KPMG's Dynamic Audit technology content series: Natural language processing

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A more fluent audit with natural language processing

Natural language processing (NLP) is an area of computer science and artificial intelligence (AI) that aims to enable computers to process substantial amounts of natural (or human) language data. NLP attempts to address the inherent problem that while human communications are often ambiguous and imprecise, computers require unambiguous and precise messages to enable understanding.[1]

NLP could significantly empower the audit, as it would enable auditors to analyse unstructured data. Structured data — found in spreadsheets and ledgers — can already be comprehensively analysed using data & analytics (D&A) and automated capabilities. But more than 80%[2] of data today is in unstructured formats such as contracts, emails, PDFs, and other documents. A key battleground is to develop digital assistants that can read this data and identify key information. Having a bot, for example, analyse the accuracy of one of those unstructured files. The development of NLP capabilities to read emails is another example. By using the processing power of intelligent machines, we can use correlation theory to extract data from unstructured sources.

Once the technology has been instructed on what to look for by the auditor, NLP could read emails and other documents to search and identify information (also utilising optical character recognition technology that can 'read' documents such as PDFs). The difference between the technology doing this and a person is scale — an NLP application could read thousands to millions of documents in a fraction of the time it would take a human to perform the same task. These NLP technologies can be used in combination with other modern technologies such as RPA (Robotic Process Automation) to execute tasks based on email content to deliver powerful efficiencies within a range of business processes.

The benefit of NLP capabilities when combined with robotic process automation (RPA) technologies can be monumental. As an example, the ability to analyse 100% of revenue or purchase transactions through RPA allows the auditor to make judgments about the areas of risk, as well as help in the identification of potential outliers and exceptions. This, by itself, does not complete the audit process. This is one critical step in the audit process; however, auditors also must consider source documents (e.g., invoices) to determine if the reliability and relevance of the underlying data were supported by the facts. The role of an auditor vouching the details of a financial record to the source file has been a central principle of an auditor's procedures. The marriage of NLP technologies allows machines to read those unstructured data sources and create the digital files that can be compared to the transactional records. The speed and effectiveness of such procedures will allow auditors to move quickly through those transactions determined to be supported and those that are not, allowing even more time to focus on areas requiring more critical judgments and time.

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[1] Ingrid E. Fisher, Margaret R. Garnsey, Mark E. Hughes (2016, March 01). Natural Language Processing in Accounting, Auditing and Finance: A Synthesis of the Literature with a Roadmap for Future Research. Retrieved on 04 August 2021 from: https://onlinelibrary.wiley.com/doi/10.1002/isaf.1386

[2] Rizkallah, Juliette. (2017, June 5). The Big (Unstructured) Data Problem. Retrieved on 10 October 2018 and from https://www.forbes.com/sites/forbestechcouncil/2017/06/05/the-big-unstructured-data-problem/#2c4df5ee493a

Many forms of modern technologies are optimised when working in conjunction with each other, which is the case for NLP. NLP would find and extract key data from documents, and then put it into a format that a machine-learning tool could analyse.

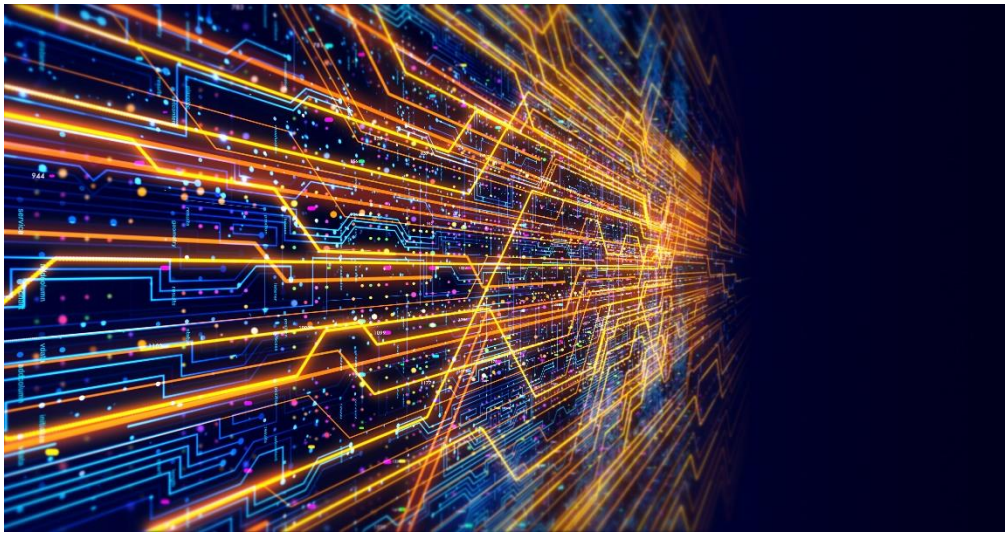
The full extent of NLP's capabilities is still being realised, and the potential it holds to enable an auditor to look for and find audit evidence in emails and other documents is hugely significant.

What is the impact on audit quality?

Vouching, or examining documentary evidence to verify the accuracy and occurrence of a transaction, is a basic audit practice While such repetitive tasks do not require advanced audit skills, they are tedious and time-consuming.

NLP can retrieve key information from documents, such as invoices and delivery orders, it is possible to automate the vouching task and free up auditors' time for higher value tasks. By automating information extraction and validation, NLP can not only boost audit efficiency but also eliminate human errors and increase the accuracy of data entry.[3]

NLP, working in combination with other technologies, can play a significant role in improving audit quality. The power of NLP, together with robotics, machine learning and, in time, deep learning will mean that an audit may become deeper and further reaching than ever before, based on increasingly granular and sophisticated analysis of data.



[3] Zhang Yuchen (27 June 2019). Four key applications of natural language processing for audit transformation. Retrieved on the 4 August 2021 from: RSM Technology, Media & Telecommunications practice

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