The Rise of Analytical Performance Management

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Introduction

We’re seeing a severe downturn in economic fortune for many companies. Banks, automobile companies, airlines and other firms across multiple industries are announcing record losses. CEOs have no shortage of excuses – from oil prices to a credit panic to lack of consumer demand. But couldn’t these factors have been anticipated, at least to some degree? Couldn’t the factors that truly drive a company’s business success be measured, closely monitored and predicted in such a way that massive downturns could be avoided or at least moderated?

Imagine the benefits if your organization could accurately predict its financial performance into the future. What if you had solid evidence that some factors affected your business much more than others? What if your organization was certain that the performance factors and variables it monitored were actually the right ones – the ones that make a difference to the organization’s financial success? And what if you had real data and analysis showing that your company’s strategy is actually working (or not working)? These benefits are offered by analytical performance management, a quantitative approach to understanding and predicting performance that is a real possibility today for many firms. Although not yet widely adopted, the analytical approach to performance management offers so many benefits that it seems inevitable, and the organizations that have adopted it thus far have achieved consistently positive results.

Performance management is the use of metrics and indicators, both financial and nonfinancial, to measure, monitor and improve organizational performance. Performance management is hardly a new phenomenon in business, although it has been propelled in recent years by business intelligence systems that contain and display performance metrics that have been extracted from transactional information systems. Performance management (sometimes called “enterprise performance management” or “corporate performance management”) is a thriving industry, with an academic discipline to support it (management accounting), a class of information systems designed to assemble and display it, and many followers of developments in the field.

Analytical performance management is the systematic exploration of quantitative relationships among performance management factors. The approach allows firms to know – not just to speculate – which nonfinancial performance variables are associated with financial performance. While not very difficult, only a few firms have yet applied analytical approaches to performance management, which means an opportunity for competitive advantage for those firms that adopt the approach.

In this research report, the concept of analytical performance management is described both in theory and in practice. The research is drawn from interviews at 16 companies that have adopted analytical performance management to some degree, as well as a global online survey (with a nonrandom sample) of almost 2,500 managers. The company interviews provide insight into leading practices in analytical performance management, and the survey provides an overall perspective on attitudes toward the concept and barriers to achieving it.
A Brief Overview of Performance Management Practice

Performance management and business intelligence tools can lead to a broad set of possible activities. The most typical activity arising out of these systems is reporting of standard information at standard frequencies. A typical performance management system might, for example, report sales results by geography each quarter. More sophisticated approaches to reporting might involve the ability by managers to specify and receive custom reports, or even to “drill down” into high-level data to understand trends, patterns or anomalies. Perhaps the most sophisticated approach to standard reporting is to present alerts that reported information is outside of previously defined parameters. Even with alerts, however, the focus is backward-looking at performance that has already happened.

According to the global online survey of managers (Figure 1), most organizations practice performance management to some degree. Only 7 percent said they did not employ performance management approaches. However, the survey also suggests that integration of performance management approaches across a diverse firm can be difficult. While 37 percent of respondents said they had integrated performance management across the entire organization, an even larger number, 56 percent, said their organizations practiced performance management, but only in some parts of their organizations or not in an integrated fashion. Firms may find it difficult, for example, to achieve agreement on which factors to measure and how to measure them.

FIGURE 1

Question: What is the current status of performance management in your organization?

In corporate performance management, the greatest advances in recent years involve reporting on nonfinancial performance metrics as well as the more traditional financial indicators. Nonfinancial metrics, which address such domains as customer satisfaction and loyalty, employee engagement and satisfaction, the performance of key business processes, and such intangible attributes as brand equity and the capability to innovate, have proliferated in recent years as a means of understanding and predicting financial performance. Because reporting on past financial performance is at best a form of “damage control,” companies are striving to develop measures that assess the performance of strategic initiatives and potentially provide early warning of future financial problems, or early indication of success. As yet, however, organizations are still
in the early days with respect to the use of nonfinancial metrics. No external authorities require that nonfinancial metrics be reported, although researchers have long argued their importance, and some standards bodies have debated whether their reporting should be made mandatory.

A major step in the relationship between nonfinancial and financial metrics, however, came with the development and relatively broad adoption of the “balanced scorecard.” This idea, developed by managers at semiconductor firm Analog Devices and formalized and elaborated upon by academic Robert Kaplan and consultant David Norton, is simple in concept but has been more difficult to implement. The idea of a balanced scorecard suggests that nonfinancial and financial metrics be given equal weight, and that they be displayed side-by-side or even on the same page. This “balanced” presentation ostensibly allows managers to easily see trends in both nonfinancial and financial performance, and to begin to observe (at least in rough form) some drivers of financial performance.

