Machine learning

More science than fiction

Data-driven insight is at the heart of the 'intelligence' driving artificial intelligence (AI). And it is the exponential increase in the availability of data and unprecedented computing power for processing this data that have contributed to moving AI from fiction to fact.

Looking at areas such as financial transactions, the trend towards increasing amounts of data remains relevant for accountants for various reasons.
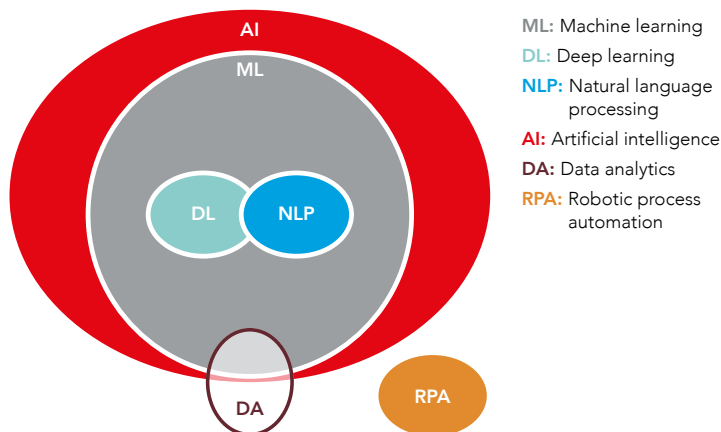
For example, digital solutions are rapidly replacing cash as the preferred way of paying. The Internet of Things (IoT) has led to the growth of small value, high volume financial transactions and more people are entering the financial system for the first time because of financial inclusion initiatives.

This rapid growth in the volume of data has implications for the work of accountants.

MACHINE LEARNING AND ACCOUNTANCY

AI means a lot of different things to different people and a wide range of terms are usually involved when talking about AI. To avoid confusion, it can be useful to learn what the different terms refer to.

FIGURE 1: A wide range of terms are involved

ML: Machine learning
DL: Deep learning
NLP: Natural language processing
AI: Artificial intelligence
DA: Data analytics
RPA: Robotic process automation

Machine learning (ML) is part of this umbrella of terms used when there is a reference to AI. Essentially, ML involves the machine, over time, being able to learn the characteristics of data sets and identify the characteristics of individual data points. In doing so, it 'learns' in the sense that the outcomes are not explicitly programmed in advance.

APPLICATIONS OF MACHINE LEARNING

The capabilities that machine learning offers could assist the work of professional accountants in various ways over time. Accountancy firms are all investing in ML to explore possibilities, for instance in audit and compliance. And in time the base of published evidence supporting the benefits of ML is likely to increase.

There are a variety of applications for machine learning, such as:

- Intelligent book keeping
- Improving fraud detection
- Making sense of complexities in taxation
- Effective non-financial reporting

ETHICAL CONSIDERATIONS

Professional accountants need to consider, and appropriately manage, potential ethical compromises that may result from decision making by an algorithm. They must remain engaged in AI and its component parts, including machine learning.

The ethical challenges posed by ML are explored in this section by focusing on five areas:

Dealing with bias: This is one of the biggest ethical challenges for ML. The algorithms, both supervised and unsupervised, may need to be properly interpreted in order to avoid confusing correlation with causation.

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Strategic view of data: Data is the single most important and non-negotiable requirement for powering the use of ML. In order to take advantage of data in a sustainable way, an organisation needs a coherent data strategy.

Assigning accountability: Who takes responsibility for the consequences of decisions made, the human professional accountant or the algorithm? Dealing with this clearly and consistently will be a key focus for the years ahead.

Looking beyond the hype: AI has become a 'buzzword' in recent years, and ML, as part of AI, has often attracted similar attention. Unrealistic expectations and the vested interests of those selling this technology mean that there is also a real risk of the misrepresentation of what is on offer.

Acting in the public interest: Technology can raise universal questions about public good and public value and professional accountants may find themselves being pulled in different directions as a result. Defending the public interest requires an ability to go beyond the basic minimum that is required for legal compliance.

SKILLS IN A MACHINE LEARNING ENVIRONMENT

The ability of AI to take over jobs is a narrative often recited in the media. And there is certainly some truth about the ability of these technologies to do a variety of tasks more efficiently.

But even sophisticated technology such as AI struggles to replicate the full contextual understanding and integrated thinking of which humans are capable. Despite advancements in AI, it does not yet appear to be the case that human oversight can be done away with completely.

The legal system, societal and cultural values are founded on the principle that only individual people or corporate entities can be held accountable. And at this stage, there doesn't seem to be a strong mainstream view that accountability can be completely outsourced to algorithms.

Looking ahead, professional accountants have an opportunity to develop a core understanding of emerging technologies, while continually building their interpretative, contextual and relationship-led skills.

They can then truly benefit from the ability of technologies such as ML to support them in the intelligent analysis of vast amounts of data.

The technology has moved beyond unrealistic fantasy to real business applications. Some will embrace it. Others will fear it. But only the reckless will avoid finding out more about it.

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