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The Association of Accountants and Financial Professionals in Business

The Data Analytics Implementation Journey in Business and Finance

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Institute of Management Accountants
10 Paragon Drive, Suite 1
Montvale, NJ, 07645
www.imanet.org/thought_leadership

About the Authors

Raef Lawson, Ph.D., CMA, CSCA, CPA, CFA, CAE, is professor-in-residence and vice president of research and policy at IMA. You can reach him at (201) 474-1532 or rlawson@imanet.org.

Toby Hatch is a senior product marketing director for enterprise performance management with Oracle Corporation. You can reach her at toby.hatch@oracle.com.

Denis Desroches, an enterprise performance management specialist since 1993, has supported organizations with the selection, implementation, and knowledge acquisition of scorecard, performance management, and activity-based management solutions. He can be contacted at desroches.associates@sympatico.ca.

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Executive Summary

Most organizations know that enhancing their analytical capabilities is critical to their success and survival—helping them gain a competitive advantage or helping them maintain their current market position.

But for many, implementation of leading-edge analytics remains a work-in-progress—very few have completely implemented their desired leading-edge analytic techniques and technologies. There are several reasons that implementation is incomplete—to name a few: the wide variety of technologies that are being adopted, the varying stage of maturity of each technology, and the benefits that can be realized by each technology.

Organizations that have implemented leading-edge analytic techniques and technologies uniformly report improvement in their performance. The process most affected by leading-edge analytics is performance measurement, yet many organizations are still working out how these measures should change.

A key area in which analytics has the potential to deliver substantial benefits is strategy formulation and implementation. Companies that are ahead of or on par with their competition in developing and executing strategy also tend to be better than their competition in their ability to make timely decisions. Organizations that are predominantly reactive to moves made by their competition are not agile in strategic decision making. A lack of analytical capabilities—including both taking too long to gather data and taking too long to make decisions once that data is collected—contribute to their lack of agility.

In the race to embrace Big Data and analytics, mid-market firms often struggle in unique ways. To a lesser extent, smaller firms also face challenges with analytics implementation, while larger firms lead the way.

Despite numerous dire predictions that analytics will eliminate a great many jobs in accounting and finance, most of the respondents from an IMA® (Institute of Management Accountants) survey believe that only a few processes have changed (or are likely to change) due to the use of analytics.

Introduction

Technology is evolving rapidly and changing the way businesses must think and act. An important part of the technological influence is attributed to the use of advanced analytics to enable organizations to gather insight from their data, enabling them to better compete. Yet the questions remain, "To what extent is this potential being exploited?" and "Is this more technology 'smoke' or is there a revolutionary 'fire'?"

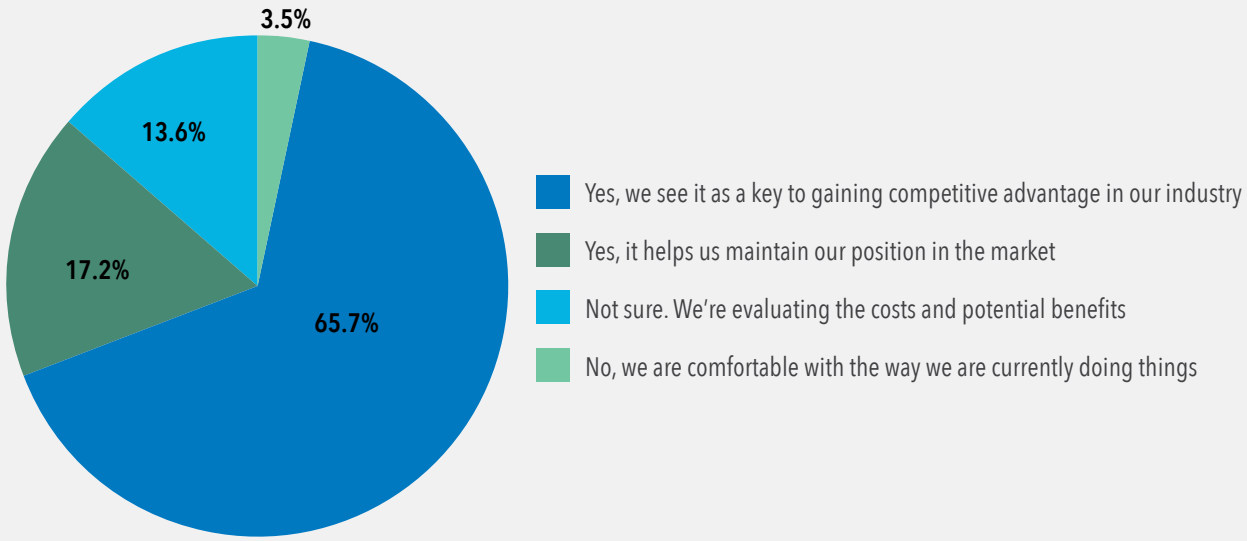
In this report, we explore the extent to which advanced analytics is being deployed by organizations, discuss the business case for implementing advanced analytics, and examine the impact of leading-edge analytics on the role of the finance function. In a follow-up report, we examine key factors for a successful implementation of analytics.

The findings reported here are based on a survey that IMA® (Institute of Management Accountants) conducted in January-February 2018. We received 170 responses (121 from a global survey of IMA members; the balance from direct mail and social media solicitations). Results presented here are based on the responses to this survey.

Deploying Analytics–Key to Organizational Success

Today, organizations strongly believe that enhancing their analytical capabilities is key to future success, either by helping to gain a competitive advantage (66%) or helping to maintain current market position (17%). (See Figure 1.)

Figure 1: Does Your Organization Believe Enhancing Its Analytics Capabilities Is a Key to Its Future Success?

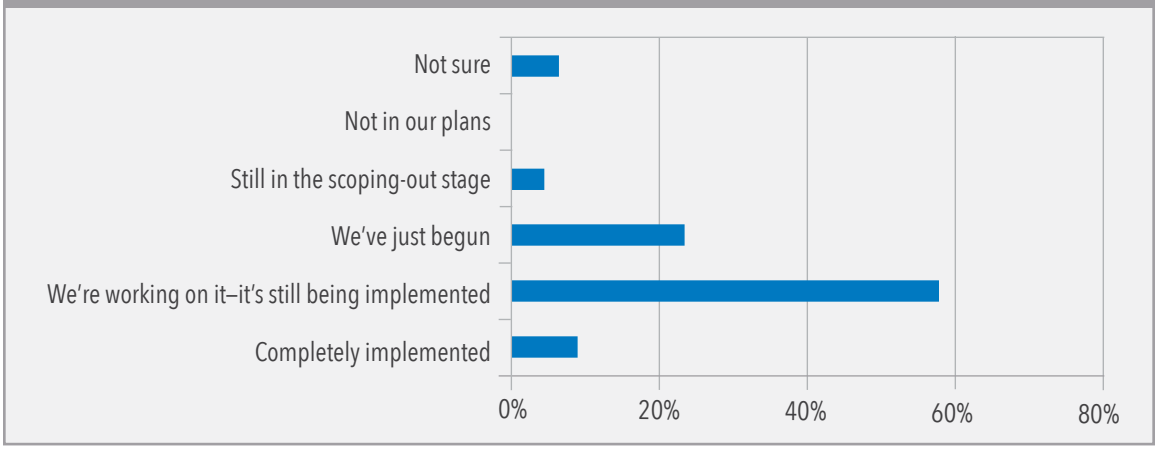


An example of this is an analysis of the U.K.'s Glastonbury Festival, one of the world's largest music festivals.[1] Records of previous festivals, combined with weather forecasting data, proved to be instrumental in providing valued guidance to on-site vendors for what food, drink, and clothing they should stock and sell. Using simple data sets such as these, organizations can obtain greater insights into their businesses, providing information that can be used to generate substantial economic value.