Balanced scorecards, however, are not sufficient to understand performance analytically. As Kaplan and Norton have argued, simple presentation of multi-dimensional data on a scorecard display is not sufficient to understand relationships among nonfinancial and financial variables. To begin to address this problem, Kaplan and Norton proposed that organizations employ a “strategy map,” which demonstrates cause-and-effect relationships in a logical fashion. The strategy map is both a visual representation of an organization’s strategy and a representation of how items in a balanced scorecard are linked to each other. It is thus desirable as a means to link strategy to performance management, as well as a hypothesis for what factors are driving financial performance.

In the global online survey of managers (Figure 2), one question addressed to what degree organizations are currently employing these approaches to performance management. Among business executives (other than nonprofit managers and management consultants, who were excluded from all analyses reported in this paper) who answered the question, the responses are below:

**FIGURE 2**

**Question:** *Which of the following does your organization use in managing performance?*

- Established metrics for financial and nonfinancial performance indicators but no scorecard (27%)
- Financial metrics only (12%)
- Multiple scorecards or dashboards across the organization (34%)
- Single organizational scorecard or dashboard in place (13%)
- Strategy map outlining relationships among performance metrics (14%)
These results suggest that despite many years of advocacy by Kaplan and Norton, strategy maps, and even single organizational scorecards, are still somewhat rare. However, strategy maps are not the ultimate tool for understanding the relationships between nonfinancial and financial performance factors, and they were not intended to be. Kaplan and Norton argue in a review of organizations’ “management systems” that the final stage of the system should be to “test and adapt strategy.” They argue that “Companies, especially those with large numbers of similar operating units, can use statistical analysis to estimate correlations among strategy performance numbers. Such analysis will usually validate and quantify links between investments in, for example, employee skills or IT support systems, and customer loyalty and financial performance.”

This type of analysis is what I refer to as analytical performance management.

Despite this encouragement and a variety of potential benefits, the actual use of analytical performance management approaches is inexplicably somewhat rare. Relatively few companies have employed statistical analysis to correlate nonfinancial and financial performance variables. In the survey data (Figure 3), just over a third (36 percent) of managers said that they analyzed the quantitative relationships among financial and nonfinancial indicators of performance, and our interviews with companies suggest that this is a liberal interpretation by survey respondents. The same percentage said they don’t analyze relationships among indicators at all, and a slightly smaller percentage (28 percent) said they analyze logical relationships among indicators, as in a strategy map.

**FIGURE 3**

*Question: How does your organization assess the relationships among financial and nonfinancial performance indicators?*

- We analyze the quantitative relationships among the indicators (36%)
- We don’t assess the relationships among the indicators (36%)
- We infer the logical relationships among the indicators (28%)

**The Holy Grail of Analytical Performance Management**

The idea behind analytical performance management is that companies would create statistical models of cause-and-effect performance relationships. That is, they would create correlation or regression models that link a variety of nonfinancial variables to one or more financial variables. In an ideal world, they would consider or control for all possible variables that might have a substantial effect on financial performance, including customer relationships, employee attitudes and behaviors, the level of innovation, the value of brand equity, and other domains. There would be one overall equation that described the relative contributions
of each performance driver at an aggregated enterprise level and allowed statements such as, “With other performance drivers held constant, a one-point rise in customer satisfaction yields a $200 million increase in profit.”

Imagine the benefits of such a model. Because company executives would know which nonfinancial factors actually drove performance, those factors would be the ones measured and present on scorecards and reports. No longer would organizations gather and report metrics simply because they are familiar, or because a standard balanced scorecard format suggests them. Business strategies, at least those explicitly addressed through strategy maps and measureable variables, would be testable. Firms would also be able to compare key units on their achievements on key metrics. The ability to focus on the measures that really matter to performance would make managerial life considerably easier.

Given an explanatory quantitative model of performance, firms would also be able to predict the impact of increases or decreases in nonfinancial variables on financial performance. Eventually, external organizations, such as Wall Street analysts, would be able to make similar predictions (though this could be either positive or negative for company valuations). Finally, as Kaplan and Norton note, companies could determine whether their key strategies are actually producing the desired results.

Regardless of these manifold benefits, most efforts to manage performance analytically in the real world have fallen considerably short of the “holy grail.” However, enough firms have undertaken analytical performance management to show that it is indeed possible. In the next section I describe the actual state of the art.

Current Practices in Analytical Performance Management

Over the last decade or so, firms have begun to explore the quantitative relationships between nonfinancial and financial performance variables. We interviewed 16 firms that had undertaken some form of analytical performance management, so we can point out emerging best practices.

Two-Variable Analysis

In the early forms of this analysis, the relationships analyzed involved only two variables, relating one nonfinancial performance factor to a single measure of financial performance. Examples of this sort of analysis include the following:

- Hilton Hotels concluded using five years of data at 42 hotels that a 5 percent improvement in customer retention (customers who say they are “likely to return to Hilton”) would result in a 1.1 percent increase in annual revenues the following year at a typical property (and Marriott has found similar relationships in its own data).8

- Harrah’s Entertainment found that for each 1 percent it grew its share of customer gaming budgets, its share price increased by $1.10.

