



Creating value through advanced analytics

The key is decisions, not just technology.

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It's easy for tech-savvy executives to get excited about Big Data and advanced analytics these days. Newly available tools allow companies to do things they couldn't do before, like recommending specific products to online buyers or mining workers' compensation claims data to recommend better treatment options for injured employees. But whiz-bang capabilities don't create real value unless an organization incorporates these new techniques into its day-to-day operations.

What does that mean in practice? The best way to understand any company's operations is to view them as a series of decisions. People in organizations make thousands of decisions every day. The decisions range from big, one-off strategic choices (such as where to locate the next multi-billion-dollar plant) to everyday frontline decisions that add up to a lot of value over time (such as whether to suggest another purchase to a customer). In between those extremes are all the decisions that marketers, finance people, operations specialists and so on must make as they carry out their jobs week in and week out.

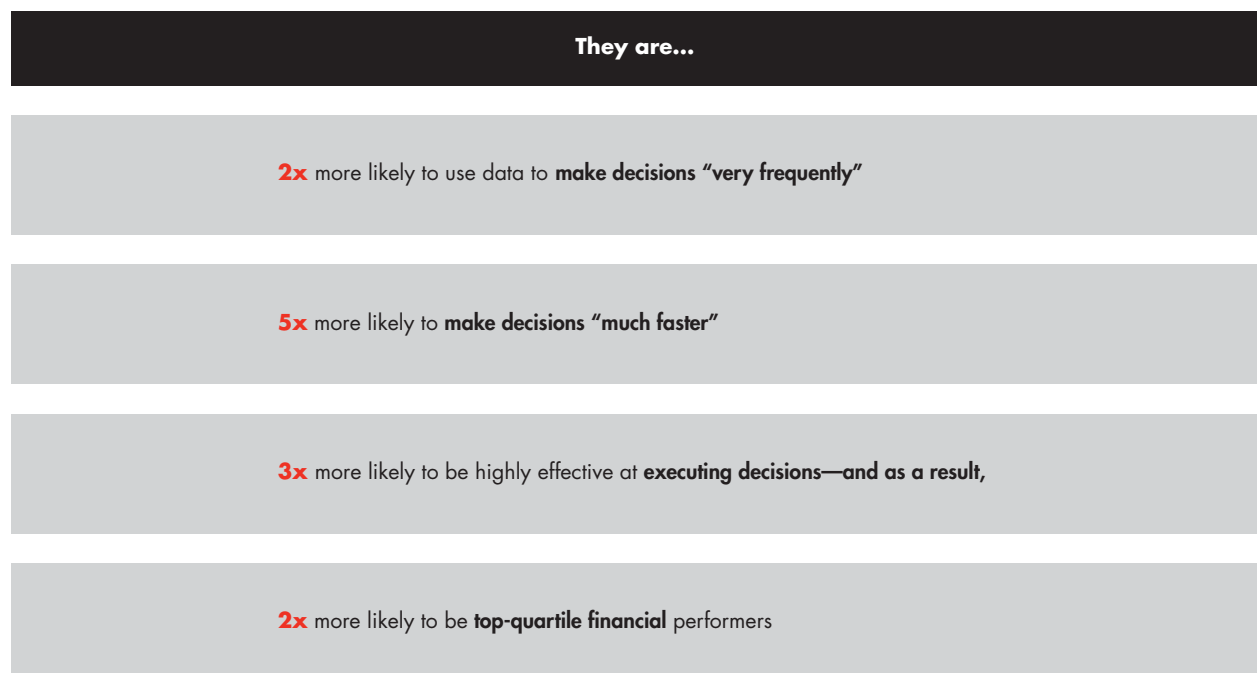
We know from extensive research that decisions matter—a lot. Companies that make better decisions, make them faster and execute them more effectively than rivals nearly always turn in better financial performance. Not surprisingly, companies that employ advanced analytics to improve decision making and execution have the results to show for it (*see Figure 1*). Decisions are where advanced analytics can add real value, quickly.

So let's examine how these organizations use the tools of analytics to improve their decisions and thus their performance.