Implementation of Leading-Edge Analytics–Fact or Fiction?

Despite a widespread view that leading-edge technology can deliver competitive advantage, implementation remains a work-in-progress for most organizations. Figure 2 shows that few (8.5%) organizations have completely implemented their desired leading-edge analytic techniques and technologies. Most (57.5%) are in the process of working on it, while 23.4% are just beginning. One reason that few have finished implementation is that it appears to be an ever-evolving process. To emphasize the perceived importance of leading-edge technology, it is interesting to note that although about 6% of respondents said that they weren't sure of the implementation status, none of the respondents indicated that implementation of leading-edge analytic techniques was "not in our plans."

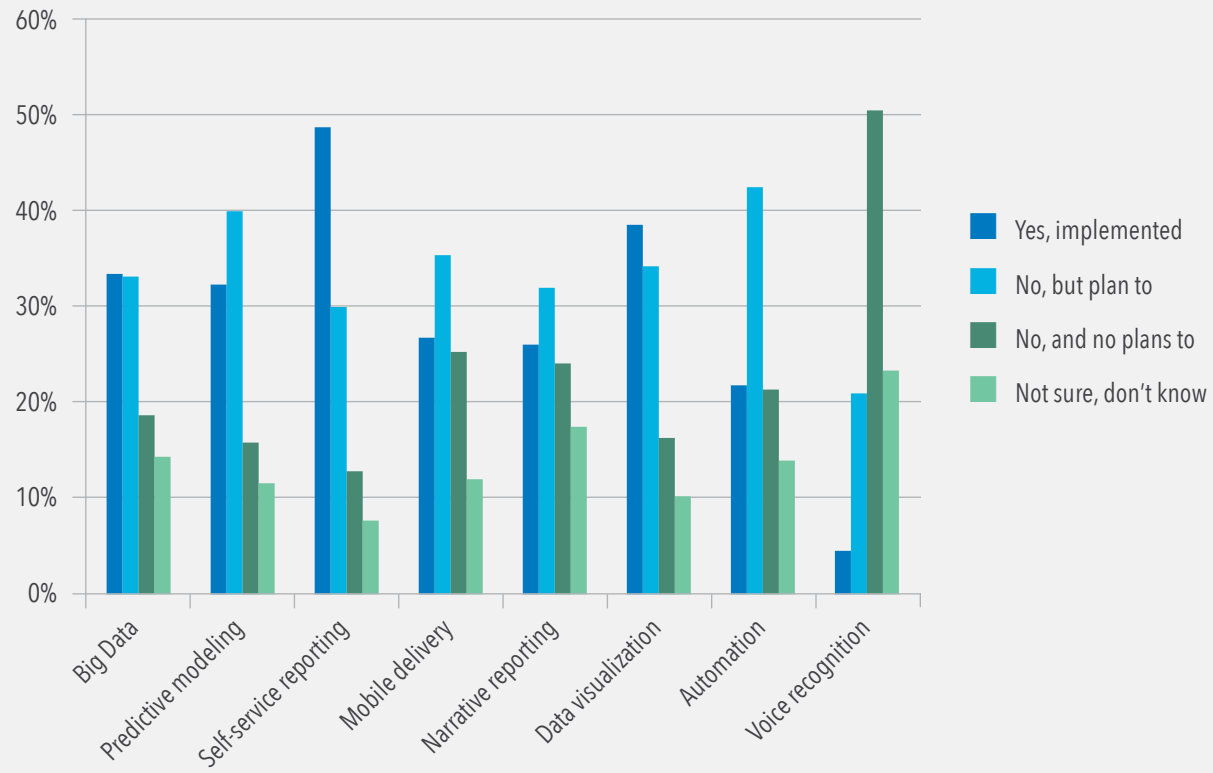
Figure 2: At What Stage of Implementation of Leading-Edge Analytic Techniques and Technologies Is Your Organization?



The large percentage of organizations working on implementation of leading-edge technology can be attributed to a variety of factors. Key factors include the wide variety of technologies that can be adopted, the varying stage of development of each technology, and the benefits that each technology can bring to an organization. As indicated in Figure 3, nearly half of all organizations have introduced self-service reporting. Some rapidly evolving technologies, such as automation, are being implemented, while other technologies with perhaps an uncertain payoff, such as voice recognition, are less likely to be implemented.

[1] William Trotman, "Seeing Through the Crowds," Oracle, August 2018, https://blogs.oracle.com/analyticscloud/seeing-through-the-crowds.

Figure 3: Which of These Leading-Edge Analytic Processes Have Been Implemented by Your Organization?



The Business Case for Analytics

While many organizations are still in the process of implementing leading-edge analytics, the early results are encouraging: Half of those that have implemented leading-edge analytic techniques and technologies indicate that it has yielded great improvement in their organization's performance, with the other half noting slight improvement. Key areas identified as benefiting from implementation include performance measurement and strategy formulation.

Performance Measurement

The evolution of analytical capabilities and the greater availability of data enable companies to develop and implement enhanced measures of performance, an area in which analytics has been implemented by many of our survey respondents. When asked in what way such measures would change, typical responses included:

"Performance measures are expected to change due to much deeper analysis and varied data."

"More driver-based information from less structured sources."

"Key KPIs will change, and these KPIs will have more sophistication and be more incisive."

"Business development opportunities are now evaluated on performance measures, sometimes a specific ROI, in addition to positive economics for a project that will accelerate achieving the company's strategy."

Companies that have implemented analytics to support performance measurement have uniformly reported improvement in organizational performance. Yet companies are taking a cautious approach in implementing performance measurement analytics—only 20% of respondents indicate that performance measures have or will change to reflect the new analytics-oriented strategy and almost half (47%) are not sure.

