

SMART ORGANIZATIONS PERFORM BETTER

The “high-IQ” organization has almost five times the chance of being a top performer than its low-IQ counterpart

David Matheson and James E. Matheson

OVERVIEW: *Identifying linkages between the use of best practices and overall measures of corporate performance is difficult. Studies of several hundred companies, however, show that underlying cultural and organizational patterns lead to effective implementation of many best practices, which the authors call the “principles” of a smart organization. These patterns, which are measured with an organizational IQ test, correlated positively with overall corporate performance, leading to the conclusion that smart organizations perform better.*

In the early 1990s, we conducted a benchmarking of best practices for strategic decision making in R&D (1). A result was the identification of 45 best practices. But we were perplexed by the difficulty some seemingly excellent organizations have adopting practices, even when they *know* that those practices will lead to better results. This led us to study implementation issues more deeply, in cooperation with the Industrial Research Institute (2). Our studies led to two perplexing questions: why companies that aspired to implement best practices

*David Matheson is president and CEO of SmartOrg, Inc., a Menlo Park, California provider of web-based decision systems for R&D and technology management. He was the principal investigator and leader of the research into best practices of leading R&D organizations that led to the 1998 book he co-authored with James Matheson, *The Smart Organization: Creating Value through Strategic R&D* (Harvard Business School Press). Prior to co-founding SmartOrg, he was a principal management consultant at Strategic Decisions Group (SDG), working for a wide range of industries in the U.S. and Europe. He received his M.S. and Ph.D. from Stanford University. dmatheson@smartorg.com*

James Matheson is chairman and CFO of SmartOrg, a recognized authority on decision analysis, and a consulting professor at Stanford University. He founded the decision analysis practice at SRI International in the 1960s and was a co-founder of SDG where he served as managing director and chief technology officer prior to co-founding SmartOrg in 2000. He received his M.S. and Ph.D. from Stanford. jmatheson@smartorg.com

often failed to do so, and how to measure the ultimate performance implications of best practices (3).

Further research identified organizational characteristics that generally determined whether companies were successful in adopting best practices. We call these characteristics the “nine principles” of the smart organization, and made them the subject of our book, *The Smart Organization* (4). Left unanswered, however, was the bottom-line question: Do smart organizations—i.e., those that conform to the nine principles—perform better than the “not so smart”? To answer that question, we developed and introduced a test capable of measuring an organization’s conformance to the nine principles. We have now accumulated about 1,000 IQ surveys from individuals in several hundred organizations. Each survey includes the respondent’s assessment of the organization’s performance.

As we examined this new data, we found strong evidence that smart organizations do perform better. Entities in the top quartile of organizational IQ had about a 45-percent chance of also being in the top quartile of financial performance, while those in the bottom quartile of IQ had only a 10-percent chance of being in the upper quartile of performance (see Figure 1). The converse was also true—i.e., those in the bottom quartile of IQ had about a 45-percent chance of being in the bottom quartile of performance and only a 10-percent chance of being in the top quartile. By chance alone, all of these numbers would be 25 percent. Our conclusion: smart organizations perform better.

Further study brought us to the realization that the adoption and effective use of best practices comes about from deeply seated organizational attitudes and habits, which are measured by organizational IQ scores. The actualization of best practices, then, is a consequence or symptom of organizational intelligence. Lower IQ organizations may go through the motions of best practices, but fail to gain the full benefits. This is why tying best practices to performance is so elusive and adoption so difficult.

Nine Principles of the Smart Organization

We have always wondered why some companies are so much more effective at making decisions than others.

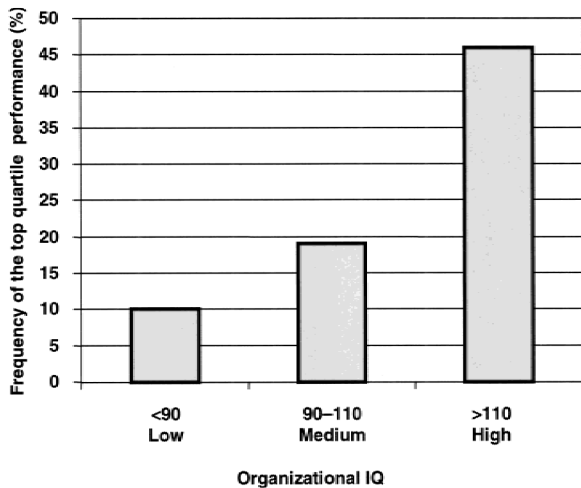


Figure 1.—Smart organizations perform better.