Identifying the decisions that benefit most from advanced analytics

Look first at one extreme of the decision spectrum: the small, everyday decisions that add up to a lot of value over time. Amazon, Capital One and others have already figured out how to automate many of these decisions, like whether to recommend product B to

Figure 1: Companies with advanced analytic capabilities outperform rivals because they make better decisions, make them faster and execute them better



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a customer who buys product A or what spending limit is appropriate for customers with certain characteristics. At the other extreme—big, infrequent strategic decisions—companies certainly assemble all the data and technology they can find, including analytic tools such as Monte Carlo simulations. But the choice ultimately depends on senior executives' judgment.

In the middle of the spectrum, however, lies a vast and largely unexplored territory. These decisions—both relatively frequent and individually important, requiring judgment and experience to make correctly—represent a potential gold mine for the companies that get there first with advanced analytics.

Imagine, for example, a property and casualty company that specializes in insuring multinational corporations. For every customer, it might have to make risk-assessment decisions about hundreds of facilities around the world. Armies of underwriters make these decisions. Each one has a particular level of experience, and each is likely to weigh and sequence the dozens of variables differently.

Now imagine that you employ advanced analytics to codify the approach of the best, most experienced underwriters. You build an analytic model that captures their decision logic. Other underwriters then use that model in making their decisions. This is using analytics not so much to crunch data as to simulate a human process.

What is the outcome? The need for human knowledge and judgment hasn't disappeared—you still require skilled, experienced employees. But you have changed the game, using machines to replicate best human practice. The decision process now leads to results that are:

- **Generally better:** The incorporation of expert knowledge makes for more accurate, higher-quality decisions;
- **More consistent:** You have reduced the variability of decision outcomes; and
- **More scalable:** You can add underwriters as your business grows and bring them up to speed more quickly.

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In addition, you have suddenly increased your organization's test-and-learn capability. Every outcome for every insured facility feeds back into the modeling process, so the model gets better and better. So do the decisions that rely on it.

Using analytics in this way is no small matter. You'll find that you need to alter your decision processes. You'll need to build the technological capabilities, and you'll have to ensure that your people adopt and use the new tools. Let's go on to examine these challenges.

Modifying decision processes to incorporate advanced analytics

Think for a moment about how an organization makes a significant decision. First come the *facts*, the data that will inform the decision. Using these facts, someone formulates *alternative courses of action* and evaluates them according to agreed-on criteria. The decision maker then *chooses* the best alternative, and the organization *commits* itself to action.

Advanced analytics can automate parts of this sequence; it offers the prospect of faster, better-informed decisions and substantially lower costs. But unless you're prepared to transform how people work together throughout the decision-making process, you're likely to be disappointed.

Take a simple example: a company's collections function. In years past, dozens of collection agents would receive hundreds of randomly allocated delinquent accounts every day, each one with a few facts about the customer. The agents then reviewed a standard list of alternatives and decided how they would try to collect what was owed.

Today, an algorithm can assemble many more facts about the accounts than any human being could easily process: lengthy payment histories, extensive demographic data and so on. Using these facts, it can separate the accounts into simple categories, say red-yellow-green.

Now the alternative courses of action are simpler. Red ones—low value, unlikely to pay—go straight to a collection agency. Green ones—high value, likely to pay—go to specially trained callers for white-glove service. The yellow ones require a careful review of alternatives and much more human intervention before a decision is reached. Within the yellow and green categories, moreover, sophisticated test-and-learn experiments can inform the decisions that remain. Agents can discover from these experiments which channels and messages generate the greatest financial return while minimizing costs and customer dissatisfaction. They can thus optimize their choices about how to pursue delinquent accounts.

Advanced analytic models can incorporate the experience of an organization's best decision makers, focusing the evaluation on the most promising courses of action.

The new way of doing things is better and more efficient. But look at how it changes the process itself—and what's expected of the people involved:

- Software now assists with the collection and analysis of critical information, eliminating tasks once done by human beings. But people have to determine which facts to collect and how to weight them.
- Red-yellow-green or other simple categorization schemes can speed up the formulation of alternatives. Advanced analytic models can incorporate the experience of an organization's best decision makers, helping to eliminate alternatives that are less viable than others and focusing the evaluation on the most

promising courses of action. People will require training in how to use the insights from the new decision-support tools.

