

The Value of Significantly Improved Analytic Price/Performance



As companies face an increasingly competitive and technologically-advanced business environment, it will no longer be adequate to simply have access to a large amount of information. Companies will compete based on the depth of insight they can draw from this information and their ability to act on that insight. This challenge is complicated by the rapid increase in customer and process data being generated and continuous pressure to reduce the time in which companies are expected to utilize it.

A critical competency for companies as they advance through the information age will be the ability to leverage the rapid improvements occurring in computing price/performance to gather, process, analyze, and act upon vast amounts of data.

In fact, the dramatic improvement in computing, storage, and networking price/performance (i.e., the cost of a given level of performance) is enabling an entirely new class of applications. As a result, the use of analytics is evolving from capturing and using basic information about customers and processes to understanding and impacting their behavior.

Companies use this new capability to help increase revenue and reduce costs in several ways:

- Identifying, acquiring, retaining, and developing the most profitable customers
- Improving the returns from major sales promotions while they are under way
- Reducing customer churn by identifying and triggering upon behavior indicators
- Reducing potential loan losses by more accurately and quickly identifying risk factors

In general, to optimize business and increase competitive advantage, companies are harnessing the ability to recognize and quickly act upon opportunities or problems in business processes. To do so effectively, they must deal with the following four interdependent challenges:

- 1) The explosion of data
- 2) The increasing speed at which data must be used
- 3) The increasing sophistication of models
- 4) The rapidly improving price/performance of the analytic infrastructure

Explosion of Data

The amount of available customer and process-related data is increasing exponentially as a result of the granularity we are now dealing with and the near ubiquitous sources of data emerging in the new digital world. **Evalubase** founder and Chief Research Officer, Doug Laney, recently observed, "Analytics has gone through four distinct phases during the last 30 years. In the 1980s, the focus was on summary financial and product data at the corporate level. In the 1990s we moved to capturing and using basic information about customers and processes, such as customer contact history and process output. The turn of the century saw the evolution to analyzing information at the discernable business event level, such as sales and production data. In 2005 and beyond we will be increasingly focused on capturing and analyzing information about the underlying components of these events, such as multi-channel customer interactions (e.g., Web, e-mail, phone, face-to-face) and the individual steps of the development, production, and service processes."

On the one hand, the amount of personal data now available is cause for real concern. On the other hand however, if used appropriately, isn't it actually a benefit? We don't want the information used maliciously, but often a supplier can offer a service that will save money or provide great value. Think about how much information we already provide, with little hesitation — to airline frequent-flyer programs, retail loyalty programs, personal user accounts on Web sites, and credit card providers — if we trust them and they provide value in return.

Ultimately, the ability to use data to understand our needs is a benefit, if used appropriately and with our permission. This trend will only increase over time.

Speed at Which Data Must Used

Not long ago, processes were improved by gathering and analyzing data to improve future process cycles. Now, companies are increasingly expected to use data to improve the current cycle. Today, fraud is detected and addressed as it happens, contact center reps are guided in how to best service or cross-sell customers while they are on the phone, and the layout of stores is optimized during promotions, not simply in preparation for the next one.

Speed is also critical from the IT perspective. **Bear Creek Corporation's** Decision Support Manager, Mark Madsen, indicates "to be successful providing analytical information, a tremendous amount of activity needs to happen behind the scenes within very tight timeframes. Business-critical operational systems need to be up and running when workers come to the office in the morning — period. However, analytical systems often require batch loading of data from these systems. We are constantly under pressure to reduce the amount of time required to load an ever-increasing amount of data. The company is now running itself on insight from these systems. If data is not loaded and processed in time, management is running on information that is out-of-date or inaccurate."

Sophistication of Models

A third issue is the increasing sophistication of the statistical models now available to draw in-depth insight from this flood of data. Rich data mining algorithms are being developed that scan, rescan, and combine data in order to draw insights and take action.

Winter Corporation President Richard Winter has observed: "we are advancing from simply wanting to

know basic information about our customers, to understanding and affecting their behavior. The goal for many companies is to recognize a pattern of activity associated with high customer lifetime value, and then work to create such a pattern."