When they reach a major fork in the road—when they must decide between alternatives clouded with uncertainty—some companies manage to sort out the risks and opportunities associated with each alternative. If they are unsatisfied with the alternatives on their plates, they encourage employees to discover new ones. Their methods of choosing are relatively apolitical and objective. Other companies, in contrast, do not deal with risk effectively. They either move forward oblivious to

risk, or scrupulously deny strategic risks and the opportunities that go with them.

The nine principles of a smart organization (Figure 2) provide the organizational context that facilitates best practice implementation. These principles are often subtle and work at many levels, influencing the way people think and act. They determine whether people are excited or cynical about adopting a new best practice. Ultimately it is the accumulation of many best practices, all done in the right spirit, that produces the business results.

Together, the nine principles comprise the world-view required for routinely making high-quality strategic decisions. Each principle represents a coherent theory or norm that organizes a particular set of beliefs and, therefore, pattern of behavior. When smart principles are in place, behaviors reinforce best practices and good decision making; when they are absent, behaviors undermine the impact of best practices or even the organization's ability to adopt them. The nine principles are grouped below into three crucial functions: those that help the organization understand its environment, those that make it possible to mobilize resources, and those that help it achieve its purpose.

1. Achieve Purpose

Value Creation Culture

A Smart Organization needs a reason for existence. Everyone in the organization should understand this

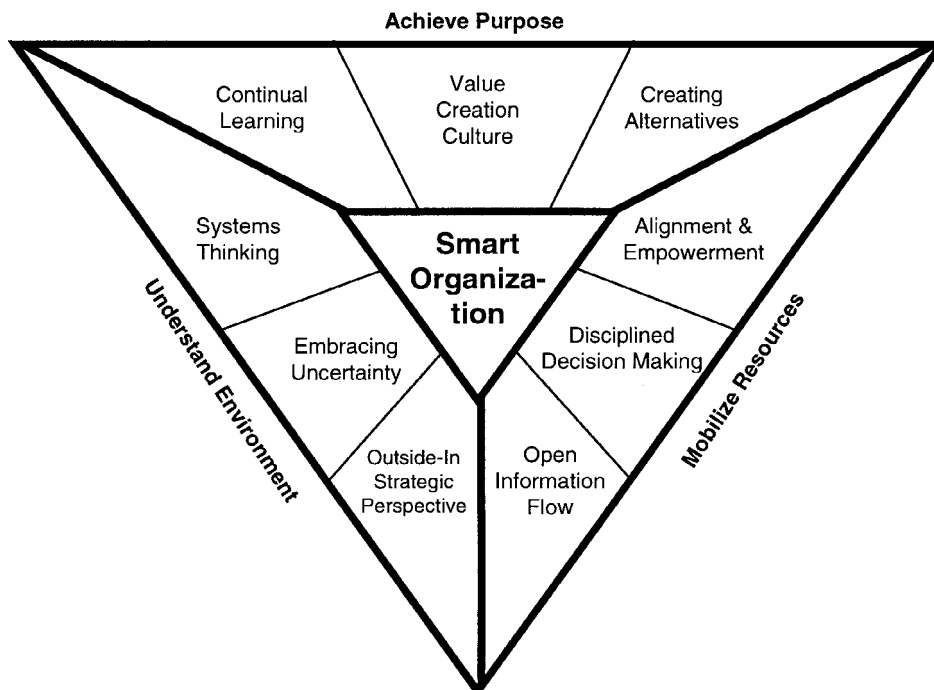


Figure 2.—Nine principles of the Smart Organization.

purpose and use that understanding as a final test of whether their strategies and actions are creating value for the organization and its customers. Value creation is a compelling argument for change, overriding barriers thrown up by tradition, functional boundaries, personal ambitions, and even budget limitations.