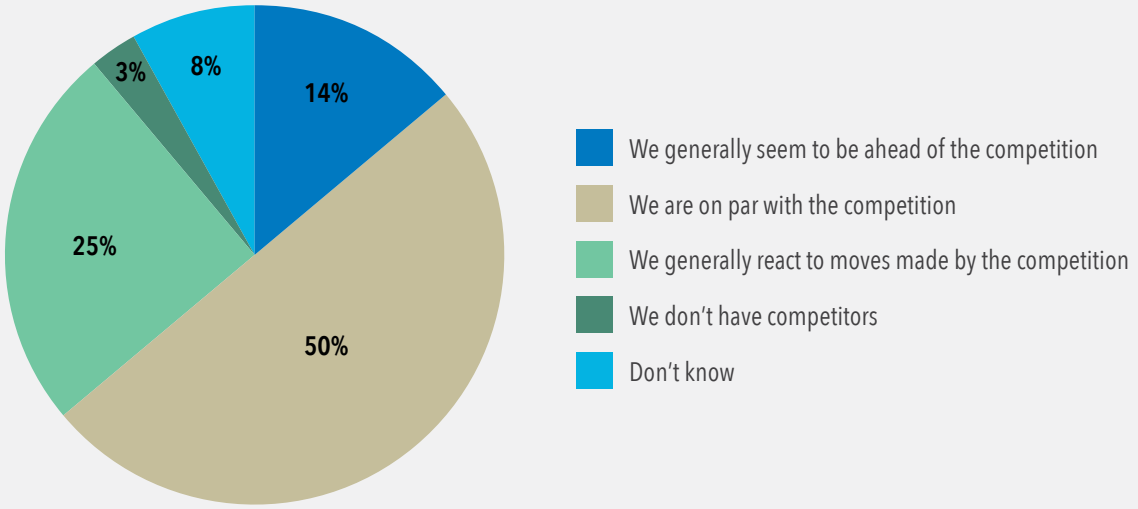
Construction-related spending is 13% of GDP, but the industry has generated only a 1% productivity gain over the past two decades. Bechtel, a global engineering, construction, and project management company, decided to address this issue. It built a large data center of excellence, in which sits a data lake comprised of 5 petabytes of data. Its proof-of-concept used photo recognition technology to inspect and label photos of sites on behalf of customers, saving $2 million. Natural language processing (NLP) tools parse claims, requests for proposal, and contracts. Estimates and plans that once took days and weeks now take hours. Bechtel has also expanded its analytics efforts to other areas, including understanding staff retention by predicting when employees may leave. [2]

Strategy Formulation

An area in which analytics has the potential to deliver substantial benefits is a key responsibility of an organization's management—strategy formulation and implementation. Many companies struggle to excel in this area: Only 14% of our respondents feel they are ahead of the competition in this area, with another half believing they are on par with the competition and 25% feeling they are reacting to the competition (see Figure 4).

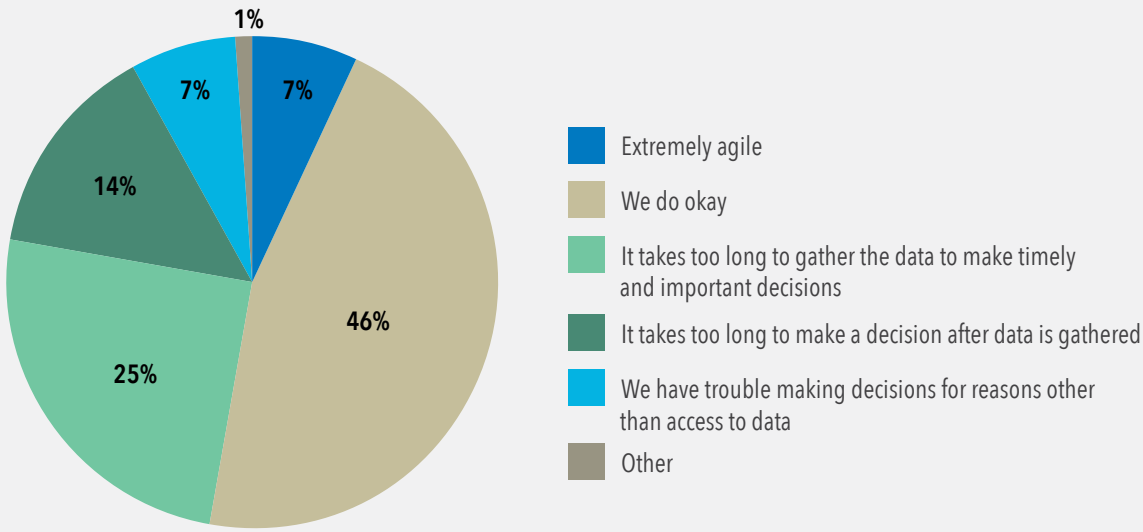
[2] Clint Boulton, "6 data analytics success stories: An inside look," CIO, September 5, 2017, www.cio.com/article/3221621/analytics/6-data-analytics-success-stories-an-inside-look.html.

Figure 4: How Would You Rate Your Organization's Ability to Develop and Execute Strategy?



A similar situation holds true concerning strategic decision making (see Figure 5). Only 7% of companies believe they are extremely agile at making strategic decisions, while 46% say they are "okay" at it.

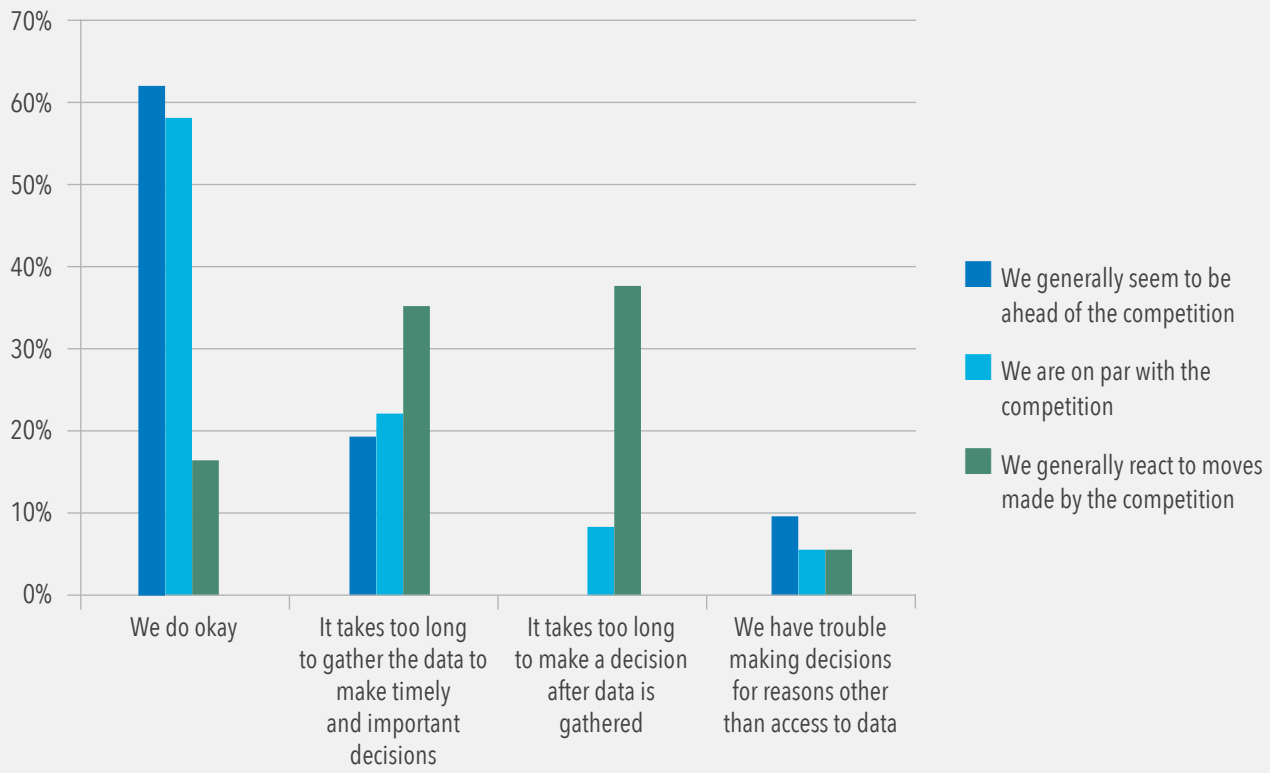
Figure 5: Which Best Describes Your Organization's Ability to Make Strategic Decisions?



