

Strategy as Diligence: PUTTING BEHAVIORAL STRATEGY INTO PRACTICE

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Thomas C. Powell¹

SUMMARY

Researchers in behavioral strategy are producing new insights on strategic decision making. At the same time, a few pioneering companies are discovering ways to put behavioral strategy into practice. This article draws on behavioral research and strategy practice to present an approach called diligence-based strategy. In markets comprised of people rather than rational economic agents, the analysis of competitive advantages matters less than the diligent execution of fundamental activities. Diligence-based strategy offers an applied method for formulating and executing strategy in organizations, showing how managers can leverage technology and management discipline to drive business success in the twenty-first century.

KEYWORDS: diligence, behavioral strategy, strategy process, strategic management, strategic planning, decision making

In 2014, Concha y Toro UK (CyT)—an importer-distributor of wines made in Chile, Argentina, and California—faced a crisis in competitive strategy. Global distributors with established brands were moving aggressively into the U.K. market, smaller entrants were experimenting with new business models, and downstream consolidators were shifting the balance of power to a few large corporate retailers. Confronted with the threat of eroding market share, declining profit margins, and an aging business model, CyT executives knew something had to change.

But CyT did not follow the conventional path for managing large-scale strategic change. Executives did not articulate a crisis or launch a strategic audit of market trends or competitive threats, and the company made no attempt to revolutionize its market strategy or business model. Instead, executives turned their attention to a small number of ordinary business activities such as procuring

¹University of Oxford, Saïd Business School, Oxford, UK

inputs, managing customer relationships, and developing people. Then, leveraging stakeholder relationships, Internet technologies, and social media, the company commissioned a new system for monitoring capabilities in fundamental activities for CyT and its competitors. From this platform, executives developed improved systems for goal-setting, measurement, and allocating resources to the everyday fundamentals of business success.

This renewed commitment to mastering and executing the fundamentals of business success—supported by empirical data, Internet technologies, and new analytical methods—transformed strategy making at CyT. By deliberately shifting management attention from the traditional abstractions of “big strategy” to the daily realities of fundamental business practice, CyT executives generated a powerful body of longitudinal data for sensing market shifts, tracking competitive activity, setting priorities for investment, and defining new strategic initiatives. According to one CyT executive, the shift was “a complete game-changer. Without question, it revolutionized the way we think about strategy.”

Competitive and technological conditions in the twenty-first century are changing the way companies conduct their strategy processes. The pace of competition requires executives to strategize and act at the same time, to bring Internet technologies into the strategy process, and to focus on a few highly leveraged activities that drive business outcomes. In these conditions, some executives find that the traditional building blocks of business strategy—analyzing industries, choosing the scale and scope of the firm, positioning for competitive advantage, and seeking differentiated resources and capabilities—have outlived their usefulness. The strategic shift now underway at CyT—and in larger consumer companies such as PepsiCo and Mars—heralds the arrival of something genuinely new, a significant movement that transcends the particulars of any method or technique. It may indeed signal a landmark shift in the attitudes of top executives toward the practice of strategic management.¹

The magnitude of the signal is faint, but its outlines are clear. Executives no longer believe in sustainable competitive advantage as a concept. They have little patience for impressive platitudes or drawn-out strategy talk. They attend relentlessly to what they can control, while rejecting the notion that strategy and operational excellence, or strategy formation and execution, are separable things. They rely more on measurement and evidence, and less on opinions and persuasion. They view strategy as a continuous process involving decisions and actions, not as a periodic process involving only decisions. They value not only hard data and quantification but also organization culture, which they construe as shared meaning and disciplined performance management. They challenge firm boundaries by embracing open organization, user communities, and social media. Learning through trial and error, executives are carving out a novel set of strategy principles founded on data, communication technology, and the relentless measurement and control of the fundamental activities that determine business success.

In developing this approach, managers have paid less attention to academics and consultants than to practitioners in other competitive domains. For example, one source for diligence-based strategy is the “moneyball” phenomenon, in

which baseball executive Billy Beane used advanced statistics and activity monitoring to overthrow traditional methods of evaluating baseball talent.² In the past decade, these techniques have spread through business, sports, and other domains. In professional golf, PGA and LPGA touring pros keep a close eye on GPS-enabled competitive statistics for driving distance, driving accuracy, and average distance from the pin, and on technology-enabled swing statistics for clubhead speed, spin rate, and launch angle.³ Young golfers attend premium academies in Florida, Arizona, and Dubai, and they study with world-class coaches, nutritionists, fitness instructors, and psychologists. These players maximize performance by applying the new power of technology, statistics, and sports science to the mastery of fundamental activities that have always determined success in golf: driving, iron play, hazard play, putting, and the mental game.

Companies like CyT bring this approach to business competition by focusing on the fundamental activities that drive success in any business: activities such as developing new products, building stakeholder relationships, managing supply chains, serving customers, and managing culture. This approach is “diligence-based” because it values data, measurement, and behavioral perseverance above large-scale strategic ambitions such as industry transformation and sustained competitive advantage. It is “strategy” because it permeates every aspect of organizational strategy, from goal-setting and strategy formation through resource allocation and day-to-day execution.

The principles of diligence-based strategy provide a method for putting these ideas into practice. This article draws theoretical inspiration from cognitive psychology and behavioral research, while rejecting the rationality and efficiency assumptions that entered the theory and practice of strategic management through economics. Assuming that markets are composed of human beings rather than rational economic agents, diligence-based strategy shows the consequences of bringing realistic assumptions about human behavior to the practice of strategic management.

The Chess Syndrome

As practiced by large companies and taught in business schools, strategic management is largely an art or science of the intellect. Corporations and strategy consultancies employ sophisticated analytical tools for understanding markets and internal resources, and MBA students learn general theories and techniques for industry analysis, competitive positioning, and the internal analysis of the firm. The tools of strategic analysis are widely disseminated and embedded in the strategy processes of companies.

In using these tools, strategists are vulnerable to a state of mind that might be called the “chess syndrome”: the belief that the purpose of strategy is to analyze and choose strategic moves. Through training and experience, business strategists learn to assess industry structures, recognize patterns in industry and competitive trends, evaluate a company’s competitive position, develop and evaluate strategic options, judge probabilities and payoffs of future events, and choose the scale,

scope, and competitive position of the firm. Because these tasks are cognitive and analytical, they suggest parallels between business strategy and other domains in which competitive positioning plays an essential role—most notably chess, in which the analysis of competitive moves is paramount.⁴

The problem is that chess and business are very different games. Chess grandmasters such as Magnus Carlsen and Garry Kasparov have extraordinary gifts for recognizing patterns and seeing deeply into potential lines of play. However, these mental gifts constitute *the whole game of chess*. Choosing a good chess move is intellectually complex but behaviorally trivial: when a decision is made, the player reaches across the board and moves the piece to a new square. Implementation is swift and unproblematic, and unexpected events never get in the way. Chess players never think about strategy execution because chess strategies never fall apart between thinking and doing.

Ease of execution distinguishes chess from domains of human activity that require both thinking and doing, such as mountain climbing. In the past 60 years, mountain climbers have discovered 18 different routes up Mount Everest. Most of these routes have been tried more than once, and every experienced climber knows which ones offer the greatest probability of success. As it happens, 99% of climbers choose the Southeast Ridge from Nepal or the North Ridge from Tibet. Statistics show that the Southeast Ridge yields slightly higher success rates and fewer deaths, but taking weather and other factors into account, many climbers prefer the North Ridge and the success rate there is reasonably high.

Unlike chessmasters, climbers of Mount Everest must consider strategy execution, both during the climb and while planning the climb. In chess, there are 24 possible moves at the opening and 10.9 million possible positions by the seventh move. In climbing Everest, there are only two feasible moves at the start and movement is continuous and effortful. The two feasible paths up the mountain are widely known, and climbers do not agonize over the choice of paths. Indeed, most climbers choose their paths implicitly before deciding whether to go on the expedition at all, knowing that the decision entails *equifinality of choice* (climbers can reach the top on either path), *randomness* (which may hinder or assist the climb), and *continuous interaction with external forces* (such as weather, Sherpas, equipment, and other climbers).⁵

These characteristics radically alter the strategy process from beginning to end. Success in climbing Everest does not depend on choosing the right path but on the climber's capacity to deal with the conditions of the actual climb. Climbers still have to make choices, but the critical choices do not involve the analysis of paths. They involve mastering the fundamentals of mountain climbing, assembling and managing the right team of people, and anticipating and dealing with the conditions of the climb.

