

Cognitive Technologies For the Financial Sector



With the vast amounts of data surrounding the financial sector there are huge advantages to exploring the new wave of cognitive opportunities.

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Summary

Financial services companies have long utilised vast volume of data and information to help improve their efficiency and performance. Using technology to enhance the customers' experience in both retail and business banking can help revenue growth and push margins higher.

Data analytics and information management are playing a central role in ensuring that strategies such as cross-sell and up-sell initiatives work to their maximum potential. Processing data to gain answers to questions about customers and their household preferences help financial companies better understand their clients, giving them the ability to provide effective and competitive services.

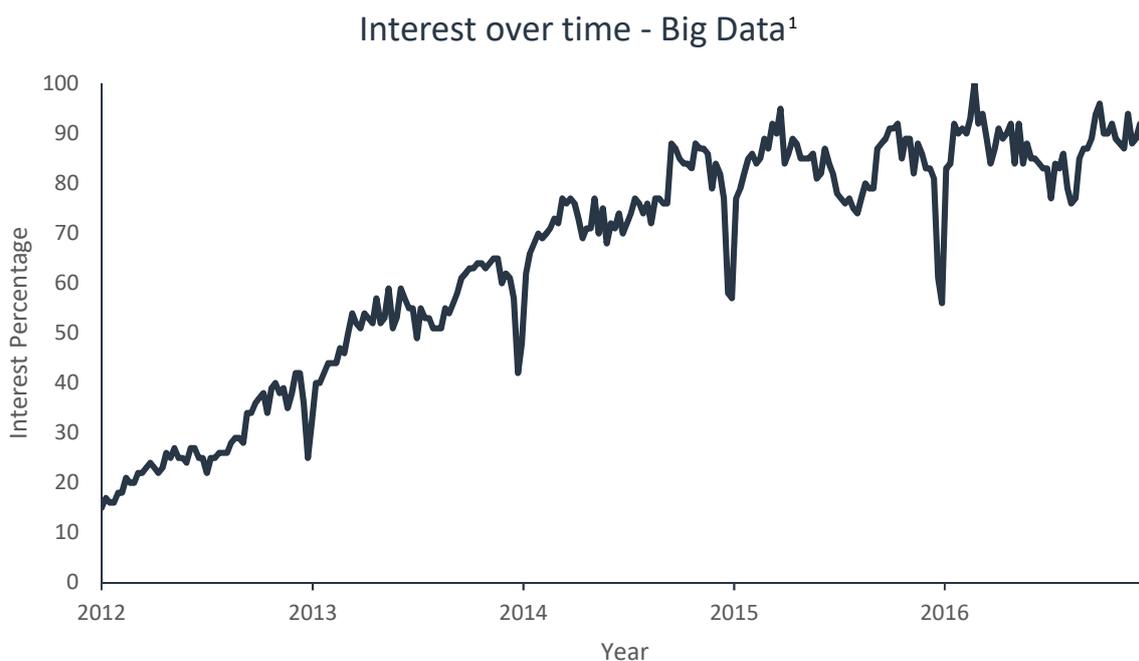
With the growing flow of data about customers, companies, economies and trends the reservoirs that insights can be extracted from are providing ample opportunities to inform rapid decisions or serve as the basis for competitive products and services.

As the field of Big Data grows rapidly, Cognitive Computing is emerging as a viable solution to harnessing its potential. Cognitive systems are able to handle ambiguous data and adapt in real time to new problems. They can allow financial institutions to make quick decisions by providing valuable information to support those decisions.

Big Data

Big Data is not a new phenomenon, in fact the notion has been around for almost half a century. However, it is a topic that has been growing in exposure across every industry in recent years. There are two main reasons that, although the idea of Big Data has been around for some time, it is now gaining traction and rapidly:

- The first of these two reasons is that globally we are producing greater quantities of data than ever before meaning that how we store and process that data to make constructive use of it has become a key issue.
- The second reason is that the advancement of hardware solutions has reached the point where they are capable of running the underlying algorithms on such huge data sets. Meaning that no longer is the field of Big Data confined to a corner of academia or indeed gigantic organisations as the hardware required has become more affordable and practical to obtain and use.