What differentiates high-performing companies—those that excel at developing and executing their strategy—from the others? One important factor is the ability to make timely decisions. Of those organizations that are ahead or on par with their competition in developing and executing strategy, the great majority have this ability. Conversely, those that are largely

reactive to their competition are not agile in strategic decision making. This lack of agility arises from both taking too long to gather data and taking too long to make decisions once that data is collected. (See Figure 6.)

Figure 6: Impact of Strategic Decision-Making Ability on the Ability to Make Timely Decisions

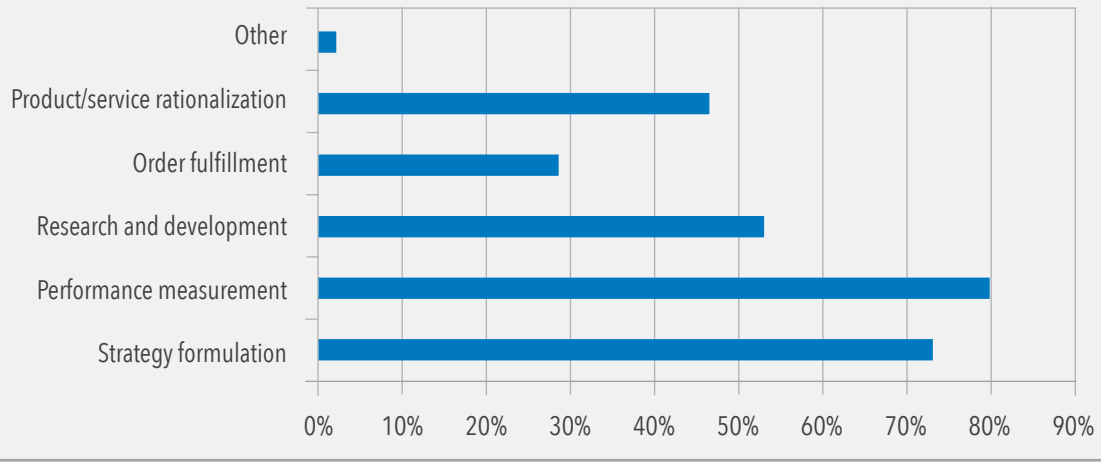


To address their challenge in formulating and executing strategy, companies are turning to the use of analytics. After performance measurement, strategy formulation is the area most widely reported as having been positively impacted from the greater use of leading-edge techniques and technologies, with two-thirds of companies implementing analytics in this area reporting substantial performance improvement.

Other Areas

While strategy formulation and performance measurement are major focus areas for the implementation of analytics, other areas—including research and development, order fulfillment, and product/service rationalization processes—are also being viewed as areas of potential improvement through implementation of leading-edge analytics technology (see Figure 7).

Figure 7: What Organizational Processes Do You Hope to Positively Impact by Your Transition to the Greater Use of Leading-Edge Analytic Techniques and Technologies?



Some might call StitchFix a disruptor to the online clothing retailer. It provides analytics-based personal styling service with door-to-door delivery for everyone regardless of age, size, or budget. It uses data science in its recommendation systems, human computation (profile preferences), resource management, inventory management, and algorithmic fashion choices. The use of analytics has enabled it to select focused fashion choices for its clients in an efficient manner, while keeping costs low, maintaining access to a huge assortment of items, and easily managing items purchased and returned. [3]

While implementation of advanced analytical techniques is an ongoing effort at many companies, benefits in key areas such as performance measurement and strategy formulation are already being achieved by some. Based on early successes in these management areas, applying analytics to other organizational processes is already starting to be undertaken with more applications soon to follow. Organizations that do not want to be left behind by their competition will need to ensure that they are devoting enough resources to improve the usage of new analytic techniques and technologies.