Diligence-based strategy assumes that business strategy is not contemplative like chess, but expeditionary like going up Everest. Problems in business strategy are characterized by equifinality, randomness, and continuous interaction

with external forces. In business competition, the range of strategic options is always constrained by external conditions and past choices, and executives seldom face a large number of feasible paths; in many cases, the actual number of feasible paths is one.⁶ In business strategy, good decisions sometimes fail, bad decisions succeed, margins for error are large, and the conditions of implementation can erase or reverse the core assumptions on which positioning decisions were based. Companies do not fail every time an executive chooses the wrong path, and it often happens that the human and economic conditions of competition—poor implementation of a bad decision, poor decisions by competitors, a favorable demand shift, a lucky change in government regulation, a corporate takeover—allow executives to profit from their own mistakes.⁷

This does not mean that business strategists should never think about competitive moves, or should avoid strategy tools like decision analysis or scenario analysis. But they should recognize that analyzing and choosing competitive moves do not determine a company's success or failure, any more than choosing a good exercise program determines a person's level of fitness.⁸ Almost any fitness program will get results if a person actually does the work, and no fitness program will get results if they do not. When implementation is hard, success depends less on chess-like mental virtuosity than on Everest-like diligence in executing a small number of fundamental activities that are familiar to everyone who plays the game. In allocating scarce top management attention, strategy executives should remember that firm performance does not come from clever choices but from relentless attention to the fundamental drivers of business success.

Behavioral Foundations

Theories and concepts in strategic management bear the strong imprint of microeconomic theory.⁹ Strategy theories share with economics the assumption that a company cannot beat its rivals by adopting widely available practices that are known to improve business performance. Strategy theories assume that homogeneous companies perform homogeneously, so a company cannot win by imitating its competitors. It can try to do the same things better, but "strategy is not operational excellence."¹⁰ If a company adopts a profit-making practice, its rivals—which are rational, observant, and open to new ideas—will copy the practice and the market will return to the zero-profit equilibrium. The only way a company can gain a performance edge is by building sustainable competitive advantages protected by barriers to imitation.

These kinds of assumptions are useful to economists studying prices and outputs in market competition. However, they are not empirical truths about actual markets comprised of human beings. We know, for example, that neither individuals nor groups conform to the assumptions of rational actor theory, that people imitate bad practices as well as good ones, and that companies neither observe nor imitate each other in the ways assumed by economic theory.¹¹

Empirical evidence shows that companies often fail to copy the observable best practices of other companies. The literature is vast, but a few examples indicate the direction of the evidence.¹² For example, Salter found that copper mining companies took as long as 20 years to adopt widely available cost-saving rail technologies, and Johnston found that management consultants produced efficiency gains as high as 200% by helping their clients install boilerplate management control systems. Primeaux showed that the adoption of cost-efficient technologies varied substantially among large electric utility providers, and Kamberoglou and colleagues, in a study of Greek banks, found large differences in the adoption of fundamental management practices. In a field experiment of Indian textile producers, Bloom and colleagues offered free consulting services and found that the adoption of basic business practices—quality control, inventory management, and HR processes—produced large gains in productivity and profitability compared with a control group; and in a sample of more than 700 companies in the United States, the United Kingdom, France, and Germany, Bloom and Van Reenen found large variations in fundamental management practices, reporting a “long tail of badly managed firms” with “surprisingly bad management practices.”

According to conventional theories, these disparities in basic management practices should not occur. A company should not beat the competition by performing commodity-like activities that can be performed by anyone in the market. Companies are not supposed to leave money on the ground or find it there.¹³ If this happened even to a moderate degree, competitive markets would be inefficient and unpredictable. A company with competitive advantages might go out of business by failing to implement “hygiene” activities, or a company without competitive advantages might beat the competition by diligently implementing ordinary activities. Such outcomes would contradict widely held beliefs about strategic management theory and practice.

More realistic assumptions about market behavior can be found in the emerging literature on behavioral strategy. According to Powell, Lovallo, and Fox, behavioral strategy “aims to strengthen the empirical integrity and practical usefulness of strategy theory by grounding strategic management in realistic assumptions about human cognition, emotion, and social interaction.”¹⁴ Drawing insights from cognitive and social psychology, behavioral strategy challenges the behavioral assumptions of microeconomic theory by treating market efficiency and decision rationality as empirical questions to be observed and tested in the actual behavior of market participants.¹⁵

Behavioral research shows that human market participants do not behave like rational economic agents. Real people are in many ways more impressive than economic agents. They are capable of passion, benevolence, insight, and perseverance. They have moral and aesthetic ideals, and they exhibit altruism, trust, reciprocity, compassion, justice, loyalty, and love. As in the *Moneyball* story, people in organizations make seemingly absurd creative leaps that can transform an enterprise and alter the dynamics of market competition.

At the same time, real people make silly mistakes and misperceive obvious features of their environments.¹⁶ They display envy, hubris, narcissism, and overconfidence. People have limited memories and attention spans, unconscious needs and drives they cannot control, and at the deepest neural level they are hardwired for self-enhancement and short-term thinking. Research shows that executives pay too little attention to competitors and too much attention to themselves, leading to competitive blind spots, delusional optimism, cognitive myopia, and a “not invented here” mentality. At the group level, people are susceptible to conformity, obedience, propaganda, envy, and stereotyping. At the organizational level, companies drift imperceptibly into inertia and automatic behavior, taking on rigid and politicized chains of command as well as cultural norms and ideologies that impede change. At higher levels of collectivity, entire sectors fail to perceive new technologies or threats of entry, and executives follow the collective sway of “the latest big thing.”

By bringing psychological realism to competitive market assumptions, behavioral research provides an alternative view of the drivers of firm success and failure. Real companies behave paradoxically, giving lip service to profit maximization while neglecting profit opportunities, committing unforced errors, and blindly following what other companies are doing. Executives promote generous programs of corporate philanthropy while committing moral, social, and political blunders that are costless to avoid. Companies squander sustainable competitive advantages in product design by their inability to perform basic tasks such as delivering goods to customers. They support local communities while exploiting their environments, and they incur reputational damage by violating simple accounting rules and government regulations. They copy the best practices of other companies and their worst practices too. The most successful enterprises become inert, complacent, and unresponsive to external events.

Diligence-based strategy helps managers navigate competition and strategy in markets composed of people. As one management scholar put it, much of what we observe in markets does not stem from economic barriers or cognitive biases, but involves a kind of “blockheadedness” that seems psychologically pointless—as when a global automobile producer commits a blatant, self-sabotaging lapse in moral judgment.¹⁷ By definition, companies cannot imitate the inimitable competitive advantages of their rivals, but they can avoid making unforced moral errors and destroying their own reputations. If unconscious drives and cognitive biases are hardwired into the executive brain, then people cannot eliminate them, but they can enact “nudges” and collective processes that mitigate shortcomings, especially biases due to limitations of individual memory, attention, and learning.¹⁸ Seeing competitive markets from a behavioral point of view suggests that market opportunities exist for companies that can avoid unforced errors and execute on the fundamentals of business success.

Research in behavioral strategy suggests that companies can be destroyed by their own competitive strengths, by a kind of “curse of competitive advantage.”¹⁹ For example, research shows that past success provides one of the most

fertile breeding grounds for individual and social biases, including executive hubris, delusional optimism, overconfidence, competition neglect, learning myopia, groupthink, corporate inertia, and cultural stagnation.²⁰ Evidence suggests that competitive advantages may carry the psychological seeds of their own destruction, as when Polaroid founder Edwin Land's technological obsessions, which drove the early success of the company, blinded Polaroid to new market developments in digital photography.²¹ Competitive advantages are psychologically salient to executives and tend to attract large resource allocations even when returns to investment are declining or when disruptive innovators are making them obsolete. Competitive strengths are good to have and companies should cultivate them, but behavioral research reminds us that the pursuit of outsized competitive advantages can impair the company's vigilance against executive hubris, market shifts, and systemic weaknesses in ordinary activities.²²

The role of the chief executive is to maximize the performance of the enterprise. This task should not be displaced by something else, such as competitive positioning or the pursuit of real or imagined competitive advantages. An executive's primary task is to know the levers that drive business performance and to operate those levers, whatever they may be. For a few companies, this may include the exploitation of big competitive advantages. But how can companies without competitive advantages improve competitive performance? And how can companies with competitive advantages avoid the curse of competitive advantage?

A Method for Diligence-Based Strategy

This section describes a framework and method for diligence-based strategy. The method combines elements of the processes followed by companies like CyT and Mars, along with frameworks the author has developed independently over a period of years. This approach has been put into practice by companies in industries such as financial services, professional services, and consumer goods, and it is applicable to many others. It does not rely on assumptions specific to the profit sector and has been employed in government and not-for-profit organizations as well as in developed and emerging economies.

The method is described under five headings: Activities, Strategic Capital, Priorities, Dynamics, and Measurement.

Activities

In diligence-based strategy, the basic unit of analysis is the activity. An activity is something people do, like developing new services, communicating with suppliers, and processing insurance claims. When a company undertakes an activity, the activity becomes a receptacle for executive attention, capital investment, resource allocation, strategic initiatives, learning, capability, and mastery. As something people do, an activity is observable, measurable, and manageable. It is not an intangible or unobservable asset, and it is not a "key success factor" or any other kind of "factor."

