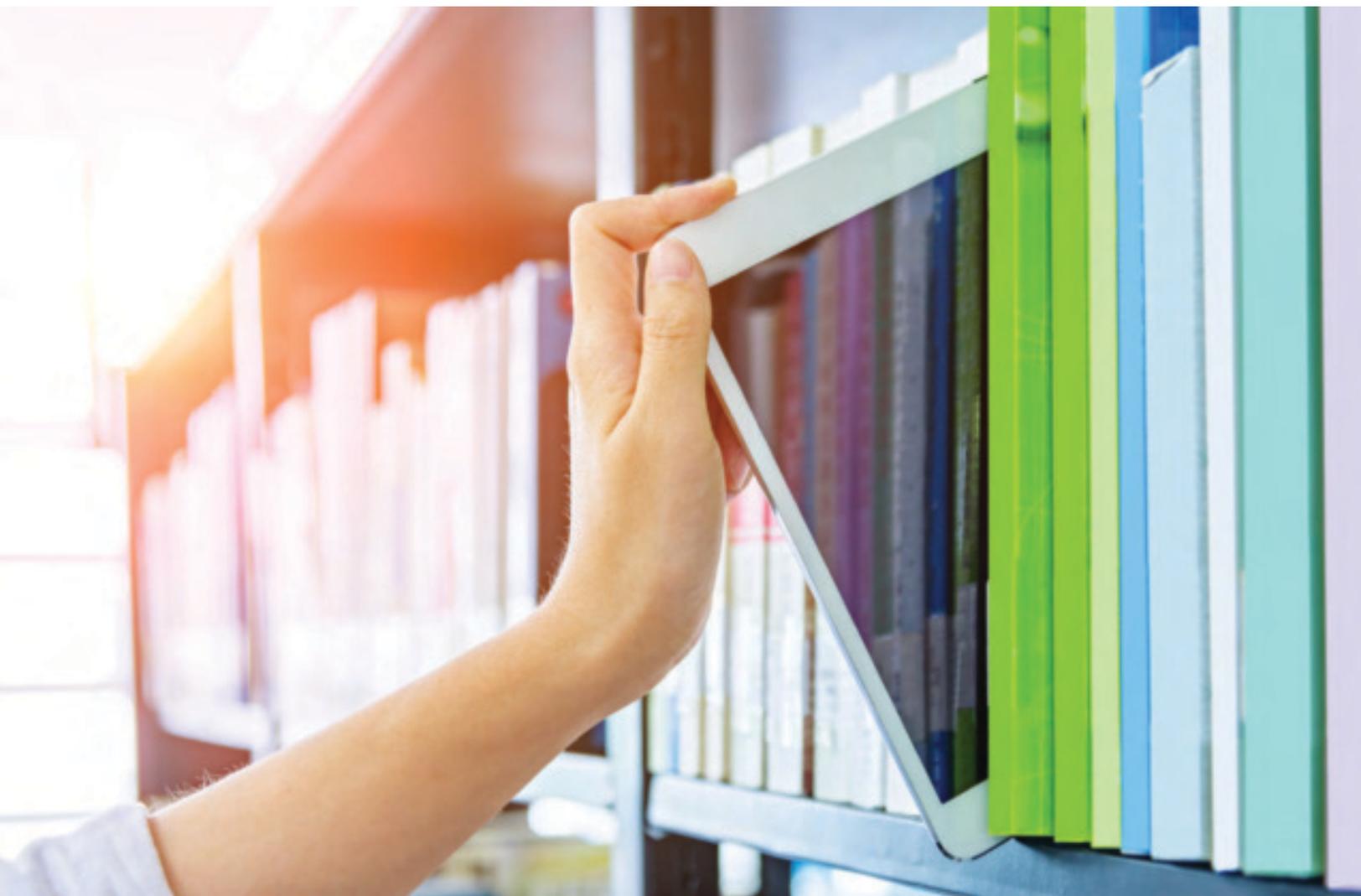


# How to Start Using Big Data and Expand your Learner Profiles

Insights from Clarity Consultants



In recent years, one advance in educational technology has quietly slipped from under the radar to become the most-watched trend across nearly every industry: big data.

