



New CFO horizons

The dawn of cognitive performance analytics

IBM Institute for Business Value

Executive Report

Finance and Risk

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Approaching the cognitive edge

The exponential increase in data – from Internet of Things-enabled devices, customer interactions and commercial activity – presents a goldmine of opportunity for today's organizations. Executives across the C-suite are embracing opportunities to mine this data for insights into customer behaviors, product pricing, promotions and much more. CFOs are no exception. The 23 percent of CFOs whose companies are deemed "high performing" are twice as likely as their peers to have applied data analytics to enhance performance-insight capabilities.

But as the growth of data and speed of business outpace the capacities of finance analytics teams, new capabilities are clearly needed. The experiences of high-performing finance teams provide insights into emerging opportunities to leverage the next evolution in performance management – the cognitive advantage.

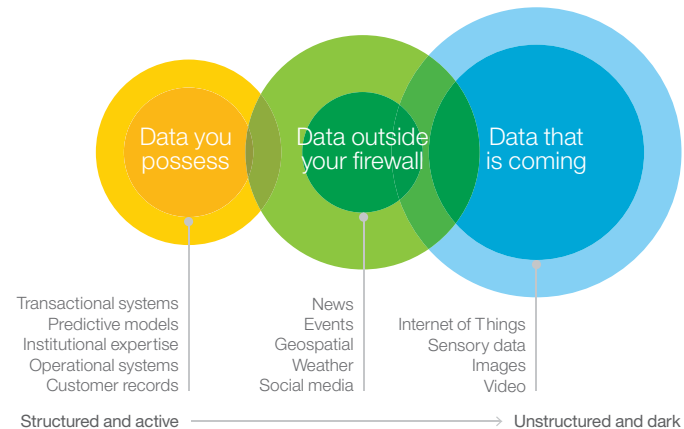
Executive summary

Big data has been called "the new natural resource."¹ And this resource continues to rapidly increase in volume, variety and complexity (see Figure 1). For the unprepared, the sheer quantity of data can create significant challenges – particularly for the analytics team within the finance department. This team must wade through volumes of data to cull insights that help explain past performance and contribute to strategies for future success.

These insights typically focus on reasons behind revenue, cost, margin and gross-profit achievements, as well as misses and upside surprises. Factors that affect performance can include changes in product and service offerings, a move into a new business, success of the sale force in closing deals or supply chain management challenges, to name a few.

Figure 1

The volume of structured and unstructured data continues to grow



Source: IBM Institute for Business Value analysis.



74% of CFOs

name **revenue growth** as their top enterprise objective



153% more CFOs

from outperforming organizations say their enterprises **successfully synchronize** structured and unstructured data



60% more CFOs

from outperforming organizations plan to **invest in cognitive computing** in the near term

Among traditional analytics tools, enterprise resource planning and performance analysis systems have played prominent roles in helping navigate the murky waters of data collection, integration, analysis and reporting. Their ability to integrate financial, operational and external data across the enterprise has become essential for most organizations. Finance departments with the strongest analytical capabilities have been the most successful in achieving this integration.²

However, while most of today's legacy analytics solutions are well-suited to analyzing structured data, they are not equipped to extract the full value of big data. The flood of new structured and unstructured data, coupled with talent gaps and the limits of human analytical insight, can overwhelm a finance analytics team.

Many organizations are beginning to turn to cognitive computing to address these challenges. As the next evolution of analytics, cognitive provides a platform to ingest, consolidate and organize vast amounts of structured and unstructured data and can be "taught" about relationships between data so it can continue to "learn" and offer speedy insights for analysts to leverage.

To understand organizations' current approaches to and future plans for analytics and cognitive computing, we conducted research in early 2016 to complement findings from the earlier "Your cognitive future" study, focusing on responses of the 161 CFO participants (see Methodology on page 11).³

This report explores the CFO perspective regarding the advantages data and analytics can provide, what outperformers are doing differently that drives their success and how cognitive computing has the potential to radically transform finance performance analytics capability.