Managers can choose their industries and strategies, and can partially determine what drives business success—for example, by choosing a particular business model. But every domain of human activity operates within a deep structure of competitive performance, a performance function that determines whether a participant succeeds or fails.²³ This function is not defined by participants but by the “rules of the game,” which reward some activities and punish others. Players do not observe this function directly but discover it by experience, learning, and trial and error. People may construe the performance function differently (e.g., from a realist or interpretivist perspective), but the performance function is exogenous, serving as a hard constraint on enterprise performance.²⁴

The performance function is composed of fundamental activities: that is, the crucial activities that drive competitive success. By a process of hypothesis testing and trial and error, executives discover which activities drive performance for the enterprise, the relative importance of these activities, and their responsiveness to different levels and types of investment.²⁵

To initiate diligence-based strategizing, executives should set initial goals or “anchor points” for the organization. Typically, this involves identifying enterprise-level goals for growth, profitability, innovation, and market coverage, to be revisited later in the strategy process. To bridge these goals with fundamental activities, executives should also develop a definition of the enterprise—that is, a very short (and provisional) description of the nature and scope of the enterprise. From these two foundations—goals and a definition of the enterprise—executives can move forward with the diligence-based process.

To identify fundamental activities, executives should ask, What are the fundamental activities that drive success in our business? According to the goals and definitions we have set for the enterprise, what activities have we committed ourselves to performing and mastering?

Fundamental activities must satisfy two criteria: mastery of the activities contributes significantly to organizational performance; and managers can allocate resources to the activities, measure them, and monitor outcomes. In applying these criteria, executives should not expect to find a large number of fundamental activities, and experience suggests that a “rule of five” provides a good balance of breadth and depth for most enterprises. (In later stages, the method introduces sub-activities that take the analysis to any desired level of detail.) If a company has five fundamental activities, it is often the case that two or three have an external orientation (such as serving customers), and two or three take an internal view (such as managing internal culture).

The list of fundamental activities can include those unique to the organization as well as generic activities that would drive success in any organization or sector. For example, generic activities may include the following:

- serving customers,
- developing new products (or services),

- improving brand recognition,
- building external relationships,
- benchmarking best practice,
- managing the supply chain,
- procuring inputs,
- distributing products,
- communicating,
- developing our people,
- managing technology,
- managing internal systems and processes, and
- managing costs.

It should also be noted that diligence-based strategy can be applied at any unit of strategic analysis—for example, in a department, project, business unit, or corporate parent. In corporate strategy, highly diversified firms like GE and Tata Group have shown that it is possible—by focusing on a handful of fundamental activities at the corporate level (e.g., evaluating and integrating acquisitions) and the business-unit level (e.g., managing talent, installing new business systems)—to create corporate value across a broad range of business units.²⁶

Strategic Capital

Having identified a handful of fundamental activities, executives must then assess how these activities work together to drive business success. This constitutes the performance function of the enterprise. A company's capabilities in its fundamental activities work together according to the performance function—for example, by summation or multiplication—to create total strategic capital (TSC), which is the company's total capability in its fundamental activities.

For ease of exposition, consider an organization that has two fundamental activities, called Making (M) and Selling (S). In naming M and S as fundamental activities, executives affirm that M and S work together to drive performance for the company. This has specific consequences for the strategy process: M and S will be treated as the company's primary strategic variables, executives will set goals for the mastery of M and S, the strategy process will determine resource allocations for M and S, and the company will commit itself to the continuous measurement, monitoring, and management of M and S.

Diligence-based strategizing does not employ “box and arrow” models involving linear or circular systems of relationships among activities, as in value chain analysis or activity systems.²⁷ These models can be useful, but the accurate ones have many boxes and feedback loops and can be difficult to use in practice. The simple ones are easy to use but offer fewer insights. The diligence-based method takes a different approach, focusing on the form of the performance function through which activities create TSC for the enterprise.

In principle, fundamental activities could produce TSC in many ways: for example, if M and S represent the company's degree of mastery of Making and Selling, the performance function could be *additive* ($TSC = M + S$), *strongest link* [$TSC = \max(M,S)$], *multiplicative* ($TSC = M \times S$), or *weakest link* [$TSC = \min(M,S)$]. In the additive function, the company could compensate for a deficiency in M by becoming very good at S (or vice versa); in the strongest link function, the company could focus on one activity and completely ignore the other. Either of these models might produce an impressive "competitive advantage" in a single activity.

However, for most enterprises, the relevant form of performance function is not additive or strongest link, but multiplicative.²⁸ The multiplicative function implies that activities are not substitutes, but work together in a complementary and supportive way. For example, if the function is multiplicative, a company cannot compensate for poor manufacturing by becoming extremely good at selling: if the company's numerical ability for M is zero, then zero multiplies through the performance system as a whole, and the company's TSC is zero.²⁹ In general, the multiplicative function tends to reward balanced capabilities in the fundamental activities.

Multiplicative performance has large consequences for management practice. In the search for competitive advantage, most companies tend to overinvest in strengths and underinvest in weaknesses. They do this in the mistaken belief that competitive advantage comes from strengths instead of from the performance system as a whole. However, this is almost never the case: in a multiplicative performance system, any source of competitive advantage can be nullified by weaknesses in other activities.

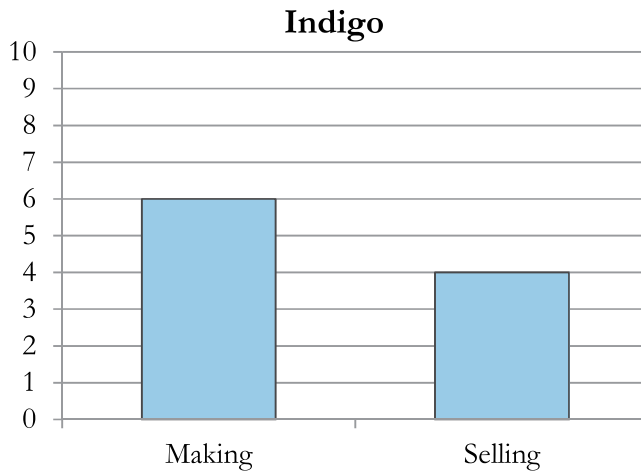
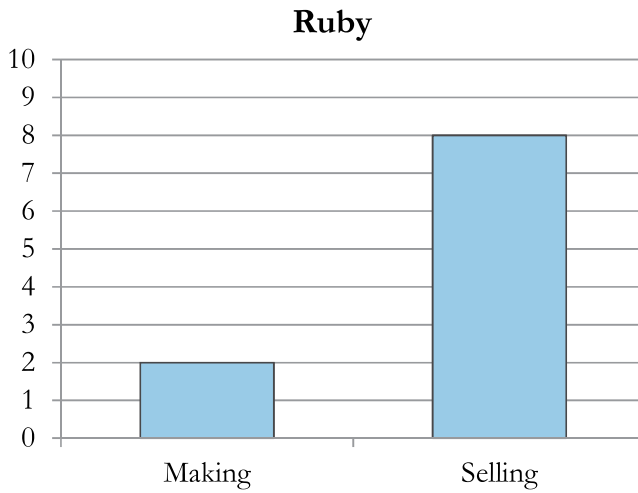
In diligence-based strategy, it is important for managers to gain an intuitive feel for multiplicative performance. This does not require a mathematical understanding, but rather an intuitive capacity for making resource allocation decisions in a multiplicative system. This is best seen in a numerical example, as in Figure 1.

Figure 1 shows two companies, Ruby and Indigo. On a scale from 0 to 10, where 0 denotes no capability in an activity and 10 denotes complete mastery, Ruby rates 2 in Making and 8 in Selling, and Indigo rates 6 in Making and 4 in Selling. Ruby has a relative advantage in Selling, and Indigo has a relative advantage in Making. If Making and Selling are unweighted—that is, equally important to performance—then an additive performance function will produce the same TSC for the two companies ($2 + 8 = 6 + 4 = 10$). In a weakest link function, Indigo will have more TSC (Indigo's S = 4, Ruby's M = 2); in a strongest link performance function, Ruby will have more TSC (S = 8); and in a multiplicative function, Indigo will have more TSC ($6 \times 4 = 24$, compared with $2 \times 8 = 16$).

In the multiplicative performance function, Ruby should not allocate its next unit of resource to its strongest activity (Selling): a one-unit capability improvement in Selling would improve Ruby's TSC from 16 (2×8) to 18 (2×9), whereas a one-unit capability improvement in Making would improve Ruby's

FIGURE I. Comparing Ruby and Indigo.

TSC : Ruby and Indigo			
Fundamental Activity	Ruby	Indigo	Winner
Making	2	6	
Selling	8	4	
TSC: Additive	10	10	Tie
TSC: Weakest Link	2	4	Indigo
TSC: Strongest Link	8	6	Ruby
TSC: Multiplicative	16	24	Indigo



Note: TSC = total strategic capital.

TSC from 16 (2×8) to 24 (3×8). Thus, the multiplicative system rewards balanced capabilities in a company's fundamental activities.