- Best Buy discovered that for every tenth-of-a-point (on a five-point scale) increase in employee engagement at a particular store, it increased operating income at the store by $100,000.9
Victoria’s Secret found that raising its average conversion rate (the percentage of customers who enter the store and actually buy something) by 1 percent brought more than $35 million in sales and more than $15 million in operating profit.

Since these are only two-variable relationships and other possible causal factors are neither included in the model nor controlled for, it is possible that these are spurious relationships. However, the power of such statements is obvious. Companies can concentrate on increasing the independent variable with some confidence that financial performance will improve.

**Two-Variable Analysis with Controls**

The most sophisticated companies in analytical performance management have begun to employ multiple variables to explain and predict financial performance. While the models may include several types of variables as controls, most of these firms are still attempting to explore a particular two-variable hypothesis. For example, Toronto Dominion Bank has examined the relationship between customer service and the financial performance of its retail branches. Dennis Campbell, a professor at Harvard Business School, has documented the bank’s efforts in a series of case studies. While the bank’s analyses control for other variables (such as the average income of the customers in the geography served by the branch), the primary focus is on the service-profitability relationship. The bank found that the analysis provided management insights that were useful to inform potential actions. For example, the analysis revealed that customer service differentials among branches explained 19 percent of the variation in branch profitability. As a result, the bank began to reward branch personnel for meeting service targets. However, the bank also found that the service improvements only affected profitability in the middle of the distribution; hence branches that were particularly low or high in service levels were not eligible for service-incentive payments. Today, however, Toronto Dominion still measures service levels extensively, but no longer statistically relates them to branch profitability.

Another example of a primarily two-variable relationship with controls was explored at Store 24, a convenience store chain in New England. The company’s managers had adopted both a balanced scorecard and a strategy map, and had gathered metrics on each key variable in the scorecard. The executives had also adopted a strategy that clearly stated relationships between key performance variables. It was based on the belief that an entertaining service experience led customers to buy more in stores. Called the “Ban Boredom” strategy, it involved placing displays in stores on entertaining topics (e.g., popular movies), about which store clerks were supposed to engage customers in dialogue. The chain had gathered measures of how well each store had implemented the entertainment strategy, and how customers reacted to the store’s service. Measures of the skill of the store-level teams were also compiled. While the company’s managers themselves did not explore the relationships among customer service variables and store performance, a group of academic researchers did analyze the data.

The results of the analysis revealed that Store 24’s strategy was not working. The greater the likelihood that a store had implemented the entertainment strategy, the lower its profitability. The analysis controlled for key variables that might have influenced the outcome, e.g., the demographics and income levels of the stores’ neighborhoods. The analysis did reveal that when store employee skill levels were high, the strategy did work. However, the overall level of skills was sufficiently low to make the strategy unsuccessful. Store 24
executives abandoned the strategy after two years, but the researchers’ analysis found that the strategy could have been found to be ineffective after analyzing only one year’s worth of data.

Three-Variable Relationships
While Store 24’s and Toronto Dominion’s models were primarily on two-variable relationships with controls, some firms have focused on three-variable relationships. In particular, the “service-profit chain” hypothesis, adopted by several retail and service firms and explored in greatest quantitative depth by Sears in the 1990s, specifies that employee satisfaction and engagement drive customer satisfaction and loyalty, which in turn leads to improved financial performance. This hypothesis has been widely adopted as a management model but has not often been tested in statistical models.

Sears, however, did test what it called the “employee-customer-profit chain” model extensively between 1993 and 1997, a period that coincided with a dramatic financial turnaround at the retailer. The company’s efforts are among the most extensive in the brief history of analytical performance management. Developing the statistical relationships among nonfinancial and financial performance variables proved to be among the easier tasks at Sears. More difficult, according to the leaders of the project, were building management alignment around the model and the measures, and educating front-line service personnel about the model and its implications. While the analytical approach to performance management offered significant benefits to Sears, it is not in use at this time (though Eddie Lampert, the current primary owner of Sears Holdings, is reputed to be a believer in and heavy user of quantitative testing approaches).

Several other companies have experimented with analytical performance management, although there seem to be few approaches that are as broadly implemented as those described above. One large coffee retailer, for example, has just begun to explore what it calls “linkage” among employee, customer, and financial performance indicators. Infosys, the India-based professional services firm, makes extensive use of the balanced scorecard approach and uses an “analytic hierarchy” method to subjectively weight the importance of different performance metrics. Infosys also did a one-time statistical analysis using 16 quarters of data to understand the primary drivers of growth and profitability outcome metrics. The company’s strategy and planning analysts found the analysis useful in identifying important metrics, but it has not yet become an ongoing process.