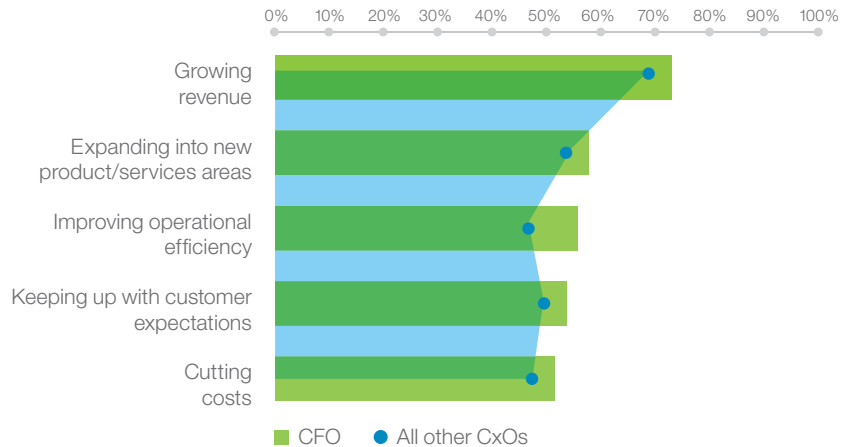
What do CFOs and their enterprises need to do with data?

Based on our research, CFOs consider growing revenue to be the single most important objective for their enterprises (see Figure 2). This is consistent with responses from their CxO peers. Yet, companies must achieve this growth while improving efficiency, cutting costs and meeting customer expectations.

To understand how companies succeed with these multiple objectives, we identified a small group of outperformers who told us they had both higher revenue growth and higher levels of efficiency than their peers over the last three years. They account for 23 percent of the CFO respondents covered in our analysis. We'll focus on their views to identify what these most successful organizations do differently to help their enterprises.

Figure 2

Revenue growth is the top enterprise objective for CFOs



Source: IBM Institute for Business Value analysis.

Outperformers say they use data and analytics capabilities more effectively than their peers:



80% more
use it to **achieve clarity** of
outputs and insights



51% more
reach conclusions
much faster



39% more
have greater **availability** and
accessibility to analytics

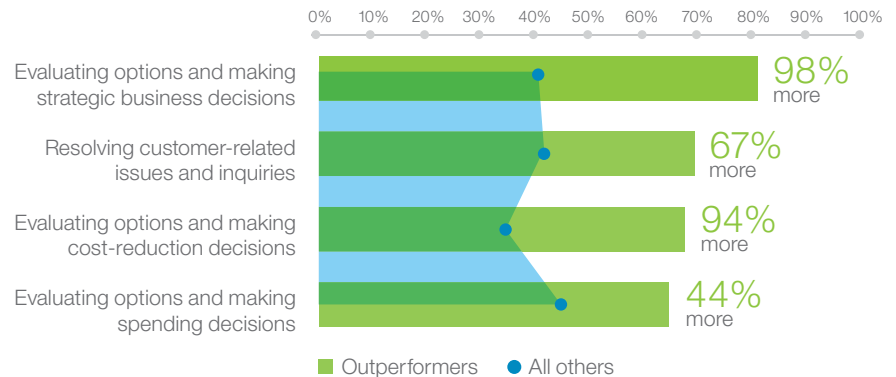
Advantages of data and analytics

Overall, outperformers have strong decision-making capabilities (see Figure 3). They are better at addressing strategic direction, cost-reduction opportunities, investments and customer issues than their peers.

Outperformers drive these decision-making capabilities by using data and analytics more effectively to generate and share insights, and to enable speed to action. As a consequence, they demonstrate better access to data, improved speed of analysis and greater clarity of insights.

To achieve their enterprises' top objective of growing revenue, outperformers are 29 percent more likely to use data and analytics to identify new business opportunities, and 20 percent more likely to use them to develop new, innovative products and services.

Figure 3
Outperformers excel in decision-making capabilities



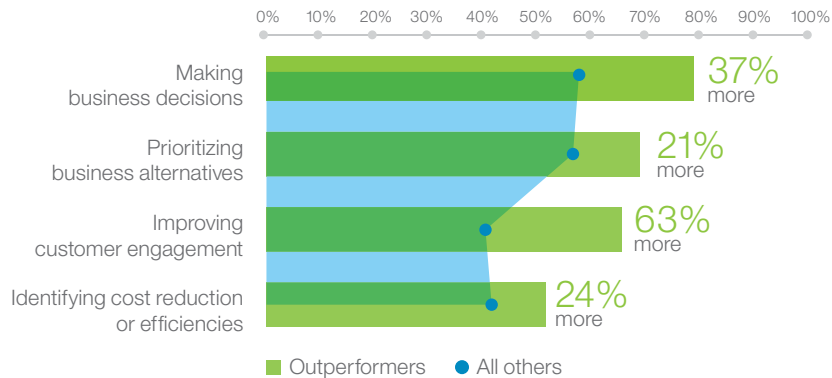
Source: IBM Institute for Business Value analysis.

