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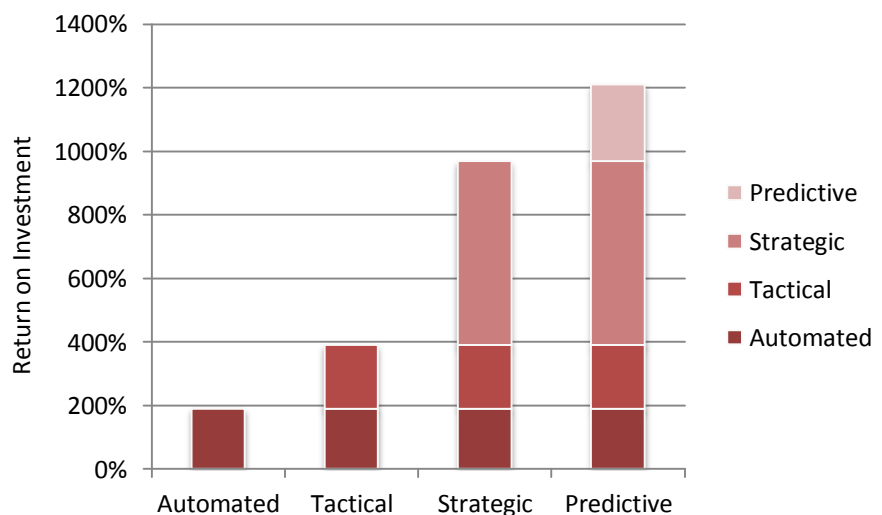
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RESEARCH NOTE THE BIG RETURNS FROM BIG DATA

THE BOTTOM LINE

Nucleus found organizations can earn an incremental ROI of 241 percent by using Big Data capabilities to examine large and complex data sets. One driver of high returns on Big Data was the ability to improve business processes and decisions by increasing the types of data that can be analyzed. Another driver of high returns was the ability to monitor the factors that impact a company, such as customer sentiment, by scouring large external data sources such as social media sites.

Nucleus has determined that enterprises increased their average ROI on analytics by 241 percent when they used Big Data to become a more Analytic Enterprise. An Analytic Enterprise improves its competitiveness and operating results by continuously expanding its use of analytics (Nucleus Research m17 – *The stages of an Analytic Enterprise*, February 2012). There are four stages in the evolution of an Analytic Enterprise, and Big Data plays an important role in this transformative path.



Enterprises with strategic deployments earn an average ROI of 968 percent by deploying analytics across the organization to align daily operations with senior management's goals. Predictive deployments achieve higher returns by tapping into what is commonly referred to as "Big Data," data sources that are large, contain a broad variety of data sets, are available on-demand, and change rapidly.

Predictive deployments also reach beyond the traditional limits of internal enterprise data to the Web, customers, vendors, and partners.

BIG DATA, BIG RETURNS

When Nucleus validated the benefits of Big Data, benefits achieved by end users included:

- Increased productivity. A major metropolitan police department achieved an 863 percent ROI when it combined its criminal records database with a national crime database created by a major university. The combination of national trends, local crime-related data, and predictive analytics enabled the police department to allocate its law enforcement assets more effectively and reduce crime rates.
- Increased margins. An ROI of 942 percent was earned by a major manufacturer which used Big Data capabilities to examine purchasing and cost-related data in all of its vendors' databases, leading to vendor consolidation and reduced cost of goods sold.
- Increased revenues. Revenues can be increased when Big Data is used to rapidly detect changes in consumers' activities and preferences. For example, an organization optimizing online campaigns can track click streams and data gathered from all customer touch points to continuously monitor and fine tune their programs, resulting in increased revenues.
- Reduced labor costs. A major resort earned an ROI of 1,822 percent when it integrated shift scheduling processes with data from a national weather service, enabling managers to avoid unnecessary shift assignments and increase staff utilization.