The fact that the companies that produced the best examples of multivariate analytical performance management do not continuously practice it suggests that usage of the approach may be episodic – even when it leads to substantial performance gains. Sears adopted analytical performance management approaches because of its need for a service-led turnaround. It accomplished the turnaround, moving from desperate straits (losing $3 billion) in 1992 to being named the most innovative general merchandise retailer by Fortune in 1999. Store 24 was acquired by another convenience store chain, which may provide a reason for its lack of continued analysis. Toronto Dominion embarked upon its initiative after a merger (with Canada Trust) brought a different set of perspectives among the newly-merged organizations about the financial value of customer service. It achieved many of its goals in both customer service (metrics up every year since the 2000 merger) and financial performance (TD Canada Trust has achieved 20 quarters of double-digit earnings growth year over year). For each of these organizations, however, new business contexts and new managers led to different priorities. While they maintain a strong interest in metrics and performance, they do not currently feel the need for statistical analysis of the drivers of financial performance.
**Key Variables Used**

Customer relationship-oriented variables tend to be the most commonly employed by firms exploring analytical performance management and were the highest-rated among a variety of nonfinancial measures in terms of importance in driving financial performance in the survey (Figure 4). Customer attitudes and behaviors may include customer satisfaction (highest-rated in the survey by respondents, and most commonly used, as shown in Figure 5), customer loyalty (as expressed by “share of wallet” analysis, lifetime customer value or other metrics) or the “net promoter” metric\(^{14}\) that has gained recent popularity. One firm had attempted to correlate net promoter score with financial performance at the business-unit level, but had found that initial correlations broke down under detailed study. Such customer-oriented variables are most commonly assessed either through loyalty programs or customer intercepts and surveys.

**FIGURE 4**

**Question:** On a scale from 1 to 5, please rate how important you believe each of the following key indicators is in driving financial performance and indicate which ones, if any, your organization measures.

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Customer satisfaction</td>
<td>4.55</td>
</tr>
<tr>
<td>Customer loyalty</td>
<td>4.42</td>
</tr>
<tr>
<td>Employee satisfaction/engagement</td>
<td>4.13</td>
</tr>
<tr>
<td>Product/service innovation capability</td>
<td>4.02</td>
</tr>
<tr>
<td>Brand reputation</td>
<td>4.29</td>
</tr>
<tr>
<td>Sustainability</td>
<td>4.06</td>
</tr>
</tbody>
</table>

**FIGURE 5**

**Question:** Please indicate if these items below are measured in your organization.

- Customer satisfaction: 81%
- Employee satisfaction/engagement: 71%
- Brand reputation: 62%
- Customer loyalty: 59%
- Sustainability: 48%
- Product/service innovation capability: 46%

The other common set of nonfinancial variables involve some form of employee attitudes, including employee satisfaction and engagement, and (less frequently) human capital management.\(^{15}\) Employee attitudes are typically assessed through periodic surveys. Both types of data are frequently sourced from external firms, such as Gallup for employee engagement and the Service Management Institute for customer intercepts. Human capital management involves not only employee attitudes, but a complex set of variables that may include learning-oriented variables and even knowledge management. American Standard, for example, has done considerable work relating various measures of human capital to growth in profits at sales offices and to lower accident rates at manufacturing plants.\(^{16}\)
Other nonfinancial variables are less commonly correlated to financial performance. One firm we interviewed had experimented with a measure of innovation (as expressed by the percentage of revenues from new products and services that exceed a certain threshold level) as a predictor of overall revenues and profits. A technical services organization found the average time it takes to close a case to be a strong predictor of gross margins. An oil refiner found refinery uptime closely correlated to profits. A professional services firm found that macroeconomic and client financial indicators were strong predictors of its own financial performance.

Academic researchers have addressed a variety of other nonfinancial predictors of financial performance, though we know of no companies that have employed these variables in a systematic approach to analytical performance management. They include marketing and marketing productivity, brand equity, information technology capabilities and innovation.

Perhaps obviously, the choice of variables and relationships to explore should be driven by an organization’s strategy. Just as the Store 24 example above illustrates, analytical performance management models should be viewed as tests of key business relationships that strategies have posited or hypothesized. After strategic relationships have been tested, organizations should move on to test the importance of variables that aren’t deemed to be strategic, but might have some relevance to performance anyway.

**Unit of Analysis**

The goal of analytical performance management is to yield analyses and results that are interpretable and can be acted upon. The idea of a single aggregated corporate model incorporating all relevant nonfinancial drivers of performance is an appealing prospect in analytical performance management. However, it is difficult to apply in large, complex organizations. Interviews among early adopters of analytical performance management suggested several problems with corporate-level analysis. First of all, there would probably be too many factors to easily interpret. Secondly, relationships between variables would probably become weaker at higher levels of aggregation. Any relationships that exist, for example, between employee satisfaction and financial performance would be weakened, if not washed out altogether, by the inclusion of employees who do not work directly with customers and whose engagement (or lack thereof) might not affect financial results.

Understanding and acting on analytical performance models is easiest when there are clear, relatively local units of financial performance to which nonfinancial measures of performance can be tied. In a retail chain, the relevant unit would be the store or perhaps a regional grouping of stores (as at Sears and Store 24). In banking, branches form a natural local unit of analysis (as at Toronto Dominion). In a manufacturing company, the relevant units might be sales offices (as at American Standard).

