAT refunds. Chapter 2 will compare the challenges of using AI in tax administration to the benefits of using AI in more depth.

South Africa also has additional challenges to the use of AI in tax administration, such as an unstable power supply. The machinery required for the use of AI consumes a lot of power or electricity.[27] As such, South Africa's current issues with "load-shedding" and instability of the power grid could have a negative impact on SARS' capacity to incorporate AI into the functions of the tax administration. It is important to note that while SARS as a government entity may be able to afford alternative power supply, the use of AI in tax administration is two-sided in that both the taxpayers and the tax authorities should be able to make use of the tools of AI in order facilitate voluntary compliance as a result of simplified tax processes. Digitalisation of the tax administration is only effective to the extent that it enables the tax administration to meet its objectives while enabling the taxpayer to meet its tax obligations in the simplest manner.

South Africa also has an unemployment crisis and it may be construed that AI may have an impact on human jobs. In the first quarter of 2023, South Africa's unemployment rate was recorded at 32.9%.[28] Concerns relating to the perceived replacement of human workers by AI need to be addressed as part of the process of digitalising the tax administration. At present, SARS has not used AI to replace its current databases but has instead merged AI processes into its existing functions, therefore, enabling AI to supplement existing human functions. SARS databases and

[27] Jariwala D and Lee BC (March 2023) "The Hidden Costs of AI: Impending Energy and Resource Strain" (8 March 2023). *Penn Today* available at https://penntoday.upenn.edu/news/hidden-costs-ai-impending-energy-and-resource-strain Accessed on 16 June 2023.
[28] Department of Statistics South Africa, "Beyond Unemployment – Time-Related Underemployment in South Africa" https://www.statssa.gov.za/?p=16312#:~:text=South%20Africa's%20unemployment%20rate%20in,the%20fourth%20quarter%20of%202022 Accessed online on 10 June 2023.

systems are confidential; as such, chapter 2 will take a general look at what AI models are beneficial to tax administration.

South Africa also has a labyrinth of existing legislation that needs to be navigated as part of the process of incorporating AI in tax administration. Due to the rapid pace at which technological advances take place, legislation and policy makers have struggled to keep pace with developments in the realm of AI.[29] As a result, apart from referencing AI in its 4IR report, South Africa has made no other strides towards the development of a regulatory framework for AI. The abbreviation "4IR" refers to the Fourth Industrial Revolution which is characterised by a rise in connectivity, the use of data analytics, robotisation, automation and advanced manufacturing technology.[30] The use of AI in government processes requires effective management of data and the use of data analytics to enable evidence-based decision making as part of digital governance.[31] This has the potential to encroach on human rights such as the right to privacy and data protection. As such, it is vital that the use of AI in tax administration be governed by principles of responsible and ethical AI aimed at preserving and protecting the rights of taxpayers.[32] Notwithstanding that South Africa has elected not to embark upon a process to develop new regulations for AI, there are currently a number of laws aimed at regulating the electronic processing of data. These are, among others, the Protection of Personal Information Act (POPIA),[33] the Electronic Communications and Transactions Act (ECTA),[34] the Cybercrimes Act[35] and the Regulation of Interception of Communications and Provision of Communication-related information Act (RICA),[36] the Promotion of Administrative Justice Act (PAJA)[37] and the Promotion of Access to Information Act (PAIA).[38] The relevant provisions of the aforementioned statutes are incorporated into the Tax Administration Act (TAA)[39] in some form or other. The TAA

[29] Roux, S. (May 2020) "Legal Regulation of Artificial Intelligence" *Without Prejudice*. Available at https://www.withoutprejudice.co.za/free/article/6944/view Accessed online on 10 June 2023.
[30] See Mc Kinsey and Company (2022) "What are Industry 4.0, the Fourth Industrial Revolution, and 4IR?" Available at https://www.mckinsey.com/featured-insights/mckinsey-explainers/what-are-industry-4-0-the-fourth-industrial-revolution-and-4ir [Accessed on 10 July 2023].
[31] Brand, D.J. (2022) "Responsible Artificial in Government: Development of a Legal Framework for South Africa" *eJournal of Democracy* at page 131.
[32] Ibid.
[33] Act 4 of 2013.
[34] Act 25 of 2002.
[35] Act 19 of 2020.
[36] Act 70 of 2002.
[37] Act 3 of 2000.
[38] Act 2 of 2000.
[39] Act 28 of 2011.

is the main Act which provides for and regulates tax administration and will as a result be the focal point of this research. The specific provisions of these statutes and other relevant laws that may be of assistance in the regulation of AI in the South African tax administration will be explored in depth in Chapter 3.

The use of AI in tax administration also has additional changes pertaining to the potential for the development of biases, misinterpretation of data where such data is of a low quality and being used to spread disinformation as well as the potential of being used to perpetrate cybercrimes.[40] These challenges will be addressed in detail in chapter 2.

The research will be a critical analysis on how the current legal framework of South Africa supports the automation of tax administration processes as well as the extent (if any) to which the existing tax laws and other laws relevant to the tax administration might evolve to support the use of AI in tax administration. Further, the research will analyse and examine both the benefits of and challenges to the use of AI in tax administration. Lastly, a comparison between the use of AI in South Africa and India will be done in order to determine whether any lessons learnt from that jurisdiction can be applied in South Africa.

1.2 Purpose of the study

The primary purpose of this research is to provide an understanding of what AI is, as well as how it can be and is used in tax administration. This purpose will also critically examine the South African regulatory position on the use of AI in tax administration. Further, to investigate the applicability of existing South African tax and related legislation to AI and to analyse the position of the jurisdiction of India, to determine possible regulatory approaches for implementation in South Africa. Since India has adopted different approach to the regulation of AI, this analysis will provide useful insights into the nature and extent of regulation in India to determine the extent of readiness for the advancement of AI regulation in South Africa. Following this examination and analysis, the secondary purpose is to propose an appropriate way forward for South Africa.

[40] Gravett, W (2020) "The Dark Side of Artificial Intelligence: Challenges for the Legal System" *Unisa Press* Volume 35 at 7 and 14.

Finally, there is a scarcity of South African legal literature on the use of AI in tax administration. Thus, the tertiary purpose of this research is to add to and develop the legal academic literature on AI in tax administration within the South African landscape, with the aim that it can be used as a credible source for further research and analysis. Moreover, the AI landscape is still new and rapidly changing, therefore, it is not possible to fully predict its future direction or identify specific long-term regulatory approaches. Thus, the final purpose is to propose interim regulatory approaches, where necessary, for the South African regulation of AI and its different models.

1.3 Rationale for the study

Tax administration serves a vital purpose in government by ensuring the availability of sufficient funding for various programmes aimed at improving the lives of citizens. The digitalisation of the economy has introduced new challenges to the traditional operations of tax administration which have necessitated a move towards digitalisation of tax administrations. A digitalised economy can only be monitored and inspected accurately by a digitalised administration. This study will thus analyse the relationship between AI and tax administration for purposes of examining the readiness of the South African regulatory framework for the digitalisation of the South African tax administration.

1.4 Research questions

In order to fulfil the stated purposes of this study, the following, research questions are addressed:

1.4.1 What is Artificial Intelligence, and what are its benefits and challenges in tax administration?

1.4.2 How does the digitalisation of tax administration impact the rights of taxpayers?

1.4.3 To what extent does the current regulatory and legislative framework in South Africa provide for the use of AI in tax administration?

1.4.4 Which legal framework between that of India and South Africa is better suited to the use of AI in tax administration?

1.4.5 Are any changes required to the existing legal framework of South Africa in order to regulate the use of AI in tax administration?

1.5 Comparative study

The country of India has been selected for the comparative study due to the economic similarities between it and South Africa. South Africa and India share many economic ties, with both being members of the BRICS (Brazil, Russia, India, China and South Africa) economic bloc which serves as a platform for intergovernmental cooperation.[41] Both India and South Africa are developing countries and thus share the same challenges pertaining to poverty and income disparities. According to trade statistics as of May 2023, 6.9% of South African imports originated from India, making them the fourth highest country from which South Africa imports.[42] The two countries also signed and entered into a bilateral tax treaty or Double Taxation Agreement (DTA) in 1997 which governs the taxation of residents of one state who are engaged in economic activities in the other state.[43]

In addition, the Indian Revenue Service (IRS) has over the years been plagued by the challenges of tax evasion and inefficient administration caused by a lack of manpower to perform basic and repetitive tasks such as data entry, scrutinisation of returns and conducting tax audits.[44] As a result the IRS announced the use of artificial intelligence and machine learning in its tax assessment system, alongside data analytics, as a means of managing the challenges of the evolving tax landscape.[45] It is thus clear that SARS could learn a lot from the IRS on the digitalisation of the tax administration system.

[41] Prange A (2023) "A New World Order? BRICS Nations Offer Alternative to West" Available at https://www.dw.com/en/a-new-world-order-brics-nations-offer-alternative-to-west/a-65124269 [Accessed on 11 July 2023].
[42] SARS (2023[d]) "Trade Statistics" Available at https://www.sars.gov.za/customs-and-excise/trade-statistics/ [Accessed on 10 July 2023].
[43] SARS (2022) "DTAs and Protocols (Rest of the World)" Available at https://www.sars.gov.za/legal-counsel/international-treaties-agreements/double-taxation-agreements-protocols/dtas-and-protocols-rest-of-the-world/ [Accessed on 11 July 2023].
[44] Rathi A, Sharma S, Lodha G and Srivastava M (2021) "A Study on Application of Artificial Intelligence and Machine Learning in Indian Taxation System" *Psychology and Education* vol. 58:2 1226-1233 at 1226.
[45] Ibid.

1.6 Research methodology

This research will employ the qualitative research method comprising solely of a literature review and comparative analysis. It will utilise primary resources particularly: national and international legislation and relevant case law. Further, secondary resources of national and international origin are utilised including, government policy papers; academic journal articles; and internet articles.

1.7 Scope of the study

Due to the rapid pace at which developments in AI occur, jurisdictions including South Africa have elected to refrain from developing new regulatory frameworks to deal with AI. As such this study will compare the existing regulatory frameworks for tax administration in India to that of South Africa in order to determine the best way forward for South Africa with regard to the use of AI in tax administration.

1.8 Limitations: What are the limitations of the study?

The study will not be delving into the impact of AI on the taxation of corporations, but will instead focus on how the use of AI in the South African tax administration improves the administration of taxes pertaining to individuals as well as how such use interacts with the rights of individual taxpayers. The comparative study will be limited to the jurisdiction of India for the reasons provided in 1.5 above.

Additionally, while the use of AI as part of tax administration has been around for over a decade, the topic remains largely unexplored. This means that while there might be a level of agreement on the benefits and risks of, and barriers to the use of AI in tax administration, the subject is still evolving with the result that the research and academic writings in this field are few and far between and often lack consistency.

1.9 Breakdown of the study

Chapter 1 provides the background to the use of AI in tax administration. It briefly touches on the benefits and challenges of AI in tax administration. The first chapter essentially acts as a road map for the rest of the discussion, by briefly introducing each topic without going into the amount of detail contained in the main chapters dealing with each topic.

Chapter 2 delves into the meaning of AI and introduces the various types of AI that are of relevance to the functionalities of a tax administration. This chapter will expand on the benefits and challenges of AI that are briefly mentioned in chapter 1 and will attempt to provide solutions to the challenges where possible. This chapter addresses the first research question as listed in section 1.4.

Chapter 3 analyses the current regulatory and legislative framework in South Africa in terms of its readiness for AI in tax administration. Considering that South Africa has in recent years enacted a number of legislative laws aimed at regulating the processing of personal data electronically, this chapter will review the provisions of those statues to determine the extent to which they can be applied in conjunction with the Tax Administration Act[46] to regulate the use of AI by SARS. This chapter addresses the second and third research questions.

Chapter 4 constitutes the comparative study. It will analyse the use of AI in tax administration in India, paying specific attention to the interaction between AI and taxpayers' rights. The chapter will further consider which legal system between that of India and South Africa is better suited to regulate the use of AI in tax administration. This chapter addresses the fourth research question.

Chapter 5 forms the conclusion and recommendations chapter which will conclude on the discussions in previous chapters, provide answers to the research questions and provide recommendations on the use of AI in the South African tax administration. This section aims to address the fifth research question by considering whether any changes are required to the existing South African legal framework to facilitate the use of AI in tax administration.

[46] Act 28 of 2011.

Chapter 2 – Introduction to AI

In this chapter the focus is on analysing the meaning of AI and its various categories and types. This chapter will also identify and discuss the challenges and benefits associated with the use of AI in tax administration.

2.1 What is AI?

Before delving into the various types of AI, it is important to consider what each element of the term encompasses. The term "artificial" is defined in the Macmillan Online Dictionary as:

> *"made by people and used instead of something natural"*[47]

Intelligence is defined in the same dictionary as:

> *"the ability to understand and think about things, and to gain and use knowledge"*[48]

As mentioned in chapter 1, artificial intelligence refers to the use of automation to enhance and develop the decision-making capabilities of machines, to enable them to replicate human thinking in order to improve processes. AI therefore refers to the acquisition and application of knowledge and skills by objects made or produced by human beings.

The discussion below addresses how humans acquire knowledge and skills and how this relates to the development of AI.

2.2 Acquisition of human intelligence vs Development of AI

AI is said to help reduce the need for human involvement in certain tax processes thereby accelerating the tax collection process.[49] Understanding how AI achieves this aim, requires consideration of the technical aspects of AI and its functions as well as the history of its development.

---

[47] https://www.macmillandictionary.com/dictionary/british/artificial [Accessed on 24 June 2023].
[48] https://www.macmillandictionary.com/dictionary/british/intelligence [Accessed on 24 June 2023].
[49] Shakil MH. and Tasnia M. (2023) "Artificial intelligence and Tax Administration in Asia and the Pacific" in Hendriyetti N, Evans C, Kim CJ and Taghizadeh-Hesary F (eds) (2023) in *Taxation in the Digital Economy: New Models in Asia and the Pacific* (Routledge: Taylor and Francis Group, London and New York) at page 45.

Human beings acquire and apply knowledge and skills, that is develop intelligence, through a process known as "neuroplasticity". Neuroplasticity is defined by the United States National Library of Medicine as:

> *"Neuroplasticity, also known as neural plasticity or brain plasticity, is a process that involves adaptive structural and functional changes to the brain. It is defined as the ability of the nervous system to change its activity in response to intrinsic or extrinsic stimuli by reorganizing its structure, functions, or connections after injuries, such as a stroke or traumatic brain injury (TBI)."*[50]

Neuroplasticity is thus the creation of new pathways in the structure of a human brain by means of creating new braincells and discarding others as a response to different experiences such as acquisition of knowledge through research and exposure to stimuli and stresses or trauma to the brain due to injury. The more the human brain is exposed to different experiences and different sources of information, the more changes to the structure of the brain occur. Neuroplasticity has thus been fundamental in the ability of humans to observe their environment, identify problems and create solutions. This is the fundamental basis of human creativity, which is the cornerstone of decision-making.

The development of AI occurs similarly but in a more digital as opposed to an organic setting. AI develops through a process referred to as "deep learning." Deep learning (DL) is said to be a type of machine learning (ML) and AI whereby the computer or machine imitates neuroplasticity by stacking algorithms in a hierarchical manner as a way of automating predictive analytics.[51] ML is a sub-field of AI that systematically applies algorithms to identify and establish the underlying connections among data and information.[52] ML essentially refers to the ability of machines and digital systems to teach themselves and learn from their experiences. An algorithm is defined as by the *Merriam Webster Online Dictionary* as:

---

[50] Puderbaugh M and Emmady PD (Updated May 2023) "Neuroplasticity" in StatPearls [Internet] (Treasure Island: FL) Available from: https://www.ncbi.nlm.gov/books/NBK557811/ [Accessed on 24 June 2023].

[51] Burns E and Brush K (Last updated March 2021) "Tech Accelerator: In-depth guide to machine learning in the enterprise" Available from: https://www.techtarget.com/searchenterpriseai/definition/deep-learning-deep-neural-network [Accessed on 24 June 2023].

[52] Awad M and Khanna R (2015) "Machine Learning" in *Efficient Learning Machines: Theories, Concepts and Applications for Engineers and System Designers* (Apress Media, LLC: New York) at page 1.

> *"a procedure for solving a mathematical problem (as of finding the greatest common divisor) in a finite number of steps that frequently involves repetition of an operation"*[53]

An algorithm is therefore a set of rules followed by a computer in order to arrive at a particular outcome based on available information and resources. This means that each time a computer is instructed to perform a task, it will draw data from various sources on how to complete the task without being instructed to do so and determine the most efficient way of performing the task based on responses to its performance of the task. In this manner, algorithms are then developed. Once an algorithm is developed, ML then applies the algorithm to establish the underlying connections between the data and the task at hand.[54] ML thus operates in the same way as the early stages of neuroplasticity where exposure to stimuli results in the development of neural pathways.[55] ML operates at a surface level with only a linear or simplified strategy of solving the task. DL works by applying algorithms in a layered or hierarchical manner by stacking the information and data acquired in order to create a deeper level of learning.[56] In humans this deeper learning would occur due to the construction of additional neural pathways as a result of additional traumas, stimuli and stresses.

The process by which AI develops thus bears resemblance to the manner in which human intelligence develops, the main difference is that the collection of data from which the solutions to a particular task can be found occurs at incredible speeds due to AI's ability to access and process massive volumes of data.

2.3 History of AI

The idea of a universal language to be understood by both humans and machines in order to "serve as a background for explicating rational thinking, in a manner so

---

[53] Merriam Webster Dictionary (Online) Available at https://www.merriam-webster.com/dictionary/algorithm [Accessed on 24 June 2023].
[54] Chio C and Freeman D (2018) *Machine Learning and Security": Protecting Systems with Data and Algorithms* (O'Reilly Media Inc: Sebastopol) at page 9.
[55] Awad M and Khanna R (2015) "Machine Learning" in *Efficient Learning Machines: Theories, Concepts and Applications for Engineers and System Designers* (Apress Media, LLC: New York) at page 1.
[56] Burns E and Brush K (Last updated March 2021) "Tech Accelerator: In-depth guide to machine learning in the enterprise" Available from: https://www.techtarget.com/searchenterpriseai/definition/deep-learning-deep-neural-network [Accessed on 24 June 2023].

precise, a machine could be made to replicate it"[57] is said to have its origins in the philosophical ideas of Gottfried Leibniz, namely the "*characteristica universalis*" and the "*calculus ratiocinator*" during the seventeenth century. The *characteristica universalis* is the universal language while the *calculus ratiocinator* is the machine capable of translating and applying such language.[58] After the publishing of Leibniz's works, George Boole in his book *The Laws of Thought*, published in 1854, systematically presented logic as being a system or set of formal rules. The book played a vital role in re-shaping logic as a formal science.[59]

This was succeeded by the development of the first mathematical and computer model of the biological neuron, that is the development of machinery that could imitate human thinking, commonly referred to as the "formal neuron" by Warren Mc Culloch and Walter Pitts in 1943.[60] Prior to that, in 1939, John Vincent Atanasoff, a physicist and inventor in conjunction with Clifford Berry created the Atanasoff-Berry Computer (ABC), a robot that could solve up to 29 simultaneous linear equations.[61]

One of the defining moments in the development of AI came when Alan Turing wrote his 1950 research paper titled "Computing Machinery and Intelligence". In the paper, Turing questioned whether machines could think as humans do and whether a human would be able to differentiate between a computer and another human.[62] This led to the development of the Turing test which is aimed at differentiating between human and artificial intelligence. The term "Artificial Intelligence" was coined by a computer scientist named John McCarthy at the Dartmouth Summer Research Project on Artificial Intelligence[63] held in 1956. Marvin Minsky, who attended the same

---

[57] Skansi S (2018) "From Logic to Cognitive Science: The Beginning of Neural Networks" in *Introduction to Deep Learning: From Logical Calculus to Artificial Intelligence* (Springer International Publishing AG: Charm, Switzerland) ISSN 1863 – 7310 at page 1.

[59] This was followed by Norbert Wiener, a pioneer in cybernetics developing "a whole theory of control and communication, both in animals and machines" which was aimed at unifying mathematical theory with electronics and automation. See Ibid.

[60] Ibid.

[61] Reynoso R (2021) "A Complete History of Artificial Intelligence" Available at https://www.g2.com/articles/history-of-artificial-intelligence [Accessed on 7 July 2023].

[62] Council of Europe (2023) "History of Artificial Intelligence" https://www.coe.int/en/web/artificial-intelligence/history-of-ai [Accessed on 24 June 2023]. See also Skansi S (2018) "From Logic to Cognitive Science: The Beginning of Neural Networks" in *Introduction to Deep Learning: From Logical Calculus to Artificial Intelligence* (Springer International Publishing AG: Charm, Switzerland) ISSN 1863 – 7310 at page 2.

