



Big data dreams: A framework for corporate strategy

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Abstract The phenomenon of big data—large, diverse, complex, and/or longitudinal data sets—is having a stark influence on organizational strategy making. An increase in levels of data and technological capabilities is redefining innovation, competition, and productivity. This article contributes to both practical strategic application and academic research in the strategic management domain by presenting a framework that identifies how big data improves functional capabilities within organizations, shapes entirely new industries, and is a key component of innovative and disruptive strategies used by learning organizations to diversify and break down barriers of traditionally defined industries. This framework provides an appropriate basis for internal corporate strategy discussions that surround big data investments by explaining how firms create value through various approaches. In addition, this we offer guidance for how firms might derive their own big data approach through the merits of aligning data strategy aspirations with data strategy authenticity.

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1. The big data phenomenon

As characters walk through the mall in the 2002 science-fiction thriller *Minority Report*, the future is envisioned as a place where various companies can immediately and personally advertise their products to individual consumers using troves of historical data and biometric recognition. As Tom

Cruise's character, John Anderton, strolls into a Gap store along with other shoppers, a digitized young woman greets the customers with personalized messages: "Hello, Mr. Yakamoto! Welcome back to the Gap. How did those assorted tank tops work out for you?" and "Hey Miss Belfour, did you come back for another pair of those chamois lace-ups?" With data capture and data analytic capabilities on the rise, this *Minority Report* reality is quickly approaching (see Ghose, Li, & Liu, 2016). We are moving toward individualized shopping experiences both online and in traditional brick-and-mortar stores thanks to the knowledge extracted by firms

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from our purchases, mouse clicks, social media posts, and various other actions.

Central to this movement is the availability and accessibility of big data: large, diverse, complex, and/or longitudinal data sets generated from a variety of instruments, sensors, and/or computer-based transactions (Megahed & Jones-Farmer, 2013). Executives across many industries are plunging resources into big data projects with aims to better monitor, measure, and manage their organizations in hopes of solving many of their long-standing operational concerns. Retail, manufacturing, financial services, and firms of virtually all other sectors are actively investing in the search for and development of new competitive advantages, such as offering personalized customer service (as in the futuristic Gap), more efficient processes and supply chains, or improved product offerings. Even the entertainment industry has jumped on the trend, as content creators like Netflix use big data initiatives to determine casting and storylines (Carr, 2013) and sports team employ analytics to gain an edge on the playing field (Steinberg, 2015).

Despite the obvious operational advantages of big data, trends toward its use have also created new challenges and consternation among firms. The collection, storage, and analyses of data are of primary concern to companies as they attempt to come to terms with the technical demands associated with such new capabilities. Perhaps more importantly, firms pursuing big data initiatives need to clarify a vision and strategy for how to leverage their capabilities successfully into an improved return on investment. We present a framework that lays out how firms adapt and thrive due to the big data phenomenon through several different approaches. Additionally, we offer guidance on how companies can fortify a realistic vision for their organizational efforts to engage the big data phenomenon successfully. First, however, we look at the growing impact of big data and its evolving role in reshaping corporate strategy.

1.1. Big data's growing impact

According to the McKinsey Global Institute (2011), big data represents the next wave of innovation, competition, and productivity. McKinsey researchers estimate the continued emergence of big data will have large-scale increases in manufacturing, logistics, health care, financial services, government, and technology, among other sectors, with an annual impact of nearly \$300 billion in the health care industry alone (McKinsey Global Institute, 2011). In light of such staggering numbers and the potential influence of big data spanning all

functional areas of an organization, we argue that the disruptive potential of big data necessitates firms' engagement with it at a strategic level (Morabito, 2015).

Big data has caught the attention of most every industry, with executives across the globe seeking guidance for best practices and greater understanding of the role big data should play in strategic decision making. The increasing power afforded to chief information officers, chief technology officers, chief knowledge officers, and chief data officers within organizations will have an undoubtedly significant effect on corporate strategy (Menz, 2012; PwC, 2015). Yet, despite this emphasis on data and, often, massive investment in data collection and analyses, a considerable number of executives still are not quite sure what to make of this influx of data and how to properly apply it within their organization. Managers are faced with a myriad of questions: what data to collect; how to best collect, codify, and store it; how it should be analyzed and interpreted; and how insights can be transformed into value. Answers to these vital questions assist corporate strategists in deploying resources and deciphering how their firm's big data investments can translate into greater organizational success.

1.2. How big data is changing strategy

As data continues to be produced in previously unfathomable quantities, digitization promises additional shifts to the strategic landscape and further evolution of existing business models. However, while big data initiatives have become more mainstream in business settings, the management field has largely ignored serious practical and academic implications. In careful examination of the limited discussion of big data in the management academic literature, it is striking that most dialogue revolves around how big data will affect management research (e.g., how scholars can use sensors to collect more robust data sets), rather than exploring how big data is revolutionizing the thought processes of corporate strategists and managers (George, Haas, & Pentland, 2014). The discussion has coalesced around new modes of data collection and statistical techniques. Generally, scholars are not exploring big data as a firm-level phenomenon with the potential to shift organizational decision making and leadership.

The simplistic perspective of big data as an avenue to existing process improvement assuredly creates value to an organization (McAfee & Brynjolfsson, 2012), but this thinking limits the potential for the impact of digitization. It is imperative that we take a

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