The "principle of balanced capabilities" can be hard to put into practice. People prefer to invest in the capabilities that made them successful in the first place, and organizational politics and cultural inertia make it hard for executives to invest away from current strengths. Executives are also susceptible to cognitive biases that promote continuity in investment decisions, such as the endowment effect, loss aversion, confirmation bias, and the "curse of knowledge."³⁰ By focusing on multiplicative performance, diligence-based strategy guides executives into a balanced consideration of the organization's portfolio of fundamental activities. Executives who gain an appreciation for multiplicative performance can avoid common behavioral biases and make better overall judgments in resource allocation.³¹

Priorities

Resource allocation decisions hinge on three factors: a company's capabilities in its fundamental activities, the relative strategic priorities of these activities, and the extent to which the activities yield capability improvements in response to new resource allocations. This is illustrated numerically in Appendix A, which shows the relative priorities of Making and Selling for Ruby and Indigo, and gives a numerical calculation of resource allocations for four performance functions. As shown in Appendix A activities in a multiplicative system are complementary and mutually supportive, so that weak activities multiply through the performance system as a whole. Appendix A and its accompanying tables show how the principle of balanced capabilities is adjusted for the effects of strategic priorities in relation to existing capabilities.

As an aid to management intuition, the conclusions in Appendix A can be reduced to two relatively simple heuristics for allocating resources to activities in a multiplicative system:

Heuristic 1: Managers should allocate resources to fundamental activities in proportion to their relative priorities.

Heuristic 2: Managers should allocate above-normal resources to any activity in which the company has low capability relative to its priority.

Using Heuristic 1, a company with two activities to which it has assigned equal priority (.5) should allocate resources equally; if the priorities are .7 and .3, the company should allocate resources 70% to the former, 30% to the latter. Most of the time, this heuristic aligns with the intuitions of managers and is relatively easy to follow.

However, a company's capabilities can fall out of alignment with priorities, especially if the company does not measure or monitor its fundamental activities. In these circumstances, managers should not allocate resources

according to priorities. Heuristic 2 says that managers should allocate above-normal resources to any activity that has fallen below its relative priority. This was shown in Appendix A, where Ruby's relative capability in Making (2/10, or .20) had fallen short of its relative priority (.30). According to Heuristic 2, Ruby maximizes TSC by allocating resources to Making, the activity with low capability in relation to its priority.

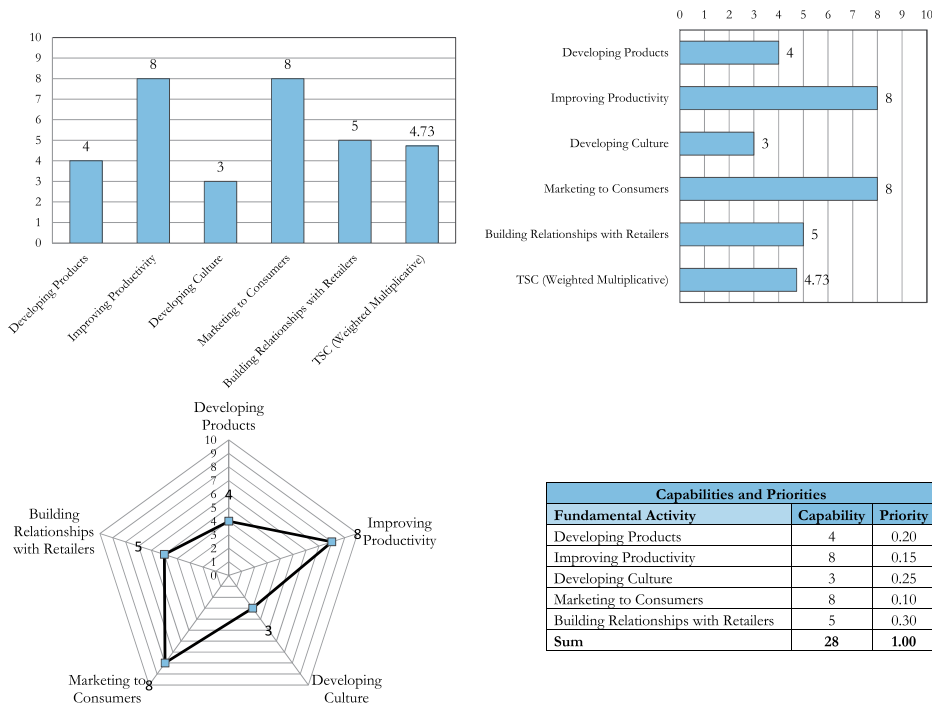
In practice, it is Heuristic 2 that presents the most difficulty for managers. Executive attention is naturally drawn to the salience of existing strengths and areas of high priority. However, an activity of moderate priority that has become a weakness may deliver greater returns to investment. The intuition to invest in strengths and top priorities can lead executives astray: sometimes the best investments are neither strengths nor priorities, but neglected yet fundamental activities in which priorities and capabilities have fallen out of alignment. Heuristic 2 urges executives to evaluate the full range of fundamental activities, with a view to closing gaps between capabilities and priorities. Investing in the highest priority activities would produce good decisions if the performance function were additive, and indeed the resource allocation heuristic for additive functions always follows Heuristic 1 (*allocate resources to the highest priority activity*). But if the performance function is multiplicative, resource allocations follow Heuristic 1 only if capabilities are perfectly aligned with priorities, which is not generally the case; in most circumstances, managers should compare relative capabilities with relative priorities and allocate according to Heuristic 2 (see Appendix B).

These conclusions assume that all activities yield the same capability improvements in response to resource allocations; in other words, that capability improvements can be achieved at the same cost for all activities. In practice, this is seldom the case: as companies improve their capabilities, further improvements tend to become costlier and more difficult to achieve at the margin. In learning and experience curves with a fixed upper limit (like a 0-10 scale), improving from 9 to 10 is harder than improving from 3 to 4. Thus, managers must consider the comparative responsiveness of fundamental activities to new resource investments at the margin.

This problem corresponds exactly to the standard economic problem of optimizing factors of production in the maximization of output.³² However, managers do not need to perform these calculations. The essential point for managers is that the effect of "diminishing marginal improvements" makes it even more imperative that they attend carefully to weaknesses in fundamental activities: the existence of low-cost, unexploited learning opportunities means that resources often yield greater returns on investment—that is, greater relative increases in TSC—when allocated to weaker activities.

Figure 2 shows how the diligence-based method displays capabilities for a hypothetical consumer products company with five fundamental activities. The figure uses three methods for displaying activities: column chart, radar chart, and

FIGURE 2. Charting diligence-based strategy.



Note: TSC = total strategic capital.

bar chart. In practice, the author uses a column chart, but companies like CyT and Mars use bar charts. The five activities are as follows: developing new products, improving manufacturing productivity, developing internal culture, marketing to consumers, and building relationships with retailers.

The three charts in Figure 2 present the same information in different formats, indicating the extent of the company’s capability for each activity on a scale from 0 (no capability) to 10 (complete mastery). The column and bar charts also show TSC, which is calculated using the multiplicative function, weighted by priorities.³³ Relative priorities are represented as proportions and are shown in the table at the bottom of Figure 2.

Dynamics

In determining resource allocations, managers should look for discrepancies between the priority of activities and existing capabilities. If relative priorities and capabilities are aligned, then Heuristic 1 applies and the company can allocate resources in proportion to priority (adjusted for costs). If not, as in Table 1, managers should examine the magnitudes of any discrepancies and determine which activities are candidates for above-normal resource allocation. In Table 1, capabilities are significantly lower than priorities for two activities—developing

TABLE I. Allocating Resources to Activities.

Relative Capabilities and Priorities				
Fundamental Activity	Capability	Relative Capability	Relative Priority	Capability < Priority?
Developing products	4	0.14	0.20	✓
Improving productivity	8	0.29	0.15	
Developing culture	3	0.11	0.25	✓
Marketing to consumers	8	0.29	0.10	
Building relationships with retailers	5	0.18	0.30	✓
Sum	28	1.00	1.00	

culture and building relationships with retailers—and also for developing new products.³⁴

Once the basic framework of activities and priorities is established, the diligence-based method gives managers a versatile platform for tracking industry and competitive dynamics, and for driving organizational change. The method's measurement disciplines (discussed below) are designed to bring the company into closer contact with its customers and suppliers, allowing managers to sense competitive shifts and anticipate new trends in business models and technologies. Comparisons with rivals give managers new insights into the latest industry standards for quality and capability, showing them which companies are raising the bar on fundamental activities (managers at CyT analyze competitors using charts such as those in Figure 2, overlaying the profiles of rivals onto those of the organization). Indeed, diligence-based thinking encourages capability innovation by prompting executives to monitor the frontiers of capability advance in its sector, and by providing methods and measures for evaluating the impacts of new technologies and business practices.³⁵

The method's emphasis on activities leads naturally to discussions of organizational boundaries: if the company has a chronic weakness that responds poorly to investment, the activity becomes a candidate for outsourcing; if the company excels in an activity that responds well to investment, managers can explore business models for maximizing its impacts; and if rivals are launching new activities (such as building online communities for crowdsourcing), managers can consider reshaping the company's profile of activities.