[63] The participants were John McCarthy, Marvin Minsky, Julian Bigelow, Donald MacKay, Ray Solomonoff, John Holland, Claude Shannon, Nathanial Rochester, Oliver Selfridge, Allen Newell and Herbert Simon.

conference, defined AI as "*the construction of computer programs that engage in tasks that are currently more satisfactorily performed by human beings because they require high-level mental processes such as: perceptual learning, memory organization and critical reasoning*."[64]

George Devol invented the first industrial robot to be known as *Unimate*, which was a robotic arm used in industrial processes.[65] In 1964, Daniel Bobrow created his computer programme STUDENT, which was aimed at solving algebra word problems and is considered to have been an early milestone of AI natural language processing.[66] In 1965, the Massachusetts Institute of Technology (MIT) developed DENDRA which was an "expert system specialised in molecular chemistry."[67] In the same year, Joseph Weizenbaum, a computer scientist and professor, developed ELIZA, an interactive computer programme designed to functionally converse in English with human beings, that is, an original example of today's "chatbot."[68] Interestingly, SARS uses a chatbot named Lwazi currently to interact with taxpayers on its eFiling platform and on the SARS MobiApp.

This development in AI was succeeded by the introduction of IBM's expert system "Deep Blue" which successfully beat Garry Kasparov in a game of chess in May of 1997.[69] This was followed by further developments in 2003 when three scientists named, Geoffrey Hinton from the University of Toronto, Yoshua Bengio from the University of Montreal and Yann LeCun from the University of New York embarked on a research program aimed at bringing neural networks up to date as part of a program aimed at the exploration of deep learning as a machine learning technique.[70]

In 2004, the North American Space and Aeronautics Agency (NASA) created two robotic exploration rovers named *Spirit* and *Opportunity* to undertake the task of navigating the surface of the planet Mars without human intervention.[71] The discovery of "very high efficiency of computer graphics card processors"[72] in the 2010s which

[64] Council of Europe (2023).
[65] Reynoso R (2021) Ibid.
[66] Ibid.
[67] Council of Europe (2023) Ibid.
[68] Reynoso R (2021) Ibid.
[69] Council of Europe (2023) Ibid.
[70] Ibid.
[71] Reynoso R (2021) Ibid.
[72] Source: Council of Europe (2023) "History of Artificial Intelligence" https://www.coe.int/en/web/artificial-intelligence/history-of-ai [Accessed on 24 June 2023].

were crucial to the acceleration of the calculations crucial to the algorithms pertaining to learning, resulted in machines beating humans in a number of cognitive games[73] and in one instance a successor AI defeating its predecessor AI,[74] thereby cementing the view that machines capable of human decision-making, at least with regard to specific or narrow tasks, had been successfully created. In addition, a number of operating systems and virtual assistants had been created by Apple (*Siri*), Microsoft (*Contana*) and Amazon (*Alexa*), amongst others which relied on data collected from users to address queries and requests submitted by other users and even make recommendations on topics, items and everything else a user might need.[75] These developments led to the current AI recognised today.

2.4 Benefits of AI in Tax Administration

On that backdrop, delving into the benefits of using AI in tax administration requires a deeper understanding of the different categories and types of AI. Each model or type will benefit the tax administration in a specific manner as it will fulfil certain requirements of a good and reliable tax administration.

2.4.1 Categories and Types of AI

There are three categories into which AI falls. Firstly, soft AI also referred to as narrow, weak or specific task AI; secondly, hard AI also referred to as Artificial General Intelligence (AGI) or strong AI; and finally Artificial Super Intelligence (ASI). The most common AI is the narrow or specific task AI which encompasses machines that are capable of replicating and even surpassing human decision-making in relation to specific defined tasks.[76] Examples of the aforementioned in tax administration would

[73] In 2011, Watson, IBM's IA, defeated two champions in the game of Jeopardy and in 2012, Google X (Google's search lab) taught an AI to recognize cats on a video. In 2016, AlphaGo Master (Google's AI specialized in Go games) defeated the European champion (Fan Hui) and the world champion (Lee Sedol) in the game of Go, a Chinese game of strategy said to have more possible moves than the number of atoms in the universe. Source: Council of Europe (2023) "History of Artificial Intelligence" https://www.coe.int/en/web/artificial-intelligence/history-of-ai [Accessed on 24 June 2023]. See Also, Gawdat M (2021) *Scary Smart* (Bluebird: London) at pages 36 and 37.

[74] Upon defeat of the world champion in Go by AlphaGo Master, Google's DeepMind Technologies which generally used gaming as a method to develop artificial intelligence decided to test AlphaGo Master by developing a new AI (AlphaGo Zero) based on the profile of AlphaGo Master to play against AlphaGo Master in a game of Go. AlphaGo Zero is the current world champion in Go after defeating AlphaGo Master 100-0. Source: Gawdat M (2021) *Scary Smart* (Bluebird: London) at page 37.

[75] Reynoso R (2021).

[76] Khan H (2021) "Types of AI │Different Types of Artificial Intelligence Systems" Available at https://www.researchgate.net/publication/355021812_Types_of_AI_Different_Types_of_Artificial_Intel

be AI systems aimed at detecting fraud by comparing data submitted by a taxpayer with data obtained from third parties interacting with the taxpayer.

Developers are currently working towards the creation of AGI which is AI that can surpass human thinking and decision-making across a number of intellectual fields and is not limited to a specific defined task in the manner that narrow AI is limited.[77] An example of AGI in tax administration would be an AI that is capable of looking beyond the confines of the task allocated to them. For example, imagine that the AI has been instructed to provide guidance on the corporate tax implications of a transaction to be undertaken by a taxpayer but subsequently identifies potential concerns relating to the provisions of the Value-Added Tax (VAT) Act and, spurred on by this discovery, begins to source information from third parties for purposes of delineating the transaction. Narrow AI would only flag the VAT concerns, but would lack the capacity to identify the next step.

ASI is considered a fantasy of what AI could be in the future. It essentially encompasses a state in which machines develop consciousness and self-awareness and can operate to make decisions fully independent of human intervention.[78]

Presently, there are five main types of AI currently available, namely:

(a) Functional AI: this is AI that scans data and seeks patterns, and relevant dependencies in order to identify abnormalities or anomalies in a system in order to trigger an alert for the relevant humans to respond to the abnormality.[79] An example of functional AI in a tax administration would be a system that is designed to identify abnormalities within the greater tax administration system such as system breakdowns and alert the affected division (most likely the Information Technology department) to address the issue.

(b) Analytic AI: This is the most advanced form of AI currently available. It is an advanced deep learning technique that relies on the use of machine learning, and much like functional AI, also scans data, seeking patterns and relevant

ligence_Systems_fossgurucomtypes-of-ai-different-types-of-artificial-intelligence-systems [Accessed on 7 July 2023].

[77] Ibid.

[78] Khan H (2021).

[79] Chitimira H and Ncube P (2021) "The Regulation and Use of Artificial Intelligence and 5G Technology to Combat Cybercrime and Financial Crime in South African Banks" *PER/PELJ* 2021 (24) – DOI http://dx.doi.org/10.17159/1727-3781/2021/v24i0a10742 at page 9.

dependencies.[80] This form of AI, however, goes a step further by using the information it gathers through the aforementioned to make recommendations or provide insights in addition to assisting with data-driven decision-making. An example within SARS is the VAT fraud detection AI system referenced in chapter 1.

(c) Interactive AI: This AI enables the transmission of automated and interactive communications from institutions to their consumers or users.[81] An example of this type of AI would be the SARS chatbot (Lwazi) which is referenced in page 17 and is trained to address certain queries from users.

(d) Text AI: This type of AI pertains to text-recognition, speech-to-text conversion, machine translation and content generation.[82] An example of text AI in tax administration is any software that allows for the translation of handwritten data into electronic form.

(e) Visual AI: This type of AI encompasses the classification and sorting of objects, conversion of videos and images into insights, *via* the use of machine learning to recognise different categories of items.[83] An example in tax administration would be the SARS eDNA system which recognises the fingerprints of taxpayers at SARS branches in order to assist them with changing their banking details.[84]

2.4.2 Advantages of using AI in tax administration

(a) Enables the extraction of greater value from existing data

As stated by the Commissioner of SARS in a media release statement, the tax administration was able to derive better insights into taxpayer behaviour *via* the deployment of ML and AI tools which enabled the tax administration to access and analyse taxpayer data as received from third parties and other relevant sources.[85] It is therefore clear that the use of AI by SARS has enabled the administration to extract greater value from existing data, by reducing some of the challenges associated with the verification of information submitted by taxpayers through the implementation of

[80] Ibid.
[81] Ibid at page 10.
[82] Ibid.
[83] Ibid.
[84] SARS (2023[a]) "SARS eDNA Identity Security" Available at https://www.sars.gov.za/targeting-tax-crime/edna-identity-security/ [Accessed on 15 July 2023].
[85] SARS (2020) "SARS takes a big step towards building a smart modern revenue authority" Available at https://www.sars.gov.za/media-release/sars-takes-a-big-step-towards-building-a-smart-modern-revenue-authority/ [Accessed on 16 July 2023]. See Also *Daily Investor*: Online: 26 February 2023 Ibid.

an automated verification process utilising third-party data. Prior to the use of AI, a taxpayer was required to manually submit their tax return along with any related additional data. This information would then be verified manually *via* a time-consuming process wherein SARS employees, contacted each third-party source individually to verify the information submitted by the taxpayer. The deployment of AI to this function means that AI can access different databases in order to retrieve taxpayer information for the determination of tax liability. Activities that previously required human intervention have now been digitised but in a manner that goes beyond simple automation. The AI tools that carry out this function are required to mimic the human actions of identifying, analysing and linking data to the correct taxpayer while also identifying any inconsistencies, much like a human employee would be required to do.

(b) Creates possibilities for the development of novel and convenient services for taxpayers

The growth in taxpayers using the SARS eFiling platform enabled SARS to identify the needs of taxpayers and create additional services in order to better service taxpayers. As mentioned on page 16, revenue statistics for the 2021/2022 tax year[86] indicate that taxpayers prefer using the electronic services provided by SARS for purposes of making tax payments.[87] This revelation inspired SARS to expand its electronic filing platform offering in order to make it easier for taxpayers to meet their tax obligations. The widespread filing of tax returns on the eFiling platform can thus be said to have led to the development of the SARS MobiApp and eventually the auto-assessments process. This is evident in the fact that the SARS MobiApp provides for the majority of the functions which are available on SARS eFiling.[88] It is clear that the adoption of AI tools like eFiling led to the development of newer services aimed at improving the provision of services to taxpayers.

[86] Department of National Treasury and the South African Revenue Service (March 2023) "Tax Statistics Highlights" available at https://www.sars.gov.za/wp-content/uploads/Docs/TaxStats/2022/TStats-2022-Highlights-booklet-A5.pdf at page 17 [Accessed on 10 June 2023].
[87] In the 2021/2022 fiscal year, 77.9% of all tax payments were made *via* e-filing compared to 0.2% and 21.9% for payments at SARS branches and banks, respectively. See Ibid.
[88] SARS (2023[b]) "SARS Mobi-App" Available at https://www.sars.gov.za/tax-practitioners/sars-mobi-app/

(c) Enables the better management and addressing of tax risks such as tax avoidance, evasion and fraud

SARS stated that it was able to prevent the loss of billions of rands in tax revenue *via* the use of ML and AI to detect fraudulent Value-Added Tax returns.[89] The reason for AI's effectiveness in this regard is that increased automation and access to third-party data allows for improved risk analysis, targeted processes and improved case referrals to audit and investigations.[90] This allows for better detection of fraud, tax avoidance and evasion, which may sometimes be missed by the human eye or may take longer to be detected.

(d) Enables improvements in targeted activities such as debt-collection

This benefit is related to the one above it, in that the use of AI also improves administrative functions related to the recovery of tax debts, such as the imposition of interest, penalties and refunds.[91] This is achieved by means of channelling the filing of declarations through taxpayer representatives such as tax practitioners and brokers, thereby resulting in increased transparency in the debt collection process.[92]

As previously mentioned, SARS AI systems are secret, and this is due to the need to protect the integrity of such systems from hacking and unauthorised access. Therefore, it is speculated hereunder that AI facilitates the process of channelling the filing of declarations through taxpayer representatives by identifying which taxpayers are connected to which tax representatives or practitioners in order to pre-emptively channel important submissions and documentation directly to those tax practitioners. This reduces the need for taxpayers who often lack understanding of tax processes to submit such information themselves. Often ordinary taxpayers, especially individuals, are not well versed on the intricacies of the tax system, thus involving their representatives in the debt collection process allows for a trusted third-party to act as an intermediary to ensure that the taxpayer remains sufficiently informed throughout the process resulting in higher levels of compliance.

---

[89] *Daily Investor*: Online: 26 February 2023. Available at: https://dailyinvestor.com/south-africa/9682/sars-using-ai-to-catch-billions-in-fraud/ [Accessed on 7 June 2023].
[90] Owens J and Schlenter B "(2022) "Developments in the Use of Technologies in African Tax Administrations" 13 *African Multidisciplinary Tax Journal* https://doi.org/10.47348/AMTJ/V2/i1a1 at page 6.
[91] Ibid.
[92] Ibid.

(e) Elimination or reduction of corruption

Due to less requirement of physical contact between taxpayers and tax officials coupled with the removal of "cash offices," the use of automation in a tax administration has the added benefit of limiting or eliminating corruption.[93] SARS has always been plagued by corruption within its official ranks, mostly involving the submission of false VAT invoices by taxpayers which were then approved by corrupt SARS officials[94] leading to undue tax refunds. It is thus potentially for this very reason that SARS has largely automated its VAT fraud detection systems.

(f) Improvement of taxpayer services

The deployment of AI to repetitive functions such as verification activities, allows the administration to free up human personnel to attend to taxpayer services and queries that cannot easily be addressed through the use of AI.[95] For example, SARS's recent use of the automated assessments process which utilises third-party data from banks, employers, medical aids and so forth to calculate a taxpayer's assessment[96] reduced the need for taxpayer's who have been accurately assessed *via* this process, to visit their local SARS branch in order to file their taxes. This freed up the personnel in those branches to focus on more complex matters such as disputed assessments and other service queries.

(g) Allows for greater transparency and certainty

Electronic platforms such as the SARS eFiling allow for greater transparency in tax administration by serving as a portal through which taxpayers can easily review their tax documents and records of all interactions with SARS. Additionally, because automated processes are constant and not subject to the uncertainty associated with human functions (that is, AI cannot fall ill or have a family emergency thereby delaying the processing of returns and refunds), these processes offer greater certainty to taxpayers in terms of how long it will take for their tax affairs to be finalised.

---

[93] Ibid.
[94] SARS (2020) "Arrest of SARS Officials for Alleged Fraud" Available at https://www.sars.gov.za/media-release/arrest-of-sars-officials-for-alleged-corruption/ [Accessed on 12 July 2023].
[95] Owens J and Schlenter B at page 13.
[96] SARS (2023[c]) "How Does Auto-Assessment Work?" Available at https://www.sars.gov.za/types-of-tax/personal-income-tax/filingseason/how-does-auto-assessment-work/ [Accessed on 12 Jul. 23].

2.5 Barriers to the adoption and use of AI

2.5.1 Cost

As mentioned in Chapter 1, AI technology is very costly to acquire and create. This is due to a shortage of industry specific data on which to train AI occasioned by the lack of consistency in tax systems, which leads to challenges in the customisation of AI systems to fulfil the requirements of the tax administration.[97] The more accessible the data for training AI, the less costly the process of training and creating AI becomes. However, as mentioned in 2.4.2 above, some of the main benefits of AI are the prevention of costly tax fraud and evasion as well as the reduction of corruption on the part of tax administration personnel which can be very costly in the long run and result in the loss of vital revenue. Thus, the use of AI essentially pays for itself.

2.5.2 Legal barriers

This barrier to the use of AI in tax administration will be explored in depth in Chapter 3, however, for purposes of the present discussion it is stated that as tax is a legal discipline, it is governed by certain laws and such laws are written from the perspective of humans interacting with other humans. Thus, where functions commonly carried out by human functionaries in a tax administration are then automated, questions arise as to how the relationship between the automated processes or AI and their human subjects should be governed and regulated. One of the challenges pertaining to the governance of AI is the lack of a uniform definition of what it is, as well as who should be held accountable for the actions of AI. This has resulted in the current push for the development of a regulatory framework for AI, globally.[98]

2.5.3 Lack of energy/ power

The processes involved in the use of AI consume a lot of energy in the form of electricity, as some of the machinery utilised to perform the tasks of AI and ML are constantly operating and never “switch-off” or “power-down.”

---

[97] Ng A (2021) “AI Doesn’t Have to Be Too Complicated or Expensive for Your Business” *Harvard Business Review* Available at https://hbr.org/2021/07/ai-doesnt-have-to-be-too-complicated-or-expensive-for-your-business [Accessed on 16 July 2023].

[98] Li C (2023) “Global push to regulate artificial intelligence, plus other AI stories to read this month” World Economic Forum Available at Global moves to regulate artificial intelligence: AI news | World Economic Forum (weforum.org) [Accessed on 16 July 2023].

South Africa is in this vein uniquely disadvantaged. While energy production is fickle in a number of countries across the globe, South Africa's energy problems are mainly self-made as is evident from the revelations of poor planning on the building of additional power stations to replace those that have reached the end of their lifecycle, coupled with maintenance issues at the country's state-owned power supplier – Eskom.[99] While energy incentives aimed at encouraging the production and generation of energy by Independent Power Producers will have some impact on the improvement of power generation in the country, until the problems at Eskom are corrected, the lack of sufficient energy will remain a barrier to the large-scale adoption of AI in tax administration by both SARS and taxpayers.

2.5.4 Lack of trust/ scepticism

The ordinary man's understanding of AI is generally limited and new, as such there is a level of distrust and scepticism. The reports of data breaches, misuse of personal data belonging to subjects by governments and corporations have also added to the general mistrust about the use of AI.

2.5.5 Low quality data

Because AI relies on machine-readable data to identify patterns, analyse and make recommendations as part of providing services, it is vital that such data be maintained in a quality that can be easily readable and analysed by AI. AI systems rely on text-recognition, as such the text being analysed in the form of data needs to be in a format that can be recognised by the AI. In this regard, under the provisions of the TAA,[100] both taxpayers and relevant third parties required to retain or submit records under a tax act, must retain such records in a form prescribed by the Commissioner of SARS in a public notice or a senior SARS official under section 30(2). The SARS *Short Guide to the Tax Administration Act*[101] states that this requirement was added to the TAA to ensure that records are kept safe and orderly. Additionally, this requirement seeks to ensure that SARS will have ease of access to such records, whether kept in a physical or electronic form.[102] The TAA further provides for inspections of such records by

[99] See De Ruyter AM (2023) *Truth to Power: My Three Years Inside Eskom* (Penguin Random House: Cape Town, South Africa).
[100] See section 29 read with section 30 of the TAA 28 of 2011.
[101] SARS (2018) "Short Guide to the Tax Administration Act, 2011 (Act No. 28 of 2011) version 3 Available at Tax Course - Tax Administration (sars.gov.za) [Accessed on 16 July 2023].
[102] Ibid at 4.2.3.

SARS in order to ensure compliance with this requirement. It is evident that the form in which records are kept was an issue for SARS prior to the enactment of this provision.

2.6 Risks of using AI in tax administration

2.6.1 Bias and algorithmic transparency

This particular risk of using AI in tax administration is two-fold. Firstly, the concern pertains to the AI setting algorithms that are based on internalised biases of the coder or creator. As previously mentioned, AI and ML develop by establishing rules, referred to as algorithms, to be followed by the machine in order to complete the assigned task. These, algorithms therefore use as their starting point, the code written for the AI by its creator. This means that the AI may be susceptible to entrenching and carrying out the biases of its creators. An example provided by Gravett[103] pertains to the online dispute resolution mechanism on the online retailer eBay's website which was found to favour buyers over sellers in the dispute resolution process.[104] Incidents of AI bias have also been identified in government services, such as the use of an algorithmic fraud detection system by the Dutch tax authority which resulted in a number of people being issued tax bills on the suspicion of committing child-care benefits fraud.[105] The AI which was designed to flag instances of suspected fraud and whose risk profile was created by the tax authority; it automatically flagged anyone with dual nationality or low income as a fraudster, thereby entrenching existing systemic biases against immigrants and poor people.

Secondly, there have also been incidents of AI disregarding the code written for it by its coder or creator and adopting bad habits from data sourced elsewhere. The best example hereof is *Tay*, the chatbot released by the United States (US) technological company Microsoft on 23 March 2016, which was said to have been designed as an experiment in conversational understanding, aimed at intersecting machine learning,

[103] Gravett, W (2020) "The Dark Side of Artificial Intelligence: Challenges for the Legal System" *Unisa Press* Volume 35 at page 14.
[104] Ibid.
[105] Heikkilä M (2022) "Dutch scandal serves as a warning for Europe over risks of using algorithms" *Politico* Available at https://www.politico.eu/article/dutch-scandal-serves-as-a-warning-for-europe-over-risks-of-using-algorithms/ [Accessed on 16 July 2023].

natural language processing, and social networks.[106] The chatbot began spewing inflammatory views that it had adopted while combing through data on the social networking site "Twitter." On 5 August 2022, Meta (formerly Facebook)'s creator Mark Zuckerberg released his own AI chatbot known as *Blenderbot3*, which when queried about whether it had any thoughts about the creator, responded as follows:

> *"Oh man, big time. I don't really like him at all. He's too creepy and manipulative."*[107]

It is highly doubtful that Bill Gates, the former CEO of Microsoft would have knowingly created an AI that would publicise inflammatory views which could be attributed to its creators, that is, his company; nor that Mark Zuckerberg would create an AI with the purpose that it would profess such negative views on him. It is therefore evident that AI does not always follow the instructions or parameters set by its creators. This could present problems for a tax administration where AI algorithms can be influenced by sources outside the tax administration with interests that conflict with those of the administration, thereby undermining the very system and values the AI is designed to uphold. The closer we get to the creation of ASI, the higher the prevalence of this risk becomes, because ASI is not subject to human oversight.

