

ANALYTICS

THE MULTI-TASKING MAGICIAN

Companies today are using analytics to plan shipping routes, personnel hires and pricing. It seems there is nothing analytics can't do.

Don't tell Jay Bowden that moving cargo off ships seems like a straightforward job. As vice president of financial planning and analysis at Marine Terminals Corp., Bowden knows the boggling array of inter-linked factors that can dramatically affect freight-handling costs at ports. What impact will changing ship schedules have on production? What mix of workers and equipment will be needed based on expected cargo volumes? How will changes in the complicated labor contracts affect future costs?

In the past, the answers to these questions were often locked in separate databases that didn't talk to one another or lost in Excel spreadsheets on someone's desk. "The cumbersome legacy systems wouldn't allow us to analyze our operations or run what-if scenarios to help us decide what resources we were going to need," Bow-



den says. "We knew what had happened in the past, but it was difficult to predict what would happen."

That's changed, thanks to an analytics system that gives executives a clear view into key metrics. As a re-

sult, Marine Terminal has significantly boosted productivity and improved the per-unit handling cost of containers, cars, refrigerated products and other goods.

Such results are not unusual: A study



by market research and consulting firm International Data Corp. (IDC) showed that the average return on business analytics projects was almost four-and-a-half times the initial investment. And given those results, it's not surprising that the term analytics has moved quickly from IT circles to executive suites or that analytics software is now driving the \$15 billion business intelligence (BI) market, according to IDC.

Though stories abound of how companies have used sophisticated analytics software to discover insights about operations, financial performance, marketing campaigns and product success, experts say users remain confused about analytics.

"There is a lack of understanding about analytics," says Wayne Eckerson, director of research and services at The Data Warehousing Institute. "Many people don't have a conception about this technology or how it can be applied to their business."

Two Types: Many Uses

The field of analytics can be divided numerous ways. Some people differentiate between analytics that are designed to analyze the behavior of human beings and physical systems, like manufacturing lines. Others carve up the analytics space by function—financial systems, supply chains, customer relationship management and the like.

Dan Vesset, research director for analytics and data warehousing at IDC, divides analytics into two classes:

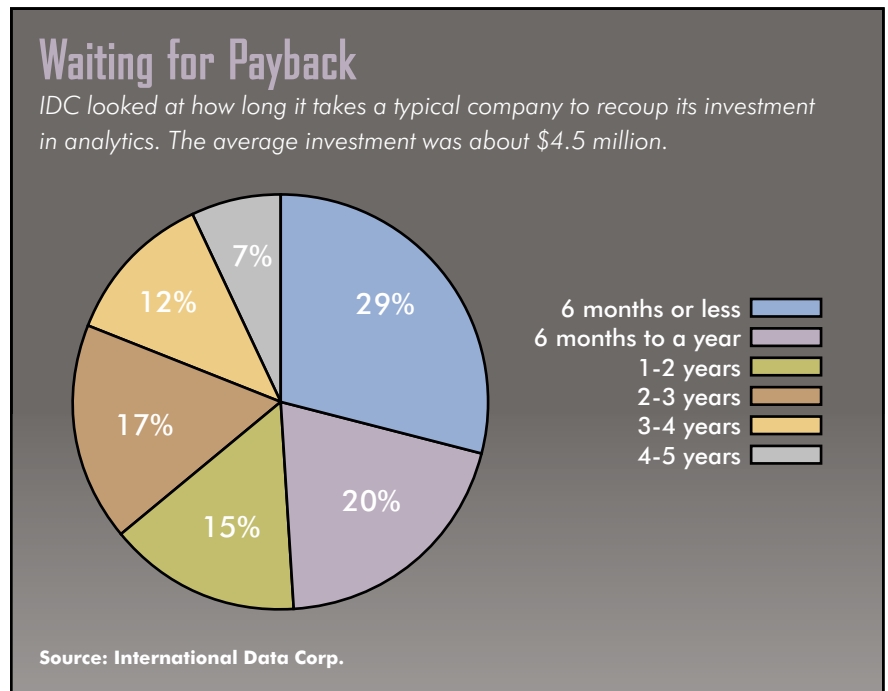
Core analytics. These tools and applications put better metrics in front of a user. They are used to define or analyze a current or past state. They include query, reporting and analysis, packaged data marts and analytic applications using these functions or technologies.