The diligence-based method facilitates concrete, evidence-driven strategy conversations that connect market positions to the dynamic challenges of putting

them into practice. It can be used in conjunction with a broad range of established techniques for analyzing options for strategic investment, including methods for alternative generation, probability and payoff estimation, decision making, and evaluation of uncertainty (such as scenario planning).³⁶ The method provides a strategic audit trail of capability improvement and an early warning system for technological and market shifts. In practice, companies like CyT find that the benefits of diligence-based strategizing increase over time, yielding dynamic comparisons with rivals and a longitudinal evidence record of resource allocations and outcomes.³⁷

Measurement

Diligence-based strategy requires systems of activity measurement and performance management, along with management and communication practices for supporting these systems. These systems do not have to be costly or highly formalized, or developed all at once. The culture and mission of some organizations will suggest a lighter touch, whereas other organizations may take a more robust approach. Whether the method is robust or light touch, the crucial requirement is to place fundamental activities at the heart of organizational strategy.

To put a measurement system into place, managers should identify the component sub-activities that form the basis for the organization's fundamental activities. Sub-activities supply the observability and specificity required for effective measurement. For example, the fundamental activity "developing new products" may be composed of sub-activities such as researching new product technologies, seeking ideas from customers, developing product prototypes, and pilot-testing with customers. The activity "developing our people" may be composed of sub-activities such as holding weekly meetings with employees, developing a career plan for each employee, involving people in strategy conversations, and linking individual goals to organizational outcomes. As with fundamental activities, five sub-activities seem to be a manageable number in practice (at CyT, the number ranges from four to seven).

Sub-activities can be measured using the same numerical scales employed for fundamental activities. This enables managers to combine the capability ratings for sub-activities into a composite capability rating for the fundamental activity as a whole. Thus, for example, CyT uses ratings for four sub-activities—managing brand reputation, providing brand marketing support, creating innovative product packaging, and managing new product launches—to derive a 0 to 100 rating for the fundamental activity "supporting consumer marketing."³⁸

To obtain these ratings, CyT works closely with external consultants to gather detailed feedback from external stakeholders.³⁹ For the activity "supporting consumer marketing," the most crucial and informed stakeholders are the five largest retail supermarkets in the United Kingdom through which CyT

distributes its products. Using web-based surveys of multiple respondents in each retailer—supported by follow-up contacts by phone, Skype, or face to face—CyT managers work with the consulting team to compile a detailed profile of CyT’s capabilities for each sub-activity. At the same time, the surveys produce comparative ratings for CyT’s seven largest competitors, allowing managers to use comparative bar charts and other forms of analysis. Retailers also receive feedback from the surveys, which improves data reliability and retailer response rates.

In diligence-based strategy, managers should use every available technology and data source to compile data on the company’s activities. This varies by sector and from one activity to another. For externally facing activities, sources include quantitative data from online databases, a dedicated website for data gathering, web surveys, blogs, social media feeds, and data provided by consultancies and industry experts; for internally facing activities, they include blogs, anonymous surveys, open forums, and data obtained in performance appraisal systems; and for activities related to efficiency or productivity, they include numerical data for input, output, and defect rates. Companies lacking a strong track record of customer or stakeholder engagement can use diligence-based strategy as the catalyst for launching new programs of technology-enabled communication with customers and suppliers.

An organization that has four sub-activities for each of five fundamental activities will collect data for 20 sub-activities. This is achievable for most organizations. For presentation, each fundamental activity is charted, and these charts are supported by charts for each sub-activity. This becomes the documentation for resource allocation and strategic decision making. At CyT, each fundamental activity has its own chart, which gives the ratings for each sub-activity (like the horizontal bar chart in Figure 2). As supporting documentation, each sub-activity has a chart showing how the sub-activity was measured. These pages, along with summary charts and conclusions, constitute the playbook for diligence-based strategizing at CyT.

Summary and Conclusion

Diligence-based strategy offers a theoretically grounded philosophy of strategic management as well as an applied method for formulating and executing strategy in organizations. Drawing on psychology and behavioral strategy, the theory and method are founded on the premise that organizations achieve superior performance not by thinking about how to obtain competitive advantages but by the thoughtful doing of activities fundamental to success.

Diligence-based strategy did not appear all at once, and it is still in development.⁴⁰ Its foundations reach at least to the 1950s, when social scientists Herbert Simon and James March introduced concepts such as bounded rationality,

group identification, and political bargaining to the study of organizations. In the 1960s, Harvard economist Harvey Leibenstein developed the concept of “X-inefficiency,” showing the prevalence of inefficiency in firms and competitive markets. Behavioral economists like Amos Tversky and Daniel Kahneman challenged mainstream economic assumptions about decision rationality, showing the impacts of cognitive biases on strategic decision making. In strategic management research, scholars observed the misleading effects of adopting the efficiency and equilibrium assumptions of economic theory, and Bromiley and Rau developed a “practice-based view” of strategy. For executive strategists, Amar Bhidé wrote about the importance of “hustle,” Pfeffer and Sutton highlighted the “knowing-doing gap,” Frery and colleagues wrote on “the innovative use of ordinary resources,” and executives such as Lou Gerstner of IBM, Andy Grove of Intel, and Larry Bossidy of AlliedSignal wrote best-selling books linking strategy to the execution of fundamentals.

It is possible to argue from historical evidence that the most successful companies—from GE to Intel to Google—have always practiced diligence-based strategy, and that scholarly work in behavioral strategy has come very late to the game. The diligence-based approach works in practice because it does not demand the impossible from executives, but focuses on things managers can actually control. Executives cannot control genius, luck, or the imitation of inimitable competitive advantages. But they can produce outcomes indistinguishable from genius, luck, or competitive advantages by focusing diligently on things they can control.

The diligence-based approach does not reject traditional approaches to strategy, but urges managers to think carefully about how these methods are used. Economics-based methods neglect the human and behavioral realities of strategic management, and they are poorly adapted to environments characterized by social complexity, political uncertainty, and economic inefficiency. In prioritizing the pursuit of competitive advantages, older methods focus executive attention on the pure cognition of goal-setting, understanding industry structures, planning competitive positions, and analyzing resource advantages. By focusing executive attention on people and behavior, diligence-based strategy helps executives drive performance in human environments that reward diligence, perseverance, and a capacity for getting things done.

From an economic point of view, someone might ask: Is diligence-based strategy really strategy? Isn't strategy concerned with setting goals, choosing products, setting price and quality levels, deciding whether to enter markets, and making acquisition decisions? Isn't strategy “big”?

From a diligence-based perspective, strategy is what executives do to create successful outcomes, whatever this may entail. If success entails goal-setting and making big decisions, then this is what executive strategists should do. In human markets characterized by equifinality of choice, randomness, and difficult and

uncertain implementation, success tends to depend less on “big strategy” than on the relentless management of disciplined action.

The purpose of diligence-based strategy is to help managers develop and deliver effective strategies. It is not an operational or tactical program, a checklist of factors, or a boxes-and-arrows system of transactions. Diligence-based strategy can equally promote market disruption or manufacturing productivity, market exploration or resource exploitation, radical innovation or systems efficiency. Ironically, many executives find that only by thinking “small”—focusing on business fundamentals rather than big strategic moves—can a company discover and enact the big moves traditionally associated with competitive strategy, such as developing new technologies and capturing market opportunities. If the method seems more operational than conventional strategy models, the problem may ultimately rest with conventional models. Strategy is about creating successful outcomes, and it is possible that the old dogma that separated strategy from operations, and strategy formation from strategy execution, has outlived its usefulness in strategic management.

The diligence-based method is not tied to a particular industry or geography, or to the profit sector. It can be used in all organizations and in subunits at all levels. It is adaptable to the pursuit of financial or nonfinancial goals. Technology-enabled measurement of fundamental activities provides a powerful guide and “nudge” to human performance in every domain of activity. The diligence-based approach facilitates strategy making in business, sports, and politics, and it can help individuals plan for personal or career success. In all areas of life, diligence-based strategy points the way to superior performance by showing people how to capture opportunities in a world that consists of other people very much like themselves.

Appendix A

Allocating Resources to Activities

Table A1 shows the relative priorities of Making and Selling for Ruby and Indigo, and gives a numerical calculation of resource allocations for four performance functions. These include two of the original four functions (Additive and Multiplicative) and two new functions that weight the capabilities by relative priority (Weighted Additive and Weighted Multiplicative).

To produce a numerical index for total strategic capital (TSC) that follows the original 0 to 10 scale, all functions are averaged.⁴¹ Thus, the additive function is the average of the two capabilities, and the weighted additive is the weighted average. Similarly, the multiplicative function is the multiplicative average of the two capabilities (the “geometric mean”), and the weighted multiplicative is the weighted multiplicative average (the “weighted geometric mean”).⁴² Readers interested in the detailed calculations will find them in Table A1.

Turning to the resource allocation decision, Table A2 examines the alternatives for Ruby, comparing the results for a one-unit increase of Ruby's capability in Making or Selling. Table A2 shows that if the performance function is additive, it does not matter whether Ruby gains a one-unit capability in Making or Selling: the "New TSC" column shows that either will increase TSC to 5.50, an increase of 10%. If the performance function is weighted additive, Ruby prefers to gain a new unit of capability in Selling: this increases TSC from 6.20 to 6.90 (+11.3%), whereas a new unit of capability in Making increases TSC from 6.20 to 6.50 (+4.8%).

