

Big Data in Big Companies: Executive Summary

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Big data burst upon the scene in the first decade of the 21st century, and online and startup firms like Google, eBay, LinkedIn, and Facebook were built around big data from the beginning. No integration with existing architectures or processes was necessary. Big data could stand alone, big data analytics could be the only focus of analytics, and big data technology architectures could be the only architecture. In this research, however, we studied the big data activities of 20 large, well-established businesses. Big data in those environments must be integrated with everything else that's going on in the company.

Overall, we found the expected co-existence; in not a single one of these large organizations was big data being managed separately from other types of data and analytics. The integration was in fact leading to a new management perspective on analytics, which we'll call "Analytics 3.0."

Big data may be new for startups and for online firms, but many large firms view it as something they have been wrestling with for years. Some managers appreciate the innovative nature of big data, but more find it "business as usual" or part of a continuing evolution toward more data. However, they are still struck by the lack of structure of the data and the opportunity/cost ratio of big data technologies.

There are also continuing—if less dramatic—advances from the usage of more structured data from sensors and operational data-gathering devices. Companies like GE, UPS, and Schneider National are increasingly putting sensors into things that move or spin, and capturing the resulting data to better optimize their businesses. Even small benefits provide a large payoff when adopted on a large scale.

Like many new information technologies, big data can bring about dramatic cost reductions, substantial improvements in the time required to perform a computing task, or new product and service offerings. Like traditional analytics, it can also support internal business decisions. Most of the companies we interviewed had a specific benefit in mind. Each benefit choice has implications for the leadership of the big data initiative and the way that benefits are managed.

As with all strategic technology trends, big data introduces highly specialized features that set it apart from legacy systems. We describe a "big data stack" that is optimized around the large, unstructured, and semi-structured nature of big data. We also describe how big data technology architectures interface with more traditional business intelligence and reporting architectures.

As with technology architectures, organizational structures and skills for big data in big companies are evolving and integrating with existing structures, rather than being established anew. No organization we interviewed has established an entirely separate organization for big data; instead, existing analytics or technology groups have added big data functions and data science skills to their missions.

The full report describes several firms' approaches to finding scarce data scientists, and also their approaches to establishing data-savvy leadership. The report also describes approaches that these large firms are taking to establishing the financial returns and benefits from big data projects.

The report concludes with a discussion of a new paradigm for managing analytics, "Analytics 3.0." It's the combination of traditional analytics and big data, and it means that the data-driven economy applies not only to online firms, but to virtually any type of firm in any industry. Some of the other attributes of Analytics 3.0 include the combination of multiple data types, new approaches to data integration, much faster processing of data with new technologies, and the integration of analytics with operational and decision processes. These technology-driven changes are also accompanied by a set of organizational changes in Analytics 3.0.

Even though it hasn't been long since the advent of big data, these attributes add up to a new era. Some aspects of Analytics 3.0 will no doubt continue to emerge, but organizations need to begin transitioning now to the new model. It means change in skills, leadership, organizational structures, technologies, and architectures. It is perhaps the most sweeping change in what we do to get value from data since the 1980s.

It's important to remember that the primary value from big data comes not from the data in its raw form, but from the processing and analysis of it and the insights, products, and services that emerge from analysis. The 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 analytics can transform organizations, and the firms that lead the 3.0 charge will seize the most value.

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