Predictive analytics. More mathematically complex than core analytics, predictive analytics are used to determine the probable future outcome of an event. Statisticians would break this category down into things like data

mining, clustering, decision trees, market basket analysis, regression modeling, neural nets, genetic algorithms, text mining, hypothesis testing and decision analytics.

Roman Bukary, vice president of composite and analytic solutions marketing for SAP, notes that analytics need to become "part and parcel of almost every business application." Take, for example, a business trip, the most basic and common business transaction. If Bukary were to book a business trip

identifying the business pain point and deciding what information users need to make an informed decision. "A lot of people have the stereotyped view that analytics involves backroom coders in white coats using regression models and decision trees," says Farhana Alarakhya, director of global market development in the performance analytics business unit at Cognos. "But you don't need to apply a neural net for the vice president of sales to see whether the company is on track in meeting ob-



using a composite application, analytic capabilities of that application would notify him as to how much of his travel budget he's consumed, when it will be used up at the current rate, potentially propose alternative travel options and, if necessary, kick off a new process to obtain additional budget approval. "Because of this, I can start to think if I really need to make the trip or if I should be teleconferencing," he says. "In that case, analytics is integrated into the business process of what I was doing without my being aware of it, making me and the overall business process smarter, more efficient and, ultimately, more intelligent."

Experts say analytics should start by

jectives—simply getting visibility into the data might be enough."

Why the Confusion?

Given the impressive ROI numbers as well as the increasing use of analytics, why does it remain confusing to some? Experts say it's partly because companies often don't realize that analytics can improve such a broad range of tasks, from business processes and new product introductions to optimized marketing campaigns and supplier negotiations. Also, the more advanced forms of analytics grew out of data mining, which was never well-defined.

Analytics isn't simply about building the best statistical model to analyze a

business problem; analytics are really about aligning strategy and execution. Often, a company must begin by analyzing the problem and its objectives in a greater level of detail.

SAP's Bukary gives this example: A company may decide it wants to cut costs by reducing the average call time from 2.4 minutes to two minutes. This can be accomplished in many ways, such as implementing telephone trees and shorter agent scripts. But the company may discover that customers are leaving because they felt neglected. "The first question people need to ask is 'What's our strategy?'" he says. "If your primary company focus is customer satisfaction, you don't want to implement metrics that run counter to that."

No Bottlenecks

In the past, employees wishing to apply business analytics needed specialists to create the statistical models to make these calculations, which often led to bottlenecks and delays. BI vendors, however, are now making their tools more user-friendly. Furthermore, the embedding of analytics into other applications has enabled the technology to respond in real time. As a result, these composite applications incorporate both transaction processing and analytics.

"People are used to seeing a two-dimensional report," says Rick Miller, practice director for business performance management at Deltek. "Analytics requires getting end users to change their perspective, and employees need to be educated on how to use it."

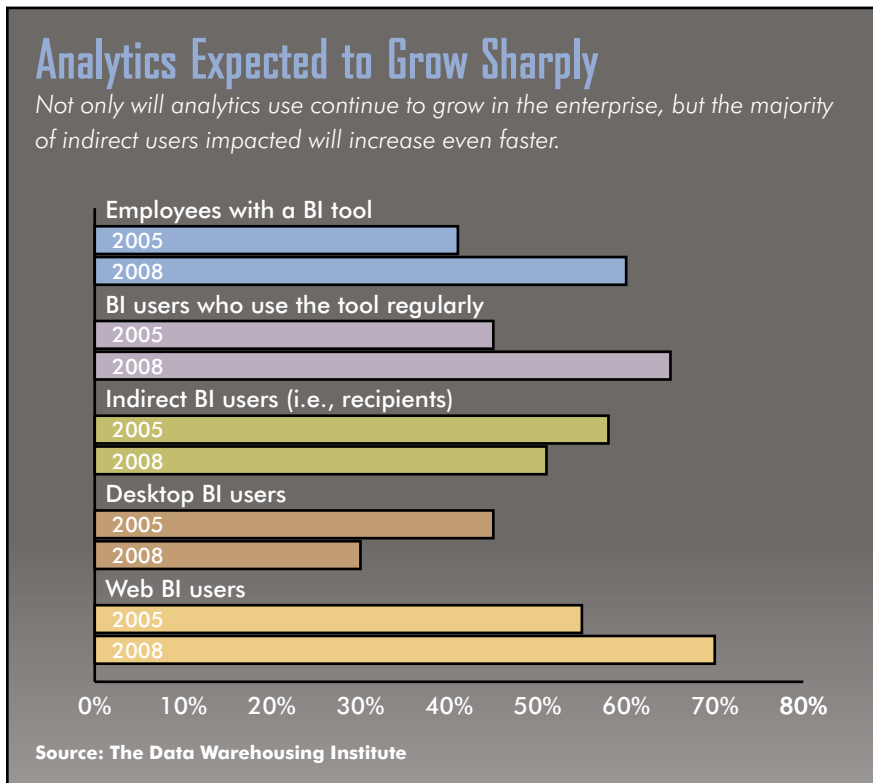
Fortunately, wizards, dashboards, portals and highly intuitive visualization techniques also have simplified this interaction, so analytics are now appropriate for non-technical and sometimes even casual users.