In either of the multiplicative functions, Ruby prefers to gain a new unit of capability in Making. Despite the fact that Ruby prioritizes Selling (priority = .7) over Making (priority = .3), and has more capability in Selling than Making, it should allocate resources to Making. In a multiplicative system, weak activities multiply through the performance system as a whole.

TABLE A1. Computing TSC for Ruby and Indigo.

Fundamental Activity	Ruby		Indigo	
	Capability	Priority	Capability	Priority
Making	2	0.30	6	0.20
Selling	8	0.70	4	0.80
Performance Function	TSC Index	TSC Calculation	TSC Index	TSC Calculation
Additive (average) ^a	5.00	$10 \div 2 = 5$	5.00	$10 / 2 = 5$
Weighted additive (weighted average) ^b	6.20	$2(.30) + 8(.70) = 6.20$	4.40	$6(.20) + 4(.80) = 4.40$
Multiplicative (multiplicative average) ^c	4.00	$(2)^{.50} \times (8)^{.50} = 4.00$	4.90	$(6)^{.50} \times (4)^{.50} = 4.90$
Weighted multiplicative (weighted multiplicative average) ^d	5.28	$(2)^{.30} \times (8)^{.70} = 5.28$	4.33	$(6)^{.20} \times (4)^{.80} = 4.33$

Note: TSC = total strategic capital.

^aAdditive (average) = average of the two capabilities.

^bWeighted additive (weighted average) = weighted average of the two capabilities.

^cMultiplicative (multiplicative average) = product of the two capabilities, equally weighted by exponents ("geometric mean").

^dWeighted multiplicative (weighted multiplicative average) = product of the two capabilities, exponents weighted by priority ("weighted geometric mean").

TABLE A2. Resource Allocations for Ruby.

Performance Function	Making	Selling	Old TSC	New TSC	TSC Calculation	TSC Change	% Change
TSC Adding One Unit of Capability in MAKING.							
Additive ^a	3	8	5.00	5.50	$(3 + 8) / 2 = 5.50$	+0.50	10.0
Weighted additive ^b	3	8	6.20	6.50	$3(.30) + 8(.70) = 6.50$	+0.30	4.8
Multiplicative ^c	3	8	4.00	4.90	$(3)^{.50} \times (8)^{.50} = 4.90$	+0.90	22.5
Weighted multiplicative ^d	3	8	5.28	5.96	$(3)^{.30} \times (8)^{.70} = 5.96$	+0.68	12.9
TSC Adding One Unit of Capability in SELLING.							
Additive ^a	2	9	5.00	5.50	$(2 + 9) / 2 = 5.50$	+0.50	10.0
Weighted additive ^b	2	9	6.20	6.90	$2(.30) + 9(.70) = 6.90$	+0.70	11.3
Multiplicative ^c	2	9	4.00	4.24	$(2)^{.50} \times (9)^{.50} = 4.24$	+0.24	6.0
Weighted multiplicative ^d	2	9	5.28	5.73	$(2)^{.30} \times (9)^{.70} = 5.73$	+0.45	8.5

Note: TSC = total strategic capital.

^aAdditive (average) = average of the two capabilities.

^bWeighted additive (weighted average) = weighted average of the two capabilities.

^cMultiplicative (multiplicative average) = product of the two capabilities, equally weighted by exponents ("geometric mean").

^dWeighted multiplicative (weighted multiplicative average) = product of the two capabilities, exponents weighted by priority ("weighted geometric mean").

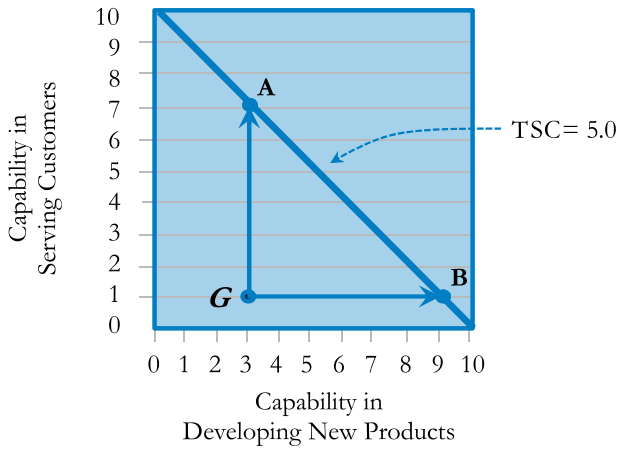
Appendix B

Additive and Multiplicative Performance

Managers should understand the difference between resource allocation in Additive and Multiplicative systems. An Additive function is illustrated below (Figure B1). Goldenrod Company has two activities—developing new products and serving customers—and managers have assigned them equal priority. The company's starting capabilities are shown at point G (3,1).

If the company could gain six new units of capability, any point between A and B would be achievable. How should it apportion these units between developing new products and serving customers? In an Additive function, it does not matter: Goldenrod will achieve ten total units of capability (total strategic capital [TSC] = 5.0) for any allocation on line segment AB.

FIGURE B1. Additive performance

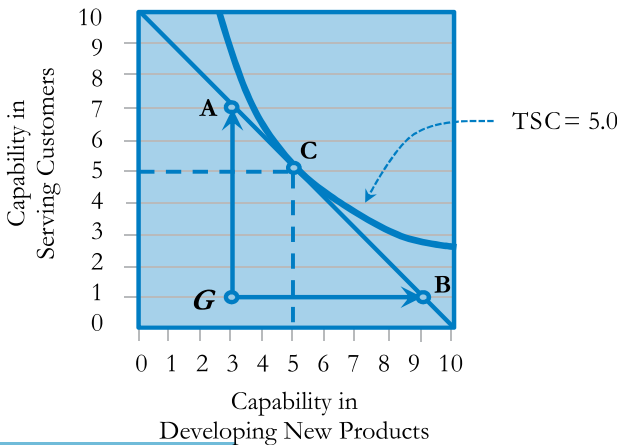


A Multiplicative function is shown in the curve below (Figure B2). How should Goldenrod Company apportion six new units of capability? As before, any point on line segment AB is achievable. However, only one allocation—the allocation that takes them to point C—allows Goldenrod to achieve $TSC = 5$. Any other allocation places the company on a lower TSC curve.

To reach point C, Goldenrod must allocate two units to developing new products and four units to serving customers; then its capabilities in the two activities will be (5,5) and TSC will be 5.

Resource allocations depend on the priorities of activities and the company’s existing capabilities. Goldenrod’s activities had equal priority, but its capabilities (3,1) were unequal. TSC could only be maximized by allocating more resources to the weaker capability.

FIGURE B2. Multiplicative performance



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Author Biography

Thomas C. Powell is Professor of Strategy at the Saïd Business School, University of Oxford (email: thomas.powell@sbs.ox.ac.uk).

Notes

1. The new approach borrows some elements from existing strategy and operational frameworks, recombining them in new ways. For example, CyT's (Concha y Toro UK) emphasis on activities is reminiscent of value chains and activity systems, and its emphasis on measurement and execution resembles Total Quality Management (TQM), Six Sigma, and the balanced scorecard system. See M. E. Porter, *Competitive Advantage* (New York, NY: Free Press, 1985); M. E. Porter, "What Is Strategy?" *Harvard Business Review*, 74/6 (November/December 1996): 61-78; R. S. Kaplan and D. P. Norton, *The Balanced Scorecard: Translating Strategy into Action* (Boston, MA: Harvard Business School Press, 1996). At the same time, the new approach has its own theory, method, and behavioral assumptions, as described in this article.
2. M. Lewis, *Moneyball: The Art of Winning an Unfair Game* (New York, NY: W.W. Norton, 2003).
3. For example, see T. Hulse, "A Whole New Ball Game?" *Business Life*, May 2015, pp. 30-31.
4. See, for example, G. Kasparov, *How Life Imitates Chess* (London: William Heinemann, 2007).
5. Equifinality applies when more than one path leads to the same end. The concept was introduced to systems theory by Ludwig von Bertalanffy and is a standard concept in open systems theories of organization. See L. von Bertalanffy, *General Systems Theory* (New York, NY: George Braziller, 1968); D. Katz and R. L. Kahn, *The Social Psychology of Organizations*, 2nd ed. (New York, NY: John Wiley & Sons, 1978). On the role of randomness in strategy and organization, see J. Denrell, C. Fang, and C. Liu, "Chance Explanations in the Management Sciences," *Organization Science*, 26/3 (May/June 2015): 923-940, doi:10.1287/orsc.2014.0946; J. Denrell, "Random Walks and Sustained Competitive Advantage," *Management Science*, 50/7 (July 2004): 922-934; D. A. Levinthal, "Random Walks and Organizational Mortality," *Administrative Science Quarterly*, 36/3 (September 1991): 397-420. On the decoupling of strategic choices from strategic actions, see H. Mintzberg and J. Waters, "Of Strategies, Deliberate and Emergent," *Strategic Management Journal*, 6/3 (July-September 1985): 257-272; H. Mintzberg, *The Rise and Fall of Strategic Planning* (New York, NY: Free Press, 1994); W. H. Starbuck, "Organizations as Action Generators," *American Sociological Review*, 48/1 (August 1983): 91-102.
6. See, for example, D. Lovallo and O. Sibony, "The Case for Behavioral Strategy," *McKinsey Quarterly*, March 2010, pp. 30-43.
7. J. Denrell and C. Liu, "Top Performers Are Not the Most Impressive When Extreme Performance Indicates Unreliability," *Proceedings of the National Academy of Sciences of the United States of America*, 109/24 (2012): 9331-9336.
8. For example, research suggests that people are overconfident in their ability to control their own future behavior. See S. DellaVigna and U. Malmendier, "Paying Not to Go to the Gym," *American Economic Review*, 96/3 (June 2006): 694-719. We are grateful to an anonymous referee, who made the point that good and bad choices may not be symmetrical: choosing a good path does not guarantee success, but choosing a truly bad one (e.g., a hazardous path up Mount Everest) could guarantee disaster.
9. For example, see D. Teece, "Economic Analysis and Strategic Management," *California Management Review*, 26/3 (Spring 1984): 87-110. See also R. D. Rumelt, D. Schendel, and D. Teece, "Strategic Management and Economics," special issue, *Strategic Management Journal*, 12 (Winter 1991): 5-29; R. Nag, D. C. Hambrick, and M. J. Chen, "What Is Strategic