- Within the yellow and green groups, test-and-learn results can dramatically improve the quality of decisions an organization makes. People will still need to figure out what experiments to run and then interpret the results.

The new decision procedures are likely to require investments in technology—for example, software that embeds rules and new decision logic into the workflow systems. They'll also require redesigning people's roles to fit with the new process. The possible need for new skills could mean extensive retraining and may require hiring new talent altogether.

The use of analytics can hugely improve the quality of your decisions and can increase decision process efficiency by as much as 25%. When executed well, it leads to higher customer and employee satisfaction. But analytics alone won't achieve these results; the decision process needs to change, with people learning new skills and taking on new roles. The transformation is organizational as well as technological, and is more extensive than many companies imagine.

Making advanced analytics stick—helping employees put new tools to work

Bringing advanced analytic tools into your organization can help you clone your best decision makers so that you get better, faster decisions in every situation that requires human judgment. But you will certainly have to confront that pesky human factor: people's natural reluctance to adopt new ways of doing things.

Companies that are most successful at getting employees to use the new tools seem to rely on a three-faceted approach. It includes:

Cocreating analytics-based solutions. People often fear analytic tools because they don't understand what's inside the "black box" or why it's important. So some

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companies have learned to involve employees who will be affected by the new tools in designing and refining the tools' applications.

A property and casualty insurance company, for instance, knew that business customers who invested in risk management were longer tenured and more profitable than others. So it naturally wanted to know which prospects in its database would be most likely to implement safety recommendations. It began creating a predictive analytic model—but what were the right variables to use?

The company ran a series of workshops involving salespeople, claims adjusters, site-inspection engineers—anyone who might have a point of view on the issue. Participants came up with idea after idea that the analytics designers might never have thought of: whether the prospect had favorable employee ratings, what percentage of its management team held technical degrees, whether the company had a senior risk-management executive, whether it invested to protect its brand's reputation, and others.

The analytics folks tested many of the group's hypotheses and eventually rank-ordered the variables; they also kept asking workshop participants whether the results and rankings made sense in light of experience. Eventually, participants became convinced that the model outputs matched their experience and intuition. Involved from the outset, they became advocates of the new tool throughout the organization.

Involving marketing in the rollout. The tech-savvy experts who create and introduce analytic tools aren't necessarily the best people to tell everyone why the tools are important. Social and communications skills, after all, don't always go hand in hand with an advanced engineering degree. Marketers, however, are professional communicators—which is precisely why many companies rely on their marketing departments to develop a rollout plan for analytic tools.


At one company, many employees were concerned about the privacy implications of tools relating to collections. Wouldn't customers feel annoyed that the company had so much data about them and was using it to customize

the collections process? In introducing the tools, marketers emphasized that the tools made life better for everybody, agents and customers alike. If high-value, high likelihood-to-pay customers got special white-glove treatment, for instance, they would be happier than if faced with a one-size-fits-all collections protocol.

Picking their spots with care. One company wanted to introduce a new predictive tool to help its sales representatives identify promising prospects. But it was afraid the reps would never use it. So executives identified a unit that was far behind plan, where the reps were unlikely to earn their bonuses.

It gave this unit the tool first, saying, in effect, "Try this. It might help." The reps, desperate for anything that might boost their results, eagerly tried the new tool. When they discovered its power—and saw their unit's results improving—they began talking it up to their colleagues in other units. Before long, every sales agent in the company was clamoring for it.

Every tool and every introduction is, of course, different. Early in the process, you will want to assess the specific risks you are likely to encounter and develop a plan to mitigate them. But these three approaches have helped many once-skeptical people overcome their reluctance and incorporate today's analytic tools in their decisions. That's where the real value of the new technology lies: in generating the better, faster decisions that almost always produce better financial results.

Big Data—more appropriately, advanced analytics—is less about *data* than it is about *decisions*. To get the most out of their company's investment in analytics, leaders have to focus on the decisions that matter most. They have to use analytic techniques to "clone" the organization's best decision makers, incorporate these new approaches into the company's decision processes and (most important) overcome human resistance to the new approach. It's a lot to do—but that's what it will take to realize the enormous promise of these dazzling new tools. 

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