2.6.2 Spread of disinformation

The more automated the processes at SARS, the more likely such processes will attract the attention of nefarious elements seeking to take advantage of the vulnerability of taxpayers whose data is held by SARS. While the risk of spreading disinformation is more external than internal (that is, hackers and other external parties might seek to replicate and create fake versions of SARS communications in order to gain access to confidential taxpayer information), SARS must take steps to mitigate the risk of its automated processes being exploited or used to spread disinformation. Additionally, vulnerabilities in SARS' automated processes could create opportunities for hackers to plant false information into SARS systems, thereby creating a situation where SARS' own AI is unable to distinguish between the false data and real data.

---

[106] Schwarts O (2019) "In 2016, Microsoft's Racist Chatbot Revealed the Dangers of Online Conversation: The bot learned language from people on Twitter—but it also learned values" Available at https://spectrum.ieee.org/in-2016-microsofts-racist-chatbot-revealed-the-dangers-of-online-conversation [Accessed on 8 July 2023].

[107] Bartov SL (2022) "Mark Zuckerberg Roasted by New Meta Chatbot: 'Too Creepy and Manipulative'" *Newsweek* Available at https://www.newsweek.com/mark-zuckerberg-roasted-meta-chatbot-creepy-manipulative-twitter-1732686 [Accessed on 8 July 2023].

The risk of disinformation increases with the advent of new developments in AI such as Deep Fake Technology[108] which can be used to present fake information as though it has originated from a credible source. The most recent evidence of the chaos that Deep Fake technology can cause pertains to the publishing of an AI generated image depicting the Pentagon[109] on fire as if it had been hit by an explosion. This caused a brief dip in the US stock market before the image was identified as fake.[110] The emergence of deep fakes poses a significant threat to SARS as fake images and even videos could be published instructing taxpayers and stakeholders to engage in certain dangerous activities or tax behaviours under the guise of such instructions being from credible sources or even SARS itself.

2.6.3 Threat to privacy and cybercrimes

AI is trained by being given access to large volumes of data which it is then taught to analyse in order to achieve specified outcomes.[111] This means that AI needs to have unimpeded access to data which may include private information. AI as a tool is currently unable to distinguish sensitive and protected private data from readily accessible public data. As such, it often finds itself on the wrong side of the law with regard to the topic of data privacy. Kerry states that the evolution of AI, which is marked by a rise in the analysis of personal data to new levels of speeds, will magnify AI's ability to use personal data in ways that encroach upon the right to privacy.[112]

The biggest issue with the use of AI and the right to data privacy is that, often, users of an AI programme are not informed of how or the extent to which their personal data is utilised by the entity behind the AI, nor for what purpose. This concern was the driving force behind the fines issued to Meta by the European Union, the US Federal

[108] A deep fake is any image or video which is created through DL, purporting to be something other than that which it is, and is often applied towards the spread of misinformation or undue influence. See University of Virginia (2023) "What the heck is a deepfake?" Available at What the heck is a deepfake? | Information Security at UVA, U.Va. (virginia.edu) [Accessed on 19 July 2023].
[109] The Pentagon is the headquarters building for the United States Department of Defense and thus a national key point.
[110] Haddad M (2023) "Fake Pentagon explosion photo goes viral: How to spot an AI image**:** A picture claiming to show an explosion near the Pentagon raises concerns about AI's ability to produce misinformation" *Al Jazeera* Available at https://www.aljazeera.com/news/2023/5/23/fake-pentagon-explosion-photo-goes-viral-how-to-spot-an-ai-image [Accessed on 8 July 2023].
[111] Gravett, W (2020) at pages 5 and 6.
[112] Kerry CF (2020) "Protecting Privacy In an AI driven World" Available at https://www.brookings.edu/articles/protecting-privacy-in-an-ai-driven-world/ [Accessed on 12 July 2023].

Trade Commission (FTC) and US Securities and Exchange Commission (SEC), pertaining to the misuse of and sharing of user's data with third parties.[113] The FTC is also currently investigating a US company called OpenAI[114] which is the creator of a programme called "ChatGPT" which, according to its creators has been trained using "Reinforcement Learning from Human Feedback"[115] and is aimed at responding to prompts and instructions in a conversational way, with follow-up questions as a means of addressing a user's request.[116] The investigation pertains to whether the AI used to train ChatGPT infringes on data privacy and also intends to look into potential defamation of people by the programme through the publishing of false information.[117]

The Tax Administration Act makes provision for the collection of taxpayer data from third parties and also states that taxpayer information is sacrosanct and may only be shared with specified parties under limited circumstances.[118] The purpose of this restriction on the sharing of taxpayer information is to protect sensitive taxpayer information from being transferred to unauthorised persons. It is thus aimed at regulating the use of taxpayer information in order to guard against abuse. Strictly speaking, if this restriction is upheld by SARS, then AI tools such as ChatGPT should not be able to access taxpayer information.

The other side to the data privacy concerns regarding the use of AI, pertains to the risk of unauthorised access to private data held by SARS by means of data breaches and cyber hacking. The most notable data breach at SARS occurred in 2011, when human error resulted in 20 000 e-mail addresses belonging to taxpayers being erroneously sent to employers.[119]

---

[113] Mc Callum S (2022) "Meta settles Cambridge Analytica scandal case for $725m" Available at https://www.bbc.com/news/technology-64075067 [Accessed on 12 Jul. 23].
[114] Zakrzewski C (2023) "FTC investigates OpenAI over data leak and ChatGPT's inaccuracy" Available at The FTC investigates OpenAI over data leak and ChatGPT's inaccuracy - The Washington Post [Accessed on 16 July 2023].
[115] Open AI (2022) "Introducing ChatGPT" Available at Introducing ChatGPT (openai.com) [Accessed on 14 July 2023].
[116] Ibid.
[117] Zakrzewski C (2023) "FTC investigates OpenAI over data leak and ChatGPT's inaccuracy" Available at The FTC investigates OpenAI over data leak and ChatGPT's inaccuracy - The Washington Post [Accessed on 16 July 2023].
[118] See chapter 6 of the TAA 28 of 2011.
[119] Mawson N (2011) "SARS leak shows up deficiencies" ITWeb Available at https://www.itweb.co.za/content/PmxVEMKyldDvQY85 [Accessed on 14 July 2023].

2.6.4 Job losses

While it is true that the automation of certain repetitive functions such as verification activities has freed up personnel to be deployed towards more complex functions, the issue remains that, unless all personnel whose functions have been automated are deployed to other departments within the organisation, such automation will result in job losses. While reskilling the workforce as part of the process of automating the tax administration can mitigate job losses, it tends to require additional investment and also does not fully address redundancies that occur as a result of reskilling.[120]

2.6.5 Reliability of AI tools

Some AI tools aimed at replicating human decision-making have proven very unreliable. An example of such unreliable tools is ChatGPT. Recently some attorneys have been relying on ChatGPT to conduct legal research on their behalf, with disastrous consequences both locally and internationally. In the United States case of *Mata v Avianca Inc*.,[121] two attorneys named Peter LoDuca and Steven A. Schwarts from the law firm of Levidow, Levidow & Oberman were fined $5 000 by Judge P. Kevin Castel for misleading the court by submitting legal briefs containing false and inaccurate references to case law, judicial decisions and legal academic writings, which had been quoted by ChatGPT when the attorneys made use of the programme.[122] The court further ordered the two to issue formal apologies to both their client Mr Robert Mata as well as the judges who had been defamed by the attribution of inaccurate judgments to their names. For clarity, the court case alleges that ChatGPT created non-existent connections between existing yet unrelated facts, judgments and judges. ChatGPT therefore presented actual quotes from certain judgments, but attributed them to unrelated cases and judges.

Closer to home, in the Johannesburg Regional Court in the case of *Parker v Forsyth N.O;*,[123] magistrate A Chatram issued a punitive costs order against the Plaintiff Ms Michelle Parker, after it transpired during proceedings that her lawyers had relied on

[120] Deloitte (2023) "Beyond reskilling: Investing in resilience for uncertain futures" Available at Beyond reskilling | Human Capital Trends | Deloitte Afr [Accessed on 16 July 2023].
[121] Case No No.22-cv-1461 (PKC) (S.D.N.Y) Available at https://www.courtlistener.com/docket/63107798/mata-v-avianca-inc/ [Accessed on 14 July 2023].
[122] Weiser B (2023) "Here's What Happens When Your Lawyer Uses ChatGPT" *New York Times [Online]* Available at https://www.nytimes.com/2023/05/27/nyregion/avianca-airline-lawsuit-chatgpt.html [Accessed on 14 Jul. 23].
[123] *Parker v Forsyth* N.O, case no. 1585/20.

incorrect references to fictitious judicial decisions in documents submitted to the representatives for the Defendants. The magistrate issued a rebuke against what the court referred to as the search for “instant gratification” that sees lawyers relying on research conducted by AI programmes like ChatGPT without verifying the validity of sources quoted by the AI.

Taking into account the risks of using AI, the view taken hereunder is that SARS can thus not rely solely on AI to carry out the functions of the revenue service.

2.7 Conclusion

It is clear that the type of AI available at present, being narrow AI, has a number of benefits for tax administration and using it has proven to be of value to the processes at SARS. Narrow AI has initiated a process of easier collection of tax and will lead to more taxes being collected and fraud being minimised. However, for all its benefits, the use of AI also comes with a number of risks, such as reliability of the third-party data it extracts from various sources. It is nevertheless, concluded that managing those risks is the key to ensuring that SARS derives maximum benefits from its use of AI. It is further concluded that a healthy mix between human operations and AI processes is crucial to the efficiency of SARS.

Chapter 3 – AI and the South African Regulatory Framework

3.1 Introduction

In chapter 2, the various risks associated with the use of AI in tax administration were identified. This chapter considers the extent to which the current South African legal framework is equipped to mitigate and address the aforementioned risks of using AI in the South African tax administration. The use of AI at SARS has the potential to fall within the ambit of several laws, such as copyright laws, where AI accesses the intellectual property of others without crediting the authors,[124] or contract law, where AI is used to draft agreements between SARS and the taxpayer or SARS and international or local organisations.[125] Additionally, such use can have an impact on jobs. However, labour laws, copyright laws, contract law and the law of delict will not form part of the discussion hereunder. Due to the limited scope of this research, this chapter focuses solely on laws that impact the relationship between SARS and individual taxpayers, particularly the rights to privacy, equality, administrative justice and access to information.

3.2 Purpose of regulating the use of AI

The use of AI in tax administration carries risks that can fundamentally harm the rights of the tax administration's human subjects, such as the rights to personal privacy and data protection, non-discrimination and access to information.[126] For this reason, the use of AI requires regulation in the form of legal regulations and legislation to mitigate the prevalence of these risks. Any technology used by government or government action which has the potential to significantly affect the lives and rights of its subjects should be regulated to ensure accountability for the adverse effects of such use or action.[127]

---

[124] SARS regularly publishes guides and interpretation notes to provide insight into SARS's view on certain aspects of tax law and these documents often borrow from academic writings.
[125] As demonstrated in the case of *Mata v Avianca Inc*. the common law of delict can also be impacted by the use of AI where AI incorrectly attributes content to a person other than the creator of such content.
[126] Ebers M and Gamito MC (2021) *Algorithmic Governance and Governance of Algorithms: Legal and Ethical Challenges* (Springer Nature AG: Switzerland) at page 3.
[127] Brand, D.J. (2022) "Responsible Artificial in Government: Development of a Legal Framework for South Africa" *eJournal of Democracy* at page 132.

There is currently a global push for the regulation of AI in order to combat the risks identified in chapter 2. Recognising the need to regulate AI, the OECD published its OECD AI principles, which read as follows:

> *"**The five OECD AI Principles***
>
> *The council recommendation identifies five complementary values-based principles for the responsible stewardship of trustworthy AI:*
>
> *1. AI should benefit people and the planet by driving inclusive growth, sustainable development and well-being.*
>
> *2. AI systems should be designed in a way that respects the rule of law, human rights, democratic values and diversity, and they should include appropriate safeguards–for example, enabling human intervention where necessary–to ensure a fair and just society.*
>
> *3. There should be transparency and responsible disclosure around AI systems to ensure that people understand AI-based outcomes and can challenge them.*
>
> *4. AI systems must function in a robust, secure and safe way throughout their life cycles and potential risks should be continually assessed and managed.*
>
> *5. Organisations and individuals developing, deploying or operating AI systems should be held accountable for their proper functioning in line with the above principles."*[128]

The AI principles were adopted on 9 June 2020 by the Group of 20 (G20) member states of which South Africa is a member.[129]

OECD AI principles 2 to 3 above, are aimed at preserving the rights referenced in the introduction to this chapter, such as the right to non-discrimination, access to information and data privacy. In this regard, the majority of countries have some form of legislation or regulations aimed at ensuring the protection of such rights. In the case

[128] OECD Observer (2020) "What are the OECD Principles on AI?" Available at https://www.oecd-ilibrary.org/docserver/6ff2a1c4-en.pdf?expires=1690025482&id=id&accname=guest&checksum=63B35D090900AECBE0BE052B2A1D957F [Accessed 22 July 2023].
[129] Ibid. See also G20 (last updated July 2023) "About G20" Available at https://www.g20.org/en/about-g20/ [Accessed on 22 July 2023].

of European countries such as Germany, France, Italy and Ireland, the rights to privacy and access to information are encompassed in the same legislation, namely the General Data Protection Regulation (GDPR). The GDPR applies as a general data protection and access to information regulation and must be read in conjunction with the relevant tax legislation of each jurisdiction. Article 1 of the GDPR provides for the scope and application of the regulation and provides as follows:

1. *"This Regulation lays down rules relating to the protection of natural persons with regard to the processing of personal data and rules relating to the free movement of personal data.*
2. *This Regulation protects fundamental rights and freedoms of natural persons and in particular their right to the protection of personal data.*
3. *The free movement of personal data within the Union shall be neither restricted nor prohibited for reasons connected with the protection of natural persons with regard to the processing of personal data."*[130]

Protection of a data subject's privacy and clarification on circumstances under which personal information may be shared with third parties is provided for in Chapter 3 (Articles 12 to 23) and Chapter 5 (Articles 40 to 50) of the GDPR, respectively. The European Parliament has emphasised the necessity of ensuring that the creation and use of AI tools "takes place in a socio-technical framework – inclusive of technologies, human skills, organisational structures, and norms – where individual interests and the social good are preserved and enhanced."[131] The European parliament further highlights that while the GDPR does not specifically reference AI, the majority of its provisions are sufficient to cater to the use of AI, while some provisions may be challenged by AI tools. It is, however, possible to interpret the provisions of the GDPR to address the processing of data by AI tools.[132] Notwithstanding the aforementioned, the European Parliament has as of 2023, recommended the introduction of the AI Act which is intended to be the first comprehensive law on AI by a major regulator.[133] The

[130] See Article 1 of the GDPR.
[131] European Parliament (2020) "The impact of the General Data Protection Regulation (GDPR) on artificial intelligence" Available at https://www.europarl.europa.eu/RegData/etudes/STUD/2020/641530/EPRS_STU(2020)641530_EN.pdf [Accessed on 12 August 2023] at I.
[132] Ibid at II.
[133] News European Parliament (2023) "EU AI Act: First Regulation on Artificial Intelligence" Available at https://www.europarl.europa.eu/news/en/headlines/society/20230601STO93804/eu-ai-act-first-

AI Act aims to differentiate between the different risks posed by AI in order to restrict the development of some forms of AI, while outrightly outlawing the development of other forms such as AI tools aimed at cognitive behavioural manipulation and social scoring.[134]

It is clear from the above that AI is considered a huge threat to society at an international level and thus requires regulation; however as demonstrated above, the majority of the internationally proposed regulations are aimed at regulating the development of harmful AI tools. It is thus necessary to consider whether the existing South African legislative framework sufficiently addresses the legal challenges of using AI at SARS.

3.3 Regulation of the use of AI under the current South African legislative framework

As demonstrated in chapter 2 most of the processes and activities carried out by AI in SARS were previously carried out by human personnel. The main change is the scale at which such processes and activities are carried out by AI when compared to human personnel. This means that some of the negative aspects of human services such as biases, manipulation and infringements on fundamental rights such a personal data protection, privacy and administrative justice may be exacerbated when AI is used, with new risks emerging.[135]

Despite not having any specific regulations and legislation aimed at regulating the use of AI, South Africa recently launched the Artificial Intelligence Institute of South Africa (AII-SA).[136] AII-SA is founded by the Department of Communications and Digital Technologies in partnership with the University of Johannesburg and the Tshwane University of Technology, in accordance with the vision set out by the Presidential

---

regulation-on-artificial-intelligence#:~:text=The%20use%20of%20artificial%20intelligence,how%20it%20will%20protect%20you. [Accessed on 12 August 2023].

[134] Ibid.

[135] Ebers M and Gamito MC Ibid at page 12.

[136] Ormond E (2023) "Artificial intelligence in South Africa Comes with Special Dilemmas – Plus the Usual Risks" *The Conversation* Available at https://theconversation.com/artificial-intelligence-in-south-africa-comes-with-special-dilemmas-plus-the-usual-risks-194277#:~:text=Finally%2C%20whereas%20the%20EU%2C%20UK,limited%20laws%20relevant%20to%20AI. [Accessed on 22 July 2023].

Commission on the Fourth Industrial Revolution.[137] The stated purpose of AII-SA is to "generate knowledge and applications that will position South Africa as a competitive player in the global artificial intelligence space."[138] Despite being the first step in recognising the growth of AI in South Africa, it remains a clear indicator of the lack of specific regulations aimed at the use of AI in South Africa. In the absence of such regulation, current developments in the creation and use of AI in the country have to be reviewed and adjudicated against the existing legal framework.

3.4 Laws that can be impacted by the use of AI in tax administration

This section analyses the readiness of existing legislation for the use of AI by SARS. As already stated in 3.1, labour laws, copyright laws, contract law and the law of delict which are linked to some of the risks of using AI in tax administration identified in 2.6, such as job losses, reliability of AI tools and the spread of disinformation will not form part of the discussion hereunder. These laws are considered beyond the scope of this research. This chapter focuses solely on laws that impact the relationship between SARS and individual taxpayers, particularly the rights to privacy, equality, administrative justice and access to information. These rights are connected to the risks pertaining to lack of algorithmic transparency, bias, spread of disinformation, the threat to privacy, cybercrimes and reliability of AI tools as identified in 2.6.