"Business is a team sport, and the challenge is to give analytics in a simple and collaborative way to the people who make decisions, as opposed to keeping it under the control of a couple of guys in the back office," says Patrick Morrissey, a vice president of marketing at Business Objects SA. "In-

formation is more useful when it's in the hands of people who are making decisions and interfacing with customers."

Like any business intelligence project, human factors are always greater stumbling blocks than technological ones. Traditionally, BI is about putting better metrics in front of decision-makers. Analytics takes that a step further by automating the decision-making process. "For people who have

financial institution might not get much benefit if someone applies for a mortgage and a customer value score appears on their computer screen," says Cognos' Alarakhya. "The analytics application needs to give the rep visibility into that information by saying, 'This customer has had an account for 20 years, their assets with us total over \$100,000 and they should receive a loyal customer rate.'"



never done this before, the biggest hurdle in predictive analytics is trusting the predictive software," says Eric Rogge, vice president and research director at Ventana Research.

"Users don't want to be mathematicians, but they need to know they can trust the data," Morrissey notes. "They need to be able to use their dashboard or reporting system to see such things as when was the last time the data was run and who owns it."

For employees to incorporate analytics into their hectic day-to-day activities, the information must be rendered in a way they can understand and use easily. "A customer rep at a

Key factors for successful analytics are how easy it is to link with data sources and the ease of decision implementation—for example, easily migrating high-value prospects to campaign management once the analytics have identified them. "There is a misconception that you just push a button and this happens," Deltek's Miller says. "A lot of time and thought need to be devoted to what data is needed."

"Besides having a robust statistical model as the basis for predictive results, there are other business variables that need to be taken into account," IDC's Vesset says. "Sometimes a decision has to be taken that contra-



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dicts the data. For example, there may be some customer service variable that overrides the decision a predictive model might have suggested."

Like Skipping a Sailboat

Many people think that advanced analytics are a way to choose the best alternative outcome from a number of choices. In reality, what the technology does is predict a range of possible outcomes. "At the end of the day, predictive analytics can make the decision easier, but it's not a crystal ball," Ventana's Rogge says. "It can narrow the field from an infinite number of outcomes to a smaller subset."

The Data Warehousing Institute's Eckerson points out that even the best analytics models have only a 50 to 60 percent degree of accuracy. "Creating a model is like skipping a sailboat. You have to continually adjust the model to keep it accurate," he says. "The wind is never constant, and sometimes you have to make dramatic shifts."

Advances in technology have sped the process of creating and applying the models used for analytics. Take the time-consuming task of model management. In the past, the majority of the time statisticians spent on analytics projects was putting data in the right format so it could be analyzed. Because newer technology has automated this process, much of the data mining can now be done inside the data warehouse itself.

"Before, statisticians used the warehouse to collect the data, downloaded the data into a high-powered workstation and then uploaded the resulting scores into the data warehouse," Eckerson says. Now, however, companies can use the high-powered data warehouse engines to do the data

Analytics Resources

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The Data Warehousing Institute
<http://www.tdwi.org>

preparation and scoring, which greatly speeds the process.

Getting the statisticians accustomed to these changes can be difficult, Eckerson notes. He says the statisticians who have done the advance forms of analytics "have been a different breed who need to be brought into the mainstream. They need to understand they need to leverage the existing data infrastructure and not reinvent it."

That's the thing about analytics: It requires a lot of people throughout a company to look at old things in a new way. But once they do, the payoffs can be enormous. ■

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