While the name implies a massive quantity of data—and often big data is high-volume—it’s actually the complexity of the information that makes a data set “big.” Big data is information pulled from a myriad of sources and analyzed to reveal patterns in behavior and interactions. It has huge potential for disrupting previous assumptions about human behavior, which translates to multiple benefits for companies and higher educational institutions—increased productivity, lower costs, and a better understanding of how to serve the learner and the consumer.

Because technology sometimes evolves faster than human understanding, there is a steep learning curve to managing big data in the most efficient way. In addition, there are many different ideas and expectations of big data across organizations, which only adds to the complexity of building a universally strong understanding of how big data actually works.

## A Brief History of Big Data

In some ways, the concept of big data isn’t new. Concerns about how to manage the sharply increasing amount of information in the world were voiced as early as the 1940s when researchers worried that American libraries would pass their capacity to catalog all of the books that would inevitably exist in the next century. Over the next several decades, concerns about the exponential growth of various types of information—including scientific journals, media, and communications—grew, and a conversation developed around how to manage such data. As new technology appeared, especially cloud-based systems and mobile networks, so did different solutions to compressing information into useful pockets of information.

In 2001, inspired by the e-commerce surge, analyst Doug Laney formally identified the concept of “big data” and defined it around the three Vs: volume, velocity, and variety. In other words, big data is:

- A. large quantities of information
- B. that appear quickly through systems
- C. in different forms from many different sources.

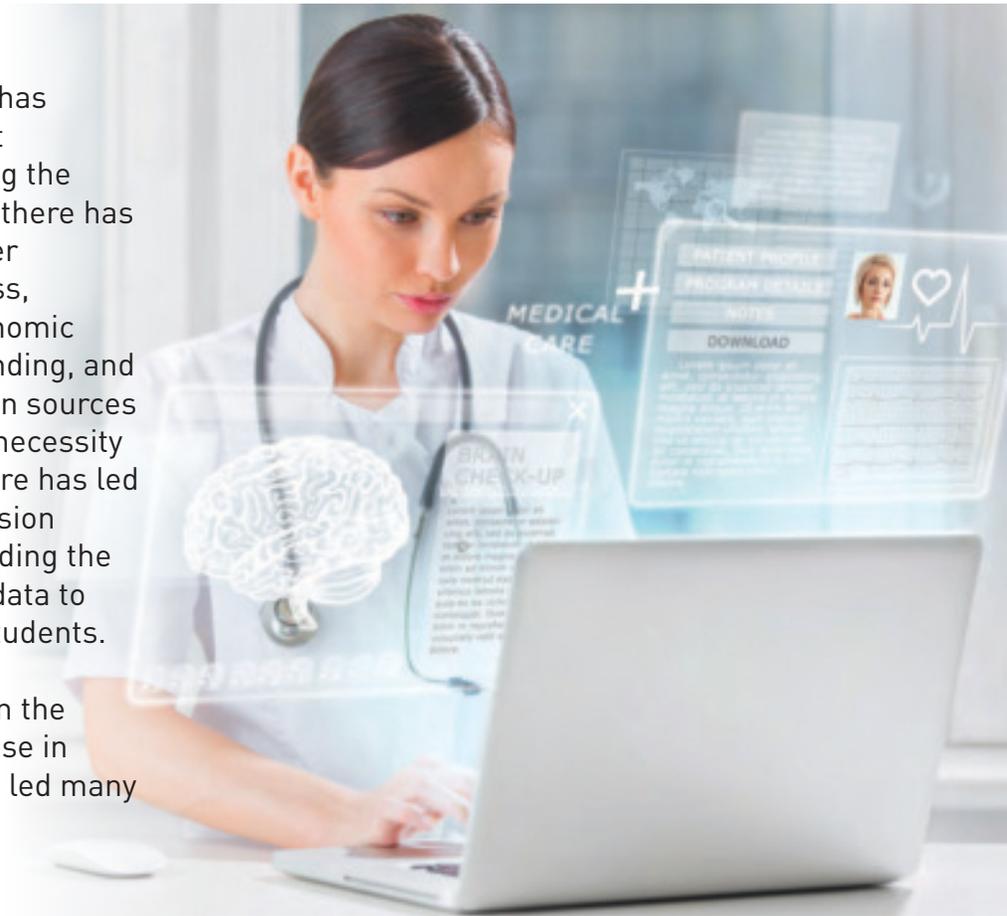
Today, fifteen years later, some believe this model is not adequate and should be expanded to consider factors like value, variability, visualization, and veracity.