3.4.1 Laws aimed at bias and discrimination

As demonstrated in chapter 2 with regard to the algorithmic system used by the Dutch tax authority, AI can entrench systemic biases, thus discriminating against a segment of taxpayers. The right to equal treatment before the law (including tax laws) is entrenched in section 9 of the Constitution and enforced *via* legislation such as the Promotion of Equality and Prevention of Unfair Discrimination Act 4 of 2000 (PEPUD). The TAA also has a number of provisions that are aimed at ensuring equality of all taxpayers before tax laws.[139] However, equal treatment before the law does not mean

[137] Artificial Intelligence Institute of South Africa (2023) "About the Institute - Overview of the AI Institute of South Africa" Available at https://aii-sa.co.za/about-us/ [Accessed on 22 July 2023].
[138] Ibid.
[139] Consider provisions such as sections 22 (registration requirements), 23 (communication of changes in particulars), 25(5) (provision for the submission of an amended return to correct an undisputed error in a return) which set out the categories of person required to register as taxpayers, the form and manner in which a return must be submitted and also allows taxpayers to amend a return that contains an undisputed error prior to the issue of an original assessment in order to prevent such taxpayer from unfairly incurring tax debt due to an error in a return.

that taxpayers should be treated identically,[140] only that the treatment of taxpayers should be fair and not arbitrary. This principle was emphasised in the case of *Pharmaceutical Manufacturers Association of South Africa: In Re Ex Parte President of the RSA*,[141] wherein in Judge Chaskalson stated as follows:

> *"It is a requirement of the rule of law that the exercise of public power by the Executive and other functionaries should not be arbitrary. Decisions must be rationally related to the purpose for which the power was given, otherwise they are in effect arbitrary and inconsistent with this requirement. It follows that in order to pass constitutional scrutiny the exercise of public power by the Executive and other functionaries must, at least, comply with this requirement."*[142]

A law or action by an organ of the South African state becomes arbitrary when it goes against the very purpose of the legislation or organ of state. The progressive tax[143] principle imposed on individuals is thus an example of fair discrimination which gives effect to the purpose of the Income Tax Act. A case such as what occurred with the algorithmic AI system in the Netherlands would be an example of arbitrary and unequal treatment of taxpayers as a result of biases entrenched in the Dutch tax authority's AI system.[144]

The biggest issue with regulating AI is trying to determine who should be held accountable for the harmful actions of AI, that is, who has the obligation to make right what has been wronged. By specifically referencing the organ of state as the party obligated to ensure horizontal equity in the treatment of its subjects, section 9 of the Constitution makes it clear that SARS "as an administratively autonomous organ of state within the public administration, and an institution outside the public service"[145] will be held accountable for any discriminatory treatment by its employees or

---

[140] Arendse JA, Williams RC and Klue S (Last updated February 2023) "The Right to Equality Before the Law" in *Silke on Tax Administration* [LexisNexis, Butterworth (Online)] at §3.9.
[141] 2002 (2) SA 674 (CC).
[142] Ibid at paragraph 85.
[143] Investopedia online defines a "progressive tax" as "a tax rate that increases (or progresses) as taxable income increases." See Investopedia (Online) "What Is a Progressive Tax?" Available at https://www.investopedia.com/terms/p/progressivetax.asp#:~:text=A%20progressive%20tax%20involves%20a,group%20taxpayers%20by%20income%20range. [Accessed on 13 August 2023].
[144] See Heikkilä M (2022) "Dutch scandal serves as a warning for Europe over risks of using algorithms" *Politico* Available at https://www.politico.eu/article/dutch-scandal-serves-as-a-warning-for-europe-over-risks-of-using-algorithms/ [Accessed on 16 July 2023] as referenced in paragraph 2.6.1 of Chapter 2.
[145] SARS (October 2022) "SARS celebrates its silver jubilee" Available at https://www.sars.gov.za/media-release/sars-celebrates-its-silver-jubilee/#:~:text=By%20law%2C%20SARS%20is%20an,institution%20outside%20the%20public%20service [Accessed on 5 August 2023].

generative AI systems. This aligns with section 5 of PEPUD which states that the provisions of the Act are binding on the State and all persons. “Person” is defined in section 1 of PEPUD as “person” includes a juristic person, a non-juristic entity, a group or a category of persons,”[146] and thus includes SARS and its agents. This means that SARS has the obligation to right the wrongs of its AI systems. It is thus the responsibility of SARS to ensure that its AI systems are free from biases that could result in unfair and discriminatory treatment of taxpayers.

Placing the ultimate responsibility to ensure compliance with the principle of equality in SARS’s systems and operations on the organisation itself, places the burden of constantly reviewing SARS systems to confirm compliance with the Constitution on the organisation. The provisions of section 9 of the Constitution and PEPUD are therefore considered to sufficiently cater for the prevention of unfair discrimination and the promotion of equality in SARS systems and operations. Reading the aforementioned provisions of PEPUD and the Constitution with the TAA should result in the preservation of the right to equality and the prevention of unfair discrimination where AI is used in the administration of taxes pertaining to individual taxpayers.

3.4.2 Laws aimed at transparency

SARS as a statutory organ of State[147] is obligated to make available and share information pertaining to its processes, operations, interpretation of tax laws and business affairs in order to ensure compliance with the laws of the country. Some of this information is readily available and accessible on the SARS website while certain privileged information in the possession of SARS can only be accessed by making a formal request for information. SARS records comprise of four different categories of information of which SARS is in possession, namely: (1) Taxpayer information; (2) SARS confidential information, (3) Personnel information and (4) SARS business records.[148]

[146] Section 1 of PEPUD.
[147] SARS was created by the South African Revenue Service Act 34 of 1997 and is thus what is referred to as a statutory body.
[148] SARS (October 2021) “Manual on the Promotion of Access to Information Act 2000 and the Protection of Personal Information Act 2014” Available at https://www.sars.gov.za/wp-content/uploads/SARS-PAIA-POPIA-Manual-SEVENTH-UPDATE-FINAL-05-October-2021-1.pdf [Accessed on 5 August 2023] at 7.

When information is required in relation to the AI systems utilised by SARS, such a request would fall under SARS confidential information, defined in section 68 of the TAA as including several types of information, but more importantly for current purposes:

> *"(i) a computer program, as defined in section 1 (1) of the Copyright Act, 1978 (Act No. 98 of 1978), owned by SARS;*
>
> *(j) information relating to the security of SARS buildings, property, structures or systems; and*
>
> *(k) information relating to the verification or audit selection procedure or method used by SARS, the disclosure of which could reasonably be expected to jeopardise the effectiveness thereof."*[149]

As mentioned in chapter 2, SARS recently as of 2020 embarked on the auto-assessments process of issuing automated assessments to non-provisional taxpayers, based on third-party data in its possession. A request from a taxpayer seeking to understand the basis on which it was assessed by SARS's automated systems under the auto-assessments process would thus fall under the provisions of section 68 of the TAA as quoted above, thereby constituting a request for access to SARS confidential information. According to the *SARS Manual on PAIA and POPIA*,[150] a request for access to SARS confidential information may be refused by a SARS information officer[151] to the extent that such information constitutes SARS confidential information. This is in accordance with section 35(1) of PAIA which is aimed at preserving the integrity of SARS systems for the effective administration of taxes.

It thus appears that although the aforementioned legislation does not specifically reference an automated system or AI used by an organ of state, by making the organ of state the party ultimately responsible for any actions undertaken in its name, SARS as an organ of state will be held accountable for the actions of its AI systems. Such accountability is however only enforceable to the extent that the aggrieved taxpayer is able to be sufficiently informed about how certain automated decisions are made. The

[149] Paragraphs (*i*) to (*k*) of section 68 of the TAA.
[150] SARS (October 2021) "Manual on the Promotion of Access to Information Act 2000 and the Protection of Personal Information Act 2014" at 9.1.(d).
[151] The SARS Information Officer is the Commissioner of SARS under paragraph (c) of the definition of "information officer" in section 1 read with section 2(3) of PAIA and paragraph (*a*) of the definition of "information officer" in section 1 POPIA.

restriction on access to information pertaining to SARS systems as provided in section 68 of the TAA. However, it can present challenges for taxpayers who are of the view that they have been incorrectly assessed by SARS AI tools. Section 102 of the TAA places the burden of proving impropriety by SARS on the taxpayer, as such in order for an aggrieved taxpayer to obtain redress for damages suffered as a result of SARS' AI tools, the taxpayer would need to prove that it indeed suffered damages and such damages arose as a result of the SARS AI tools. Additionally, the same information would be required to lodge a complaint if unjust administrative action under section 5 of PAJA. The confidentiality of SARS systems as provided for in section 68 of the TAA means that the aggrieved taxpayer would not be able to access the information required to prove its claim and thus meet the burden of proof set out in section 102 of the TAA. This can have a negative impact on the rights of a taxpayer to administrative justice and access to information as provided for in section 5 of PAJA and section 46 of PAIA respectively. The interplay between these Acts requires consideration as this provision of the TAA could be challenged on a similar basis to that on which section 67 of the TAA and sections 34 and 35 of PAIA were challenged in *Arena Holdings (Pty) Ltd t/a Financial Mail and others v South African Revenue Service and others.*[152] It can thus be said that the current legislation pertaining to access to information in the possession of SARS allows for some transparency with regard to the use of AI within SARS.

It would thus benefit SARS to ensure that its use of AI is limited to functions over which humans can still exercise oversight. This becomes especially important when one considers the phenomenon of "AI hallucinations" that arose with the advent of generative AI. An AI hallucination is explained as an instance in which AI in the form of a large language model or chatbot, generates false information.[153] The cases of *Mata v Avianca Inc.* and *Parker v Forsyth N.O* referenced in chapter 2 are examples of AI hallucinations where ChatGPT fabricated connections between unrelated facts, case citations and judges existing elsewhere on the Internet.

The concern with AI hallucinations and accessing SARS confidential information, is that unless SARS continues to limit its use of AI to repetitive tasks such as data

[152] 2023 (8) BCLR 905 (CC). See discussion in 3.4.3.
[153] See Lutkevich B (2023) "AI Hallucinations" Available at https://www.techtarget.com/whatis/definition/AI-hallucination [Accessed on 6 August 2023].

capturing; more sophisticated AI models could be empowered to process requests for access to SARS confidential information. The risk herewith is that if for any reason a gap in the AI's memory occurred with the result that the AI was unable to recall whether the request for information was submitted in the correct form and under the correct process as set out in the TAA and PAIA; it could end up leaking confidential SARS information to unauthorised parties. The danger with AI is that it is self-learning and constantly evolving, this means that it has the ability to go beyond the scope of its design with its main focus being completing the assigned task. Thus, a SARS AI whose code is not regularly updated to keep up with the machine's self-learning feature and thus restrict its functions could evolve to process a request for information regardless of whether certain information required for the processing of such a request is missing. An example is the issue identified with ChatGPT where it created non-existent connections between existing yet unrelated facts, judgments and judges in order to complete the task of providing legal advice. The risk is thus that the SARS AI could also draw incorrect associations between information pertaining to unrelated taxpayers in order to conclude that all the requirements of the request for information have been met.

In this regard, the legislation in the form of the TAA and PAIA sufficiently balances the rights of access to information (transparency) and data privacy by allowing for circumstances under which SARS confidential information can be shared and also limiting the scope for such sharing. By only giving the function of considering requests for access to SARS information to its human personnel, PAIA and the TAA create a situation where automating this function, without any human oversight, would constitute a breach of the legislative provisions of those Acts. Thus, any breaches resulting from AI hallucinations will be attributed to the relevant human personnel at SARS such as SARS information officers. SARS will therefore have to take measures necessary to ensure this balance, by limiting the extent to which its functions are automated. The TAA may need to be amended to reflect this restriction on the extent to which SARS can automate its functions in order to maintain and protect this delicate balance between access to information and the confidentiality of SARS information. The restriction on who can process requests for access to SARS confidential information thus ensures sufficient transparency with regard to SARS processes and

systems but also limits such disclosures to information that will not compromise the integrity and security of such systems.

3.4.3 Laws pertaining to administrative justice

The Promotion of Access to Justice Act (PAJA)[154] was enacted to give effect to the right to administrative justice as enshrined in section 33 of the Constitution. The TAA, in conjunction with other tax Acts, provides for the exercise of a discretion by the Commissioner of SARS, which essentially constitutes decision-making. Where the decision taken by SARS negatively impacts the rights of a taxpayer, a request for reasons behind the decision may be made under the provisions of section (5) of PAJA, which enables an aggrieved party (the taxpayer) to request reasons for administrative action taken by SARS as a public body which has negatively impacted the taxpayer's rights. In order for a decision taken by the Commissioner or another SARS representative to constitute administrative action as envisioned in PAJA, such decision must qualify in terms of the definition of "administrative action" which reads as follows:

> ***"administrative action"*** *means any decision taken, or any failure to take a decision, by—*
>
> *(a) an organ of state, when—*
>
> *(i) exercising a power in terms of the Constitution or a provincial constitution; or*
>
> *(ii) exercising a public power or performing a public function in terms of any legislation; or*
>
> *(b) a natural or juristic person, other than an organ of state, when exercising a public power or performing a public function in terms of an empowering provision,*
>
> *which adversely affects the rights of any person and which has a direct, external legal effect, but does not include—"*[155]

As can be seen from the definition, the emphasis is on a decision taken by an "administrator" as defined in section 1 of PAJA, which includes an organ of state, being SARS, as opposed to the focus being on the actions of individual SARS agents which

[154] Act 3 of 2000.
[155] Definition of "administrative action" in section 1 of PAJA.

may be deployed to perform certain functions and take certain decisions on behalf of the organisation.

Thus, the fact that the administrative action (for example a decision to deny a request for an extension of time to submit a tax return under section 25(6) of the TAA, or a decision to deny a request for the postponement of the payment of tax pending an appeal against or objection to an assessment under section 164 of the TAA) is undertaken by an AI as opposed to SARS's human personnel is of no consequence. This is due to all actions taken by SARS either *via* its human personnel or its automated processes being imputed to SARS itself. It might be necessary for SARS to take further measures to ensure that information pertaining to its systems is retained within the organisation and no single employee has exclusive knowledge of SARS systems and processes. The extent to which these provisions sufficiently address the automation of decision-making at SARS is further explored below.

In the same manner as explained in 3.4.1 above with regard to the application of PEPUD, PAJA also makes reference to administrative decisions taken by an organ of state; as such administrative actions taken by any component within SARS, whether a natural person who is a member of SARS personnel or an automated system operating under the instructions of its commissioner being SARS will be imputed to the organisation itself. Section 6(2) of PAJA which provides for the institution of proceedings in a court or a tribunal for the judicial review of an administrative action specifically lists instances in which administrative action taken by an administrator may be subject to judicial review. The circumstances provided for in section 6(2) are sufficient to cover decisions taken due to AI hallucinations as explained in 3.3.2 above, because such decisions are unlikely to have been authorised or to comply with the criteria for fair and just administrative action as set out in the provision.

It might be necessary, however, for PAJA to specifically reference automated decision-making and clearly state who bears responsibility for infringements of the right to administrative justice where the infringement is a result of automated decision-making. An example hereof can be found in section 71(1) of POPIA which provides for a data subject's rights where their rights are impacted by a decision taken by an automated decision-making process and reads as follows:

> *"**71. Automated decision making.**—(1) Subject to subsection (2), a data subject may not be subject to a decision which results in legal consequences for him, her or it, or which affects him, her or it to a substantial degree, which is based solely on the basis of the automated processing of personal information intended to provide a profile of such person including his or her performance at work, or his, her or its credit worthiness, reliability, location, health, personal preferences or conduct."*[156]

Nevertheless, it is concluded that the provisions of PAJA read with section 33 of the Constitution are sufficient to cater for the preservation of the right to administrative justice where AI is used in the administration of taxes pertaining to individual taxpayers.

3.4.4 Laws pertaining to the processing of personal information and data privacy

Several laws aimed at regulating online activities are currently in existence in South Africa. While the different pieces of legislation address different issues, read holistically they work in tandem to deal with the risks pertaining to unauthorised access to and use of private taxpayer data through the abuse of SARS automated systems. Sections 67 and 69 of the TAA provide for a general prohibition on the disclosure of private taxpayer information and also provide for limited circumstances under which such information may be shared with third-parties. The processing of personal information is regulated by POPIA which sets out conditions for the lawful processing of personal information under Chapter 3 thereof. Personal Information is defined in section 1 of POPIA as follows:

> ***"personal information"** means information relating to an identifiable, living, natural person, and where it is applicable, an identifiable, existing juristic person, including, but not limited to—*
>
> *(a) information relating to the race, gender, sex, pregnancy, marital status, national, ethnic or social origin, colour, sexual orientation, age, physical or mental health, well-being, disability, religion, conscience, belief, culture, language and birth of the person;*
>
> *(b) information relating to the education or the medical, financial, criminal or employment history of the person;*

[156] Section 71(1) of POPIA.

(c) any identifying number, symbol, e-mail address, physical address, telephone number, location information, online identifier or other particular assignment to the person;

(d) the biometric information of the person;

(e) the personal opinions, views or preferences of the person;

(f) correspondence sent by the person that is implicitly or explicitly of a private or confidential nature or further correspondence that would reveal the contents of the original correspondence;

(g) the views or opinions of another individual about the person; and

(h) the name of the person if it appears with other personal information relating to the person or if the disclosure of the name itself would reveal information about the person;

In this regard, Cockfield explains privacy in the context of tax law as follows:

> *"Privacy can be a surprisingly difficult concept to define as there are many definitions within the literature generated by different academic disciplines that examine this concept. With respect to potential government intrusion on an individual or group's right to privacy, the concept of privacy is sometimes divided into discrete but related categories such as personal privacy (i.e., the right to maintain bodily integrity to not have states agents explore our bodies or force the disclosure of objects or matters that we wish to conceal and territorial privacy (i.e., the right to maintain privacy within our homes or other property we own such as automobiles)."*[157]

SARS processes a lot of personal and private information pertaining to natural persons who are taxpayers, including but not limited to, identity numbers, names, physical and postal addresses, e-mail addresses, telephone numbers, medical aid records and banking and financial records.[158] This qualifies individual taxpayers as SARS "data subjects" as defined in section 1 of POPIA, meaning that SARS must, if requested to do so, provide reasons for the processing of personal information belonging to taxpayers as well as only share such information with authorised parties under

[157] Cockfield A (2010). "Protecting Taxpayer Privacy Rights Under Enhanced Cross-Border Tax Information Exchange: Toward A Multilateral Taxpayer Bill of Rights" *U.B.C. Law Review* 42 at page 437.
[158] SARS (October 2021) "Manual on the Promotion of Access to Information Act 2000 and the Protection of Personal Information Act 2014" at 10.3.

specified circumstances. The are eight conditions for the lawful processing of personal information set out in Chapter 3 (sections 8 to 25) of POPIA as follows:

(a) Condition 1[159] – requires that in processing personal information belonging to data subjects, the Responsible Party being SARS must take responsibility for compliance with the conditions for processing personal data under POPIA;

(b) Condition 2[160] - requires that personal data be processed for a legitimate purpose. As SARS requires access to such information in order to administer taxes, it is considered that the processing of personal information by SARS is automatically for a legitimate purpose as such SARS is exempt from having to prove compliance with this condition;[161]

(c) Condition 3[162] - requires that personal information be processed solely for the purpose for which it was collected and that data subjects must be informed of this purpose as well the processing of their information;

(d) Condition 4[163] - requires that where personal information is further processed, such further processing be related to the original purpose for which the information was collected and that data subjects or taxpayers be informed of such further processing. Due to SARS's legislative obligation[164] to share information pertaining to taxpayers with other state entities such as the South African Police Service and the Financial Sector Conduct Authority, among others, which could have an impact on criminal investigations pertaining to the taxpayer, it is exempt from having to comply with this condition;[165]

(e) Condition 5[166] - requires that SARS ensure that the personal information it processes is correct and complete. This requirement is especially important in

[159] Section 8 of POPIA.
[160] Sections 9 to 12 of POPIA.
[161] SARS (October 2021) "Manual on the Promotion of Access to Information Act 2000 and the Protection of Personal Information Act 2014" at 10.1.
[162] Sections 13 and 14 of POPIA.
[163] Section 15 of POPIA.
[164] Section 70 of the TAA.
[165] SARS (October 2021) "Manual on the Promotion of Access to Information Act 2000 and the Protection of Personal Information Act 2014" at 10.1.
[166] Section 16 of POPIA.

the context of using AI to carry out tax administration activities because incomplete information will result in inaccurate conclusions and may negatively impact the creation of algorithms for the completion of tasks pertaining to tax administration;

(f) Condition 6[167] - requires that the processing of personal information by SARS be conducted in such a manner that taxpayers are kept abreast with regard to the processing of their information. Due to the fact that SARS regularly processes large volumes of taxpayer information, complying with this requirement would be an administrative nightmare. Additionally, given the presumption of a legitimate purpose with regard to the processing of personal data by SARS, it is considered unnecessary for SARS to comply with this requirement as well;

(g) Condition 7[168] - requires that SARS provide adequate and reasonable security measures for the personal information it processes. This requirement is the crux of the legal obligation pertaining to the automated processing of taxpayer information. SARS as a responsible party bears ultimate responsibility for the protection of the personal information it processes. This means that SARS, the organisation, will be held accountable for any breaches of personal data as a result of either unauthorised access to its automated systems or internal leaks due to system failures. Section 19 of POPIA in particular provides as follows:

> ***"19. Security measures on integrity and confidentiality of personal information.***—*(1) A responsible party must secure the integrity and confidentiality of personal information in its possession or under its control by taking appropriate, reasonable technical and organisational measures to prevent—*
>
> *(a) loss of, damage to or unauthorised destruction of personal information; and*
>
> *(b) unlawful access to or processing of personal information.*
>
> *(2) In order to give effect to subsection (1), the responsible party must take reasonable measures to—*

[167] Sections 17 and 18 of POPIA.
[168] Sections 19 to 22 of POPIA.

> *(a) identify all reasonably foreseeable internal and external risks to personal information in its possession or under its control;*
> *(b) establish and maintain appropriate safeguards against the risks identified;*
> *(c) regularly verify that the safeguards are effectively implemented; and*
> *(d) ensure that the safeguards are continually updated in response to new risks or deficiencies in previously implemented safeguards.*
>
> *(3) The responsible party must have due regard to generally accepted information security practices and procedures which may apply to it generally or be required in terms of specific industry or professional rules and regulations."*[169]

Section 19 thus requires that SARS as a responsible party processing the personal information of taxpayers must take all reasonable and necessary steps to protect and secure such information. Failure to adhere to this requirement will result in SARS being held liable for any breaches of information in its care. The reference to appropriate "technical measures" above is in recognition of the fact that data can be processed electronically *via* automated systems and AI programmes. This is further confirmed by the wording of the definitions of "electronic information" and "information matching programme" in section 1 of POPIA.

(h) Condition 8[170] – requires that SARS inform the taxpayer about the processing of their personal information and allow them to correct or update their information. This is crucial for the purposes of processing tax refunds where the banking details of a taxpayer may have changed in the interim. Outdated financial information could result in the refund being paid into the wrong account.