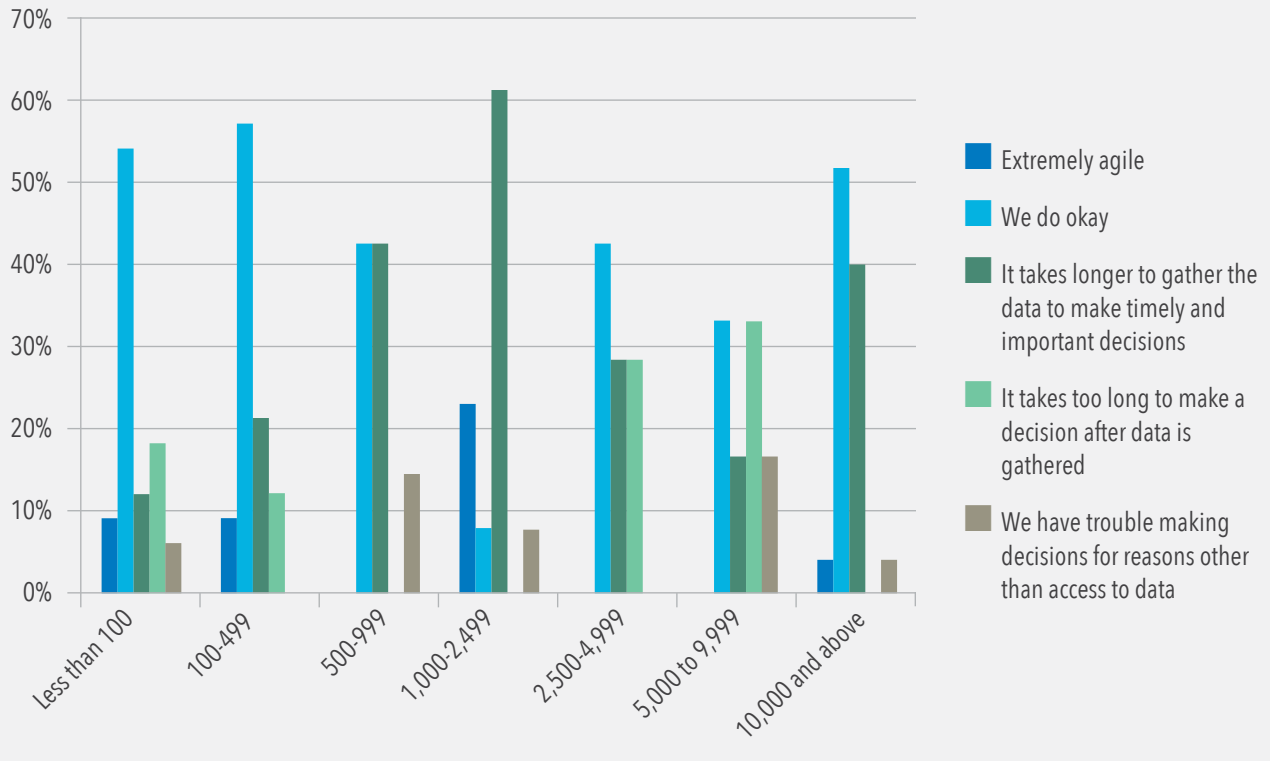
[3] http://www.oracle.com/search/customers?bcid=5785735688001; "What is Stitch Fix & How Does it Work? FAQ," https://support.stitchfix.com/hc/en-us/articles/204222994-FAQ.

The Mid-Market Challenge

In the race to embrace Big Data and analytics, mid-market firms often struggle in unique ways. They must compete with agile start-ups that begin addressing market needs with blank canvases. They may be operating with legacy systems or with multiple software platforms. Larger organizations tend to deploy analytics to create operational efficiencies across the organization. But in mid-market companies, centralized planning and the bandwidth to create centers of excellence for analytics are limited.

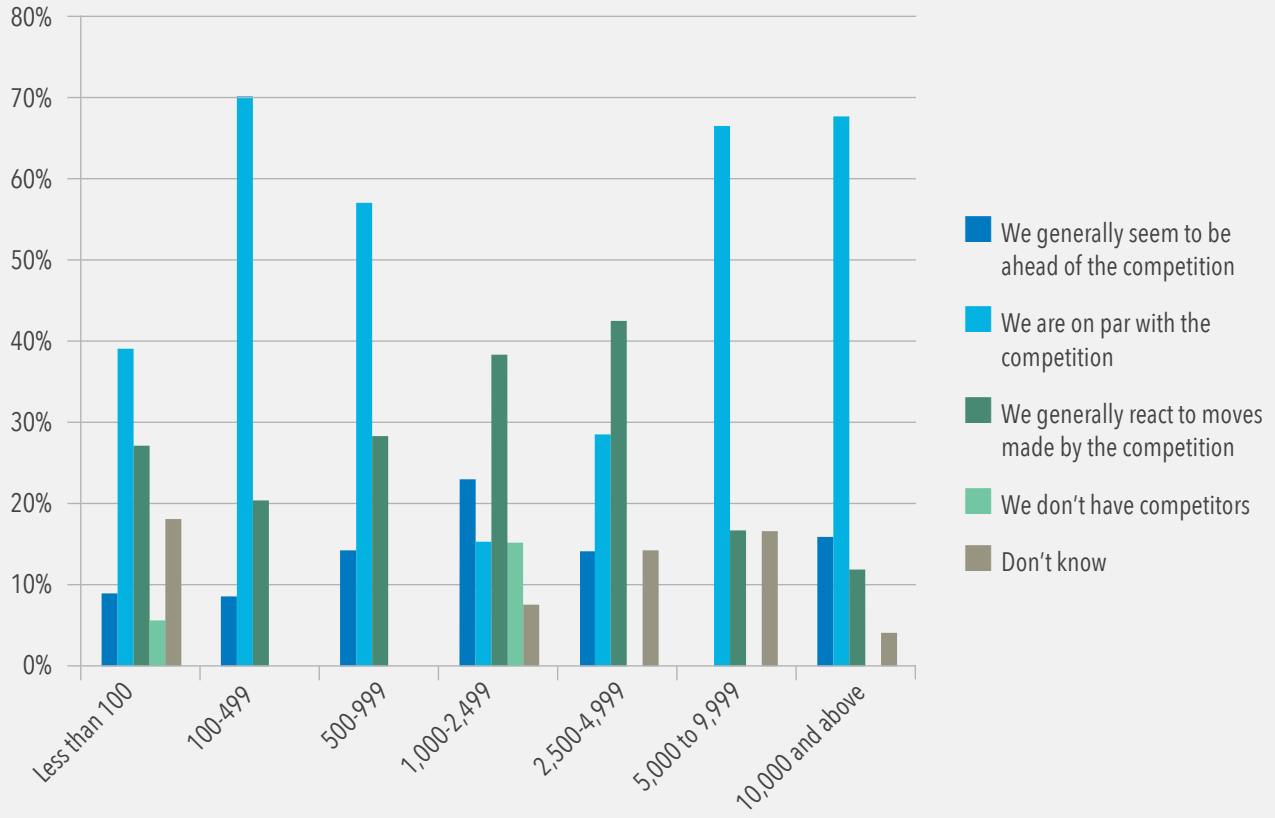
One of the ways that midsized firms struggle is in their ability to make strategic decisions. Small firms are the most agile, which is understandable given their size and less complex operations. Large firms struggle a bit more with the ability to make decisions after data is collected. Midsized organizations struggle the most, with the time to collect the data needed for making decisions an issue. More than half of these organizations express some type of difficulty in organizational decision making (see Figure 8).