## Who Is Using Big Data?

The question is not so much who has access to big data—because most organizations do—but who is using the information well. In recent years, there has been increased pressure on higher education to prove its effectiveness, especially in America, where economic recession, decreases in public funding, and the spread of free online education sources have stirred up doubts about the necessity of larger universities. This pressure has led to an increase in data-driven decision making in higher education, including the use of learning analytics and big data to optimize learning outcomes for students.

A similar pressure has fallen upon the corporate sector, where an increase in globalization and competition has led many organizations to utilize business intelligence and objective data to guide decision making.



As a result, big data is expected to shift the landscape of business in the next few years across many industries, including retail, healthcare, finance, and manufacturing. A 2014 survey by Accenture found that over half of American companies believe that big data will be as disruptive a technology as the internet was in the 1990s. The same survey found that the bigger the company, the higher priority big data has become and the better results they see. Over 90% of companies who completed big data projects found that it met their ideal business outcomes.

Vince Campisini, Chief Information Officer at GE Software, gave one salient example:

**"We've been able to take over 60 different silos of information related to direct-material purchasing, leverage analytics to look at new relationships, and use machine learning to identify tremendous amounts of efficiency in how we procure direct materials that go into our product."**

## Why Use Big Data for Learning and Development?

In short, big data takes the well-documented benefits of learning analytics even further.

Learning analytics, which has become an integral part of successful courses and named by Educause as a top trend to adopt for 2016-17, collect information about learner behavior and help guide decisions about how to best achieve desired learning outcomes. They are also an important component of big data, which can further illuminate learner profiles by gathering information and drawing correlations from many other sources, including public records, qualitative feedback, and other organizational systems (such as HR records). Analytics have also increasingly been used as a predictive tool to foresee learner failures and stop them before they occur.



In one experimental study that explored the benefits of employee recognition, bank branch managers were divided into two groups. One group received multimedia training on offering authentic employee recognition, while the control group received no training. Researchers pulled in various metrics, including learning analytics and sales and productivity performance evaluations, to objectively measure how training might have a trickle-down effect on employees. The utilization of big data revealed powerful correlations: employees of managers in the coached group had increased productivity and sales numbers, and the bank had the data to prove it.



## How to start using Big Data

Using big data is not a casual undertaking. Data itself, while often readily available, is meaningless unless expertise in analyzation exists.

For most companies, the first priority is forming a good team with experience in interpreting unstructured, raw data. According to the Accenture survey, only 5% of businesses rely on internal help for big data projects. The vast majority recruit consultants and contract employees for such work.

Experts can help identify pre-launch questions and work with the company to formulate answers. These questions might include:

- **What is the primary outcome desired from the project?  
What are company expectations?  
Are they reasonable, given the data sources available?**
- **Which sources of data are relevant?  
Are streaming analytics and social interactions enough, or should  
outside systems or public records be evaluated? (Note that too  
much data can be as harmful as too little in that it over-complicates  
what could be a simple solution).**
- **How big in scope should the first project be?  
Would a small pilot test, perhaps in one training course, illuminate  
talent gaps and further questions to explore?**

Organizations that join the other 95% in seeking external help for big data projects find that the cost of temporary hires is well worth the answers they unveil, which can have a huge impact on company productivity, profit, and employee morale.



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## The Bottom Line

Big data already exists—the important question for organizations is how it can be harnessed for the purpose of revolutionizing the way business and learning works. A natural evolution of learning analytics, big data has the potential to disrupt the way we think about human behavior. This potential, however, goes untapped if the appropriate expertise is not onboarded. With the right team, there is no limit to the ways that big-data projects can transform a company in a relatively short amount of time.