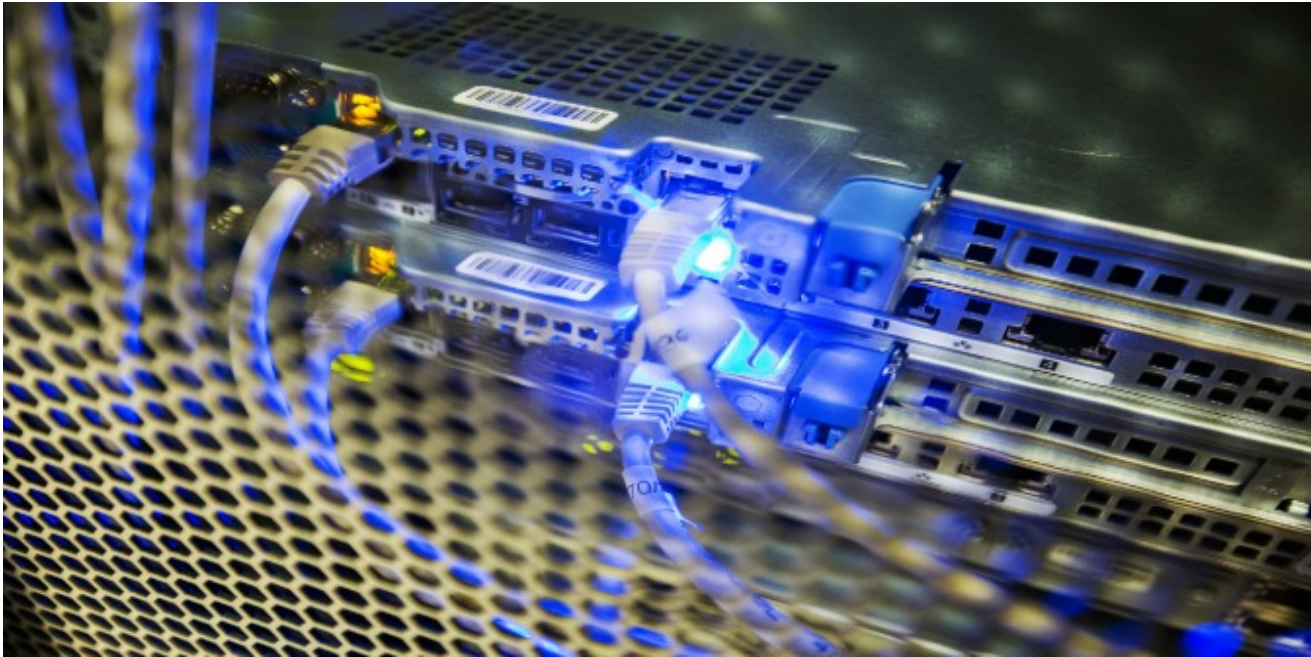# Big data helps firms improve efficiency and customer relationships

blogs.lse.ac.uk/businessreview/2016/07/19/big-data-helps-firms-improve-efficiency-and-customer-relationships/

The introduction of capabilities such as high definition video, GPS, social media, smartphones, internet and advanced processing hardware have facilitated data generation at an exponential rate and global scale, giving rise to the term "Big Data".

Our research indicates that businesses stand to gain from the wealth of data they collect both internally and from their customers. For retailers applying big data analytics, Fosso Wamba et al. suggest an increase of return on investment of up to 20 per cent, while Manyika et al. estimate at least a 60 per cent improvement of operating margins.

We obtained significant insights by investigating how Amazon.com implements big data analytics to provide top sales and customer satisfaction in the online retail industry. Our research integrates well-known management techniques with big data analytical methodologies to provide a framework to help businesses improve efficiency, effectiveness, and customer relationships. Our goal is to provide practical and sequential steps for implementing big data capabilities that create business value.

The application of big data is used to enhance the result of each step within our framework as follows:

- Step 1: Assess the operational environment and business capabilities through analysis of strengths, weaknesses, opportunities and threats along with the business model.
- Step 2: Assess and plan the diffusion of change using the matrix of change.
- Step 3: Identify metrics for measuring performance and determining projects of benefit through alignment with financial strategies using the strategy map and balanced score card.
- Step 4: Evaluate the feedback of all framework processes to ensure well informed decisions are achieved.