Figure 8: Ability to Make Strategic Decisions by Firm Size (Number of Employees)



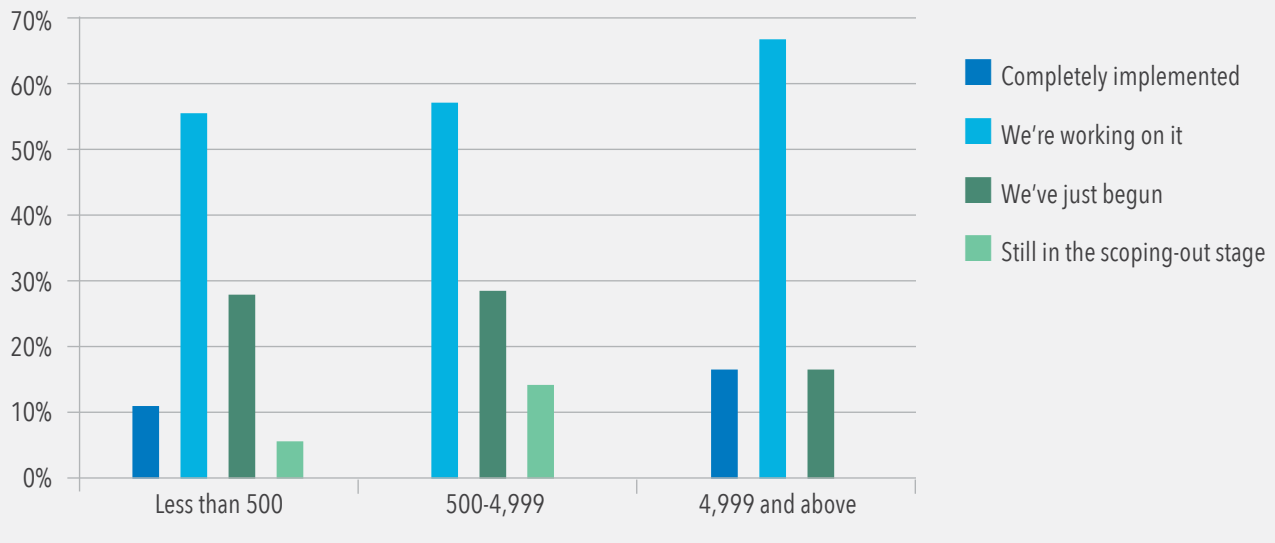
Perhaps because of this decreased ability to make strategic decisions, medium-sized organizations are more likely to be reacting to competition than are smaller or larger organizations (see Figure 9).

Figure 9: Relationship between Organizational Size and Ability to Make Strategic Decisions (Number of Employees)



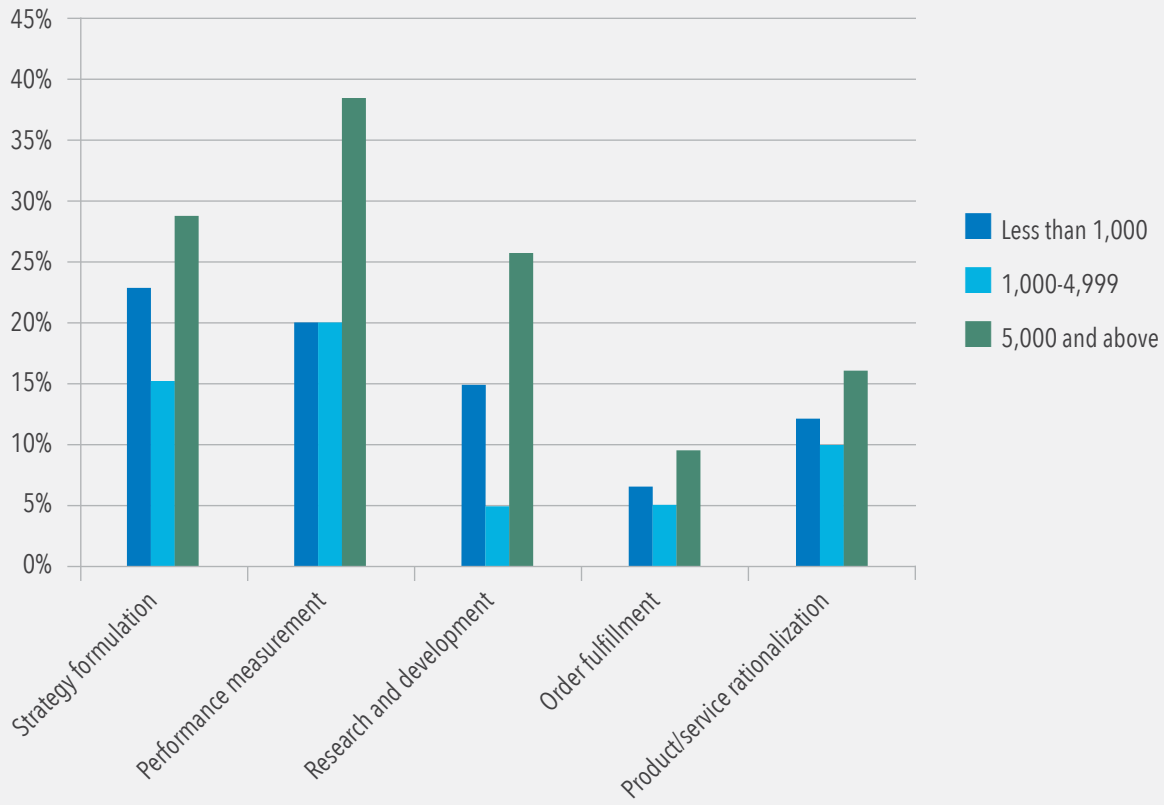
While most organizations, regardless of size, are still in the process of implementing leading-edge analytics, larger companies, as might be expected given their greater resources, tend to be further along the journey (see Figure 10).

Figure 10: Stage of Implementation by Firm Size (Number of Employees)



Larger companies are more likely than smaller ones to be contemplating using analytics in a variety of processes, with the greatest difference being in research and development (see Figure 11).

Figure 11: Relationship between Organizational Size and Areas of Contemplated Use of Analytics (Number of Employees)



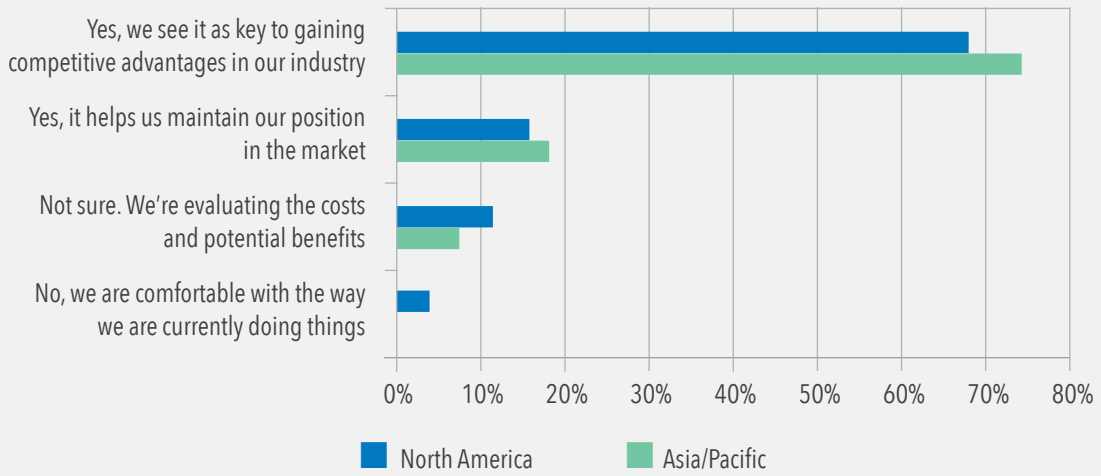
Given their greater resources, it might be expected that larger companies would be more likely to be making substantial changes to their processes than smaller ones, which is the case here. But the likelihood of making change is surprisingly uniform across firms of all sizes.