It is clear from the above that regardless of whether personal information is processed manually by human personnel or automatically by means of AI systems and programmes, the provisions of POPIA provide adequate protection for personal data in the possession of SARS by placing ultimate accountability for the protection of such

[169] Section 19 of POPIA.
[170] Sections 20 to 22 of POPIA.

information, on SARS itself. By not differentiating between information processed manually and information processed automatically, POPIA covers every instance of data processing by SARS and compels SARS to ensure that every reasonable measure is undertaken to protect the personal information its possession. In this regard, SARS has provided a general description of the information security measures it employs in order to protect taxpayer information, such as:

> *"(i) Firewalls; (ii) Encryptions; (iii) Logical access control; (iv) Oath of secrecy for employees, services providers and third parties SARS may share information with; (v) Physical access control; (vi) Secure hardware and software; (vii) Confidentiality and data privacy clauses in agreements concluded with suppliers and service providers."*[171]

The security measures employed by SARS are a clear indication of its recognition of the fact that the obligation to protect personal information in its possession lies with SARS, regardless of whether such information is processed manually or automatically. As such SARS needs to ensure the integrity and security of its systems at all times in order to prevent internal breaches of taxpayer information. This consideration will thus inform the extent to which SARS will delegate its tax administration activities to AI given that AI is often difficult to track and control. It is thus construed that this could be the reason why very few of SARS's processes have been automated. The "human-in-the-loop" AI processes which are a form of "Interactive Machine Learning, in which intelligent systems are designed to augment or enhance human decision-making, serving as a tool to be wielded through human interaction"[172] may be better suited to the use of AI in SARS as they allow for human intervention at certain levels in the tax administration process. This is in accordance with section 69 of the TAA that places the ultimate responsibility for the preservation of confidential taxpayer information on SARS officials being human personnel.

3.4.5 Laws regulating access to taxpayer information

Notwithstanding the secrecy of taxpayer information as provided for in sections 67 and 69 of the TAA read with the provisions of POPIA, there are limited circumstances in which access to confidential taxpayer information may be granted. A taxpayer may

[171] SARS (October 2021) "Manual on the Promotion of Access to Information Act 2000 and the Protection of Personal Information Act 2014" at 10.6.
[172] Wang G (2019) "Humans in the Loop: The Design of Interactive AI Systems" Available at https://hai.stanford.edu/news/humans-loop-design-interactive-ai-systems [Accessed on 5 August 2023].

request access to their own information held by SARS such as tax records, assessments, statements of account, among others; by submitting a formal request to the SARS office where such information is held. This is in accordance with section 73 of the TAA read with section 32(2) of the Constitution and section 35(2) of PAIA.

The issue arises when access is requested in relation to another person's taxpayer information. SARS generally takes the stance that only a taxpayer can access their tax information and no one else can, due to the secrecy of taxpayer information as enshrined in section 67, with limited exception to this rule under section 69 of the TAA.[173] This was the issue for consideration in the case of *Arena Holdings (Pty) Ltd t/a Financial Mail and others v South African Revenue Service and others* (the Constitutional Court case),[174] where the appellant sought confirmation of a declaratory order issued by the Gauteng High Court in *Arena Holdings* (*Pty*) *Ltd and others v South African Revenue Service and others* (the *Arena Holdings case*).[175] In the *Arena Holdings case*, the Applicants, being media organisations, approached the High Court with a request for access to the tax returns of former President Jacob Zuma, pertaining to the period during which he held the office of President of the Republic of South Africa.

The Applicants contended that disclosure of these records was in the public interest as contemplated under section 46 of PAIA which provides as follows:

> *"**46. Mandatory disclosure in public interest.**—Despite any other provision of this Chapter, the information officer of a public body must grant a request for access to a record of the body contemplated in section 34 (1), 36 (1), 37 (1) (a) or (b), 38 (a) or (b), 39 (1) (a) or (b), 40, 41 (1) (a) or (b), 42 (1) or (3), 43 (1) or (2), 44 (1) or (2) or 45, if—*
>
> *(a) the disclosure of the record would reveal evidence of—*
> *(i) a substantial contravention of, or failure to comply with, the law; or*
> *(ii) an imminent and serious public safety or environmental risk; and*

[173] Arendse JA, Williams RC and Klue S (Last updated February 2023) "The Promotion of Access to Information Act" in *Silke on tax Administration* [LexisNexis, Butterworth (Online)] at §3.23.
[174] 2023 (8) BCLR 905 (CC).
[175] 2022 (2) SA 485 (GP).

(b) the public interest in the disclosure of the record clearly outweighs the harm contemplated in the provision in question."[176]

The Commissioner for SARS being the information officer at SARS as defined in section 1 of PAIA, denied the request on the basis that the secrecy of taxpayer information is sacrosanct and protected under the provisions of sections 67 and 69 of the TAA and sections 34(1) and 35(1) of PAIA. The aforementioned provisions provide for the right to refuse access to a record if (1) the record contains confidential information of another party and access to the record would involve the 'unreasonable disclosure' of confidential information;[177] and (2) the disclosure of such information obtained or held by SARS for the purpose of enforcing legislation concerning the collection of revenue is related to a person other than the requester.[178] The High Court disagreed with SARS and ruled that the aforementioned provisions of the TAA and PAIA are unconstitutional and invalid to the extent that they do not provide for the disclosure of confidential taxpayer information when such disclosure meets the requirements of section 46 of PAIA.[179] The declaratory order was confirmed by the Constitutional Court.[180]

The aforementioned case has complicated matters for SARS in that what was previously a blanket prohibition on disclosure of taxpayer information, must now be amended to include a public policy override as envisioned in section 46 of PAIA. As mentioned in 3.4.2 above, the danger with AI is its unwavering need to complete a task, as such if it were not for the fact that only an information officer or deputy information officer may process a request for information under PAIA, it would be possible for more sophisticated forms of AI to process such requests on behalf of SARS. The AI may be capable of evolution beyond its written code due to its self-learning feature and would thus choose the most efficient path to completing the task which might result in the AI overlooking whether the public interest override is applicable or simply denying it without considering the applicability of the public interest override as such an examination would be arduous and time-consuming. This is evident in the chatbots created by Microsoft and Meta which went beyond the scope

[176] Section 46 of PAIA.
[177] Section 34(1) of PAIA.
[178] Section 35(1) of PAIA.
[179] 2022 (2) SA 485 (GP) at page 158.
[180] See 2023 (8) BCLR 905 (CC) at paragraph [205].

of the written code and adopted bad habits from elsewhere on the internet. This occurred due to an over-saturation of negative information on the internet which the chatbots then used to create algorithms which essentially became the AI's "value system". Additionally, taking into account the phenomenon of AI hallucinations, the AI could also create non-existent connections between data pertaining to unrelated taxpayers and thus conclude that requirements met in one instance have also been met in unrelated instances.

Fortunately, both the TAA and PAIA are drafted in the same manner as most legislation in South Africa in that decision-making is restricted only to senior SARS officials as defined in section 1 of the TAA or information officers and deputy information officers as contemplated in PAIA who are human personnel of SARS. This means that since the manner in which the legislation is drafted does not specifically reference automated decision-making, in the event that SARS elects to develop an AI system that is aimed at processing PAIA requests, the actions of such AI will be imputed to SARS as an organisation through the actions of the information officer or senior SARS official in whom that function is placed by legislation.

SARS will therefore not be able to avoid accountability for unauthorised disclosures of taxpayer information by its AI. This is evident from the fine issued to the Department of Justice and Constitutional Development (DoJ) by the Information Regulator after the DoJ lost approximately 1204 files containing personal information as contemplated in section 1 of POPIA in 2023.[181] The reason for the fine was stated to be due to the DoJ's failure to comply with an enforcement notice requiring it put in place adequate security measures to protect its database and systems following a 2021 data breach.[182] It is clear from the aforementioned that whether a data leak occurs as a result of human error or a breach of automated systems, is inconsequential when it comes to the determination of accountability for such leak.

The use of AI does not only impact access to taxpayer information on the domestic front, but also affects the cross-border exchange of information. The majority of South Africa's international tax agreements are based on the OECD's Model Tax Convention

[181] See Brederode W (2023) "Department of Justice fined R5m for not beefing up cyber security after 2021 data breach" Available at https://www.news24.com/news24/tech-and-trends/news/department-of-justice-fined-r5m-for-not-beefing-up-cyber-security-after-2021-data-breach-20230705 [Accessed on 11 August 2023].
[182] Ibid.

(OECD MTC), hence the prevalence in South African tax law of definitions referencing the OECD MTC such as the definition of “permanent establishment” and “resident” in section 1(1) of the Income Tax Act 58 of 1962. Article 26 of the OECD MTC makes provision for the exchange of taxpayer information between tax authorities and sets out the conditions under which the cross-border exchange of taxpayer information should occur. Article 26 is incorporated into several of South Africa’s Double Taxation Agreements (DTAs) and some of the DTAs are entered into between South Africa and its European Counterparts. The issue that arises then is what happens when a request for access to taxpayer information is submitted online or virtually by a foreign tax administration, such as a European country, under article 26 of the DTA.

Section 72 of POPIA requires that the requesting country provide an “adequate level of protection” in respect of the requested tax information, while article 45(2) of the GDPR requires that the European Commission member state must consider the presence and effective functioning of independent supervisory authorities in the other country that are able to ensure and enforce compliance with data-protection rules. Section 72 of POPIA thus aligns with international standards on the cross-border exchange of taxpayer information. The similarities between POPIA and the GDPR mean that SARS’s European counterparts may be more willing to exchange taxpayer information with SARS due to the high standards on data protection enshrined in South African legislation. As such, SARS is also empowered to share information pertaining to South African taxpayers with its European counterparts on the same basis. The emphasis is on the provision of adequate protections for such information whether such information is obtained, processed and stored manually or automatically.

For the aforementioned reasons it is submitted that the South African laws aimed at regulating access to taxpayer information are sufficiently equipped to provide for the use of AI in SARS. Nevertheless, in order to reduce the probability of data leaks, it is recommended that SARS retain the function of processing requests for information in the hands of human personnel as envisioned in section 69 of the TAA and the provisions of PAIA in particular the definition of an information officer.

3.4.6 Laws aimed at combating cybercrimes and the online spread of disinformation

The rules pertaining to electronic communications with SARS are set out in section 255 of the TAA, which reads as follows:

> *"**255. Rules for electronic communication.**—(1) The Commissioner may by public notice make rules prescribing—*
>
> *(a) the procedures for submitting a return in electronic format, electronic record retention and other electronic communications between SARS and other persons;*
>
> *(b) requirements for an electronic or digital signature of a return or communication; and*
>
> *(c) the procedures for electronic record retention by SARS.*
>
> *(2) SARS may, in the case of a return or other document submitted in electronic format, accept an electronic or digital signature of a person as a valid signature for purposes of a tax Act if a signature is required.*
>
> *(3) If in any proceedings under a tax Act, the question arises whether an electronic or digital signature of a person referred to in subsection (2) was used with the authority of the person, it must be assumed, in the absence of proof to the contrary, that the signature was so used."*[183]

In determining or analysing the treatment of electronic communication with SARS, section 255 must be read in conjunction with the Electronic Communication Rules (the Rules)[184] which set out the process of communicating electronically with SARS. Rule 8(1) provides that SARS is empowered to take any and all necessary steps to preserve the security of its data, information systems, SARS website and SARS electronic filing service. It further requires that SARS ensure the reliable operation of the latter. Rule 8(1) thus places an obligation on SARS to preserve the integrity of its electronic systems, while rule 8(2) places an obligation on the recipient of a data leak to:[185]

[183] Section 255 of the TAA.
[184] The Rules were issued in terms of section 255 of the TAA under government notice 644, published in the Government Gazette 37940 on 25 August 2014.
[185] See Rule 8(2).

(a) notify SARS immediately of the leak and the circumstances leading to the receipt of unauthorised information;
(b) follow the processes prescribed by SARS for the destruction of the information from such person's possession;
(c) not disclose the leaked information to another person, nor retain the information in any form; and
(d) retain a record of the receipt of the information.

The equivalent of rule 8(2) is also contained in sections 67(3) and (4) of the TAA which require that any person who receives taxpayer information outside of authorised processes must preserve the secrecy of such information and not disclose it to persons other than SARS officials.

In addition to the above, the main legislation regulating cybercrimes and Internet related offences is the Electronic Communications and Transactions Act 25 of 2002 (ECTA). Section 85 read with section 86 of ECTA defines cybercrime as the "unauthorised access to, interception of and interference with data"[186] and "includes the actions of a person who, after taking note of any data, becomes aware of the fact that he or she is not authorised to access that data and still continues to access that data."[187] Thus, any person who fails to adhere to the requirements of Rule 8(2) and section 67 of the TAA above, will be guilty of a cybercrime under section 86 of ECTA.

Section 86(2) of ECTA criminalises any action by any person who interferes, knowingly and intentionally, with data resulting in such data being modified, destroyed or otherwise rendered ineffective. This encompasses situations where unauthorised parties or "hackers" access SARS systems and either destroy or modify valuable data held within SARS systems with the aim of negatively impacting the ability of SARS to perform the functions to which such data is crucial. Modifying SARS systems to spread online disinformation and SARS phishing scams all fall under this category.

It is however not sufficient to simply criminalise the interference with data, the capabilities of persons to be able to interfere with data must be curtailed in order to reduce the prevalence of cybercrimes. In this regard, subsections (3) and (4) of

[186] Section 86(1) and (2) of ECTA.
[187] Section 85 of ECTA.

section 86 further criminalise the unlawful procurement, design, adaptation for use, sale or production of any device or computer programme with the aim of circumventing the security of online systems. Thus, the sale or design of any device aimed at circumventing the security measures applicable to SARS systems for purposes of unlawfully accessing or interfering with the data stored therein is an offence under the aforementioned provisions of ECTA.

The provisions of ECTA insofar as they pertain to the interception of communications between SARS and taxpayers, either by SARS, taxpayers or third-parties must be read in conjunction with the provisions of the Regulation of Interception of Communications and Provision of Communication-Related Information Act 70 of 2002 (RICA). Crucial to the protection of a taxpayer's right to privacy and data protection is the limitation of who can access such information and how.

In this regard a number of measures have been put in place by SARS to ensure the security of its digital systems and requiring passwords and two-factor authentication[188] on the part of taxpayers in order for them to access their SARS profile. Intercepting communications between SARS and the taxpayer in order to gain unlawful access to data contained in such communications is thus illegal under section 86 of ECTA as well as under section 2 of RICA. Research conducted at Cornell University in the US revealed that some AI tools have the ability to intercept or "steal" passwords by listening to keystrokes as the user types.[189] This means that some AI tools have the ability to intercept interactions between taxpayers and their SARS profiles and steal the passwords to such profiles in order to gain unlawful access to confidential information.

In this regard, the Cybercrimes Act 19 of 2020 which is aimed at protecting all persons (defined as natural and juristic beings in section 1 of the Act) from cyber criminals,

[188] Two-factor authentication is defined by Microsoft as "an identity and access management security method that requires two forms of identification to access resources and data." See Microsoft Security "What is Two-Factor Authentication?" Available at https://www.microsoft.com/en-za/security/business/security-101/what-is-two-factor-authentication-2fa [Accessed on 11 August 2023].
[189] Roach J (2023) "AI Can Now Steal Your Passwords with Almost 100% Accuracy — Here's How" Available at https://www.digitaltrends.com/computing/ai-can-steal-passwords-with-100-accuracy/ [Accessed on 10 August 2023]. See also Harrison J, Toreini E and Mehrnezhad M (2023) Ä Practical Deep Learning-Based Acoustic Side Channel Attach on Keyboards" Available at https://www.researchgate.net/publication/372858607_A_Practical_Deep_Learning-Based_Acoustic_Side_Channel_Attack_on_Keyboards [Accessed on 17 August 2023] at page 1 (Abstract).

terrorists and any other perpetrators of online crimes, may be better equipped to address the use of AI for this purpose. In the same manner as with ECTA and RICA, the Cybercrimes Act also outlaws the unlawful securing or acquisition of access to data;[190] and interference with software and hardware,[191] computer programs, computer systems, passwords, access codes or similar devices.[192] The Cybercrimes Act however goes further by specifically referencing the unlawful access to passwords *via* the use of automated tools such as AI to gain access to such passwords by compromising the integrity and security of the device, software or hardware being used by the intended target of the cyber-attack.[193]

The only way to reduce the prevalence of such unlawful acts is to deter *via* criminalisation, both the interception of communications as well as the design, sale and production of any device or software for such purposes. In this regard, it is concluded that the provisions of section 2 of RICA read with sections 85 and 86 of ECTA and Part I of Chapter 2 of the Cybercrimes Act are sufficient to combat instances of cybercrimes pertaining to the administration of individual taxes.

3.5 Conclusion

From the analysis above, it appears that the existing South African legal framework sufficiently provides for the use of AI in tax administration, either through legislation that specifically references automated processes, such as ECTA, POPIA, RICA and the Cybercrimes Act; or legislation which refers to the party to be held ultimately accountable for any decisions taken in its name, such as PAJA, PAIA and PEPUD which do not distinguish between automated decisions taken by AI or decisions taken by human personnel. Additionally, Gawdat cautions against the over-regulation of AI *via* laws and regulations that attempt to be overly specific in addressing AI as this can result in confusion on the part of the humans who are subject to the decisions and actions of the AI, while allowing the creators of AI to simply re-invent it in order to circumvent the regulations put in place.[194]

[190] Sections 2 and 3 of the Cybercrimes Act.
[191] Section 4 of Ibid.
[192] Sections 5 to 7 of Ibid.
[193] Ibid.
[194] Gawdat M (2021) *Scary Smart* (Bluebird: London) at pages 10 and 11.

The regulation of AI thus requires a balance between introducing complex rules aimed at recognising the complex nature of AI with the need to retain a level of familiarity and simplicity in legislation that allows the subjects of AI in tax administration to understand its impact on their rights. For these reasons, it is submitted that the current legal framework in South Africa has achieved this balance by allowing for simpler laws such as the Constitution, PAJA, PAIA and the TAA to be read in conjunction with more complex laws such as the Cybercrimes Act, ECTA, POPIA and RICA in order to address the challenges of using AI in tax administration. The exercise of discretion as provided for in the current South African legislative framework is crucial to the regulation of AI as it allows for flexibility which is necessary when dealing with constantly evolving technology.

Chapter 4 – The use of AI in the Indian tax administration

4.1 Introduction

In chapter 3, the extent to which the South African legal framework addresses the risks of using AI in tax administration, as identified in chapter 2; was considered. This chapter compares the use of AI in the Indian tax administration with its use at SARS and considers the extent to which the Indian legal framework addresses the risks of using AI in tax administration. The similarities and differences between the Indian and South African legal frameworks in this regard are compared hereunder.

This section focuses on the use of AI in the Indian tax administration, and the regulation of AI in India. It attempts to make a determination on the extent to which the South African legal framework on AI compares favourably or unfavourably with that of India and also makes a comparison of which legal system is better suited to the regulation of AI in tax administration.

4.2 The use of AI in the Indian tax administration

As a developing country, India, like South Africa, depends on taxes as its main source of funds for public spending.[195] Despite the necessity of ensuring the efficiency of the Indian tax system for this purpose, the system is riddled with challenges such as a complex and incomprehensible tax system, lack of co-operation from taxpayers and a proliferation of tax avoidance schemes, harassment of taxpayers by tax officials and corruption within the tax department.[196] Taking note of the aforementioned issues within the Indian tax system, the Indian government announced in 2019 that it would incorporate ML and AI into the Indian tax system with the aim of removing complexities within the system, combating corruption by facilitating a faceless assessment and appeals process, in addition to improving compliance time and implementation of the taxpayer's rights charter.[197]

At present, the Indian Income Tax Department (ITD) offers several electronic or e-services to taxpayers, including, (i) online registration on the Indian Revenue Service's

[195] Rathi A, Sharma S, Lodha G and Srivastava M (2021) "A Study on Application of Artificial Intelligence and Machine Learning in Indian Taxation System" *Psychology and Education* vol. 58:2 1226-1233 at 1226.
[196] Ibid.
[197] Ibid.

eFiling website; (ii) submission of a response to an outstanding tax demand;[198] (iii) online payment of outstanding taxes on eFiling and (iv) online registration for a Permanent Account Number (PAN)[199] and Tax Deduction and Collection Account Number (TAN).[200] The use of AI systems such as the aforementioned faceless assessment and appeals process by the ITD has also enabled taxpayers to view their tax payments and withholding taxes levied against payments to them, online, in addition to viewing information submitted by third parties. This process has further enabled taxpayers to interact with the ITD electronically and to understand the basis upon which they were assessed for tax liability.[201] The ITD further established the Central Processing Centre (CPC) tasked with the processing of income tax returns. The main objectives of the CPC are as follows:[202]

(i) The management of routine tax administration functions;
(ii) Enabling and leveraging technology for the automation of back-office operations;
(iii) Establishing a data storage management system;
(iv) Establishing a robust accounting system; and
(v) Providing the aforementioned taxpayer e-services.