Creating Alternatives

Without alternate courses of action, there can be no true choice or search for the best value creation opportunity. A soundly reasoned decision can be made only as a choice among a good set of competing alternatives. The Smart Organization demands proactive creation of new alternatives and will not take strategic action before multiple alternatives are created and evaluated.

Continual Learning

Change is one of life's few certainties. Being smart means continually learning how to create more value in the face of changes in the world's political and demographic structure, rapidly advancing technology, and globally competitive markets. The individual responds to potentially threatening information in a non-defensive manner. The organization continually identifies opportunities and paradigm shifts and finds new and improved ways to create more value.

2. Understand the Environment

Embracing Uncertainty

There are no facts about the future, only uncertainties. People in a Smart Organization understand how to work with uncertainty and integrate it into their reasoning processes. They measure what they don't know and manage the associated risks. They do not deny uncertainty, but recognize it when making decisions. Uncertainty is understood, communicated and managed.

Outside-In Strategic Perspective

We typically start our thought process by assessing where we are and then think incrementally about where we are going. In facing important strategic decisions, however, we should begin by understanding the broad territory in which we operate. The Smart Organization begins by exploring the big picture—where the world is going, how its customers and industry are changing—and then works inward toward the implications for itself.

Systems Thinking

Albert Einstein instructed us to use the simplest model that captures the situation. Unfortunately, most important strategic situations are very complex. The development of a new technology, product or process creates a chain of changes in the world of customers and competition. It sets off a chain of competitive reactions,

Nine principles comprise the world-view for making high-quality strategic decisions.

next-generation products and so forth. The Smart Organization uses systems thinking to understand the long-term (and often counterintuitive) implications of its decisions. Systems thinking encourages us to follow Einstein's maxim and simplify to the point of maximal insight for decision making.

3. Mobilize Resources

Disciplined Decision Making

The opportunity or need for a strategic decision is often difficult to discern. Smart Organizations' processes help them recognize the need to make strategic decisions before events overtake them. Then they apply systematic, disciplined processes that delineate the steps needed to reach sound conclusions; these processes have the benefit of high-quality inputs because they involve the right people, whose involvement secures their commitment to the final decision.

Alignment and Empowerment

In the face of fast-moving global competition, the old hierarchical command-and-control structures don't work; they are too slow. Decision makers suffer from information overload. These structures do not attract talented people who want participation and purpose in their work. And they require excessive micromanagement. However, empowerment without common goals and understanding results in chaos and haphazard results. The Smart Organization encourages participation in the decision-making process to achieve the alignment of goals and the understanding required to make empowerment effective.

Open Information Flow

It is often impossible to tell in advance which information is important or how some apparently disconnected piece of information will trigger a new and creative insight. The Smart Organization creates open and virtually unrestricted information flow to all parts of the organization. The habit of hoarding information as a

source of power is driven out. In an aligned and empowered organization with a value-creating culture, everyone needs open access to information to do his or her job.

Measuring Organizational Intelligence

Our organizational IQ survey measures the extent to which a particular organization follows the nine principles. Over the past few years we have applied this instrument to about 1,000 cases and established the database required to define a scoring scale and obtain statistical insights. One hundred points on the scale indicates average IQ, and each standard deviation represents 15 points.

The unit of analysis for our survey instrument is not the corporation, but its organizational units. Corporations are typically composed of many heterogeneous parts, and some of those parts are usually “smarter” than others. Thus, if we aim to identify points of strength and weakness, we need to measure the intelligence and performance of the organizational units directly. In addition, different people may have different perspectives on the organizational intelligence. We have found that examining these differences of perspective is usually a learning opportunity for the participants.

In conducting a full IQ assessment, we ask a cross-section of members of the same organization to complete a 45-question survey instrument. We supplement this survey with interviews and workshops. Each survey question is based on an observable set of behaviors that are relevant to each principle. The results of this more extensive survey correlate well with results obtained

from a shorter, ten-question survey, and it is the short-form results that we have analyzed statistically. Figure 3 contains an excerpt of that ten-question instrument.