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10. The quote is the first section heading (p. 61) in Porter, "What Is Strategy?"
 11. On the imitation of bad practices, see E. Abrahamson, "Managerial Fads and Fashion: The Diffusion and Rejection of Innovations," *Academy of Management Review*, 16/3 (July 1991): 586-612; F. Vermeulen, "How Bad Practice Prevails: A Model of the Diffusion and Persistence of Detrimental Management Practice" (paper presented at the Strategic Management Society Annual Meetings, Vienna, 2006).
 12. The references for this paragraph are as follows: W. E. Salter, *Productivity and Technical Change* (Cambridge: Cambridge University Press, 1960); J. Johnston, "The Productivity of Management Consultants," *Journal of the Royal Statistical Society: Series A*, 126/2 (1963): 237-249; W. J. Primeaux, "An Assessment of X-Efficiency Gained through Competition," *Review of Economics and Statistics*, 59/1 (February 1977): 105-108; N. C. Kamberoglou, E. Liapis, G. T. Simigiannis, and P. Tzamourani, "Cost Efficiency in Greek Banking" (working paper no. 9, Bank of Greece, Athens, January 2004); N. Bloom and J. Van Reenen, "Measuring and Explaining Management Practices across Firms and Countries," *The Quarterly Journal of Economics*, 122/4 (2007): 1351-1408, at 1386; N. Bloom, B. Eifert, A. Mahajan, D. McKenzie, and J. Roberts, "Does Management Matter? Evidence from India," *The Quarterly Journal of Economics*, 128/1 (2013): 1-51. See also N. Bloom, R. Sadun, and J. Van Reenen, "The Radical Beauty of Three Simple Management Practices," *Harvard Business Review*, October 29, 2012, <https://hbr.org/2012/10/the-radical-beauty-of-three-si.html>; N. Bloom, R. Sadun, and J. Van Reenen, "Does Management Really Work?" *Harvard Business Review*, 90/11 (November 2012): 76-82. Productivity studies also show large inefficiencies in basic industries like farming, fishing, and railroads. See D. J. Aigner, C. A. K. Lovell, and P. Schmidt, "Formulation and Estimation of Stochastic Frontier Production Function Models," *Journal of Econometrics*, 6/1 (July 1977): 21-37; S. C. Kumbhakar, "Estimation of Input-Specific Technical and Allocative Inefficiency in Stochastic Frontier Models," *Oxford Economic Papers*, 40/3 (September 1988): 535-549; W. Meeusen and J. Van den Broeck, "Efficiency Estimation from Cobb-Douglas Production Functions with Composed Error," *International Economic Review*, 18/2 (June 1977): 435-444.
 13. J. Denrell, C. Fang, and S. G. Winter, "The Economics of Strategic Opportunity," *Strategic Management Journal*, 24/10 (October 2003): 977-990.
 14. T. C. Powell, D. Lovallo, and C. Fox, "Behavioral Strategy," *Strategic Management Journal*, 32/13 (December 2011): 1369-1386.
 15. See T. C. Powell, "Strategic Management and the Person," *Strategic Organization*, 12/3 (August 2014): 200-207.
 16. References for this paragraph and the next are as follows: D. Lovallo and D. Kahneman, "Delusions of Success: How Optimism Undermines Executives' Decisions," *Harvard Business Review*, 81/7 (July 2003): 56-63; D. A. Levinthal and J. G. March, "The Myopia of Learning," *Strategic Management Journal*, 14 (Winter 1993): 95-112; E. J. Zajac and M. H. Bazerman, "Blind Spots in Strategic Decision Making: The Case of Competitor Analysis," *Academy of Management Review*, 16/1 (January 1991): 37-56; J. Nickerson and T. Zenger, "Envy, Comparison Costs, and the Economic Theory of the Firm," *Strategic Management Journal*, 29/13 (December 2008): 1371-1394; E. Abrahamson and C. J. Fombrun, "Macrocultures: Determinants and Consequences," *Academy of Management Review*, 19/4 (1994): 728-755; Powell et al., op. cit.; T. C. Powell, "Neurostrategy," *Strategic Management Journal*, 32/13 (December 2011): 1484-1499; T. Gilovich, D. Griffin, and D. Kahneman, eds., *Heuristics and Biases: The Psychology of Intuitive Judgment* (Cambridge, UK: Cambridge University Press, 2002); I. L. Janis, *Groupthink* (Boston, MA: Houghton Mifflin, 1982); I. L. Janis and L. Mann, *Decision Making: A Psychological Analysis of Conflict, Choice, and Commitment* (New York, NY: Free Press, 1977); D. Kahneman, P. Slovic, and A. Tversky, eds., *Judgment under Uncertainty: Heuristics and Biases* (Cambridge, UK: Cambridge University Press, 1982); D. Kahneman, *Thinking, Fast and Slow* (London: Allen Lane, 2011); D. Kahneman and A. Tversky, eds., *Choices, Values, and Frames* (Cambridge, UK: Cambridge University Press, 2000); D. Antons and F. T. Piller, "Opening the Black Box of 'Not Invented Here': Attitudes, Decision Biases, and Behavioral Consequences," *Academy of Management Perspectives*, 29/2 (May 2015): 193-217; R. E. Nisbett and L. Ross, *Human Inference: Strategies and Shortcomings of Social Judgment* (Englewood Cliffs, NJ: Prentice Hall, 1980); M. H. Bazerman and D. A. Moore, *Judgment in Managerial Decision Making*, 7th ed. (New York, NY: Wiley & Sons, 2009); G. Loewenstein, *Exotic Preferences: Behavioral Economics and Human Motivation* (New York, NY: Oxford University Press, 2007); Vermeulen, op. cit.