If the company doesn’t have such natural units, it probably only makes sense to do analytical performance management for business units with similar employee, customer and product types. Otherwise too many different factors will be mixed in for the results to be interpretable. At Cisco Systems, for example, managers dealing with customer service metrics realized that it did not make sense to combine corporate customer metrics from its enterprise telecommunications equipment business with those for its Linksys consumer division.
Surprisingly, however, in the survey the local facility was the least common unit of analysis supplied by respondents when they were asked at what level they analyzed relationships among financial and nonfinancial indicators (Figure 6). Only 7 percent analyzed relationships at that level, whereas 28 percent attempted to analyze them at the corporate level, and 63 percent at the business unit, department or division level. Many of these organizations, however, may be analyzing relationships logically rather than statistically, so the problems cited above may not come into play.

**FIGURE 6**

**Question:** At what level do you analyze the relationships among financial and nonfinancial performance indicators?

![Pie chart showing the distribution of units at which relationships are analyzed](image)

- **Business unit /department/division level (63%)**
- **Corporate/organization level (28%)**
- **Local facility, e.g., store or branch level (7%)**
- **Other (2%)**

**Types of Data**

There are two different types of data that can support analytical performance management. The ideal type is time series data. This would involve capturing data on all relevant performance measures over a substantial period of time – perhaps several years of quarter-by-quarter measurements. Time series data would allow organizations to determine whether there are lag effects for particular variables in their influence on financial performance. Sears, for example, benefitted greatly from the analysis of lag effects:

> We were able to demonstrate that the lag indicators (“a compelling place to invest”) are driven by the lead indicators (“a compelling place to shop and work”). We were able to explore how these factors were related to each other within specific time periods and across different time periods. Two-quarter lag analysis showed that it takes a while for the customer to see that we are doing something different before we are able to achieve measurable financial results.\(^{21}\)

The alternative to time series data is to employ cross-sectional data. As the previous section describes, this would involve data on performance across a range of units – stores or branches, for example. This would allow statistical models to identify the variables that explain variation across performance in the local units. As noted above, most organizations that have adopted analytical performance management have used cross-sectional data. This requires that the local units measure financial and nonfinancial performance variables in the same way.
Technology Employed
Most of the early adopters of analytical performance management have done the analysis in a somewhat ad hoc fashion. That is, they did not yet have an institutionalized, recurring approach for analyzing the data from performance reports or scorecards. Therefore, it was not particularly important that analytical capabilities were combined with typical reporting or scorecard display capabilities in their analytical performance management systems.

However, for organizations that wish to practice analytical performance management approaches on an ongoing basis, it would be important to employ technologies that allow both reporting and statistical analysis in an integrated fashion. It would also be useful to have these capabilities integrated with other approaches to performance management, such as activity-based costing (see sidebar on that topic at the end of this paper). This would be in addition to the usual prerequisites for business intelligence, which include clean, integrated data that is accessible in some sort of data warehouse or data mart.

A Stage Model of Analytical Performance Management
Based on the activities of companies, a clear progression of activity emerges with regard to analytical performance management. Figure 7 depicts a five-stage model of activity related to analytical performance. It ranges from highly prosaic performance management situations (inability to file required financial performance reports) to the most sophisticated ones (incorporation of analytical performance management into decisions and actions).

Figure 8 includes a list of key activities to move from one stage to another. To master Stage 1, a company needs only to master having accurate and timely financial reports. Not all companies are able to do this; witness the number of restatements and late filings (for example, a General Accounting Office study found 919 restatements among US firms between 1997 and 2002).22 Most public firms, however, can master Stage 1.
FIGURE 8
Requirements to move from stage to stage

| Stage 1 to Stage 2 | • Identify and agree upon nonfinancial measures.  
|                    | • Collect and report financial and nonfinancial measures in scorecard format at regular intervals. |
| Stage 2 to Stage 3 | • Discuss and identify mission, vision and customer value proposition.  
|                    | • Debate and agree upon the performance drivers of the business. |
| Stage 3 to Stage 4 | • Collect consistent scorecard data over an extended period (at least a year).  
|                    | • Turn strategy map into a quantitative hypothesis and test it with data. |
| Stage 4 to Stage 5 | • Embed the results of analytical performance management into performance assessment and compensation decisions.  
|                    | • Educate employees and managers about the factors that truly matter to performance, and the relationships with financial performance. |

Stage 2 requires the development of nonfinancial measures, and their integration with financial measures on a common scorecard. While many companies have developed “balanced scorecards,” doing so requires an organization to agree on a set of nonfinancial performance measures, to decide which measures are most important to report and manage, and then to gather the metrics on a regular basis. Once a company has reported measures on a scorecard for an extended period (the Store 24 example suggests that some results can be achieved with one year of data), it has the data in place for a more analytical and quantitative approach. Many companies are in this position, so they have the building blocks in place for analyzing the data.