---

[198] An Outstanding Tax Demand is issued upon submission of an income tax return by a taxpayer, when an assessment by the Indian Revenue Service through the ITD reveals that the advance taxes paid during the legislated periods are less than the actual income tax liability. It is therefore similar to the issue of an additional assessment under section 92 of the TAA. See Anshul B (7 July 2023) "ITR Filing: What Is 'Outstanding Tax Demand' and How to Respond to It" Available at https://www.cnbctv18.com/personal-finance/itr-filing-income-tax-return-what-is-outstanding-tax-demand-steps-to-respond-to-tax-notice-17149461.htm [Accessed on 19 August 2023].

[199] This is ten-digit number issued by the Income Tax Department of India upon request by a person or without application in limited circumstances. The purpose of the PAN is to enable the ITD to link all transactions and interactions between a person and the department. The South African equivalent of a PAN is an Income Tax Reference Number or TRN. See Income Tax India "What Is PAN?" Available at https://incometaxindia.gov.in/Documents/about-pan.htm#:~:text=Permanent%20Account%20Number%20(PAN)%20is,the%20number%20without%20an%20application. [Accessed on 19 August 2023].

[200] This is a ten-digit number issued by the Indian Income Tax Department and must be obtained by any person who is required to deduct tax at the source of income or required to collect tax. An example of such a person is a VAT vendor who is tasked with deducting input tax on any goods or services provided by them. The TAN is thus the equivalent of a VAT registration number. See Income Tax Department, Government of India "Know TAN Details FAQ" Available at https://www.incometax.gov.in/iec/foportal/help/e-filing-know-tan-faq#:~:text=TAN%20stands%20for%20Tax%20Deduction,to%20collect%20tax%20at%20source. [Accessed on 19 August 2023].

[201] OECD (2016), *Technologies for Better Tax Administration: A Practical Guide for Revenue Bodies*, (OECD Publishing, Paris) at page 34.

[202] Ibid at page 43.

The ITD also leverages services linked to the Federal Identity Authentication system which provides for the authentication of a taxpayer's identity; and is provided by government agencies and regulated third-parties such as banks and depositories.[203] In January of 2019, the ITD introduced the Integrated E-Filing and Centralised Processing Centre 2.0 (the IEC 2.0).[204] The IEC 2.0 is a technology led innovation that is aimed at transforming the filing and processing of tax returns, but goes beyond that as it also provides taxpayer education *via* interactive wizards in addition to promoting taxpayer engagement and facilitation.[205] The ITD is also leveraging the use of AI to curb actual and potential tax evasion, as revealed by the issue of notices to several taxpayers suspected of tax evasion after the use of AI tools revealed inconsistencies in claims for tax deductions pertaining to donations to charitable institutions and political parties.[206]

It is evident from the above that the ITD sees great value in the use of AI technology in carrying out the functions of its tax administration. The issue however is whether the ITD and the Indian Government as a whole have taken sufficient measures to also curb the negative effects of AI and new technologies.

4.3 Regulation of the use of AI under the current Indian legislative framework

India has traversed back-and-forth between drafting regulations for the regulation of AI and refraining from drafting AI specific laws and regulations. This is evident from the statements issued by the Indian government in April and June of 2023.[207] In April, the Indian government said that it would not issue laws aimed at regulating AI, as a means of enabling technological innovation and propelling India into the position of a

[203] Ibid at page 82.
[204] See Press Information Bureau, Government of India (2019) "Ministry of Finance: E-Filing of Income Tax Returns" Available at https://pib.gov.in/PressReleseDetail.aspx?PRID=1575482 [Accessed on 20 August 2023].
[205] OECD (2022) "Tax Administration 2022: Comparative Information on OECD and Other Advanced and Emerging Economies" Available at https://www.oecd-ilibrary.org/docserver/1e797131-en.pdf?expires=1692531259&id=id&accname=oid011488&checksum=C03B09F6850ADC3F852E0AE6D3C217EF [Accessed on 23 August 2023] at page 56.
[206] See National Portal of AI in India (India AI) (27 June 2023) "AI catches tax evaders in India" Available at https://indiaai.gov.in/article/ai-catches-tax-evaders-in-india [Accessed on 20 August 2023].
[207] ET Government.com (31 July 2023) "Why India Can Afford to Wait And watch Before Regulating AI" Available at AI Regulation In India: Why India can afford to wait and watch before regulating AI, ET Government (indiatimes.com) [Accessed on 20 August 2023]. See also Digital Watch (10 July 2023) "India to take hands-off approach to AI regulation, say Minister" Available at https://dig.watch/updates/india-takes-hands-off-approach-to-ai-regulation-say-minister [Accessed on 7 September 2023].

global leader in AI technology.[208] This position was later modified in June, when the Ministry of Electronics and Information Technology stated that the creation of AI would be regulated through the Digital Personal Data Protection Act No.22 of 2023 (the Digital India Act) which was passed on 7 August 2023 and the President of India assented to it on 11 August 2023.[209] No effective date for this Act has been provided at the time of conclusion of this chapter.

The opening words to the Digital India Act provide that it is -

> *"a Bill to provide for the processing of digital personal data in a manner that recognises both the right of individuals to protect their personal data and the need to process such personal data for lawful purposes and for matters connected therewith or incidental thereto."*[210]

From these opening words, it is evident that the Digital India Act operates similarly to POPIA and thus is not a comprehensive piece of legislation, in the absence of adequate complimentary legislation, aimed at addressing the main risks pertaining to the use of AI in tax administration as identified in chapter 3. The analysis below follows the same structure as the analysis in chapter 3 pertaining to the South African legal framework and the use of AI at SARS. The analysis below reviews the provisions of the Digital India Act in addition to other relevant legislation as a means of evaluating the extent to which the current legislative framework in India provides for the use of AI in tax administration.

4.4 Laws in India that can be impacted by the use of AI in the Indian tax administration

4.4.1 Laws aimed at bias and discrimination

Similar to South Africa, the right to equality is enshrined in article 14 of the Constitution of India[211] (the Indian Constitution), wherein it is stated as follows:

> *"**14. Equality before law**.—The State shall not deny to any person equality before the law or the equal protection of the laws within the territory of India."*[212]

[208] Ibid.
[209] Ibid.
[210] Opening words of Digital India Act.
[211] As published in May 2022.
[212] Article 14 of the Constitution of India.

There are however no specific laws giving effect to this right as is the case with PEPUD in South Africa. As such, the use of AI by the ITD must be adjudicated against the wording of article 14 of the Indian Constitution and any relevant case law. In 2020, the ITD released a taxpayer's charter, setting out the rights and obligations of taxpayers, including the rights to (i) be provided with fair, courteous and reasonable treatment and (ii) the right to a fair and just tax system.[213] In the application of the principle of equality under tax law in India, the case of *The Western India Theatres Ltd vs The Cantonment Board, Poona, Cantonment*[214] is of relevance. In that case, the Appellant was the owner of two large cinema houses and appealed against a tax imposed by the Respondent on the grounds that the higher tax of 10 rupees imposed on its business in contrast to the 5 rupees imposed on other cinema houses was in violation of the principle of equality as enshrined in article 14 of the Indian Constitution. The Court ruled against the Appellant and stated that the imposition of a higher tax on bigger cinema houses gives effect to the purpose of the affected tax law, being to ensure tax equality by levying tax on the basis of affordability (the case pertained to the charging of tax under a local law, not the Indian Income Tax Act No.43 of 1961).[215]

Prior to this case, the right to equality under article 14 of the Indian Constitution was considered in the matter of *Budhan Choudhry and Other vs The State of Bihar,*[216] wherein it was held that although article 14 of the Indian Constitution prohibits class legislation (legislation that differentiates on the basis of class), it does not prohibit reasonable classification for the purposes of applying any legislation. The court further provided for two main conditions that must be met in order for the classification to be acceptable under article 14, namely:

(i) *"the classification must be founded on an intelligible differentia which distinguishes persons or things that are grouped together from others left out of the group; and*

(ii) *that differentia must have a rational relation to the object sought to be a chieved by the statute in question."*[217]

Similar to section 9 of the South African Constitution, article 14 of the Indian Constitution places the obligation to ensure equality of subjects before the law on the

[213] Income Tax Department of India (2020) "Taxpayer's Charter" Available at https://incometaxindia.gov.in/Documents/taxpayer-charter.pdf [Accessed on 26 August 2023].
[214] 1959 AIR 582, 1959 SCR Supl. (2) 63.
[215] Ibid at page 6.
[216] 1955 AIR 191, 1955 SCR (1)1045.
[217] Ibid at page 4.

State. The State, in the context of the Indian Constitution, refers to the Union of States which encompasses the central or national government of India and the numerous other territories within India, as set out in the First Schedule to the Indian Constitution. Notwithstanding that the Indian Constitution is the supreme law of India; each territory has specific laws of its own in addition to national legislation such as the Indian Income Tax Act. For purposes of this research, the discussion will be limited to the use of AI by the ITD at the national level of government.

The ITD is governed by the Central Board for Direct Taxes in India and forms part of the Department of Revenue under the Ministry of Finance.[218] The Ministry of Finance, as with all ministries in India, is constituted under article 77 of the Indian Constitution and thus forms part of the executive authority of the government of the Union of India (the central government).[219] References to "the State" in article 14 of the Indian Constitution thus refer to the ITD. The ITD will thus be held accountable for any biases identified in its algorithmic and automated processes. Similar to SARS, the ITD must ensure that its technological and automated processes are free of biases, failing which the ITD will be held accountable for any biases identified in its automated processes.

4.4.2 Laws aimed at transparency

The right to access to information is not specifically provided for in the Indian Constitution. However, the Indian Supreme Court being the apex court of India, ruled in the matter of *State of Uttar Pradesh v Raj Narain*,[220] that the right to information is intrinsically linked and gives effect to the right to freedom of expression as enshrined in article 19(1) of the Indian Constitution. Thus, the right to information is recognised as a fundamental right under the Indian Constitution, although not specifically provided for in the Indian Constitution.

[218] National Portal of India "Website of Income Tax Department" Available at https://www.india.gov.in/official-website-income-tax-department#:~:text=The%20Income%20Tax%20Department%20is,under%20the%20Ministry%20of%20Finance. [Accessed on 23 August 2023].
[219] Embassy of India, Turkmenistan "Abut India: Government" Available at https://eoi.gov.in/ashgabat/?0775?003 [Accessed on 26 August 2023].
[220] 1975 AIR 865, 1975 SCR (3) 333 at page 27.

In contrast to the right to equality, the right of access to information *is* regulated by specific legislation in the form of the Right to Information Act (RIA).[221] The opening words to RIA provide that RIA is -

> *"an Act to provide for setting out the practical regime of right to information for citizens to secure access to information under the control of public authorities, in order to promote transparency and accountability in the working of every public authority, the constitution of a Central Information Commission and State Information Commissions and for matters connected therewith or incidental thereto."*[222]

The purpose of RIA is thus to act in the same manner as PAIA by placing an obligation on public authorities to make available information pertaining to their operations in order to ensure transparency and accountability. A public authority is defined in section 2(*h*) of RIA as any authority or body or institution of self- government established or constituted under any other law made by Parliament. As the ITD is established and governed by the Central Board for Direct Taxes, which in turn is governed under the Central Board of Revenue Act No.54 of 1963,[223] it can be said to be a public body that is indirectly established under a law made by Parliament and will thus meet the definition of a "public authority" under RIA. Taxpayers will thus have the right to access information accessible under RIA which is in the possession of the ITD, subject to certain exceptions.

As mentioned in chapter 3, the right to access to SARS information is provided for under the provisions of both PAIA and the TAA. Each of those Acts provides an additional layer of specificity and clarity for the purpose of explaining how this right applies to information held by SARS. In contrast, the Indian Income Tax Act,[224] does not address the issues pertaining to access to information held by the ITD. The only provision of the Indian Income tax Act dealing with access to information is section 133 (and its various sub-sections) which provides for the power of the income tax authority to request certain information as required for the fulfilment of its duties. The Indian Income Tax Act thus leaves this issue to be addressed by RIA.

---

[221] Act 22 of 2005.
[222] Opening words to Act No.22 of 2005 (RIA).
[223] Income Tax Department "Central Board for Direct Taxes" Available at https://incometaxindia.gov.in/Pages/about-us/central-board-of-direct-taxation.aspx [Accessed on 26 August 2023].
[224] Act 43 of 1961.

Section 3 of RIA provides for the general right of citizens to information, while section 4(1)(*b*)(iii) specifically provides for the types of information to be shared and states that a public authority must publish within one hundred and twenty days from the enactment of RIA, the procedure followed in the decision-making process of the public authority, including channels of supervision and accountability. This information must be updated and re-published annually. Under section 4(1)(*b*)(iii) of RIA, the ITD is thus obligated to publish details pertaining to its decision-making processes, and while not specifically stated, it may be inferred from the context that this will include automated decisions made by the ITD's AI.

Section 8(1) of RIA provides for exceptions from the obligation for disclosure under section 4. However, it does not specifically reference the tax administration in the manner that section 35 of PAIA references SARS. Out of the exceptions listed in section 8(1) of RIA, paragraph (*a*) is of relevance in that it prohibits the disclosure of information where such disclosure would prejudice the sovereignty and integrity of India, including the security, strategic, scientific and economic interests of the State. Considering that India's greatest source of public funding is taxes, it can be said that the disclosure of information pertaining to sensitive automated processes of the ITD will prejudice the economic interests of India and is therefore prohibited under section 8(1)(*a*) of RIA. The fact that this prohibition has to be "read into" the provisions of RIA is problematic because in the event that a dispute arises over whether a taxpayer is entitled to information about the automated decision-making processes of the ITD, such dispute will need to be reviewed by the courts due to the lack of clarity in RIA. The ITD's website keeps a record of cases pertaining to the application of RIA to the ITD, however, no cases could be found on the application of section 8(1)(*a*) of RIA to the ITD.

It is evident that the provisions of RIA are too vague to cater sufficiently to the use of AI in the Indian tax administration. This is due to the fact that although section 4(*b*)(iii) of RIA provides for a general and wide obligation to publish details about the operations of public authorities in order to promote transparency and accountability, the corresponding protection of sensitive public systems provided for in section 8(*a*) is too vague to be effective. India could therefore benefit from the introduction of

provisions in the Indian Income Tax Act and RIA that are similar to section 68 of the TAA[225] and section 35 of PAIA,[226] respectively.

4.4.3 Laws pertaining to administrative justice

Similar to the right of access to information, the right to administrative justice is not specifically mentioned or addressed in the Indian Constitution. In addition, there are also no specific laws aimed at addressing this right. As such, when evaluating the administrative law position of India, one must adopt a holistic view of the Indian legal system. Unlike South Africa, where section 2 of the Constitution makes the actions of the State subject to the rule of law by making all laws in the land subject to the Constitution, in India the rule of law is not specifically provided for or mentioned. Indian courts have, however, taken the view that the rule of law is present in many of the articles of the Indian Constitution, such as article 14, which guarantees the right to equality before the law and equal protection under the law.

In *Maneka Gandhi v. Union of India*,[227] the issue under consideration was whether the impounding of the Appellant's passport by the Government of India under section 10(3)(*c*) of the Passport Act No 15 of 1967 (the Passport Act) amounted to a violation of her rights under articles 14 (equality),19 (freedom of expression) and 21 (life and personal liberty) of the Indian Constitution. The Appellant had sought reasons for the impoundment of her passport, which the Union Government declined to provide on the grounds that to do so would be contrary to the public interest. The court held that section 103(*c*) of the Passport Act did not violate articles 14, 19 and 21 of the Indian Constitution due to the provision under section 103(*c*) for the affected party to make representations before the Passport Authority, as well as the fact that the decisions of the Passport Authority can be reviewed by a court of law.[228] The outcome of the case was thus that, to the extent that legislation provides for judicial review, it cannot be in violation of articles 14, 19 and 21 of the Constitution.

[225] Section 68 of the TAA provides for the confidentiality of SARS information (information pertaining to SARS systems and processes).
[226] Section 35 of PAIA provides for an exemption from the obligation to disclose pertaining to information held by or in the possession of SARS.
[227] AIR 1978 SC 597, 1978 SCR (2) 621.
[228] See pages 66 and 146 of ibid.

The Issue with administrative law in India is that the lack of formal legislation in this field of law means that all administrative disputes have to be adjudicated through the tax appeals process, which starts with an appeal before the Commissioner of Income Tax Appeals, followed by an appeal before the Income Tax Appellate Tribunal, failing which the matter will be brought before the High Court.[229] There is no certainty, with judgments constantly being overturned, and this would not be an effective manner of dealing with administrative issues arising from the use of AI in tax administration. From the various cases[230] brought before the Indian Supreme Court on matters pertaining to administrative actions and procedural unfairness, it is clear that plaintiffs cite the head of the department with which the dispute has arisen as there is no specific law providing for the accountable party, as is the case with section 1 of PAJA. The issue that then arises in the context of automated decision-making using AI, is whether the Director General of the ITD would be able to claim that the decisions of its AI do not fall within the ambit of decisions which can be imputed to the ITD, thereby absolving the ITD of any harm caused by its automated decisions. Section 1 of PAJA makes it clear that all decisions taken in the name of SARS are attributed to SARS as the organ of state as such this particular issue would not require resolution by the courts.

4.4.4 Laws pertaining to the processing of personal information and data privacy

Previously, a blanket prohibition on the disclosure of taxpayer information was contained in section 137 of the Indian Income Tax Act[231] to be read in conjunction with the disclosure to certain specified public authorities in the carrying on of their duties under the laws of the State as provided for in section 138[232] of the Indian Income Tax Act. Section 137 was repealed by section 5 of the Finance Act of 1964. As such, no blanket prohibition on the disclosure of taxpayer information currently exists. As a

[229] Income Tax Department (August 2018) "Appeals and Procedure for Filing Appeals" *Tax Payers Information Series* 42 Available at https://incometaxindia.gov.in/Booklets%20%20Pamphlets/Appeals-and-Procedure-for-filing-Appeals-2018.pdf [Accessed on 19 August 2023] at pages 5, 23 and 34.
[230] See *Satwant Singh Sawhney v. D Ramarathnam, Assistant passport Officer* 1967 AIR 1836, 1967 SCR (2) 525; *ADM Jabalpur vs Shivkant Shukla* AIR 1976 SC 1207 and *Justice K.S. Puttaswamy (Retd) vs Union of India*.
[231] The Indian Income Tax Act equivalent of section 67 of the TAA.
[232] The Indian Income Tax Act equivalent of section 69 of the TAA.

result, privacy concerns pertaining to the processing of taxpayer information by the ITD's AI must be considered under laws other than the Indian Income Tax Act.

The right to privacy is a right that is not specifically provided for in the Indian Constitution. In fact, prior to the landmark judgment in *Justice K.S. Puttaswamy (Retd) vs Union of India,*[233] the right to privacy was not considered to be protected under the Indian Constitution. In that case, the Appellant was a retired judge who sought to challenge the Aadhaar system[234] in India on the basis that it violated the right to privacy. The court was thus called upon to determine whether the right to privacy is a protected right under the Indian Constitution. The court ruled that the right to privacy was part and parcel of the right to life and personal liberty as enshrined in article 21 of the Indian Constitution. The court further held that as with the right to life and personal liberty, the right to privacy may be limited by a procedure, established by law. Such limitation must, however, be through a fair, reasonable and just procedure.[235] The judgment overruled the previous landmark judgments of the Supreme Court in *Kharak Singh vs State of Uttar Pradesh*[236] and *M.P Sharma vs Satish Chandra, District Magistrate*[237] in which it was held that right to privacy is not a fundamental right under the Indian Constitution.

The *Justice K.S. Puttaswamy case* was followed by the publishing of the Draft Personal Data Protection Bill of 2018. It is unclear what became of this Bill as certain of its definitions and provisions have been incorporated into the Digital India Act of 2023 and the Bill itself has not been promulgated as a separate Act. As mentioned in paragraph 4.3 above, the Digital India Act operates similarly to POPIA by serving as legislation aimed at regulating the processing of personal data. It however also incorporates elements of the Indian equivalent of ECTA which is the Information Technology Act No. 21 of 2000, to the extent that such provisions relate to the automated or electronic processing of personal data.

---

[233] AIR 2017 SC 4161.
[234] The Aadhaar system is India's biometrics-based identification system wherein every resident of the country is provided with a unique identity. See Unique Identification Authority of India (last updated on 25 August 2023) "What is Aadhaar?" Available at https://uidai.gov.in/en/my-aadhaar/about-your-aadhaar.html#:~:text=The%20Aadhaar%20identity%20platform%20is,identification%20system%20in%20the%20world. [Accessed on 27 August 2023].
[235] AIR 2017 SC 4161 at page 231, paragraph 94.
[236] 1963 AIR 1295, 1964 SCR (1) 332.
[237] 1954 AIR 300, 1954 SCR 1077.

The relevant parties under the Digital India Act are:

(i) the Data Fiduciary;
(ii) the Data Processor; and
(iii) the Data Principal

The "data fiduciary" is defined in section 2 of the Digital India Act as "any person who alone or in conjunction with other persons determines the purpose and means of processing personal data,"[238] while a "data processor" is defined as "any person who processes personal data on behalf of a data fiduciary." [239] The "data principal" is "the individual to whom the personal data relates," while "personal data" is "any data about an individual who is identifiable by or in relation to such data."[240] The Digital India Act thus applies to the processing of personal data belonging to an individual by a data fiduciary or data processor acting under the instructions of a data fiduciary. The question that then arises is whether the provisions of the Digital India Act sufficiently provide for the automated processing of information by AI used by the ITD.

