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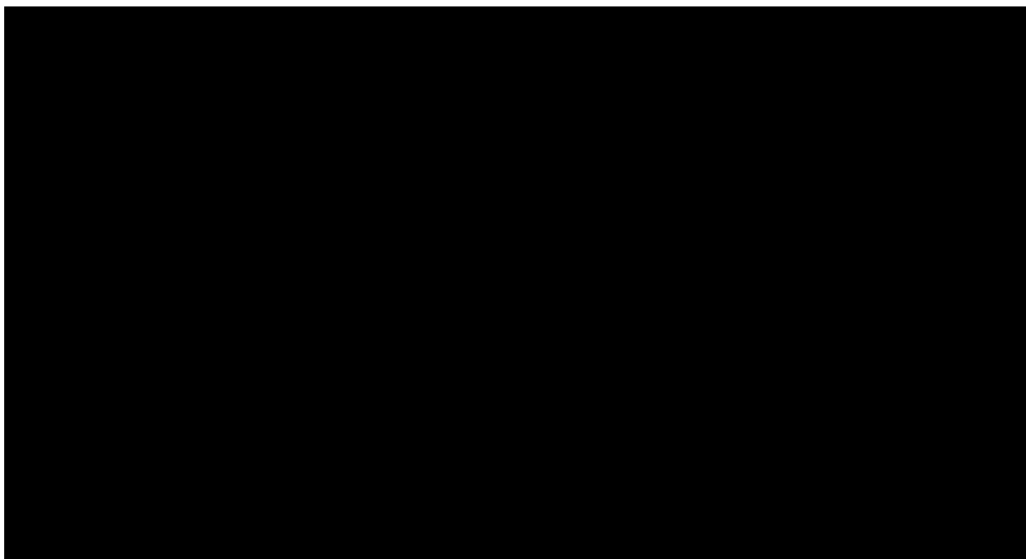
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4 Ways Big Data is Revolutionizing Retail



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Cross-channel success in retail is all about coordination of data in an era where the number of channels and the amount of information flowing through them keep growing. Think of the data streams from a variety of channels, including brick-and-mortar, websites, pay per click, email, direct mail, mobile devices, catalogs and more, and it's easy to see how the combined flood of information can reach the multiterabyte scale in a company's data network. The challenge comes in making sense of all this "big data" and teasing out important relationships and patterns from the noise.

The right analytical approach can reap bankable insights from this process, and nowhere is big data being put to more

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effective and profitable use than in retail. Sifting for patterns and insights on a massive scale, analytic architectures can turn what used to be guesswork into solid guidance on previously unanswerable questions. These can include whether a loan applicant will default; how a matrix of demographic, supply chain, geographic and other variables should inform pricing decisions; or how product placement on shelves will affect future buying behavior.

Retail analytics involve multiple processes, including loading, discovery, visualization and reporting of data, to blend and capitalize on a laundry list of information streams that can include web analytics, point-of-sale statistics, loyalty programs, third-party data and many other sources. Architectures can run the gamut from large data warehouses running in concert with [Hadoop](#) to systems limited to SQL and Excel for smaller data sets. Regardless of scale, user-friendly visual analytics with charts, graphs and other features for easy and intuitive manipulation of data are needed to democratize insights beyond the realm of data scientists and into the hands of everyday business users.

Awareness of big data has brought more transparency and sanity to the highly volatile retail sector. Here are the top four areas where investment in analytics reaps the biggest return:

Demographics and buying behavior have long represented a Rubik's cube of trial-and-error strategies based on limited data and no small amount of conjecture. The puzzle becomes easier to solve with analytical processes that connect the dots more precisely between products and the people who buy them. That's what the daily-deals site [zulily](#) was after when it turned to data-driven decision making to sharpen its focus in marketing bargains on apparel, shoes, toys, decor and other products to its more than 10 million members.

Industry trends analysis is a crucial function where return on investment gets a boost from big data. With newfound precision, companies can now assess how innovations, economic conditions, or sudden events like weather disturbances or data breaches are affecting business. Good visualization tools can also help management teams examine goals and resources for tough decisions on how to spend scarce resources.

Predictive modeling is the closest thing to a crystal ball in retail, and strong analytics can clarify the view. Macy's is one major retailer that's invested heavily in big data architecture not just to understand present conditions, but also literally to predict the future. Macy's approach involves visualization tools for business and customer

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insights, which then form the foundation for predictive modeling to forecast buying behavior and supply chain needs. Many other successful retailers are using similar tools.

Geographic segmentation becomes easier when retail analytics are leveraged to answer questions like how proximity to your stores — or to your competitors' stores — is affecting sales. Big data can even handle nuances like whether urban locations should stock smaller items to accommodate customers who walk or take public transportation vs. suburban shoppers who drive big cars and buy in bulk to fill them.

With so much data streaming along so many channels, mastery over big data in retail has become a make or break survival factor. Competitive advantage hinges on a company's ability not only to accumulate data, but to know what it means and how to make those insights benefit the bottom line. Given the realities of today's data-intensive business environment, the mandate for retailers to embrace analytics for future success is one prediction that doesn't require a complex algorithm to make.



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