Stage 3 requires the organization to hypothesize the logical relationships among scorecard elements in a “strategy map.” Strategy maps are the articulation of the organization’s business strategy in the form of its mission, vision, customer value proposition and key nonfinancial performance factors. Since the relationships are only hypothesized, this stage is not extremely difficult, but it does require senior management teams to discuss and debate their strategy and the drivers of their business. The survey data in Figure 2 suggest that 14 percent of respondents have achieved this level of analysis.
Stage 4 builds on the performance measures, accumulated data, and hypothesized relationships from the earlier stages to create a statistical model of the linkages between key nonfinancial and financial performance variables. This is treated as one stage, but it will undoubtedly require experimentation and iteration over time. The ultimate objective is an analytical performance management model that is statistically robust, that clearly identifies the key factors that drive financial performance and the relative weights of those factors, and that can be interpreted and acted upon by management. Although the survey suggests that 36 percent of organizations that analyze relationships between performance measures do so in a quantitative fashion, our interviews and experience would suggest that the number of firms at this level is much smaller. Several of the firms mentioned above, including Store 24, Hilton and Marriott, Best Buy, Infosys and Harrah’s, could all be considered to have reached Stage 4 for some period of time.

An analytical model is of little value unless acted upon. Firms at Stage 5 educate managers and employees about the relationships in the model and apply the model’s results and implications to decisions and actions. In short, they use analytical performance management to actually improve performance. If, for example, the model suggests that employee engagement drives performance, managers will take steps to ensure that engagement stays at a high level throughout the organization. If customer satisfaction is a primary driver, managers should ensure that employees are aware of the importance of customer satisfaction and are incentivized to maintain it. The results from performance management analyses allow managers to optimize their resources and focus attention on the aspects of the business that truly matter. While few firms have achieved this level, those that have achieved very positive results. Sears clearly achieved Stage 5 during the mid-1990s, when it widely educated employees about the factors driving company performance, and it assessed and compensated based on the results of its model. Toronto Dominion Bank also achieved Stage 5 when it began to compensate employees based on the results of its model linking customer satisfaction to financial performance in branches.

However, once a company reaches Stage 5, it may not stay there over time with respect to a particular set of measures and models. The factors that drive business performance will change as the business environment changes, so firms will periodically need to go back to Stage 2 – and perhaps even to Stage 1 – to ensure that they have the right performance measures in place, and then the right scorecards, strategy maps and analytical performance models based on those measures. Analytical performance management is not a one-time journey, but rather a continuous process of refinement and change.

Key Barriers to Analytical Performance Management

There are several factors that prevent more organizations from undertaking analytical performance management. For many organizations, simply not recognizing that analytical performance management is possible is a barrier. For others, not having sufficient business context to overcome the difficulty of these approaches may stand in the way. The survey data (Figure 9) suggest that there are many factors of relatively equal weight that stand in the way of analytical performance management.
FIGURE 9

**Question**: What are the primary barriers preventing your organization from adopting analytical, quantitative performance management (click on all that apply)?

<table>
<thead>
<tr>
<th>Barrier</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Questionable data quality/accuracy/consistency</td>
<td>39%</td>
</tr>
<tr>
<td>Disagreement on performance indicators/metrics</td>
<td>37%</td>
</tr>
<tr>
<td>Inability to aggregate data from various sources</td>
<td>31%</td>
</tr>
<tr>
<td>Insufficient data</td>
<td>30%</td>
</tr>
<tr>
<td>Lack of executive support or interest</td>
<td>28%</td>
</tr>
<tr>
<td>Lack the skills required</td>
<td>28%</td>
</tr>
</tbody>
</table>

Metrics and data are a problem for many organizations, and many of the problems cited in the survey deal with that set of issues. Not having agreement on key metrics across the organization is one barrier; an entertainment company we interviewed, for example, suggested that nonfinancial performance measures varied widely across the organization’s business units, and no one was responsible for bringing about more commonality. Even if there is agreement on what metrics really matter, gathering them can be difficult and expensive. Data quality was the most frequent issue cited in the survey as a barrier. Other organizations in our interviews mentioned data frequency as an issue. A retailer noted, for example, that it is difficult to get frequent enough measures of employee engagement and satisfaction; few organizations gather such data quarterly. One electronics retailer had increased the frequency of employee engagement surveys from annually to semiannually.

Lack of analytical skills is an issue for some organizations. Several organizations we interviewed felt that they had no in-house employees who understood both the metrics and the relevant statistical techniques. However, Sears and Toronto Dominion employed third-party analytical consultants, and the Store 24 work was performed by academic researchers. It is relatively easy for any firm to find such external help.

Not quite so easy is finding employees who can do analytical work and whose organizational affiliation cuts across relevant functions. One retailer that was beginning analytical performance management work had a group of behavioral/organizational psychologists in human resources. While the analysis of performance management variables also included customer satisfaction, there was no one with the relevant analytical skills whose responsibilities included customer relationships and employee attitudes.