Regional Differences

Fifty-four percent of survey respondents were located in North America (largely the United States), 31% in Asia/Pacific (largely China), and the rest elsewhere in the world.

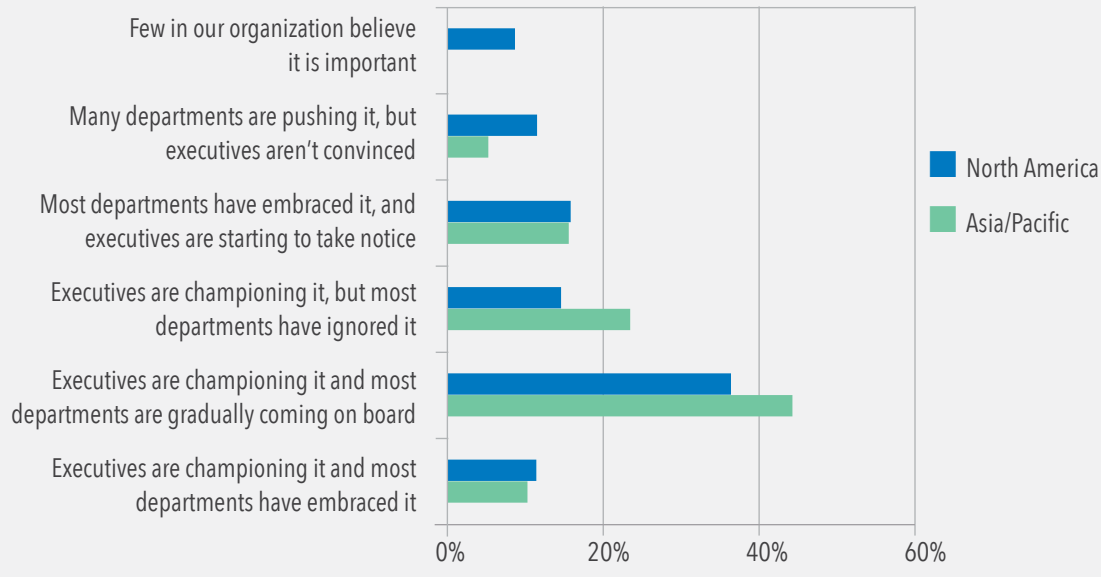
Organizations in both Asia/Pacific and North America viewed the use of advanced analytics as key to their gaining competitive advantage, with those in Asia/Pacific less likely to be uncertain in this regard (see Figure 12). (Results for other regions are not reported due to the low number of responses.)

Figure 12: Use of Analytics to Gain a Competitive Advantage: North America vs. Asia/Pacific



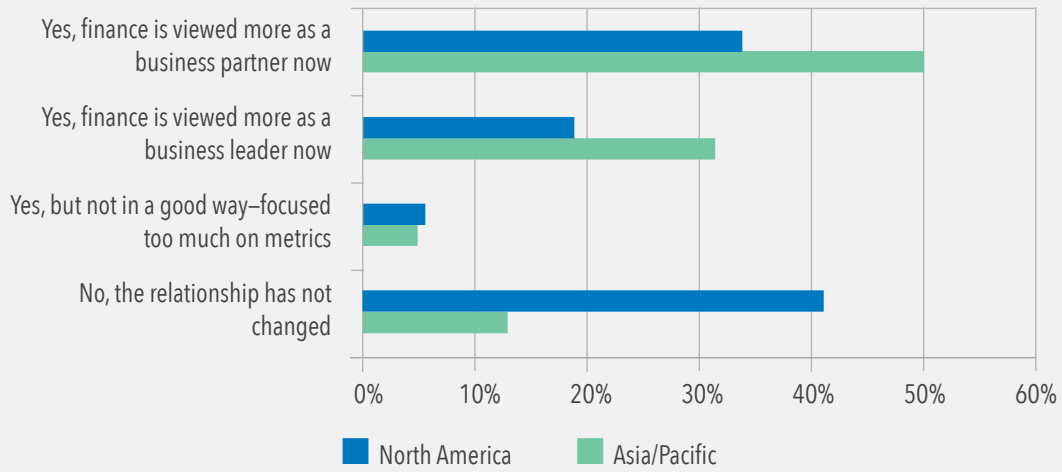
While executives in both North America and Asia/Pacific are likely to be championing leading-edge analytics, those in Asia/Pacific are more likely to be doing so (see Figure 13).

Figure 13: Analytics Champions–North America vs. Asia/Pacific



A very significant difference exists between regions on the impact of analytics on the perceived role of the finance function. In North America, the use of analytics has led it to become viewed more positively, as being more of a business partner or business leader, in slightly more than half of all organizations. In the Asia/Pacific region, implementation of analytics has had a much more positive and dramatic impact: 82% of organizations report the finance function as now being viewed more favorably (see Figure 14).

Figure 14: Change in the Perception of Finance–North America vs. Asia/Pacific



The Impact of Leading-Edge Analytics on the Role of Finance

While there have been numerous dire predictions on how analytics will eliminate many jobs in accounting and finance, the opinion of our respondents appears relatively sanguine, with the majority believing that only a few processes have changed or are likely to change due to the use of analytics (see Figure 15).

Figure 15: To What Extent Has the Finance and Accounting Department(s) Changed (or How Much Is It Likely to Change) Its Processes in Order to Transition from Routine Transaction Processing to Focusing on Leading-Edge Analytics?