We always administer this survey in the context of self-assessment so that subjects have the greatest incentive to answer honestly. We ask permission to keep the results for our private research, where individual responses are aggregated into statistical results, without revealing individual or specific organizational scores, to minimize motivational biases. Though individual subjects might be biased toward either high IQ or low IQ for their company, the performance measures are relatively objective, and we believe potential individual biases will tend to cancel out. To prevent the introduction of systematic bias, we have turned down several requests for publishable lists of organizational IQ ratings. (Readers can diagnose their own organizations by means of our online version, which is found at www.SmartOrg.com.)

As mentioned earlier, the logical unit of analysis is the line or functional unit, not the entire corporation. Since sub-unit performance is not usually published, we have found the best approach to performance measurement is self-assessment using well-defined questions based on data that respondents are likely to know: market share, profitability and growth over the last five years. Each was ranked on a scale ranging from “poor for industry” to “excellent for industry.” Answers to these questions were averaged to provide an aggregate measure of unit performance.

We found that unit IQ correlates with unit performance, with smarter organizations significantly more likely to be in the top quartile of performance. Additionally, we

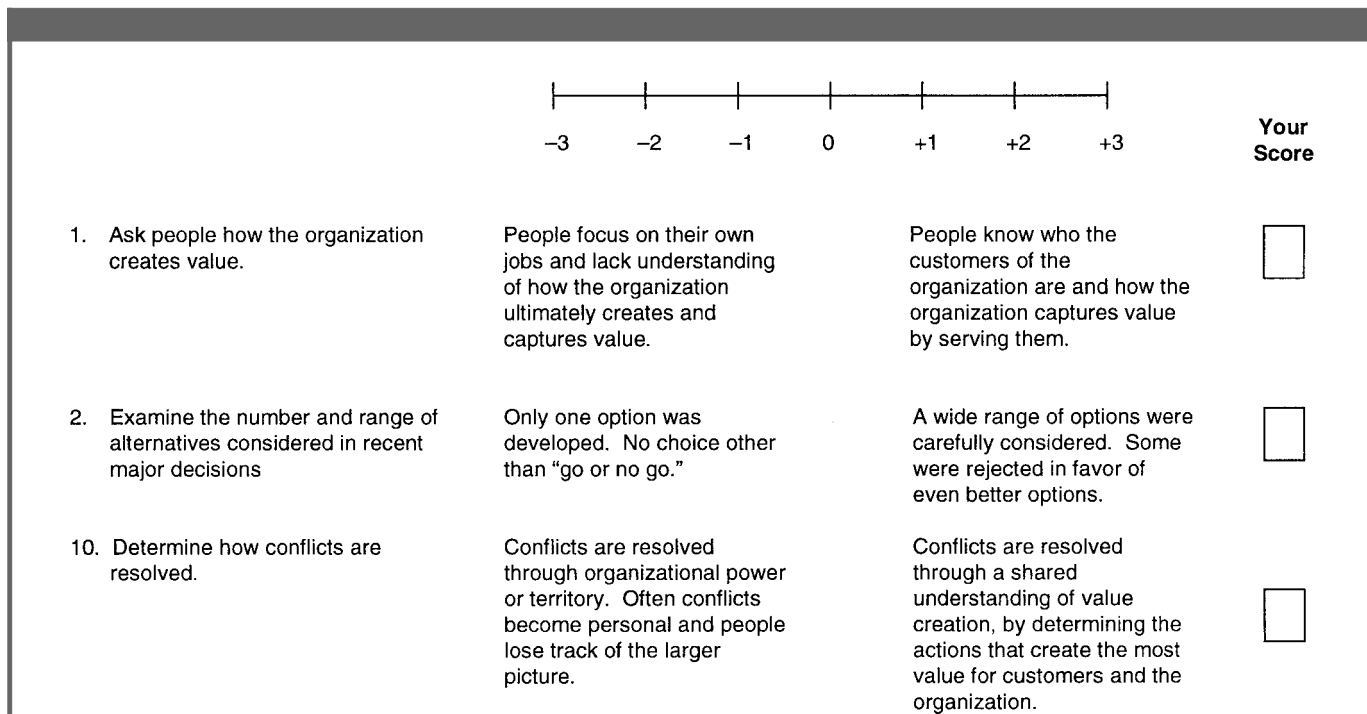


Figure 3.—Excerpt from the short-form IQ survey instrument.

have found that high IQ organizations have lower levels of performance variance than do low IQ organizations. Said another way, smart organizations not only perform better, they perform *more consistently*. Further analysis suggests that organizational intelligence is a *leading indicator* of performance; that is, increasing an organization's intelligence raises its future performance.