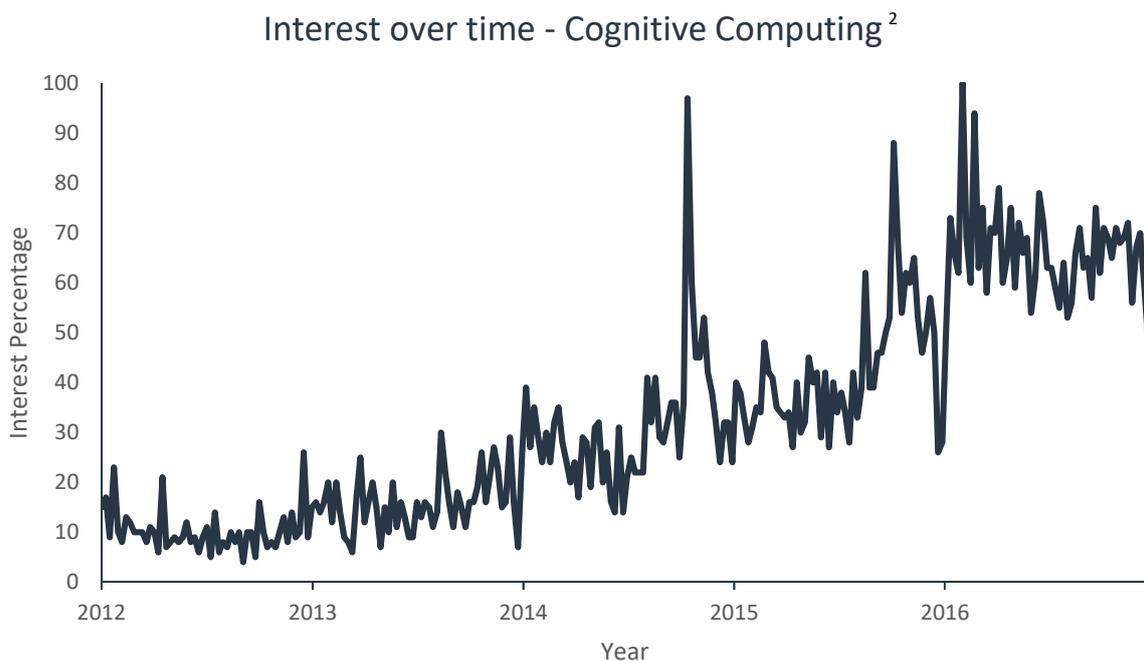


¹ Data from Google Trends - <https://www.google.com/trends/explore?q=big%20data>

Cognitive Computing

Cognitive Computing is actually a term used to describe various computing capabilities. These capabilities usually encompass learning, understanding and enrichment. Learning is an important part of Cognitive Computing, it allows the system to build knowledge from many different data sources that can be both structured or unstructured. Once a cognitive system has learned it is then able to move onto understanding. This step allows the system to understand natural language meaning that it is able to interact more naturally with humans. Finally, once the system has been set up and trained appropriately it is able to provide enrichment to the decision making across a business while all the time continuously learning and improving its understanding of the problems it has been designed to address in the organisation.

Cognitive Computing systems often go hand in hand with Big Data and Data Science solutions as they usually provide the basis of collecting and preparing the vast amounts of information necessary to get the best out of a cognitive setup.