What's more, these outperformers are using data and analytics more extensively as part of the decision-making process to manage their businesses (see Figure 4). Outperformers are nearly twice as likely to use data and analytics extensively to evaluate options and support strategic business decisions.

Compared to their peers, outperformers use more and different sources of data to generate insight. They understand the importance of leveraging unstructured data and combining it with structured data. This data diversity enables outperformers to create more robust insights, thereby increasing business impact.

Figure 4

Outperformers make more extensive use of data and analytics than their peers

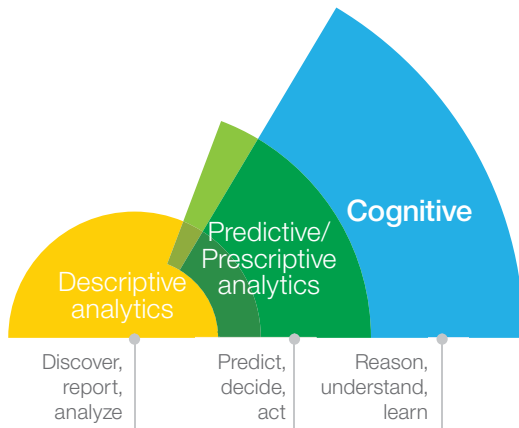


Source: IBM Institute for Business Value analysis.

Outperformers successfully synthesize internal and external data sources 153 percent more frequently than their peers.

Figure 5

The analytics path to cognitive consists of multiple stages



Source: IBM Institute for Business Value analysis.

Cognitive opportunity

Looking forward, those enterprises farthest along the analytics journey are best positioned to leverage the opportunities cognitive offers. Cognitive computing represents a new paradigm that can significantly enhance an enterprise's capability to synthesize vast amounts of structured and unstructured data, apply machine-learning capabilities to the analysis of data and query results in natural language, thereby enhancing analysts' insights, efficiency and speed. Cognitive computing moves beyond traditional analytics, into a realm in which the analytics platform can be taught to understand, learn and reason. The potential to expand the speed, insights and capability of traditional finance analysts presents significant opportunities to organizations (see Figure 5).

In finance, the application of cognitive capabilities is expected to enhance decision-making processes in both operations and performance analysis. Across operations, cognitive technologies can be employed to improve transaction processing and resolution processing. For instance, applying cognitive capabilities to the order-to-cash (OTC) process can produce more accurate billing and minimize the volume of exceptions in cash applications. Ultimately, this can accelerate working capital, improve cash forecasting and reduce costs across the OTC process.

Cognitive-enabled performance analytics offer tremendous opportunities to accelerate and automate the integration and organization of internal and external structured and unstructured data. Cognitive technologies can be trained to look for relevant patterns and outliers to drive new insights, significantly enhancing the work of finance analysts.

Cognitive solutions provide more powerful predictive methods to draw out correlations between related operational, external and financial data, such as revenue and cost changes driven by customer demand, supply chain change, weather or other externalities.

This is how finance departments can enhance the efficiency, speed and insights of analysis leveraging cognitive solutions. Ultimately, cognitive delivers the next evolution of analytics capability that can bring economies of scale to improving operational efficiency and to providing meaningful insights that foster growth – while navigating through an ocean of data. The majority of CFOs in our study recognize these benefits (see Figure 6).

Figure 6

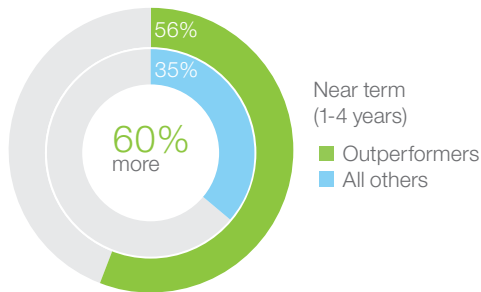
For CFOs, cognitive computing offers many opportunities for improved analytics and insights



Source: IBM Institute for Business Value analysis.

Figure 7

More outperformers intend to invest in cognitive in the near term, versus others



Source: IBM Institute for Business Value analysis.

Today's traditional analytics solutions cannot fully exploit the value of big data, largely due to challenges with unstructured data, talent gaps and the limits of human analytical insight. Even the most advanced traditional analytical solutions are largely static models, unable to adapt to new scenarios, implications of new data, correlations or other ambiguity without significant human intervention.