We found no group in any of the companies we interviewed whose responsibilities encompassed nonfinancial performance measures and their relationship to financial performance. One would expect that such responsibilities would be found within an accounting or finance organization, but this seems not to be the case, at least in the great majority of firms. Perhaps in the future organizations will create new roles in financial organizations that can address all these issues.
Summary and Conclusions

Analytical performance management is clearly possible, and it offers substantial potential benefits to those few organizations that have undertaken it. It isn’t particularly difficult from a quantitative analysis standpoint, and it offers the potential of confirming or disconfirming key strategy propositions.

While it is not yet common practice, many companies – more than 40 percent in our survey – say they are “definitely moving in a more analytical direction” on performance management (Figure 10). Another 28 percent say they would like to become more analytical. While respondents to this survey (who are probably unusually interested in performance management issues) are likely to be more aggressive in implementing new performance management approaches than the average manager, the survey results suggest that given better tools, more widespread awareness of benefits, and greater understanding of methods and approaches, substantially more organizations will practice analytical performance management in the future.

**FIGURE 10**

*Question: Please indicate which of the following best describes your organization’s current position on using analytical approaches to performance management. By analytical, we mean the use of quantitative information such as statistics to draw conclusions.*

- It’s not something we’re focused on (14%)
- We’d like to be more analytical, but we’ve made little progress (28%)
- We’re already there in a major way (17%)
- We’re definitely moving in a more analytical direction (40%)
- Other (1%)

Greater adoption may require new strategies for gathering data over time and across local units. It may also require senior executives to address performance management topics in ways they do not currently employ. In any case, because gathering the data is the most time-consuming aspect of analytical performance management, it behooves organizations to start now in gathering data and beginning to analyze it. Similarly, firms should begin creating the skills to analyze and interpret performance data, and create either temporary or permanent capabilities. Ultimately, to practice analytical performance management only requires a strong desire to better understand the drivers of business performance, and the straightforward application of resources toward that goal.

The motivation for adopting analytical performance management is perhaps obvious, but it bears repeating. Given the possibility of knowing what measures really matter, and the ability to understand and predict financial performance, firms cannot afford to continue with major revenue and earnings surprises – particularly those involving losses. Until these tools are employed, corporate performance management will remain an art rather than a science. Only when it becomes a science will firms get control over their financial performance.
Taking a scientific approach to performance management is also not a one-off exercise. Companies that have tried analytical performance management did so because they needed to improve dramatically. Ironically, once the improvement was made, few embedded it as a regular activity – perhaps thinking all lessons were learned. But as markets and the economy change, nothing can be taken for granted. Rules and traditions are being replaced every day. Yesterday's lessons may have no meaning today. The only way to know what's driving your business is to analyze and prove it – not just once, but continuously. Otherwise, like Store 24, by the time you realize the strategy isn't working, it could be too late, or have cost you dearly.

With much of the global economy currently facing an economic downturn, perhaps we will see a resurgence of organizations looking to analytical performance management for help. The techniques are proven and possible – so what's stopping you?

**Activity-Based Costing:**

*An Alternative Route to Analytical Performance Management*

The approach outlined in this report takes a high-level perspective on analytical performance management, relating nonfinancial metrics at a corporate or unit level to the same unit's financial performance. It's also possible – and desirable – to examine performance analytically at the level of business transactions and individual customer relationships. This more granular approach can complement the top-down approach described in this report. For example, a top-down analysis may indicate that the strength of customer relationships is a key driver of financial performance. However, it’s also necessary to ensure that customer relationships and transactions are profitable if the organization is to prosper financially.

Activity-based costing (ABC) is the recommended tool for the more granular analysis of transactions and relationships. ABC analysis assigns an organization's costs (both direct and indirect) to the activities it employs to make products and services, and serve customers. While ABC work is not statistical in nature, it is clearly analytical, with careful methods for assigning costs to activities.

Through diligent ABC analysis, a company can determine whether individual customer sales transactions, and overall relationships with customers, are profitable. It can also assess how to make customer relationships more profitable, e.g., by steering customers to certain marketing channels or touch points or by discouraging relationships with overly demanding customers.

For example, the Canadian telecom provider Fido Solutions (now a subsidiary of Rogers Telecommunications) analyzed its product offerings using ABC and then mined its customer data to determine which customers were most and least profitable. Fido stopped trying to retain its least profitable customers and saw the number of unprofitable ones drop by half. The analysis allowed Fido to focus its resources on the customers most likely to contribute to its financial performance.