To understand the significance of each performance measure in relationship to IQ, we determined the weightings that resulted in the best correlation between organizational intelligence and performance. The result, shown in Figure 4, is that organizational intelligence is most strongly linked to profitable growth (both growth and profit have high weights). Growth rate has 50 percent of the weight but profit is not far behind at 35 percent, because growth without profit is not valuable. Market share has 15 percent weight because high market share carries momentum for future profitable growth. We note that these weights are characteristic of long-term value creation.

Increasing Organizational Intelligence

Having shown that smart organizations perform better, how can an organization increase its intelligence and, by extension, its performance? Unlike individual human IQ, which appears to be a given, the IQ of organizations can be improved. We are just beginning to understand the organizational dynamics and interventions required to create positive change. However, it is clear that real change takes many years and, because it involves adherence to deeply embedded cultural and organizational principles, is not easily achieved. Nevertheless, we have observed cases in which intervention by change agents has resulted in marked performance improvements.

Perhaps the best-documented example is the case of SmithKline Beecham, which implemented a new process

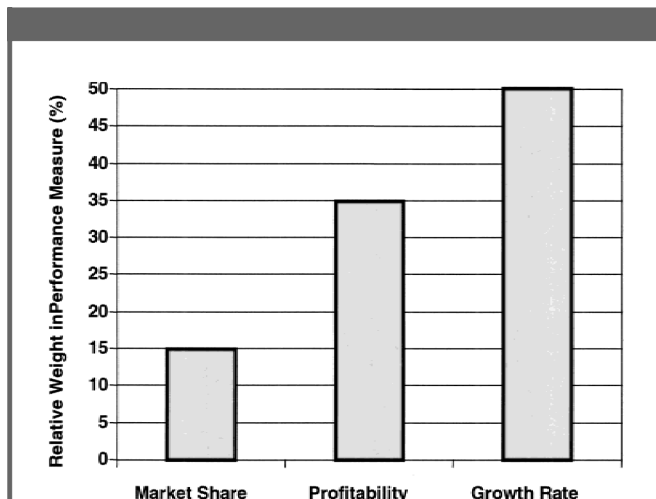


Figure 4.—Organizational intelligence is most strongly correlated with growth and profit.

Increasing an organization's intelligence raises its future performance.

for R&D portfolio management based on many of the best decision making practices (5). SKB conducted its efforts as a major change program, dealing with both the hard issues, such as processes and analytical methods, and the softer issues, such as credibility. The results of this program were substantial: the value of the company's drug portfolio increased by \$2.6 billion dollars—as much as the gain from a new blockbuster drug.

Although a change program can achieve better strategic decisions fairly quickly, early declarations of victory are unwise. Reform stimulates the organizational “antibodies” that resist continued improvement. It takes much longer to change habits, myths, systems, incentives, and processes, and to maintain hard-won improvements when active intervention ceases. SKB and others have found that persistent effort is required to shift the culture and permanently raise the organizational IQ.

Diagnosing and Changing Behavior

Consider just one of the nine principles: Value Creation Culture. This principle means two things: first, that organizations resolve conflict by searching for the course of action that creates the most value; and second, that people have a shared understanding of what value means. This principle may sound simple, but contrast it to the negative patterns (we call them “rogue” behaviors) typically seen in contemporary organizations.

