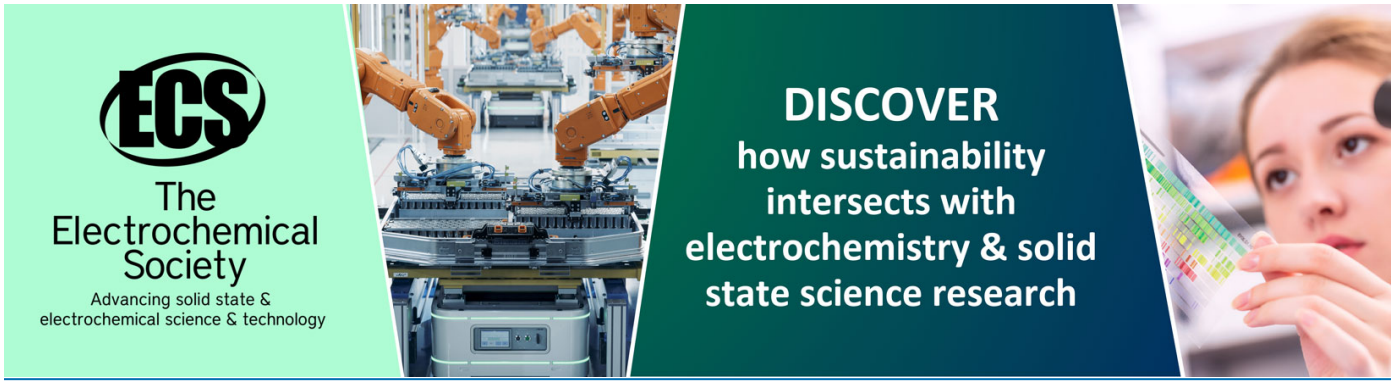
The Study of “big data” to support internal business strategists



The Study of "big data" to support internal business strategists

Mei Ge

Shenzhen Polytechnic, Shenzhen, 518055, China
City University of Macau, Macau

gemei102@szpt.edu.cn, gemei@cityu.mo

Abstract. How is big data different from previous data analysis systems? The primary purpose behind traditional small data analytics that all managers are more or less familiar with is to support internal business strategies. But big data also offers a promising new dimension: to discover new opportunities to offer customers high-value products and services. The study focus to introduce some strategists which big data support to. Business decisions using big data can also involve some areas for analytics .They include customer satisfaction, customer journeys, supply chains, risk management, competitive intelligence, pricing, discovery and experimentation or facilitating big data discovery.

1. Introduction

Across industries, organizations are realizing the power of big data and analytics to solve business challenges and produce innovation. In fact, big data and analytics have become crucial for organizations seeking to develop.

Over the last years, the general marketing activity has evolved from decision support, to executive support, to online analytical processing, to business intelligence, to analytics and now to "big data". But what is big data? A general definition is, the collection and interpretation of massive data sets, made possible by vast computing power that monitors a variety of digital streams – such as sensors, marketplace interactions and social information exchanges – and analyses them using "smart" algorithms [1].

Big data is notably different from traditional information management and analytics in this regard. Instead of just creating reports or presentations that advise senior executives on internal decisions, big data scientists commonly work on customer-facing products and services.

For those uses of big data that do involve internal decisions, new management approaches are still necessary. This is because big data just keeps on flowing. With big data, the data resembles not so much a pool as an ongoing, fast-flowing stream.

Therefore, a more continuous approach to sampling, analyzing and acting on data is necessary. This is particularly at issue for applications involving ongoing monitoring of data on stakeholder perceptions. For ongoing monitoring work, there should be processes for determining when specific decisions and actions are necessary. Such information helps to determine decision stakeholders, decision processes and the criteria and timeframes for which decisions need to be made [2].

2. How use "big data" to support internal business strategies?

Business decisions using big data can also involve some areas for analytics, such as Customer satisfaction, customer journeys, supply chains, risk management, competitive intelligence, pricing, discovery and experimentation or facilitating big data discovery. Now introduce in detail:

2.1. Customer satisfaction

Nowadays it's possible to use big data analysis methods on new, less-structured data sources and utilize the resulting information to make better internal decisions. The analysis process can identify customers who use terms suggesting strong dissatisfaction. The insurer can then make some sort of intervention – perhaps a call exploring the source of the dissatisfaction. The decision is the same as in the past – how to identify a dissatisfied customer – but the tools are different.

2.2. Customer journeys

The data sources on multichannel customer journeys are unstructured or semi-structured. They include website clicks, transaction records, staffs' notes, and voice recordings from call centers. The volumes are quite large – 12 billion rows of data for one of the banks. The firms are beginning to understand common journeys, describing them with segment names, ensuring that the customer interactions are high quality, and correlating journeys with customer opportunities and problems. It's a complex set of problems and decisions to analyse, but the potential payoff is high – half a billion dollars is the estimate at one of the banks.