It is important to keep humans involved in guiding this marketing process, but analytics can be an extremely valuable tool in helping companies understand, recognize, and replicate long term customer value.

Winter further stated "a major recent innovation is the ability to view customer behavior over time, versus only at specific points in time. Think of the difference between merely having point-of-sale data at check out, as was the case, to having in-depth insight into the entire evaluation and purchase experience, as is now possible with the tracking of customer activity over the Web, phone, e-mail, and face-to-face interactions."

If this information can be mined and used in a timely manner, it provides invaluable insight into the needs and behavior of prospects and customers.

Improving Price/Performance

The fourth issue can be a valuable asset, if it is effectively leveraged. The price/performance of the computing, storage, and networking required to address increasing data volume, time constraints, and model sophistication is rapidly improving.

As predicted by the venerable Moore's Law, the price/performance of servers, storage, and networking continues to improve in general. In addition, purpose-built analytics appliances (e.g., Datallegro, Netezza) are coming to market that provide even greater levels of price/performance for appropriate analytical applications.

"The price/performance of the computing and storage infrastructure for supporting large scale analytic applications has improved by about 30% annually over the last 2 years. Advances in architecture and increasing competition are likely to accelerate this trend over the next few years," according to Richard Winter.

Some Examples

Mark Madsen recently described vastly improved merchandising and inventory planning capability. **Harry and David**, the holiday gift basket catalog retailer that is part of Bear Creek, has been using analytics for years to identify and score target

prospects. The company is now focused on using analytics to maximize the return from their highly perishable inventory of fruits and confections. Management recognizes that using summary information to determine how much inventory to “ripen” and prepare for shipment won’t support the company as the market gets more competitive. Product shortages can result in lost revenue, and excess inventory can require margin-sapping price promotions. When analytic applications are deployed using internally built predictive models to provide detailed demand forecasts on a daily basis, the company will be more precise in matching demand spikes with the production of perishables, increasing both revenue and margin.

These applications can be especially helpful in determining whether day-to-day changes in demand are signs of a lasting trend (that should impact production) or an anomaly (that should not). *This information is used to make decisions that gain potentially millions of dollars over the course of a fiscal year, depending on the size of the company.*

Western Digital CIO Bob Houghton is faced with the challenge of meeting the information needs of a rapidly growing disk drive market. Western Digital is experiencing quarter-to-quarter growth of more than 30 percent in the volume of disk drives shipped, reaching 16 million units in the most recent quarter. Sophisticated analytics play a key role in enabling this growth by allowing Engineering to predict what they could do to improve a product and Marketing to determine how many they could sell, prior to investing the time and resources to actually build it. *Scarce engineering and production time can therefore be focused on the most profitable potential products, optimizing return.*

After the product ships, advanced analytics are then used to identify any problems that arise. The analytics determine the best way to address the problem in both the short-term (to get quality products to customers) and long-term (to make sure it doesn’t happen again). This increased use of analytics has a significant impact on how vast quantities of data are managed.

Houghton commented, “Our team needs to have operational data available online. However, it is also very valuable to have large amounts of non-critical data available ‘near-line’ for analysis and continuous improvement.” He also believes strongly that IT must be a proactive partner with the business, anticipating the needs for data and analysis capability versus waiting for specific requirements to arise.

Additional Challenges

While the price/performance improvements of the infrastructure will enable increases in revenue and reductions in costs, information and technology alone are not adequate. To be successful, companies must also evolve their people and processes to act upon the insights generated. Knowing which customers are potentially the most profitable or which areas of manufacturing could be improved is of no use if you haven’t established the proper roles/responsibilities, skills, motivation, and processes to act upon this knowledge in a timely manner.

Companies must also be able to understand and prioritize what is truly useful. As Doug Laney states, “the value of information is going up, yet the value of each individual piece of data is decreasing.” It is therefore critical to determine the most valuable uses for the growing mountain of data and increasingly sophisticated analysis in order to properly focus limited resources.

Conclusion

The role of data analysis is changing dramatically from passively understanding what is happening, to actively impacting it. Significantly improved computing price/performance will reduce the cost of analytic applications making them more feasible. However, the real gains will be made by those who utilize this increased analytic power to better understand the intricacies of their key business processes and then quickly move to use that understanding to their advantage.

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