² Data from Google Trends - <https://www.google.com/trends/explore?q=cognitive%20computing>

How the financial sector leverages Big Data

Risk Management

“It has been forecast that by 2020 the risk compliance solutions market in the banking sector will grow with a compound annual growth rate of 17%”

Since 2008 demands for institutional risk management have deepened. A greater severity of stress testing and increased compliance requirements together with risk exposure assessments provide opportunities for data to prove itself useful. It has been forecast that by 2020 the risk compliance solutions market in the banking sector will grow with a compound annual growth rate of 17% [1].

- **Pool data silos:** Creating a central repository across all areas of the business allows for centralised reporting and analytics that help meet compliance requirements.
- **Stress Test Modelling:** With the right data it is possible to rapidly run through many variations of complex tests that cover a wide range of combinations of market and credit risk.
- **Credit Risk Assessment:** Incorporating more relevant sources of data and conducting in-depth analysis can help score more accurately.

Fraud Detection

Data Science solutions are well fitted to fraud detection as they are able to analyse a large set of signals to identify patterns that can point to fraud. The volume of data surrounding payments alone is enormous with PayPal processing more than 1.1 Petabytes of data for 169 million accounts at any given moment [2]. With fraud taking several forms being able to assess a broad spectrum of data for these patterns is essential.

- **Robust Fraud Models:** In the past sample testing has been adopted to help combat fraud. With Data Science techniques, financial companies are now able to build their models based on entire data sets.
- **Detection Accuracy:** Finding correlations in data that indicate likely fraud can lead to an improvement in detection accuracy when combining multiple structured and unstructured data sets from many sources.

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“A survey of 760 financial institutions showed more than half want to use big data, AI and advanced analytics and cognitive computing as well as removing friction from the customer journey.”

Tailored Targeting

With the aid of data analytics that has been deployed properly financial enterprises can tailor promotions and products to individuals based on a better understanding of the customer to help capture market share and also reduce churn rates. Moving into 2017 a survey of 760 financial institutions showed more than half want to use big data, AI and advanced analytics and cognitive computing as well as removing friction from the customer journey [3].

- **Customer Profiling:** Aggregating data from conventional and newer sources of data can help build a detailed picture of each client, giving an all-round view of the customer and their needs.
- **Effective Segmentation:** Using a greater number of variables, through data amalgamation, can lead to a more granular segmentation of customers allowing for greater specificity in targeted products and offers.

Investment Banking

Investment banks have been slower to utilise Big Data than consumer retailers. However, recently leading institutions have been taking Big Data more seriously with huge investment into the field in an effort to generate even bigger returns.

- **Trading Analytics:** The financial markets continually produce huge amounts of data that can be analysed and used to make investment decisions. Today over algorithmic trading accounts for over 85% market volume [4]. These algorithms rely upon data and the information it can provide. Many institutions are now also introducing unstructured data from news and social sources into their trading algorithms.

“Today over algorithmic trading accounts for over 85% market volume.”

How Cognitive Computing can be used in the Financial Industry

Despite the massive increase in data that the world has seen in the last decade only 1% of it is currently analysed [5]. Cognitive Computing goes further than traditional data analytic approaches by applying advanced Machine Learning technologies combined with natural language processing to harness the opportunity presented by these vast quantities of data. Patterns can be extracted by combining the industries already huge amount of structured data with the increasing amount of unstructured data produced every day. These patterns can provide insight into customers, competitors, employees, internal departments and even the financial markets. Being able to extract meaningful patterns can help the Financial Industry better anticipate change and adapt accordingly.

Conclusion

62% of banks believe that managing and analysing big data is critical to their success. However only 29% say that their current practices are gaining enough commercial value from data [6]. This means that there is a lot of room for growth in the area of Big Data and Data Science when it comes to the Financial Sector.

Deciding upon the right approach to transitioning to using Big Data solutions is vital when considering any future return on your initial investment. It is better to move slowly and ask the right questions to focus on business problems rather than rush into it and end up spending time and money on a solution that is not the right fit for the questions you want to address. Harnessed properly Cognitive Computing can be a hugely powerful asset for the financial industry.

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