How AI is transforming the world of tax

1 June 2018

AI is revolutionising the world of tax (Credit: iStock/AndreyPopov)

From automation to improving forecasting, artificial intelligence (AI) is reinventing the way in which legal departments function and in particular how tax matters are handled. Luís Rogério Farinelli and Fernando Teles da Silva of Machado Associados Advogados e Consultores take a look at how AI can help reduce risk, increase value, and drive a cost-effective approach to tax reporting and compliance.

Put simply, AI can be defined as a machine or computer program with the ability to sense, comprehend, act and learn on its own. As such, AI does not hold a steady definition, but instead can be described as an ongoing computing process that uses different technologies and information that interacts with people, data and the environment. It combines machine learning (ML) technologies, large datasets, and the use of sensors to mimic human behaviour, giving AI the potential to revolutionise the way we live and work.

Applied to the business perspective, AI has the potential to introduce more efficiency and, consequently reduce costs and the level of activities performed by humans. Well-known companies such as Uber, Facebook, Amazon and Apple as well as start-ups around the world have all been investing in the development of AI technologies to improve their products and services. In fact, while AI is driving change across many industries and business functions, corporate tax lawyers and in-house counsel have also begun to explore the possibilities for deploying sophisticated data analytics and AI programmes to facilitate tax compliance and assist professionals in their day-to-day tasks.

How can AI be applied in the tax work?

a) Compliance

When it comes to compliance activities, AI can help legal departments save time and improve efficiency. More and more businesses are using technology to aggregate, validate and report for tax compliance purposes, and using data analytics on the information they have gathered to identify anomalies and mitigate risk.

For income tax calculation purposes for example, an AI system or tool may help legal departments or tax teams to analyse each expense or cost and proceed with a classification to define if said expense or cost is relevant for income tax purposes (if an expense is not related to the usual activities of the company or is not legally deductible, the system adds it to the income tax calculation basis). This sort of analysis can be extended to indirect tax calculations, customs tax or even tax incentive programmes (such as R&D tax incentives) and can save time and money, particularly since this type of work often has to be carried out by a big team. Added to this, the ability to forecast more effectively and efficiently can improve the quality and accuracy of financial results, while also helping to provide insights needed for decision making.

In this sense, two of the major categories of ML – clustering and classification – can be utilised to identify groups of data faster and analyse and classify the tax implications arising from specific groups of business transactions (such as business transactions that may generate R&D credits, tax income deductible expenses, and indirect tax levies). The clustering process will also help to identify atypical situations and allow the companies to analyse these matters separately to assess any unexpected tax implications.

Give the intensity with which BEPS reporting legislation is increasing around the world, AI can also help support tax departments to manage data for the filing of emerging or new tax obligations. By implementing the latest advances in tax technology, corporate tax departments can track BEPS reporting requirements in jurisdictions around the world, including important dates and reporting thresholds, helping teams to remain up-to-date with the ever-evolving legislative landscape and even stay ahead of any changes.

b) Advisory / Litigation

Similar to tax compliance activities, tax advice and tax litigation do not constitute a linear decision-making process; instead, they often require a deep analysis of very specific cases or problems and all the variables, to reach and justify a legal opinion or a line of defence in a litigation case.

While the use of AI tax systems or tools is relatively straightforward when it comes to tax compliance, the issue is slightly more complex when it comes to using AI to provide specific tax advice or when it comes to litigation. Indeed, AI should instead be used as an assistance tool by the tax advisor, and should not be deemed as a self-sufficient tool to produce a final opinion. In that context, AI should be regarded as a training and research tool (the machine would be able to provide an answer and a percentage base indicator of confidence in the answer, providing a legal basis, case law and commentaries on which the answer is based; afterwards, the advisor would interpret said results and construe his or her own opinion).

Given that disputes are ruled upon by human judges, the importance of the human element cannot be disregarded when it comes to litigation (live argumentation made by tax lawyers often influence the final ruling). Likewise, in tax advisory, the tax consultant deals with concepts of tax planning and tax evasion, which every so often are construed to be separated by a thin line. Thus, the human element is vital to perceive arising ethical questions and even for accountability purposes (for example, how could companies hold a program accountable if that program produced an erroneous tax plan or legal assessment?).

From this point of view, AI may be a powerful assistance tool, helping to improve efficiency and lower costs, but it can never replace the need for the human element. Nonetheless, considering the advances in ML and the possibility for systems to develop a critical judgement on ethical issues and perceive the nuances surrounding the non-linear analysis required for tax advisory/litigation, it is possible that in the near future, AI tax systems may become more than an assistance tool, instead playing the role of a co-worker to the human tax advisors and litigators.

Challenges of AI application in tax activities

One of the main particularities regarding the applicability of AI to the tax world is the private and usually confidential nature of the data that may serve as the basic source of information for the program, given that it is deeply rooted in company activities and financial statements.

In this sense, private companies may use their own private data or simulated data (not fictional, but close to reality scenarios designed by tax experts) and, in the public sector, governments may make use of the massive data comprised in tax returns, to build AI programs applicable to their tax activities.

As an example of how governments may use AI to yield a more efficient tax collection, we may take the Brazilian electronic tax accessory obligation structure (*SPED*) as an example of real and massive data that may be used to create AI tax systems. In Brazil, companies are obliged to file an extensive array of electronic tax data that includes accounting statements (*ECD*), income tax calculations (*ECF*), indirect tax calculations (*EFD*), foreign intangible and service transactions (*SISCOSERV*), customs transactions (*SISCOMEX*) and even real-time public authorisations to allow the issuance of invoices (*NF-e*). Hence, with such a data basis at hand, an AI system may be implemented to provide for a more effective tax collection (for example, tax authorities could create a company taxpayer profile that allows them to detect any relevant variations and issue an automatic tax audit in said cases, or even detect contradictory data between files and flag any potential inconsistencies or issues).

An additional challenge revolves around the cost of AI, since the process to constantly update the data (in which the tax program was modelled) has a high financial cost; however, the continuous use of the systems and the many benefits and savings they can potentially bring can help justify the investment. Consequently, the solution may be that larger companies develop their own programs and the performance and the update of these could then be handled and monitored by a joint team of tax experts and AI specialists, as both are essential for the system's successful performance. However, yet another challenge is directly linked to the lack of professionals (data scientists) that may develop the use of AI in tax activities jointly with tax experts.

To tackle the issue of cost and lack of personnel when it comes to implementing AI, therefore, is to build partnerships between private companies and computing science faculties, which together can help to provide in-house training of specialists that can combine AI and tax knowledge.

Finally, while there are still numerous challenges when it comes to implementing these new technologies, it is clear that AI is certainly changing the tax field, assisting tax practitioners in performing baseline tasks, such as voluminous data review and freeing up the professional to apply their judgment and creativity to the extracted information and insights. Indeed, many AI tax programs are already available in the market and will constitute the future in tax compliance activities, enabling the more effective and efficient treatment of massive data for tax purposes and, thus, reducing time-consuming activities and related costs.

When it comes to litigation, AI programs are becoming an increasingly useful support system helping to answer questions based on probability and risk factors, allowing lawyers to focus on the solutions. Despite the potential AI has, however, the human factor will always be present when it comes to the more complex issues, meaning there is a need for ethical judgement and accountability. Still, considering the daily advances in ML and the possibility for systems to mimic or reach the same level as human critical thinking on ethical issues or complex tax matters, it may be possible that, in a short period of time, AI tax systems may become more than a mere assistance tool to tax advisors and litigators, instead becoming a "real" colleague.