Legacy systems are designed to manage structured data with known, defined semantics. Cognitive adds the ability to relate words and phrases to specific meanings and infer new insights that might otherwise have gone unnoticed. Without these new capabilities, the paradox of having too much data and too little insight will remain the norm. As the volume of data and demand for new analysis continue to grow, they will eventually exceed the capabilities of traditional analytics solutions, analytics staff and manual analytics methods.

CFOs agree that cognitive computing has the potential to radically transform industries and organizations. Based on our survey, 63 percent believe it will play a disruptive role in industries, and 42 percent believe it will critically impact the future of their organizations.

Outperformers are likely to continue outperforming their peers, since they intend to invest earlier in cognitive capabilities that can bring additional competitive advantages for speed and depth of insight (see Figure 7).

The way forward

The reality is that responses from 77 percent of the CFOs surveyed suggest their enterprises fall short of what they need to have truly effective analytics capability. If your enterprise is among that group, the following recommendations can help you move beyond the *status quo* and take advantage of analytics and cognitive benefits:

Establish an integrated data strategy that takes into account multiple data sources. This might include structured and unstructured data from multiple databases and other data sources, and even real-time data feeds. Data will likely emanate from new and untapped sources as well, including social media.

Find opportunities to use analytics and cognitive for a defined set of challenges. Gut instincts and historical analysis are poor predictors of the future. Continued reliance on static models and spreadsheets precludes expanding the breadth and depth of your analytics horizon, leaving you blind to many potential opportunities – and threats. Analytics and cognitive can help you spot fraudulent behaviors, forecast more accurately, and inform actions to reduce the likelihood of decision missteps, lost opportunities and unidentified risks.

Overcome enterprise collaboration challenges. Optimizing the benefits of analytics for the enterprise requires breaking down traditional functional boundaries and establishing cross-functional teams that collaborate on specific customer, supply, manufacturing, operations or administrative analysis. There are barriers to making this collaboration real, especially in the areas of budgeting, funding, governance and internal misalignment. Reducing these frictions is essential.

Invest in cognitive-specialist human talent. Analytics and cognitive solutions are “trained,” not programmed, as they “learn” through interactions, results and new pieces of information, which can help organizations scale expertise. Often referred to as supervised learning, this labor-intensive training process requires the commitment of human subject matter experts.

Ready or not? Ask yourself these questions

- What data can you leverage that, if converted to knowledge, could contribute to meeting business objectives and requirements?
- What is the opportunity cost to your enterprise of making non-evidence-based decisions or having an incomplete array of options to consider before taking action?
- What benefits could you gain in being able to detect hidden patterns locked away in your data with speed and confidence?
- What is your organizational-expertise skill gap in analytics and cognitive computing?
- How collaborative is your enterprise across business and functional silos?

About the authors

William Fuessler leads the IBM Global Finance Risk and Fraud practice for IBM Global Business Services (GBS). The practice helps clients transform the finance function to be more strategic, address new risks and challenges, and drive enterprise-wide profit improvement by fighting fraud. Bill is a globally recognized expert in transforming the finance function. His client experience includes numerous finance transformation projects, including process redesign, enhancing data consistency, developing target operating models and advanced analytics. Under his leadership, IBM's 2010 CFO study, "The New Value Integrator" and the 2014 CFO study, "Pushing the Frontiers," defined the future of the finance organization. He can be reached at william.fuessler@us.ibm.com.

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Methodology

As a follow-up to the initial IBM "Your cognitive future" research study, we conducted additional research in early 2016 to dive deeper into select industries and explore opportunities for cognitive computing.⁴

Through a survey conducted by the Economist Intelligence Unit, IBM gained insights from more than 800 executives, 161 of whom were CFOs, from around the world representing a variety of industries, including healthcare, banking, insurance, retail, government, telecommunications, life sciences, consumer products, and oil and gas. The study also included interviews with subject matter experts across IBM divisions, as well as secondary research.

Carl Nordman is the Global Research Lead for Finance, Risk and Fraud with the IBM Institute for Business Value. He is responsible for developing and deploying research-based thought leadership for finance and the office of the Chief Financial Officer. Carl has over 25 years of experience in financial services, including 16 years delivering finance and operations transformation consulting services and process outsourcing to clients. Carl's experience includes all aspects of transformation, from strategy and solution development through implementation. He was a co-author of the 2016 and 2010 IBM Global CFO Studies. He can be reached at carl.nordman@us.ibm.com.

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Notes and sources

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