OP/ED: Cognitive analytics gives business the edge

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The cognitive analytics revolution in business is underway. It is underpinned by artificial intelligence, cognitive computing and machine learning. Cognitive analytics will give business executives such as the CEO, CFO, CIO and CMO massively enhanced data-driven decision-making abilities, as well as the ability to track and learn from prior decisions. The change means that decisions can be informed by non-intuitive insights on products, services, business operations and markets (including client behaviours) drawn from a wide variety of sources, writes Cliff Moyce, global head of finance practice, DataArt.

Those sources will include unstructured data such as social media posts, images, and academic documents. We have seen already how the ability to do post-hoc analyses of the economic, political and legal decisions of governments and legislatures can generate non-intuitive insights unavailable through traditional methods; now it is time for the boardroom to be doing the same.

It almost goes without saying that the use of the word 'cognitive' implies the continued quest in computing to create intelligent business machines that operate as per the human brain, "by reverse engineering the computational function of the brain" (Modha, D.S., 2011). Combining neural models and technologies with huge processing power can take us well beyond what any of us could achieve alone or in teams, even huge teams, with current analysis tools and techniques.

The way that cognitive analytics achieves its magic over and above current data analysis methods is through (1) ability to analyse huge amounts of unstructured data alongside traditional structured data sets; (2) ability of cognitive analytics tools to generate non-intuitive insights from data; and (3) ability for the tools to learn as they work – including how decisions suggested by the tool previously panned out when implemented (post-hoc analyses). Unstructured data that is handled well by cognitive analytics tools includes emails, videos, documents, images, social media posts, academic articles etc. Cognitive computing uses natural language processing, probabilistic reasoning, machine learning and other technologies and techniques to analyse content efficiently, analyse context, and find near real-time insights and answers hidden within massive amounts of information. Cognitive systems can adapt and get smarter over time by learning through their interactions with data and through human decision-making (including decisions suggested by the same cognitive systems). Insights provided through cognitive analytics will focus us more on the questions that we ask. These insights can help break us free from the prisons of wrong assumptions, faulty hypotheses, and the tendency to confuse symptoms with causes.

All areas of business can be supported and enhanced by cognitive analytics. These include business strategy (for example, mergers and acquisitions); product design and marketing; financial planning (from capital planning to cash management to financial control); and business operations (for example, the efficient and effective deployment of resources for maximum productivity).

Financial services and capital markets have been using a form of algorithmic artificial intelligence methods for some time in trading and risk management. E.g. some algorithmic trading strategies displaying 'intelligence' and use some 'cognitive' (i.e. loosely coupled) logic to make decisions, and perhaps benefiting from machine learning (though cognitive scientists may dispute how 'cognitive' these methods really are). In risk management and financial crime prevention, we have seen the growth of predictive analysis; trends analysis, risk analysis; and behavioural analysis using similar methods. Those algorithmic cognitive or quasi-cognitive approaches are now being seen in wealth management 'robo-advisory' offerings, and will start to be seen more generally in digital banking. In the finance function we already see forecasting systems that use online analytical processing (OLAP being employed. We also see the use of algorithms for predictive analysis in areas such as cash flow forecasting and demand planning. What 'real' (i.e. based on neural models) cognitive analytics will give finance and business planning functions is the ability to use many data types that cannot be analysed easily currently; further and better analyse the huge amounts of data held by the function; and, derive non-intuitive insights from data that are not being gleaned currently. This step-change in capability will strengthen the ability of those functions to add value to strategic and operational planning. E.g. in financial control, cognitive analytics can (relatively pro-actively) highlight problems, or areas for optimisation. It can also track in real time or monitor retrospectively actual performance against financial plans, and provide feedback that companies can use to fine-tune their planning approaches. In fact, if a toolset if genuinely cognitive it should learn to fine-tune approaches itself. Similarly, to the finance function, the ability of marketing and product development teams to better predict consumer behaviours will reduce the risk of product failure as well as driving innovation that may not have occurred otherwise.

In summary, cognitive analytics is set to transform our ability to plan, develop and run businesses. It is genuinely transformational in a way that some other technologies have been (for example, Cloud) and some have not. It is not a panacea for all ills, but it does help enormously with the diagnoses of those ills. Early adopters will be well rewarded.

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