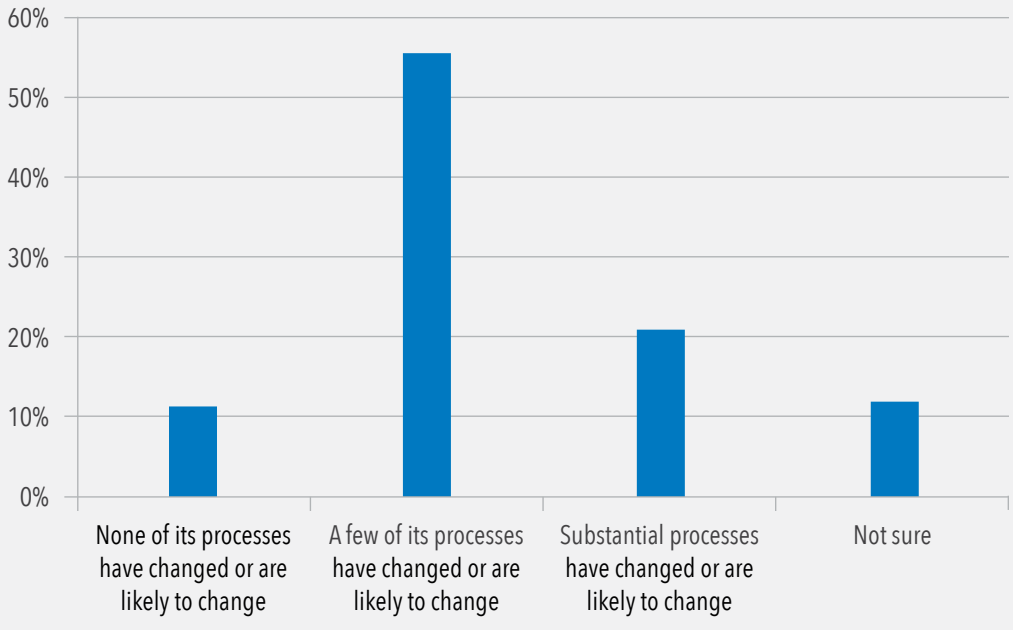
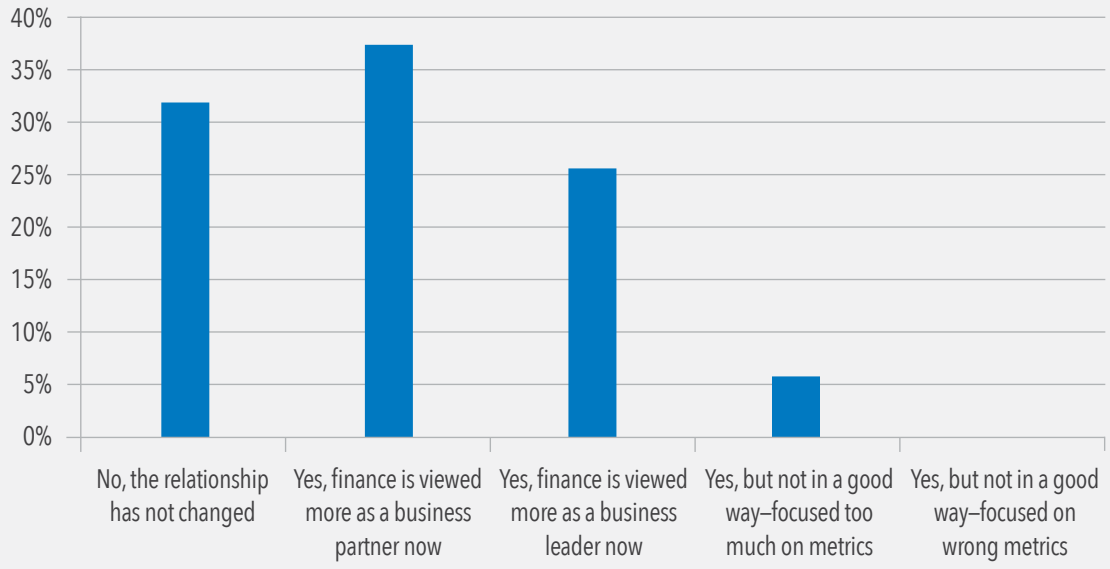


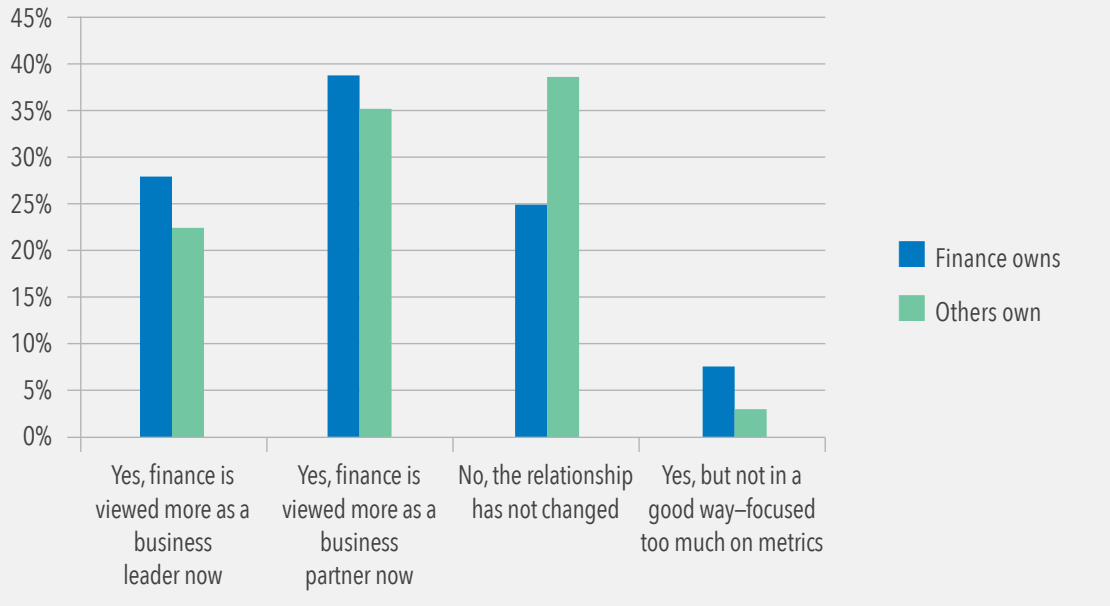
Figure 16 shows that, for more than half of respondents, the impact of Big Data and analytics on the relationship between accounting and finance and the rest of the organization has been positive: In these organizations, finance is now viewed as more of a business partner or business leader.

Figure 16: Has the Availability of "Big Data" and Increased Use of Leading-Edge Analytics Tools and Techniques Affected the Relationship between Finance and Other Organizational Areas?



Digging deeper (see Figure 17), we see that the finance function is more likely to be viewed as a business leader/partner in those organizations where it has taken or shared a lead role in analytics.

Figure 17: Ownership of Analytics by Finance Enhances Perceptions of the Area



Summary and a Look at What's Next

Organizations wanting to enhance their competitiveness are turning to the use of leading-edge analytics. This technology, while still being implemented at most companies, is yielding improvements in key areas of organizational performance including strategy formulation and implementation, and performance measurement. But what success looks like varies from organization to organization. Those who understand the fluid nature of implementing an analytics function are best equipped to manage expectations.

There is much to be gained when they do. Adoption of leading-edge analytics is positively impacting the relationship between finance and the rest of the organization, with finance now viewed as more of a business partner or business leader. This is especially true in those organizations where finance has taken or shared a lead role in analytics.

There are four crucial elements for organizations wishing to use advanced analytical capabilities to become data-driven:

- Data-savvy people
- Quality data
- State-of-the-art tools
- Processes and incentives that support analytical decision making (i.e., organizational intent)

In our next report, we focus on organizational intent. It might, perhaps, be the most important of the four elements for an organization overtly committed to the goal of being data-driven. These organizations are the most likely to develop the people, data, and tools needed to accomplish that objective. Drawing from our survey results, we identify key factors for establishing such an organizational culture.