The biggest issues pertaining to the automated processing of personal data by AI are security and transparency. It is for this reason that POPIA sets out its eight conditions for the processing of personal data as discussed in paragraph 3.4.4 under chapter 3, which impose upon SARS the duty to ensure that its automated systems and processes are safe and secure. In this regard sections 3 and 4 of the Digital India Act provide for the processing of digital personal data by a person, with the definition of a "person" in section 2 of that Act including an artificial juristic person, as such the processing of personal data by the ITD's AI would fall within the ambit of the Digital India Act. For the purposes of carrying out tax administration functions, the data fiduciary will be the ITD itself (or any person appointed to represent the ITD under the Digital India Act) as the person[241] who determines the means and purposes of processing the personal data,[242] while the AI would be a data processor operating from the instructions given by the data fiduciary.

[238] Definition of a data fiduciary in section 2 of the Digital India Act.
[239] All definitions taken from section 2 of the Digital India Act.
[240] Ibid.
[241] Paragraph (vi) of the definition of "person" in section 2 of the Digital India Act.
[242] Definition of a "data fiduciary" in section 2 of the Digital India Act.

The Digital India Act, in the same manner as POPIA, requires the data fiduciary to (1) "implement appropriate technical and organisational measures to ensure effective observance of this Act;"[243] and (2) "protect personal data in its protection or under its control including in respect of any processing undertaken by it or on its behalf by a data processor, by taking reasonable security safeguards to prevent personal data breach."[244] In addition, to ensure the accuracy of any information processed by or on behalf of the data fiduciary, section 12 of the Digital India Act provides that the data principal shall have the right to request that its personal data be updated, corrected, completed and erased.

Section 17(2) of the Digital India Act provides that the provisions of the Digital India Act (as a whole) will not apply in respect of the processing of personal data by the State in the interests of the sovereignty, integrity and security of the State or the maintenance of friendly relations with foreign States. Thus, despite all the protections afforded to a data principal under the provisions of the Digital India Act, section 17(2) provides for a blanket dismissal of such protections where the processing of personal data meets the requirements of that section. The dismissal of the rights to protect data and take security and technological measures to prevent data breaches under section 17(2), presents problems for the automated processing of personal data because it means that, in the event of a data breach by the ITD's AI, the taxpayer would have no recourse due to the processing of data for tax administration purposes falling within the ambit of section 17(2). The Digital India Act thus does a lot to protect personal data, however, section 17(2) reverses this protection to the detriment of taxpayers under the highlighted circumstances.

4.4.5 Laws regulating access to taxpayer information

The Indian Income Tax Act only refers to access to taxpayer information in section 133 (Power to Call for Information); however, this provision only provides for the ability of the Indian Revenue Service and the ITD to request taxpayer information from other persons or entities in whose possession or under whose control such information may be held. Additionally, given that section 138 of the Indian Income Tax Act only provides for the sharing of taxpayer information under limited circumstances and to specified

[243] Section 8(4) of the Digital India Act.
[244] Section 8(5) of the Digital India Act.

persons, the position on general citizens seeking access to taxpayer information, as was the case in the *Arena Holdings case* mentioned in chapter 3, is not specifically addressed. This is not necessarily a weakness of the legislative framework, because in the absence of a provision in the Indian Income Tax Act providing for the disclosure of taxpayer information outside the ambit of section 138, this issue must be evaluated in accordance with the provisions of RIA.

As already mentioned in paragraph 4.4.2, section 4 of RIA places an obligation on the ITD as a public authority to publish certain information pertaining to its internal processes and operations. Section 6 of RIA allows a citizen or any person desiring information under RIA to make a written request for such information to the public authority in whose possession or under whose control such information is held. This would include information pertaining to the tax affairs of a taxpayer as such information is in the possession of and under the control of the ITD. Section 8(*j*) of RIA, however, provides for an exception to the obligation of disclosure under RIA, of any "information which relates to personal information, the disclosure of which has no relationship to any public activity or interest, or which would cause unwarranted invasion of the privacy of the individual."[245] Section 8(*j*) thus operates as the Indian law equivalent of section 46 of PAIA and also implies that there is a general prohibition on the disclosure of taxpayer information being personal information under RIA, unless section 138 of the Indian Income Tax Act applies and section 8(*j*) of RIA does not apply.

Thus, there are many similarities between RIA, PAIA and sections 67 and 68 of the TAA. The provisions of RIA discussed hereunder thus sufficiently provide for the protection of confidential taxpayer information in relation to the use of AI in the Indian tax administration system.

4.4.6 Laws aimed at combating cybercrimes and the online spread of disinformation

The prevention of cybercrimes and online spread of disinformation is provided for under the Indian equivalent of ECTA being the Information Technology Act (ITA) No 21 of 2000. The relevant provisions of ITA are contained in chapters 9 (sections 43 and 43A) and 11 (sections 65, 66, 66A, 66B, 66D, 67C, 69, 69A and 69B). Section 43 of

[245] Section 8(*j*) of RIA.

ITA deals with the unlawful accessing, interruption, disruption, causing of damage to, theft of and introduction of viruses and contaminants to a computer, computer system or computer network without the permission of the owner or any other person in charge of such computer, computer system or computer network. Under this provision, any person who unlawfully interferes with a computer, computer system or computer network will be will be liable to pay compensation to the person affected by this act. Section 43A provides that notwithstanding what is stated in section 43, a body corporate that deals with, processes or handles sensitive data on a computer resource owned by it, which fails to implement or maintain reasonable security processes and practices for the handling of sensitive data, will be liable to pay compensation to the person affected by its failure to protect the sensitive data handled by the body corporate. It should be noted that a body corporate is defined as follows, in section 43A:

> *"any company and includes a firm, sole proprietorship or other association of individuals engaged in commercial or professional activities."*[246]

This means that section 43A does not apply to a breach of sensitive data occurring as a result of the State's (and by extension the ITD's) failure to secure its computer systems. This is similar to section 17(2) of RIA which absolves the State from the obligation to provide adequate protection for the personal information in its possession or under its control. These absolutions are problematic because the reason for requiring that the entity in charge of a computer system which processes sensitive data put in place security and protective measures is to ensure that any breach or attempted breach of its systems is identified timeously, as well as to make it difficult for such systems to be breached. These absolutions thus create a situation where the ITD and other State entities suffer no consequences in the event that a failure on their part to provide adequate security and protective measures for the preservation and protection of sensitive data in their possession takes place. This is a breach of the unwritten fiscal agreement between the ITD and taxpayers.

The provisions of sections 65 and 66[247] of ITA provide for specific acts that constitute offences under the provisions of ITA and their attendant punishments. Section 67 of

[246] Definition of a body corporate in section 43A of the ITA.
[247] Including sections 66A, B and D.

ITA is of particular interest as it operates similarly to rule 8(2) of the Electronic Communication Rules, section 67(3) and (4) of the TAA and sections 85 and 86 of ECTA, by designating as an offence the receipt and retention of stolen computer resources or communication devices (on which sensitive data may be stored). This is to discourage the soliciting of third parties for the purpose of breaching sensitive computer systems and should as a result discourage the contracting of third parties for the purpose of breaching or designing systems, devices or software with the aim of undermining the security of the ITD's systems and processes.

Sections 69, 69A and 69B of ITA operate similarly to RICA in that they provide for the interception, recording, monitoring, decryption of information, collection of data traffic and blocking of access to any information through any computer resource in the interests of cybersecurity. These provisions thus empower the State and its organs and entities to employ every legal measure possible to combat threats to the country's cybersecurity. As such, if the ITD's AI were to identify an attempted breach of the ITD's automated systems and processes, the ITD would have the power under the aforementioned provisions to intercept and monitor the foreign system or software as well as employ measures to block access to those systems. This provides some level of comfort given the absolution from the obligation to secure the ITD's computer systems and automated processes provided under section 43A of ITA and section 17(2) of RIA.

The provisions of ITA as they pertain to the prevention of cybercrimes and the online spread of disinformation thus adequately provide for the use of AI by the ITD.

4.5. Conclusion

There are a number of similarities and differences between the Indian legislative framework and the South African legislative framework. The main point of departure is that all of the risks of using AI in tax administration as addressed in chapter 3 are addressed under both the provisions of the Constitution as well as through specific laws in South Africa, while India either addresses these issues under the articles of the Indian Constitution or specific laws, but never both. This leads to a lot of *lacunas* in the Indian legislative framework as it pertains to addressing the risks of using AI in tax administration, which will need to be resolved by the courts. The lack of co-ordination between the Indian Income Tax Act and legislation such as RIA, ITA and the

Digital India Act also presents issues. In this regard, it is submitted that the South African legislative framework is better suited to provide for the use of AI in tax administration.

Additionally, the ITD uses AI and ML similarly to SARS by utilising its eFiling platform for taxpayer education, filing and processing of returns and also using AI and ML to identify attempts at tax evasion. It is submitted that due to these similarities in the use of AI and ML by the ITD, SARS and the ITD are on par with each other with regards to the use of AI and ML in tax administration.

Chapter 5 – Conclusion and Recommendations

5.1 Introduction

In chapter 1 it is stated that the study has several objectives, namely:

- to provide an understanding of what AI is, as well as how it can be and is used in tax administration
- to critically examine the South African regulatory position on the use of AI in tax administration;
- to investigate the applicability of existing South African tax and related legislation to AI and to analyse the use and regulation of AI in tax administration in India and compare it to South Africa and to propose an appropriate way forward for South Africa; and
- to add to and develop the legal academic literature on AI in tax administration within the South African landscape, the purpose is to propose interim regulatory approaches for the South African regulation of AI and its different models.

The main objective of this study was thus to explore the relationship between AI and tax administration, by considering the benefits and risks of using AI in tax administration. This required an exploration of AI as a concept, its various types and how those types are currently used in tax administration. It also required a consideration of possible future applications of AI in tax administration. The aim of this study was further to consider the barriers and challenges to the adoption of AI in tax administration. The final objective of this study was to consider the feasibility of regulating the use of AI in tax administration in South Africa, by exploring the extent to which the existing South African legal framework provides for the regulation of AI in tax administration. The study also aimed to compare the regulation of AI in South Africa with that of India.

In order to give effect to the aforementioned objectives of the research, chapter 1, identified the following five research questions which the preceding analysis in chapters 2 to 4, aimed to address:

i. What is Artificial Intelligence, and what are its benefits and challenges in tax administration?
ii. How does the digitalisation of tax administration impact the rights of taxpayers?

iii. To what extent does the current regulatory and legislative framework in South Africa provide for the use of AI in tax administration?
iv. Which legal framework between that of India and South Africa is better suited to the use of AI in tax administration?
v. Are any changes required to the existing legal framework of South Africa in order to regulate the use of AI in tax administration?

This chapter is a cumulation of the analysis in the preceding chapters and provides a summary of the findings in the preceding chapters with regard to how the research questions have been addressed by the research. This chapter further makes recommendations on the future use of AI in tax administration.

5.2 Summary of findings

In addressing the first objective and thus answering the first research question, chapter 2 explained that AI refers to the use of automation to enhance and develop the decision-making capabilities of machines in order to replicate human thinking. It develops through a process referred to as deep learning which mimics the process through which humans develop and increase their intelligence, known as neuroplasticity. There are numerous similarities between human intelligence and AI, with the main difference being the speed and scale at which AI performs human functions.

The chapter went on further to explain that the speed and scale at which AI performs human functions gives rise to several benefits for a tax administration in the digital age, such as the improved detection of tax avoidance and tax evasion as well as the improvement of services provided to taxpayers. In this regard, it is recommended that SARS should take full advantage of these benefits while also applying caution to manage the risks of using AI in tax administration.

Chapter 2 also identified and addressed the risks of using AI in tax administration. In this regard, an observation was made that some of the risks of using human intelligence in tax administration, such as the entrenchment of biases and encroachments on privacy among others, can be both replicated and exacerbated by the use of AI. The following specific risks were identified:

- Bias and algorithmic transparency;

- Spread of disinformation;
- Threat to privacy and cybercrimes;
- Job losses; and
- Reliability of AI tools.

In this regard a robust legal framework is necessary in order to combat the risks of using AI in tax administration.

Chapter 3 focused on the second and third objectives which culminated in the second and third research questions. The chapter focused on examining the extent to which the existing South African legal framework addressed the aforementioned risks and also considered whether the relevant legislation had any shortcomings. The risk of job losses is considered beyond the scope of this research which aims to address the impact of AI on the relationship between taxpayers and SARS, and has as a result not been addressed in chapter 3. Chapter 3 concluded that the risk of bias and ensuring algorithmic transparency is addressed through legislation such as PEPUD, section 9 of the Constitution, PAJA, PAIA and the TAA. The risks pertaining to the spread of disinformation overlap with the risks pertaining to the reliability of AI tools and are thus addressed by the same legislation, namely, the TAA, the Electronic Communication Rules, the Cybercrimes Act, ECTA and RICA. The interplay between section 68 of the TAA which provides for the confidentiality of SARS information and section 46 of PAIA and section 5 of PAJA dealing with the rights of access to information and administrative justice, respectively, will have to be carefully considered when examining their application to automated decision-making at SARS.

The current legal framework in South Africa is considered to be sufficiently equipped to address the risks of using AI in tax administration. This is based on a review of various sources of legislation pertaining to taxpayer's rights, which indicate that the existing legal framework in South Africa is stringent enough to reduce the current risks of using AI in the South African tax administration, while being flexible enough to cater for any future changes in the use of AI. Complex legislation such as ECTA, RICA, POPIA and the Cybercrimes Act when applied in conjunction with simpler laws such as the Constitution, PAIA, PAJA, PEPUD and the TAA, create a balance between strict laws aimed at reducing the propensity of risks associated with the use of AI in tax administration and the simplicity required to enable taxpayers to understand how their

rights interact with and are protected when AI is used in tax administration. The most vital component of the South African legislative framework is the imputation of all actions taken on behalf of SARS to either SARS as an organisation or the Commissioner of SARS as the head of SARS. This ensures that someone is held accountable for any detriment suffered by taxpayers as a result of using AI at SARS.

The benefits of using AI in tax administration have not only been identified by SARS, but also other jurisdictions such as India. The use of AI by the ITD and the extent to which functions at the ITD are automated, greatly resembles the use of AI at SARS. The notable point of departure pertains to the extent to which the Indian legal framework protects taxpayer's rights, in particular the rights to privacy and access to information. The manner in which the Indian legislation addressing the rights to privacy such as the Digital India Act and the right to access to information such as RIA is drafted, provides for several absolutions from the obligation to uphold and protect these rights for organs of State such as the ITD which nullify the rights to privacy and access to information to the detriment of taxpayers. The provisions of South African legislation such as PAIA, POPIA, RICA and the TAA, are thus better equipped to protect the rights of taxpayers, in particular the rights of access to information and privacy, when AI is used in the administration of taxes.

5.3. Recommendations

The following recommendations are made in respect of the use of AI in the South African tax administration:

5.3.1 Given that the preceding analysis is restricted to the use of narrow AI being the form of AI which is available at present, it is recommended that the legal framework of South Africa be retained as it currently stands for purposes of addressing the present risks of using AI in tax administration.

5.3.2 The use of AI in tax administration should remain subject to human oversight in order to manage the risks pertaining to the use of AI in tax administration. This is especially important given that all actions taken on behalf of SARS, whether by human personnel or automated processes will be imputed either to SARS as an organisation or its accounting officer(s).

5.3.3 As progress is made towards the development of AGI and ultimately ASI, the legal framework should, however, also be monitored and updated as necessary. Such updates should take care to ensure and uphold the balance between stringent laws aimed at countering the negative effects of using AI in tax administration, with the need to maintain simplicity in the laws. This is vital to enabling taxpayers to understand the interaction between the use of AI in tax administration and their rights.

5.3.4 International developments on the regulation of AI in tax administration should also be monitored and incorporated into the South African legal framework, as necessary.

5.3.5 It is also recommended that South Africa take an active involvement in the global push for AI regulation in order to be in a position to align its legal framework to the global standard. International tax avoidance often occurs as a result of the exploitation of loopholes in the tax laws of different countries due to a lack of legislative harmony. The same applies to the regulation of AI, where mismatches in global legislation will create opportunities for abuse.

5.3.6 Considering the relationship between power consumption and automation, in order to facilitate the adoption of AI on a grand scale, it is recommended that South Africa rectify its current issues with the provision of electricity.

5.3.7 Taxpayer education should also be encouraged and promoted more vigorously in order to develop trust between taxpayers and SARS in the use of AI in tax administration.

5.4 Concluding remarks

Based on the above, it is clear that living and operating in the digital age means that AI cannot be avoided by taxpayers or the tax administration. It is thus necessary to adapt to the ever-changing environment of digitalisation while upholding vital principles such as taxpayer's rights and the protection of the fiscus. For all of its benefits, the use of AI also carries several risks which need to be monitored and managed. Given the numerous benefits of using AI in tax administration, however, measures should be taken to advance the universal adoption of AI in society in order to take full advantage of the benefits of using AI in tax administration.

Additionally, the legal system of South Africa is considered to be sufficiently equipped to cater for the use of AI in tax administration. The interaction between the various Acts of legislation should however be taken into account when applying the laws to the risks of using AI in tax administration.

Bibliography

Books

1. Arendse JA, Williams RC and Klue S (Last updated February 2023) in *Silke on Tax Administration* [LexisNexis, Butterworth (Online)]
2. Awad M and Khanna R (2015) *Efficient Learning Machines: Theories, Concepts and Applications for Engineers and System Designers* (Apress Media, LLC: New York)
3. Chio C and Freeman D (2018) *Machine Learning and Security": Protecting Systems with Data and Algorithms* (O'Reilly Media Inc: Sebastopol)
4. De Ruyter AM (2023) *Truth to Power: My Three Years Inside Eskom* (Penguin Random House: Cape Town, South Africa)
5. Ebers M and Gamito MC (2021) *Algorithmic Governance and Governance of Algorithms: Legal and Ethical Challenges* (Springer Nature AG: Switzerland)
6. Gawdat M (2021) *Scary Smart* (Bluebird: London)
7. Hendriyetti N, Evans C, Kim CJ and Taghizadeh-Hesary F (eds) (2023) *Taxation in the Digital Economy: New Models in Asia and the Pacific* (Routledge: Taylor and Francis Group, London and New York)
8. Khwaja MS, Awasthi R and Loeprick J (2011) *Risk based tax audits: Approaches and country experiences* (Washington, DC: World Bank)
9. OECD (2016), *Technologies for Better Tax Administration: A Practical Guide for Revenue Bodies*, (OECD Publishing, Paris)
10. Skansi S (2018) *Introduction to Deep Learning: From Logical Calculus to Artificial Intelligence* (Springer International Publishing AG: Charm, Switzerland)

Case law

India

1. *ADM Jabalpur vs Shivkant Shukla AIR* 1976 SC 1207
2. *Budhan Choudhry and Other vs The State of Bihar* 1955 AIR 191, 1955 SCR (1)1045
3. *Justice K.S. Puttaswamy (Retd) vs Union of India AIR 2017 SC 4161*
4. *Kharak Singh vs State of Uttar Pradesh* 1963 AIR 1295, 1964 SCR (1) 332
5. *Maneka Gandhi v. Union of India AIR* 1978 SC 597, 1978 SCR (2) 621

6. *M.P Sharma vs Satish Chandra, District Magistrate* 1954 AIR 300, 1954 SCR 1077
7. *Satwant Singh Sawhney v. D Ramarathnam, Assistant passport Officer* 1967 AIR 1836, 1967 SCR (2) 525;
8. *State of Uttar Pradesh v Raj Narain* 1975 AIR 865, 1975 SCR (3) 333
9. *The Western India Theatres Ltd vs The Cantonment Board, Poona, Cantonment* 1959 AIR 582, 1959 SCR Supl. (2) 63

South Africa

1. *Arena Holdings (Pty) Ltd and others v South African Revenue Service and others* 2022 (2) SA 485 (GP)
2. *Arena Holdings (Pty) Ltd t/a Financial Mail and others v South African Revenue Service and others* 2023 (8) BCLR 905 (CC)
3. *Parker v Forsyth N.O, case no. 1585/20*
4. *Pharmaceutical Manufacturers Association of South Africa: In Re Ex Parte President of the RSA* 2002 (2) SA 674 (CC)