2.3. Supply chain risk

The factor that makes these big, rather than small, data problems is the use of large volumes of external data to improve the analysis. In supply chain decisions, for example, companies are increasingly using external data to measure and monitor supply chain risks. External sources of supplier data can furnish information on suppliers' technical capabilities, financial health, quality management, delivery reliability, weather and political risk, market reputation, and commercial practices.

2.4. Competitive intelligence

Competitive and market intelligence used to be a rather intuitive exercise, but big data is beginning to change that approach. If you can get more detailed data and do more systematic analysis on it, the activity will probably improve your strategic decisions. "Historically, market and industry intelligence consisted primarily of company directories indicating who companies are – basic information such as their physical location, phone numbers, SIC code, credit score, etc., but now we can explain what organizations do in the market. Market factors which were hidden are now visible data, enabling trend analysis, benchmarking, segmentation, modelling, and recommendations. It's a much broader set of data, at significantly greater scale, and more real-time. Companies can lead rather than react" [3].

2.5. Pricing

Pricing has a long history of applying analytics successfully. Pricing optimization was originally done with internal structured data on what goods historically sold at what price, and that's still a key element. But pricing software companies now often incorporate external, and somewhat less structured, big data into the algorithm.

2.6. Discovery and experimentation

To date, the primary focus of business and technology organizations has been to automate data analysis processes such as marketing, sales and service. Analytics has been used to understand and tune such business processes, keeping management informed and alerting them to anomalies [4].

Increasingly, corporate strategists are recognizing that big data structure and management should be designed so that discovery and analysis is the first order of business. Data scientists, as well as

general business analysts, need continuous access to an analytics platform that supports ready insight to enterprise and external data. The platform needs to facilitate integrating new data, ad hoc queries and visualization to accelerate human understanding. As valuable insights emerge from this platform, they become the requirements for changes to production systems and processes.

Companies also need to adopt new methodologies for insight and data-based product development. Highly structured approaches that only yield a result at the end of a long process, and methods have been increasingly forced out of system development processes in favor of faster and more flexible Agile/Scrum processes [5]. Such Agile approaches can also apply to analytics and big data. Imprecise, slow requirements gathering for a new analytical system or process is replaced by iterative experimentation, insight and validation.

2.7. Facilitating big data discovery

Discovery is most often done in business units, typically by people who are focused on innovation, product development and research. Some companies organize them into "data labs" or "analytics sandboxes" or a group with a similar name. They are typically found within the most data-intensive business units of their organizations.

The desired outcome of data discovery is an idea – a notion of a new product, service, or feature, or a hypothesis – with supporting evidence – that an existing model can be improved. There will be more of the incremental improvements than the grand breakthroughs; most discoveries are relatively minor. One might find a new factor to better identify customers who are about to leave, or how to better target an offer. If you keep at it and have good people and a supportive culture, you'll eventually find something big.

3. Conclusion

In a word, whatever task it's applied to – internal decisions, discovery or production – the return on investment from big data comes from the processing and analysis of it and the insights, products and services that emerge and become recognized as adding value. The coming sweeping changes in big data technologies and management approaches need to be accompanied by similarly dramatic shifts in how data supports decisions and product/ service innovation. There is little doubt that big data analytics can transform organizations, and the firms that recognize the full extent of their opportunities will seize the most value.

Acknowledgments

This work was financially supported by 2017 Macao Fund (MF624).

References

[1] Mohammad Ahmadi, Parthasarati Dileepan, Kathleen K. Wheatley. A SWOT analysis of big data. Journal of Education for Business 91, 2016. pp. 289-294.

[2] Thomas H. Davenport, How strategists use "big data" to support internal business decisions, discovery and production, Thomas H. Davenport, Strategy & Leadership, Volume: 42 Issue. (2016)

[3] Jiwat Ram, Changyu. Zhang, Andy Koronios. The Implications of Big Data Analytics on Business Intelligence: A Qualitative Study in China. Procedia Computer Science 87, 2016. pp. 221-226.

[4] Marcelo Werneck Barbosa, Marcelo Bronzo Ladeira, Alberto de la Calle Vicente. An analysis of international coauthorship networks in the supply chain analytics research area. Scientometrics 111:3, 2017. pp. 1703-1731.

[5] Jeff S. Johnson, Scott B. Friend, Hannah S. Lee. Big Data Facilitation, Utilization, and Monetization: Exploring the Vs in a New Product Development Process. Journal of Product Innovation Management 23. (2017).