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Is the World Ready for Big Data?

'Big Data' broadly refers to the ability to capture, store and analyse large volumes of granular data sets about interactions, preferences and attributes of any potential customer.

But is Big Data really new? In fields of engineering, meteorology and medicine, for example, the ability to capture, measure and analyse vast amounts of data from the smallest components has been the norm for decades. This has enabled the understanding of complex interactions, which in turn, have produced incredible technological achievements in relatively short periods of time. In some cases, data was rudimentarily gathered and processed by computers less powerful than your average Smartphone. Now, thanks to Big Data, imagine if the advancement of comparable scale could be obtained in product design, operational efficiency and customer value management.

So what is the big deal and why are so many commercial enterprises unprepared for this new challenge?

The adoption of new technology has meant that measurements previously captured on paper are now digitally available; this has led to unprecedented growth of data volumes over the last few years. Research from Gartner^[1] suggests that this volume is now growing at a minimum rate of 59 percent annually and that Big Data has moved from an average data set of few terabytes to data sets consisting of petabytes worth of information. This is on top of the transactional and management information companies already capture.

Research also suggests that Big Data is no longer just about the size and granularity of data sets, but also about other more complex dimensions, such as Velocity, Variety and Volume and Variability and Complexity.^[2]

Amongst the many challenges companies face regarding Big Data, we believe the areas below are currently the three major hurdles.

Applications of Advanced Analytics

The pervasive use of advanced predictive analytics to proactively drive businesses has long been expected, but it has never quite reached its full potential. While recent years have seen operations and marketing solutions based on predictive analytics implemented at a growing rate, these are still of a tactical nature and are not fully embedded within business processes. Indeed, examples of organisations that have truly embraced these solutions are still few and far between, despite the recognised vast benefits associated with them.

In order to identify patterns and efficiency opportunities or use Big Data to optimise product design, predictive analytics tools such as artificial neural networks, propensity modelling and clustering analysis will be essential. These will need to be supported by re-designed business processes that can be guided or triggered by results and patterns that have surfaced through these analyses.

^[1] Gartner Says Solving 'Big Data' Challenge Involves More Than Just Managing Volumes of Data, 27 June 2011, <http://www.gartner.com/it/page.jsp?id=1731916>

^[2] What is big data? - <http://www.sas.com/big-data/index.html>

The Big Divide: CMO vs. CIO

The advent of Big Data is also exacerbating long-standing issues between the Chief Information Officer (CIO) and the Chief Marketing Officer (CMO), which at times exist in organisations.

The fast adoption of new technology and the increased use of new sales channels have fragmented the market place. This has meant that an increasing amount of granular data is required to carry out even the most basic customer segmentation and campaign management. CIOs generally struggle with such requirements and are often unwilling to meet the demands of their marketing department for more granular data and sophisticated analytics, as this places additional pressure on already strained infrastructure and often translate into costly and lengthy engagements.

CMOs, however, are submerged by copious amounts of data, which they cannot process without appropriate technical support. To compound this, traditional assumptions, segments and product development cycles have changed in the face of a new competitive environment, and have created the need for additional analysis and iterations to identify the new patterns in customer behaviours.

It is clear that in order to enable Big Data, changes to operating models and performance management processes associated with these roles are necessary. This is not only to promote closer co-operation between CMOs and CIOs, but to also fundamentally redefine their relationship.

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The Technology Challenge

It is increasingly evident that the granular, real-time nature of Big Data is a major issue when considering traditional technology currently in use to manage information.

While the techniques used to analyse Big Data are well known and have been applied for many years in data mining, the data-set size, granularity, real-time nature and dimensional attributes, like the one suggested in the Gartner 3V model (Velocity, Variety, Volume), will require a major re-think of current IT and information architectures.

Big Data will not only impact the type of storage required (SAN is deemed to be too slow and expensive), but also the integration layer and accessibility of results. Newly developed technology

like Hadoop, a free license framework that supports the use of data-intense applications working over thousand of nodes, is helping to partially address these issues, while other

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types of new technology represent both a help and an hindrance to Big Data.

Cloud Computing is a good example. Although this technology can help address some of the storage and processing issues brought about by Big Data and CIOs understand its importance, Cloud also represents a major priority for other parts of the business. As such, precedence is given to Cloud Computing regarding project

and infrastructure funding, as this currently has a greater tangible impact on companies' IT spending.

Break the Challenge Down – Bite Size Big Data

So how will company get around these hurdles?

Firstly, organisations must clearly identify what it is they hope to achieve from their BI and Big Data strategies. This requires them to develop a clear understanding of their business strategy and subsequently work from the top down to identify the individual key performance indicators that support the achievement of the organisation's goals. In other words, rather than simply responding to the immediate demands of the organisation, BI leaders would be wise to focus on ensuring that their long-term strategy aligns to the strategic goals of the organisation.

Organisations will also need to develop the capability to discern what data (and from what source) delivers the most valuable insights and what data only adds complexity and uncertainty to the process.

This will break the Big Data challenge down to small, tactical initiatives that form part of a bigger end state vision. Well designed strategies will also help to prioritise these tactical initiatives based on the benefits they can deliver to the business. If the benefits associated with Big Data hold true, then the associated returns should help to fund each subsequent initiative.

The implementation of a Big Data strategy will need to redefine governance operating models, particularly around the CIO and CMO roles to increase responsiveness to changing market conditions and facilitate the implementation of appropriate solutions.