BENEFITS OF BIG DATA

Nucleus analysts identified four key drivers for high returns on Big Data investments. First, Big Data enabled organizations to examine large volumes of structured and unstructured data, such as large data sets captured by customer loyalty programs and call centers. Second, Big Data improved decision making by rapidly delivering data and conclusions while the information was still valuable. Third, companies improved decision making by combining their own data with acquired large data sets, such as geospatial data. Finally, Big Data capabilities enable the scouring of Web-based data for tasks such as monitoring and detecting changes in customer sentiment.

Big Data enables analysis of vast data sets

By dramatically expanding the volume of data that can be examined in an analytics deployment, Big Data capabilities enable employees to detect conditions that impact a large number of transactions, but are unobservable without a dedicated analytics effort. For example, an automobile manufacturer that examines parts purchases by its servicing subsidiary can detect design flaws or quality problems before they become a public relations or branding crisis. Another source of on-premise Big Data is information gathered from customer loyalty programs. By examining the purchasing habits and behaviors of thousands of members in a loyalty program, retailers can improve their product offerings and price points, leading to higher revenues and margins. Through standard touch points with customers, partners, and vendors, many enterprises already have collected Big Data sets even though they may not know it. Large telecommunications providers

can use Big Data to reduce customer churn by continuously examining their customers' interactions related to billing, purchases, and call center activity to anticipate which customers are considering switching.

Big Data also improves decision making by aggregating and analyzing large volumes of unstructured data. Although many organizations accumulate large quantities of data in the form of handwritten notes, e-mails, and voice recordings, this data is typically unavailable for analysis because most analytical tools are designed for highly structured data such as financial information. Big Data analysis tools enable organizations to collect and examine this unstructured information to detect desired operational trends or conditions. For example, an airline could examine recordings of call-center interactions in order to identify the best practices that lead to higher customer retention rates when standard service capabilities are disrupted.

Big Data accelerates decision making

By rapidly sifting through such large volumes of information, Big Data enables organizations to identify problems or opportunities while something can still be done. For example, many consumers are likely to tweet or blog about a product long before they share their opinions with a call center representative. With sentiment tracking tools, organizations can get a read on customer sentiment far faster than relying on call centers or focus groups. Customer churn prevention also requires timely reactions based on the accurate view of leading metrics. Many large telecommunications providers examine churn statistics on a weekly or monthly basis. Although such reporting may successfully identify customers at risk for churn, this information only becomes available after the customer has already switched. Big Data assets can reduce churn costs by continuously monitoring billing databases to identify at-risk customers and sending them offers designed to retain them.

External Big Data sources make proprietary data more valuable

Nucleus found that organizations were able to improve decision making when Big Data sets were created by combining proprietary data sets with externally available Big Data sets, such as geospatial data or meteorological information. For example, a car manufacturer could identify local customer preferences or climate-specific quality problems by adding geospatial data to the information gathered by onboard sensors. Lending institutions that purchase publicly available credit data and integrate it with their customer lists can improve the effectiveness of their marketing campaigns and improve the quality of their loan portfolios.

Big Data enables Web-based sentiment monitoring

Social media is a common source of Big Data used to improve decision making, mainly through sentiment tracking of brands, products, and other events representing the company's public face. Nucleus found many organizations monitored customer sentiment by tracking the results of specific key word searches, such as "our brand, need to return phone." Tracking was also performed by identifying individual user profiles on social networking sites capable of wielding influence on sites such as Twitter or Facebook. By tracking such individuals, two core benefits were achieved. First, those individuals were closely observed to detect shifts in customer sentiment. Second, by proactively providing superior

service to such individuals, companies could ensure that such influencers had a good opinion of their company.

CONCLUSION

Although Big Data may seem overhyped, technology buyers should set aside their skepticism and consider making investments that enable the analysis of large and complex data sets. When analytics capabilities are applied to large data sets, whether they are associated with the enterprise, social media, the customer audience, or the partner ecosystem, employees become capable of insights they can't make by examining traditional data sources. The scouring of the Web for important shifts in customer sentiment, the use of acquired credit-ratings data for loan portfolio improvement, and the analysis of warranty databases for the detection of potential product failures are all examples of benefits from Big Data that have significant bottom-line impact, yet are unavailable from less mature analytics deployments.