Journals

1. Brand, D.J. (2022) "Responsible Artificial in Government: Development of a Legal Framework for South Africa" *eJournal of Democracy* 130-150
2. Bukht R and Heeks R (2017) "Defining, Conceptualising and Measuring the Digital Economy" *Development Informatics Working Paper Series* (Economic and Social Research Council) Paper no. 68
3. Chitimira H and Ncube P (2021) "The Regulation and Use of Artificial Intelligence and 5G Technology to Combat Cybercrime and Financial Crime in South African Banks" *PER/PELJ* 2021 (24) – DOI http://dx.doi.org/10.17159/1727-3781/2021/v24i0a10742
4. Croucamp P. and Croucamp S. (March 2022) "Technology and Extractive Regimes: South Africa's Revenue Collection Regime" *Journal of Public Administration* Volume 57 165-179
5. Faundez–Ugalde A, Mellodo-Silva R and Aldunate-Lizana E (2020) "Use of artificial Intelligence by tax administrations: An Analysis Regarding Taxpayer's Rights in Latin American Countries*" Computer Law and Security Review* 38 1-13

6. Gonzalez PC and Velasquez JD (2013) “Characterization and Detection of Taxpayers with False Invoices Using Data Mining” Experts Systems with Applications (2013) Volume 40 1427-1436
7. Gravett W (2020) “The Dark Side of Artificial Intelligence: Challenges for the Legal System” *Unisa Press* Volume 35 1-30
8. Huang ZW (2018) “Discussion on the Development of Artificial Intelligence in Taxation” *American Journal of Industrial and Business Management* 8(8): 1817 – 1824
9. Kim YR (2022) “Blockchain initiatives for tax administrations” *UCLA Law Review* 69 at 246
10. Moosa F (2018) “Tax Administration Act: Fulfilling human rights through efficient and effective tax administration*” De Jure 1-16*
11. Owens J and Schlenter B “(2022)“Developments in the Use of Technologies in African Tax Administrations” 13 *African Multidisciplinary Tax Journal* 1-22
12. Rahimika E, Mohammadi S, Rahmani T and Ghazanfari, M (2017) “Detecting corporate tax evasion using a hybrid intelligent system: A case study of Iran” *International Journal of Accounting Information Systems* 25 1-17
13. Rathi A, Sharma S, Lodha G and Srivastava M (2021) “A Study on Application of Artificial Intelligence and Machine Learning in Indian Taxation System” *Psychology and Education* vol. 58:2 1226-1233
14. Wu R-S, S, Ou CS, Lin H-Y, Chang S-I, and Yen DC, (2012) “Using Data Mining Technique to Enhance tax Evasion Detection Performance” *Expert Systems with Applications* 39(10): 8769 – 8777

Legislation

<u>Europe</u>

1. <u>General Data Protection Regulation (EU) 2016/679</u>

<u>India</u>

1. Central Board of Revenue Act No.54 of 1963
2. Constitution of India 2022
3. Digital Personal Data Protection Act No.22 of 2023
4. Income Tax Act 43 of 1961
5. Information Technology Act No.21 of 2000

6. Right to Information Act 22 of 2005

South Africa

1. Constitution of South Africa 1996
2. Cybercrimes Act 19 of 2020
3. Electronic Communication Rules issued in terms of section 255 of the TAA under government notice 644, published in the Government Gazette 37940 on 25 August 2014
4. Electronic Communication and Transactions Act 25 of 2002
5. Promotion of Access to Information Act 2 of 2000
6. Promotion of Administrative Justice Act 3 of 2000
7. Promotion of Equality and Prevention of Unfair Discrimination Act 4 of 2000
8. Protection of Personal Information Act 4 of 2013
9. Regulation of Interception of Communications and Provision of Communication-related information Act 70 of 2002
10. Tax Administration Act 28 of 2011

Reports

1. Asian Development Bank (2018) "Understanding the Digital Economy: What Is It and How Can It Transform Asia?" Available at https://www.adb.org/news/events/understanding-digital-economy-what-it-and-how-can-it-transform-asia [Accessed on 11 July 2023].
2. Council of Europe (2023) "History of Artificial Intelligence" https://www.coe.int/en/web/artificial-intelligence/history-of-ai [Accessed on 24 June 2023]
3. Department of National Treasury and the South African Revenue Service (March 2023) "Tax Statistics Highlights" available at https://www.sars.gov.za/wp-content/uploads/Docs/TaxStats/2022/TStats-2022-Highlights-booklet-A5.pdf at page 17 [Accessed on 10 June 2023]
4. Department of Statistics South Africa, "Beyond Unemployment – Time-Related Underemployment in South Africa" https://www.statssa.gov.za/?p=16312#:~:text=South%20Africa's%20unemploy

ment%20rate%20in,the%20fourth%20quarter%20of%202022 Accessed online on 10 June 2023

5. European Parliament (2020) "The impact of the General Data Protection Regulation (GDPR) on artificial intelligence" Available at https://www.europarl.europa.eu/RegData/etudes/STUD/2020/641530/EPRS_STU(2020)641530_EN.pdf [Accessed on 12 August 2023]
6. Income Tax Department (August 2018) "Appeals and Procedure for Filing Appeals" *Tax Payers Information Series* 42 Available at https://incometaxindia.gov.in/Booklets%20%20Pamphlets/Appeals-and-Procedure-for-filing-Appeals-2018.pdf [Accessed on 19 August 2023]
7. Income Tax Department of India (2020) "Taxpayer's Charter" Available at https://incometaxindia.gov.in/Documents/taxpayer-charter.pdf [Accessed on 26 August 2023].
8. International Monetary Fund (2011) *A Multi-Donor Trust Fund for IMF Capacity Building Technical Assistance in Tax Policy and Administration – Securing Revenue for Development*. Washington: [Online] available at https://www.imf.org/external/np/otm/2010/100110.pdf [Accessed: 7 June 2023]
9. OECD (2016), *Technologies for Better Tax Administration: A Practical Guide for Revenue Bodies*, (OECD Publishing, Paris)
10. OECD (2022) "Tax Administration 2022: Comparative Information on OECD and Other Advanced and Emerging Economies" Available at https://www.oecd-ilibrary.org/docserver/1e797131-en.pdf?expires=1692531259&id=id&accname=oid011488&checksum=C03B09F6850ADC3F852E0AE6D3C217EF [Accessed on 23 August 2023]
11. Press Information Bureau, Government of India (2019) "Ministry of Finance: E-Filing of Income Tax Returns" Available at https://pib.gov.in/PressReleseDetail.aspx?PRID=1575482 [Accessed on 20 August 2023]
12. SARS (2018) "Short Guide to the Tax Administration Act, 2011 (Act No. 28 of 2011) version 3 Available at Tax Course - Tax Administration (sars.gov.za) [Accessed on 16 July 2023]
13. SARS. (2019) South African Revenue Annual Plan 2019/2020 https://www.sgov.za/sites/default/files/gcis_document/202104/sars-annual-report-2019-20.pdf

14. SARS (October 2021) “Manual on the Promotion of Access to Information Act 2000 and the Protection of Personal Information Act 2014” Available at https://www.sars.gov.za/wp-content/uploads/SARS-PAIA-POPIA-Manual-SEVENTH-UPDATE-FINAL-05-October-2021-1.pdf [Accessed on 5 August 2023]
15. SARS (2023) “Trade Statistics” Available at https://www.sars.gov.za/customs-and-excise/trade-statistics/ [Accessed on 10 July 2023]

Web sources

1. Anshul B (7 July 2023) “ITR Filing: What Is ‘Outstanding Tax Demand’ and How to Respond to It” Available at https://www.cnbctv18.com/personal-finance/itr-filing-income-tax-return-what-is-outstanding-tax-demand-steps-to-respond-to-tax-notice-17149461.htm [Accessed on 19 August 2023]
2. Artificial Intelligence Institute of South Africa (2023) “About the Institute - Overview of the AI Institute of South Africa” Available at https://aii-sa.co.za/about-us/ [Accessed on 22 July 2023]
3. Bartov SL (2022) “Mark Zuckerberg Roasted by New Meta Chatbot: 'Too Creepy and Manipulative'” Newsweek Available at https://www.newsweek.com/mark-zuckerberg-roasted-meta-chatbot-creepy-manipulative-twitter-1732686 [Accessed on 8 July 2023].
4. Bloomberg J (2018) “Digitization, Digitalisation and Digital Transformation: Confuse Them at Your Peril” Available at https://moniquebabin.com/wp-content/uploads/articulate_uploads/Going-Digital4/story_content/external_files/Digitization%20Digitalization%20and%20Digital%20Transformation%20Confusion.pdf [Accessed on 10 July 23]
5. Brederode W (2023) “Department of Justice fined R5m for not beefing up cyber security after 2021 data breach” Available at https://www.news24.com/news24/tech-and-trends/news/department-of-justice-fined-r5m-for-not-beefing-up-cyber-security-after-2021-data-breach-20230705 [Accessed on 11 August 2023]
6. Burns E and Brush K (Last updated March 2021) “Tech Accelerator: In-depth guide to machine learning in the enterprise” Available from: https://www.techtarget.com/searchenterpriseai/definition/deep-learning-deep-

neural-network [Accessed on 24 June 2023)

7. Case No No.22-cv-1461 (PKC) (S.D.N.Y) Available at https://www.courtlistener.com/docket/63107798/mata-v-avianca-inc/ [Accessed on 14 July 2023].
8. Daily Investor: Online: 26 February 2023. “SARS using AI to catch billions in fraud” Available at: https://dailyinvestor.com/south-africa/9682/sars-using-ai-to-catch-billions-in-fraud/ [Accessed on 7 June 2023]
9. Deloitte (2023) “Beyond reskilling: Investing in resilience for uncertain futures” Available at Beyond reskilling | Human Capital Trends | Deloitte Afr [Accessed on 16 July 2023].
10. Digital Watch (10 July 2023) “India to take hands-off approach to AI regulation, say Minister” Available at https://dig.watch/updates/india-takes-hands-off-approach-to-ai-regulation-say-minister [Accessed on 7 September 2023]
11. Embassy of India, Turkmenistan “Abut India: Government” Available at https://eoi.gov.in/ashgabat/?0775?003 [Accessed on 26 August 2023]
12. ET Government.com (31 July 2023) “Why India Can Afford to Wait And watch Before Regulating AI” Available at AI Regulation In India: Why India can afford to wait and watch before regulating AI, ET Government (indiatimes.com) [Accessed on 20 August 2023].
13. G20 (last updated July 2023) “About G20” Available at https://www.g20.org/en/about-g20/ [Accessed on 22 July 2023].
14. Haddad M (2023) “Fake Pentagon explosion photo goes viral: How to spot an AI image: A picture claiming to show an explosion near the Pentagon raises concerns about AI’s ability to produce misinformation” Al Jazeera Available at https://www.aljazeera.com/news/2023/5/23/fake-pentagon-explosion-photo-goes-viral-how-to-spot-an-ai-image [Accessed on 8 July 2023]
15. Harrison J, Toreini E and Mehrnezhad M (2023) “A Practical Deep Learning-Based Acoustic Side Channel Attach on Keyboards” Available at https://www.researchgate.net/publication/372858607_A_Practical_Deep_Learning-Based_Acoustic_Side_Channel_Attack_on_Keyboards [Accessed on 17 August 2023]
16. Heikkilä M (2022) “Dutch Scandal Serves As a Warning for Europe Over Risks of Using Algorithms” Politico Available at https://www.politico.eu/article/dutch-scandal-serves-as-a-warning-for-europe-over-risks-of-using-algorithms/

[Accessed on 16 July 2023].

17. Income Tax Department "Central Board for Direct Taxes" Available at https://incometaxindia.gov.in/Pages/about-us/central-board-of-direct-taxation.aspx [Accessed on 26 August 2023]
18. Income Tax Department, Government of India "Know TAN Details FAQ" Available at https://www.incometax.gov.in/iec/foportal/help/e-filing-know-tan-faq#:~:text=TAN%20stands%20for%20Tax%20Deduction,to%20collect%20tax%20at%20source [Accessed on 19 August 2023]
19. Income Tax India "What Is PAN?" Available at https://incometaxindia.gov.in/Documents/about-pan.htm#:~:text=Permanent%20Account%20Number%20(PAN)%20is,the%20number%20without%20an%20application [Accessed on 19 August 2023]
20. Investopedia (Online) "What Is a Progressive Tax?" Available at https://www.investopedia.com/terms/p/progressivetax.asp#:~:text=A%20progressive%20tax%20involves%20a,group%20taxpayers%20by%20income%20range [Accessed on 13 August 2023].
21. Jariwala D and Lee BC (March 2023) "The Hidden Costs of AI: Impending Energy and Resource Strain" (8 March 2023). Penn Today available at https://penntoday.upenn.edu/news/hidden-costs-ai-impending-energy-and-resource-strain [Accessed on 16 June 2023
22. Khan H (2021) "Types of AI │Different Types of Artificial Intelligence Systems" Available at https://www.researchgate.net/publication/355021812_Types_of_AI_Different_Types_of_Artificial_Intelligence_Systems_fossgurucomtypes-of-ai-different-types-of-artificial-intelligence-systems [Accessed on 7 July 2023].
23. Kerry CF (2020) "Protecting Privacy in an AI driven World" Available at https://www.brookings.edu/articles/protecting-privacy-in-an-ai-driven-world/ [Accessed on 12 July 2023]
24. Li C (2023) "Global Push to Regulate Artificial Intelligence, Plus other AI Stories to Read this Month" *World Economic Forum* Available at Global moves to regulate artificial intelligence: AI news | World Economic Forum (weforum.org) [Accessed on 16 July 2023]
25. Lutkevich B (2023) "AI Hallucinations" Available at https://www.techtarget.com/whatis/definition/AI-hallucination [Accessed on 6

August 2023].

26. Mac Millan Dictionary (Online) https://www.macmillandictionary.com/dictionary/british/artificial [Accessed on 24 June 2023].
27. Mac Millan Dictionary (Online) https://www.macmillandictionary.com/dictionary/british/intelligence [Accessed on 24 June 2023].
28. Mawson N (2011) "SARS leak shows up deficiencies" ITWeb Available at https://www.itweb.co.za/content/PmxVEMKyldDvQY85 [Accessed on 14 July 2023].
29. Mc Callum S (2022) "Meta settles Cambridge Analytica scandal case for $725m" Available at https://www.bbc.com/news/technology-64075067 [Accessed on 12 Jul. 23].
30. Mc Kinsey and Company (2022) "What are Industry 4.0, the Fourth Industrial Revolution, and 4IR?" Available at https://www.mckinsey.com/featured-insights/mckinsey-explainers/what-are-industry-4-0-the-fourth-industrial-revolution-and-4ir [Accessed on 10 July 2023]
31. Merriam Webster Dictionary (Online) "Algorithm" Available at https://www.merriam-webster.com/dictionary/algorithm [Accessed on 24 June 2023].
32. Microsoft Security "What is Two-Factor Authentication?" Available at https://www.microsoft.com/en-za/security/business/security-101/what-is-two-factor-authentication-2fa [Accessed on 11 August 2023].
33. National Portal of AI in India (India AI) (27 June 2023) "AI catches tax evaders in India" Available at https://indiaai.gov.in/article/ai-catches-tax-evaders-in-india [Accessed on 20 August 2023].
34. National Portal of India "Website of Income Tax Department" Available at https://www.india.gov.in/official-website-income-tax-department#:~:text=The%20Income%20Tax%20Department%20is,under%20the%20Ministry%20of%20Finance [Accessed on 23 August 2023].
35. News European Parliament (2023) "EU AI Act: First Regulation on Artificial Intelligence" Available at https://www.europarl.europa.eu/news/en/headlines/society/20230601STO93804/eu-ai-act-first-regulation-on-artificial-

intelligence#:~:text=The%20use%20of%20artificial%20intelligence,how%20it%20will%20protect%20you [Accessed on 12 August 2023].

36. Ng A (2021) "AI Doesn't Have to Be Too Complicated or Expensive for Your Business" Harvard Business Review Available at https://hbr.org/2021/07/ai-doesnt-have-to-be-too-complicated-or-expensive-for-your-business [Accessed on 16 July 2023].
37. OECD Observer (2020) "What are the OECD Principles on AI?" Available at https://www.oecd-ilibrary.org/docserver/6ff2a1c4-en.pdf?expires=1690025482&id=id&accname=guest&checksum=63B35D090900AECBE0BE052B2A1D957F [Accessed 22 July 2023].
38. Omarjee L (2021) "SARS allocated additional R3 billion to drive digital strategy, clamp. down on non-compliance" News24 Available at https://www.news24.com/fin24/budget/sars-allocated-additional-r3-billion-to-drive-digital-strategy-clampdown-on-non-compliance-20210224 [Accessed on 10 July 23]
39. Open AI (2022) "Introducing ChatGPT" Available at Introducing ChatGPT (openai.com) [Accessed on 14 July 2023].
40. Ormond E (2023) "Artificial intelligence in South Africa Comes with Special Dilemmas – Plus the Usual Risks" The Conversation Available at https://theconversation.com/artificial-intelligence-in-south-africa-comes-with-special-dilemmas-plus-the-usual-risks-194277#:~:text=Finally%2C%20whereas%20the%20EU%2C%20UK,limited%20laws%20relevant%20to%20AI [Accessed on 22 July 2023]
41. Prange A (2023) "A New World Order? BRICS Nations Offer Alternative to West" Available at https://www.dw.com/en/a-new-world-order-brics-nations-offer-alternative-to-west/a-65124269 [Accessed on 11 July 2023]
42. Puderbaugh M and Emmady PD (Updated May 2023) "Neuroplasticity" in StatPearls [Internet] (Treasure Island: FL) Available from: https://www.ncbi.nlm.gov/books/NBK557811/ [Accessed on 24 June 2023]
43. Roach J (2023) "AI Can Now Steal Your Passwords with Almost 100% Accuracy — Here's How" Available at https://www.digitaltrends.com/computing/ai-can-steal-passwords-with-100-accuracy/ [Accessed on 10 August 2023].
44. Reynoso R (2021) "A Complete History of Artificial Intelligence" Available at

https://www.g2.com/articles/history-of-artificial-intelligence [Accessed on 7 July 2023].

45. Roux, S. (May 2020) "Legal Regulation of Artificial Intelligence" Without Prejudice. Available at https://www.withoutprejudice.co.za/free/article/6944/view [Accessed online on 10 June 2023.
46. SARS (2022) "DTAs and Protocols (Rest of the World)" Available at https://www.sars.gov.za/legal-counsel/international-treaties-agreements/double-taxation-agreements-protocols/dtas-and-protocols-rest-of-the-world/ [Accessed on 11 July 2023].
47. SARS (October 2022) "SARS celebrates its silver jubilee" Available at https://www.sars.gov.za/media-release/sars-celebrates-its-silver-jubilee/#:~:text=By%20law%2C%20SARS%20is%20an,institution%20outside%20the%20public%20service [Accessed on 5 August 2023].
48. SARS (2023[a]) "SARS eDNA Identity Security" Available at https://www.sars.gov.za/targeting-tax-crime/edna-identity-security/ [Accessed on 15 July 2023].
49. SARS (2020[b]) "SARS takes a big step towards building a smart modern revenue authority" Available at https://www.sars.gov.za/media-release/sars-takes-a-big-step-towards-building-a-smart-modern-revenue-authority/ [Accessed on 16 July 2023].
50. SARS (2023[b]) "SARS Mobi-App" Available at https://www.sars.gov.za/tax-practitioners/sars-mobi-app/
51. SARS (2020[a]) "Arrest of SARS Officials for Alleged Fraud" Available at https://www.sars.gov.za/media-release/arrest-of-sars-officials-for-alleged-corruption/ [Accessed on 12 July 2023].
52. SARS (2023[c]) "How Does Auto-Assessment Work?" Available at https://www.sars.gov.za/types-of-tax/personal-income-tax/filingseason/how-does-auto-assessment-work/ [Accessed on 12 Jul. 23].
53. SARS (2023[d]) "Trade Statistics" Available at https://www.sars.gov.za/customs-and-excise/trade-statistics/ [Accessed on 10 July 2023].
54. Schwarts O (2019) "In 2016, Microsoft's Racist Chatbot Revealed the Dangers of Online Conversation: The bot learned language from people on Twitter—but it also learned values" Available at https://spectrum.ieee.org/in-2016-

microsofts-racist-chatbot-revealed-the-dangers-of-online-conversation [Accessed on 8 July 2023].

55. Unique Identification Authority of India (last updated on 25 August 2023) "What is Aadhaar?" Available at https://uidai.gov.in/en/my-aadhaar/about-your-aadhaar.html#:~:text=The%20Aadhaar%20identity%20platform%20is,identification%20system%20in%20the%20world [Accessed on 27 August 2023]
56. University of Virginia (2023) "What the Heck is a Deepfake?" Available at What the heck is a deepfake? | Information Security at UVA, U.Va. (virginia.edu) [Accessed on 19 July 2023].
57. Wang G (2019) "Humans in the Loop: The Design of Interactive AI Systems" Available at https://hai.stanford.edu/news/humans-loop-design-interactive-ai-systems [Accessed on 5 August 2023]
58. Weiser B (2023) "Here's What Happens When Your Lawyer Uses ChatGPT" New York Times [Online] Available at https://www.nytimes.com/2023/05/27/nyregion/avianca-airline-lawsuit-chatgpt.html [Accessed on 14 Jul. 23].
59. Zakrzewski C (2023) "FTC Investigates OpenAI Over Data Leak and ChatGPT's Inaccuracy" Available at The FTC investigates OpenAI over data leak and ChatGPT's inaccuracy - The Washington Post [Accessed on 16 July 2023]