As at Fido, ABC work complements top-down analytical performance management by pinpointing how costs build up in creating products and serving customers, and offering managers ways to reduce costs and become more profitable. Most organizations, therefore, should employ both approaches.
About the Author

Voted the third leading business-strategy analyst (just behind Peter Drucker and Tom Friedman) in *Optimize Magazine*, Thomas Davenport is a world-renowned thought-leader who has helped hundreds of companies revitalize their management practices. He combines his interests in business, research, and academia as the President’s Distinguished Professor in Management and Information Technology at Babson College. Tom earned a Ph.D. from Harvard University in social science and has taught at the Harvard Business School, the University of Chicago, Dartmouth’s Tuck School of Business, and the University of Texas at Austin. He has also directed research centers at Accenture, McKinsey & Company, Ernst & Young, and CSC. Sample audience reviews include:

“The smartest business speaker out there!” “Had the audience on the edge of their seats!” “Energized.”
“A rock star!” “I learned more from this speaker in one hour than from any I’ve ever heard.”
“ Appropriately provocative.”

An agile and prolific thinker, Tom has written or co-authored twelve best-selling business books and has been a creator and early author for several key business ideas including: knowledge management (four books, one the best-selling *Working Knowledge*); human approaches to information management (two books); business process reengineering (on which he wrote or co-authored the first article, the first book, and the first casebook); and realizing the value of enterprise systems. Tom’s book, *The Attention Economy*, was named one of the ten best books of 2001 by Amazon.com and by Borders.com and was the winner of the *Library Journal* award for one of the best business books of 2002. *What’s the Big Idea: Creating and Capitalizing on the Best Management Thinking*, was published in May 2003 and has become a top 10 best-seller in several countries. Published by Harvard Business School Press in September 2005, Dr. Davenport’s *Thinking for a Living: How to Get Better Performance and Results from Knowledge Workers*, is an Amazon bestseller. What’s next? Tom has conducted a major research study on “Competing on Analytics: How Fact-Based Decisions and Business Intelligence Drive Performance.” The related article, which was published in the January 2006 *Harvard Business Review* decision-making issue, was the organization’s bestselling 2006 reprint. The much anticipated book on the topic, *Competing on Analytics: The New Science of Winning*, published March 6, 2007, is already in its fourth printing. A related Harvard Business Review case study appeared in the May 2007 HBR with another book on the topic to follow in 2009.

Tom was one of the first management thinkers recruited to blog for Harvard Business Online and his “The Next Big Thing” blog is a reader favorite. Tom has written over 100 articles for such publications as *Harvard Business Review, Sloan Management Review, California Management Review*, and the *Financial Times*, and is quoted frequently in *The Wall Street Journal, New York Times, Business Week, Fortune, Business 2.0, the Boston Globe*, and *Fast Company*. He is also interviewed frequently by the broadcast media.

In the Spring of 2008, Tom received two impressive honors. CIO Insight named his *Competing on Analytics* book one of the all-time “Top 15 Most Groundbreaking Management Books” and Ziff Davis once again included him as one of only four IT management thought leaders on their “100 Most Influential People in IT” list. Tom has been named one of 10 “Masters of the New Economy” by *CIO Magazine*, one of 25 “E-Business Gurus” by *Darwin*, one of the most trusted consultants by *Optimize Magazine*, and one of the top 25 consultants in the world by *Consulting Magazine*.

With his vast storehouse of industry stories, research & data, and cutting edge ideas, Tom Davenport balances research-based business acumen with practical application. His areas of expertise include improving the productivity of knowledge workers, information and knowledge management, attention management, idea generation, innovation, competing on analytics, managing enterprise applications for business value, and business process reengineering. More information on Tom Davenport is available at his website, [www.tomdavenport.com](http://www.tomdavenport.com).
1 Suzanne Gratton assisted in scheduling and carrying out the interviews. SAS provided financial support for the research and commissioned an online survey. Monet Meek and Jonathan Hornby of SAS advised the study and were particularly helpful. Dennis Campbell of Harvard Business School, Nick Bontis of McMaster Business School, Jeanne Harris of Accenture, and Len Schlesinger of Babson College also provided useful advice on the paper.

2 The survey was conducted by Harvard Business School Publishing in June and July of 2008. Respondents were recruited through Web site advertisements and offered a free article if the viewer clicked on the ad and participated in the survey. A total of 1,060,497 Impressions displayed the message in different sizes and placements and 4,248 clicks to the survey were recorded. Of the 4,248 clicks to participate in the survey, 2,769 surveys were completed. A filter was applied to the data and excluded responses that answered “Staff” as the respondent’s position, or “less than $100,000,000” in company revenues. Further filtering excluded nonprofit organizations and consultants, yielding 1,841 respondents. The number of valid responses to particular questions varied considerably.


4 Baruch Lev, for example, has argued convincingly for the reporting of intangible metrics, and that they are important to an organization’s market value. See, for example, Baruch Lev, “Sharpening the Intangibles Edge,” Harvard Business Review, June 2004.

5 The International Accounting Standards Board, for example, has published accounting standards for intangible assets (IAS 38) and has a research project to create a more robust approach to valuing such assets. See http://www.iasplus.com/agenda/intang.htm.