The corporate liar's game is one of the negative patterns you have probably experienced firsthand. It occurs around budget time, and is observable in many industries. Here's how it works: Budget requestors submit proposals to a committee or person who stands in judgment over many such requests. Each person requests more money than he or she will actually need, knowing that cutbacks are likely. The judges know that people are playing this game, so they carefully scrutinize each budget—either asking their staffs to second-guess requests or challenging people to achieve arbitrary budget reduction targets: “Just do that with 20 percent less funding.” In this game, the biggest liar wins, while those who tell the truth about what they need find their

funding cut back, along with everyone else, and end up the biggest losers.

The corporate liar's game undermines the principle of the value creation culture in several ways. There is no search for value or for better alternatives. Indeed, each requestor advocates for only his or her case. Second, advocates justify their cases with whatever measures or data are most expedient and convincing. Contradicting data are repressed. Also, different measures of value are used to support requests for resources. For example, people working in a stable part of the business might make their case based on NPV or cost reduction. Those employed by the growth part of the business base their funding requests on top-line revenues. A value creating culture, in contrast, uses a measure of value that everyone seeks to maximize (e.g., probability-weighted NPV of future cash-flow); it does not allow a proliferation of metrics to confuse decision-making.

The general strategy for improving organizational intelligence is to build on existing strengths and work on improving current weaknesses. Knowing which of the nine principles of organizational intelligence are strongly engrained and which are not provides a focus for improvement. Designing changes that incorporate best practices and address the process issues, although challenging, is relatively easy.

The hard part is eliminating the negative behaviors (such as the corporate liar's game) that lock the organization into a pattern of poor performance. Creating lasting change requires careful identification of negative patterns of behavior and design of interventions to disrupt those behaviors and substitute positive ones aligned with the nine principles. Negative behaviors like the corporate liar's game must be identified and actively disrupted. Additional steps need to be taken to reinforce and reward adherence to smart principles, partly through new behaviors which compete directly against the negative behavior patterns for dominance in the organization. This requires the coordinated modification of many organizational systems, strategies, skill sets, incentives, and clear signals of support from corporate leaders.

In this sense, the negative and smart patterns of behavior are competing for dominance in an organization. These patterns often take on a life of their own, and so we call the negative patterns "rogues" and the smart patterns "heroes." The change management challenge is to tip the scales in favor of the heroes so that they come to dominate the patterns of behavior.

The corporate liar's game undermines the culture of value creation.

The strongest leverage point in many organizations is the development of clear, disciplined decision processes that incorporate the other smart principles. When people learn that actual funding decisions are made in a new way, they usually get on board. It takes consistent application over a number of years, though, to change the "DNA" of the organization.

Our research indicates that organizations within which the nine principles are strongly rooted are better able to adopt best practices for decision-making and to produce better results from them. Indeed, they are able to invent and improve best practices in the face of changing circumstances. The last 20–30 years of management effort has been focused primarily on operational improvements: reducing cycle time, reengineering, total quality management, six sigma, etc. Most companies are now operationally excellent. Yet with this focus, efforts to make companies smarter have been neglected. Organizational intelligence is the next frontier that will differentiate the winners from the losers. The ability to make smart decisions and adapt rapidly to changing situations may be the greatest competitive advantage of the twenty-first century. ☺

References and Notes

1. Matheson, David; Matheson, James; and Menke, Michael. "Making Excellent R&D Decisions." *Research · Technology Management*, November–December 1994, pp. 21–24.
2. Lander, Lynn; Matheson, David; Menke, Michael; and Ransley, Derek. "Improving the R&D Decision Process." *Research · Technology Management*, January–February 1995, pp. 40–43.
3. At the December 1999 MIT conference "The Strategic Management of Technology," Edward Roberts commented on the difficulty of statistically relating the use of best practices to ultimate measures of profitability.
4. Matheson, David and Matheson, James E. *The Smart Organization*, Harvard Business School Press, 1998.
5. Sharp, Paul and Keelin, Tom. "How SmithKline Beecham Makes Better Resource-Allocation Decisions." *The Harvard Business Review*, March–April 1998, pp. 45–57.

Read RTM OnLine . . .

. . . as soon as the issue is printed, at <http://www.iriinc.org/RTM.htm>. Full text, electronic version is searchable by topical keyword and linked to article authors.