Today's business leaders are faced with a fierce and cross-cutting industry in which they must develop strategies for

maintaining a competitive advantage while creating business value. Nicola et al. suggest the understanding the customer's perceived value, the ability to forecast future value perceptions and the capability to address unique customer requirements are central elements in developing and sustaining a competitive advantage.

While the exact techniques for applying big data analytics will greatly depend on the business's goals, objectives, its usage is virtually unlimited. We believe **innovation will differentiate between great usage of big data and poor usage of it.**

A great application of our framework was found in the use of machine learning to quickly build adaptive models for predictive applications, which may be executed using real-time data streams and scaled to a global level. Streamlining and optimizing internal and customer interface processes have strong potential for enhancing customer satisfaction, increasing sales, and gaining cost efficiencies. Market insights through customer segmentation, consumer trends, and economic growth can inform a company's strategy development, product and service planning, and resource allocations. Competitors with innovative strategies in cross-cutting industries may be assessed more accurately to identify opportunities that may exist.

While machine learning offers enhanced consumer optimization and prediction, a more transparent approach can largely benefit companies such that historical and real-time information may be accessed in a meaningful way by employees to improve the efficiency and effectiveness of their work. Internal transparency can enable companies to gain operational and supply chain efficiencies, allow knowledge base capabilities to significantly grow, and can also better inform decision makers by making more accurate and encompassing information available. Advanced forecasting can make the difference between proactive and reactive operations. Further, well developed forecasting capabilities can enable companies to identify trigger points, align infrastructure and capabilities, and appropriately deploy expansion of products and services. Some companies may even be capable of triggering events that allow growth in certain market sectors.

From the customer perspective, customer and market data can allow companies to uniquely meet customer needs and enhance customer satisfaction. Customers are aware that companies have their information, however often times companies are not transparent regarding what they use customer data for and do not show they use the customer's information in a useful way.

Customer interfaces, especially customer service, should be a key focus for companies yet are still lacking in many areas of industry. It is frustrating and inconvenient for customers to provide information that they know companies already have. Customer service representatives are all too often not provided with the information they need to effectively deliver customer service. However, data warehousing and acquisition techniques, along with internal transparency, can provide customer service representatives with the customer information and prescribed solutions needed to effectively and efficiently resolve customer issues.

Given current technology advances, more and more companies may take advantage of data storage and analytical capabilities offered through third party providers. Also, companies that implement big data analytics may have data that other companies find valuable. If such data is not essential in maintaining a competitive advantage, these companies stand to gain additional profits by partnering with outside companies and allowing access to their data. External data sources that implement big data analytics can allow companies to identify more opportunities and threats than would not otherwise be realized. Additionally, trends in social networks or purchasing behavior can provide much more advanced predictive capabilities for companies that tap into data rich environments.

As technology and experience with big data applications advance, barriers to implementing big data analytics into business practices are decreasing, allowing more and more businesses to leverage big data in realizing their full potential. Providers of big data services are working toward infrastructures, platforms, and applications that make the capture, management, processing, and analysis of big data possible for businesses without requiring extensive expert knowledge behind such capabilities.

We recommend that future research take on an integrated approach from both academic and practical viewpoints. Because today's markets and technologies are rapidly changing and are converging, a solid foundation is needed in this area of research that can accommodate future change while providing practical applications. Without a solid foundation, this line of research runs the risk of generating models for any and every situation and capability with little synergy or practical meaning.

We have provided some first steps to such a synergistic approach by providing a framework that couples traditional management tools with big data analytics.

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Notes:

- *This blog post is based on the authors' paper A Framework for Boosting Revenue Incorporating Big Data, co-authored with John Elabd, Jonathan Gonzalez, Michal Marczewski, Moaad Alrasheed and Luis Rabelo, in Journal of Innovation Management (2016).*
- *The post gives the views of its authors, not the position of LSE Business Review or the London School of Economics.*
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