17. The 2015 Volkswagen scandal, in which executives manipulated the testing of carbon monoxide emissions. Also see T. C. Powell, "Strategy, Execution and Idle Rationality," *Journal of Management Research*, 4/2 (2004): 77-98.
18. R. H. Thaler and C. R. Sunstein, *Nudge: Improving Decisions about Health, Wealth, and Happiness* (New Haven, CT: Yale University Press, 2008); D. Halpern, *Inside the Nudge Unit: How Small Changes Can Make a Big Difference* (London: W. H. Allen, 2015); C. Heath, R. P. Larrick, and J. Klayman, "Cognitive Repairs: How Organizations Compensate for the Shortcomings of Individual Learners," *Research in Organizational Behavior*, 20 (1998): 1-37; R. P. Larrick, "Debiasing," in *Blackwell Handbook of Judgment and Decision Making*, ed. D. J. Koehler and N. Harvey (Malden, MA: Blackwell, 2004): 316-337; S. Postrel and R. P. Rumelt, "Incentives, Routines, and Self-Command," *Industrial and Corporate Change*, 1/3 (1992): 397-425; P. E. Tetlock, "Cognitive Biases and Organizational Correctives: Do Both Disease and Cure Depend on the Politics of the Beholder?" *Administrative Science Quarterly*, 45/2 (June 2000): 293-326.
19. For example, see A. Chatterjee and D. C. Hambrick, "Executive Personality, Capability Cues, and Risk Taking: How Narcissist CEOs React to Their Successes and Stumbles," *Administrative Science Quarterly*, 56/2 (June 2011): 202-237; B. M. Staw, P. I. McKechnie, and S. M. Puffer, "The Justification of Organizational Performance," *Administrative Science Quarterly*, 28/4 (December 1983): 582-600; M. H. Bazerman and W. D. Watkins, *Predictable Surprises: The Disasters You Should Have Seen Coming* (Boston, MA: Harvard Business School Press, 2004); B. M. Staw, "The Escalation of Commitment to a Course of Action," *Academy of Management Review*, 6/4 (October 1981): 577-587; D. Miller, *The Icarus Paradox: How Exceptional Companies Bring about Their Own Downfall* (New York, NY: HarperBusiness, 1992); J. Pfeffer and C. T. Fong, "Building Organization Theory from First Principles: The Self-Enhancement Motive and Understanding Power and Influence," *Organization Science*, 16/4 (July 2005): 372-388; M. A. Hayward and D. C. Hambrick, "Explaining the Premiums Paid for Large Acquisitions: Evidence of CEO Hubris," *Administrative Science Quarterly*, 42/1 (March 1997): 103-127; A. Chatterjee and D. C. Hambrick, "It's All about Me: Narcissistic Chief Executive Officers and Their Effects on Company Strategy and Performance," *Administrative Science Quarterly*, 52/3 (September 2007): 351-386.
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21. Miller, op. cit.
22. See Denrell and Liu, op. cit. On the decline of sustainable competitive advantages, see R. A. D'Aveni, G. Battista Dagnino, and K. G. Smith, "The Age of Temporary Advantage," *Strategic Management Journal*, 31/13 (December 2010): 1371-1385; R. A. D'Aveni, *Hypercompetition: Managing the Dynamics of Strategic Maneuvering* (New York, NY: Free Press, 1994).
23. This is comparable with adaptation on rugged landscapes; for example, see D. A. Levinthal, "Adaptation on Rugged Landscapes," *Management Science*, 43/7 (July 1997): 934-950; J. Rivkin and N. Siggelkow, "Organizational Sticking Points on NK Landscapes," *Complexity*, 7/5 (2002): 31-43.
24. See B. Fay, "Critical Realism?" *Journal for the Theory of Social Behaviour*, 20/1 (March 1990): 33-41; K. E. Weick, *Making Sense of the Organization* (Oxford: Blackwell, 2001). In the above article, Fay compares the process of human discovery with playing the board game Mastermind. In Mastermind, the player attempts to discover a preselected code consisting of four pegs of different colors, which are covered by a shield. On each turn, the player guesses the code and receives information about the correctness of guesses. Fay writes, "The cosmos consists of an unknown but causally operative structure which is objectively 'there'; science is the attempt to replicate this structure through a process of hypothesis formation and testing; and a true theory is one which exactly duplicates the pre-existing structure" (p. 36). Both Fay and Karl Weick argued that people in the real world cannot be sure that the "underlying code" actually exists, or if it exists, whether people can discover it. Fay writes, "There isn't any One True Map of the earth, of human existence, of the universe, or of Ultimate Reality, a Map supposedly embedded inside these things; there are only maps we construct to make sense of the welter of our experience, and only us to judge whether these maps are worthwhile for us or not" (p. 38). The diligence-based approach can accommodate either a realist interpretation ("there is a real underlying code") or a constructionist or "pragmatist" interpretation ("the underlying code is not objectively real, but constructed by people as an aid and analogy for problem-solving").
25. Under equifinality of choice, industry landscapes allow more than one path to high performance. For example, a firm might achieve the same success using a strategy of (a) equally weighted capabilities in distributing and marketing, or (b) unequally weighted capabilities in

producing and serving customers. Diligence-based strategy assumes that executives can choose (a) or (b) as the company's strategy or business model (or they can choose others), and they can choose freely among all feasible allocations of resources. However, as in economic theory, executives cannot in the short run choose the extent to which any business model is rewarded by the environment. This is a feature of the environment, which decision makers must learn by allocating resources to activities and observing their effects. In practice, the performance function is both uncertain (at any point in time) and potentially unstable (over time). Executives can reduce uncertainty by engaging in market search, gathering information from a variety of sources, and observing the effects of resource allocations (as described in the text).

26. Jack Welch's philosophy of "Ponder less and do more" is consistent with diligence-based strategy. See J. Welch with S. Welch, *Winning* (New York, NY: HarperBusiness, 2005), 166.
27. See, for example, J. Sterman, *Business Dynamics: Systems Thinking and Modeling for a Complex World* (Boston, MA: McGraw-Hill, 2000); J. W. Forrester, *Industrial Dynamics* (Cambridge, MA: The MIT Press, 1961); Porter, *Competitive Advantage*; and Porter, "What Is Strategy?"
28. In a multiplicative performance function, activities complement each other, whereas in an additive function they are substitutes. For example, if more efficient production increases the payoffs to a sales training program, the performance function is multiplicative. Complementarity in organizations is discussed in J. Roberts, *The Modern Firm* (Oxford: Oxford University Press, 2007). An argument for the multiplicative function in human competition can be found in D. K. Simonton, "Talent and Its Development: An Emergent and Epigenetic Model," *Psychological Review*, 106/3 (July 1999): 435-457 (see also Simonton's sources on multiplicative performance and "emergent" processes, p. 438). The standard economic framing for multiplicative factors of production is the "Cobb-Douglas production function" and its variants. There is a vast theoretical and empirical literature, the original statement being C. W. Cobb and P. H. Douglas, "A Theory of Production," *American Economic Review*, 18/Supplement (1928): 139-165. Although the most common performance function in organizations is multiplicative, hybrid combinations are possible: for example, a multiplicative function with one additive activity.
29. This differs from a weakest link model, in which total strategic capital (TSC) always matches the company's capability in its worst activity. For example, if company A has capabilities rated 2 and 3, and company B has capabilities rated 1 and 9, company A is the higher performer in a weakest link model (2 is the lowest rated activity), and company B is the higher performer in a multiplicative model ($1 \times 9 = 9$ exceeds $2 \times 3 = 6$).
30. On ideologies, politics, and organizational barriers to strategic change, see S. Jonsson and P. Regner, "Normative Barriers to Imitation: Social Complexity of Core Competences in a Mutual Fund Industry," *Strategic Management Journal*, 30/5 (May 2009): 517-536; N. Brunsson, "The Irrationality of Action and Action Rationality: Decisions, Ideologies and Organizational Actions," *Journal of Management Studies*, 19/1 (January 1982): 29-44; A. D. Meyer and W. H. Starbuck, "Interactions between Politics and Ideologies in Strategy Formation," in *New Challenges to Understanding Organizations*, ed. K. Roberts (New York, NY: Macmillan, 1993), pp. 99-116. Jeffrey Pfeffer and Robert Sutton argued that companies do many things that effectively sabotage their own efforts to learn and improve, such as fostering cultures in which people feel pressured and afraid to fail, and "dumping technology on the problem," that is, adopting formal knowledge management programs that decouple learning from tacit forms of human interaction and organizational values. Their prescriptions for learning—for example, encouraging experimentation and embedding change programs in organizational culture and values—apply equally to the diligence-based method. See J. Pfeffer and R. Sutton, "Knowing 'What' to Do Is Not Enough: Turning Knowledge into Action," *California Management Review*, 42/1 (Fall 1999): 83-108. On loss aversion, see A. Tversky and D. Kahneman, "Loss Aversion in Riskless Choice: A Reference-Dependent Model," *The Quarterly Journal of Economics*, 106/4 (November 1991): 1039-1061. On confirmation bias, see D. T. Gilbert, D. S. Krull, and P. S. Malone, "Unbelieving the Unbelievable: Some Problems in the Rejection of False Information," *Journal of Personality and Social Psychology*, 59/4 (October 1990): 601-613. On the "curse of knowledge," a term credited to behavioral economist Robin Hogarth, see C. Camerer, G. Loewenstein, and M. Weber, "The Curse of Knowledge in Economic Settings: An Experimental Analysis," *Journal of Political Economy*, 97/5 (October 1989): 1232-1254. The intuitive version of the argument is that people find it hard to unlearn what they already know, or to take actions that require ignoring what they know (or think they know).
31. How can managers know if their organization's performance function is multiplicative? The best way to evaluate the function is to ask, Would a capability reduction in one of our core

- activities reduce our effectiveness in other activities? Note that this is not the same as asking whether a capability reduction in a core activity would make the company worse off, to which the answer should be “yes” (if a manufacturer becomes less capable of procuring quality components, this will hurt the company even if the performance function is additive). But if the same decline hurts the company secondarily by reducing the effectiveness or efficiency of the manufacturing process (say, due to higher error rates), or makes the sales task more costly (due to lower product quality), or creates a ripple effect in customer service (due to reputational decline or higher warranty costs), then the system is multiplicative. This means that lower capability in one activity has negative spillover effects for other activities, reducing their effectiveness and multiplying through the performance system as a whole. In a similar way, an improved capability in one activity can have positive spillovers for other activities and positive multiplier effects for the performance system as a whole. From a behavioral point of view, managers can ask, How effectively could we carry on our business without direct communication or coordination across core activities? Could our activities be conducted in a “stand-alone” or purely modular way? The multiplicative performance function assumes that core activities are not modular but complementary, requiring communication and behavioral coordination.
32. The standard treatment for two variables in microeconomics is to represent relative input costs as a line overlaid on the map of production isoquants, with optimal production at the point of tangency (see Appendix A). These calculations can be performed algebraically for any number of activities. On the contrary, the diligence-based method does not require these kinds of mathematical calculations. The main point for managers is to appreciate that cost trade-offs play a role in resource allocation decisions in a multiplicative system.
 33. Scaling from 0 to 10 is not essential; CyT uses a scale from 0 to 100, and the minimum could be set at one rather than zero.
 34. Quantitative analysis using the weighted multiplicative model, assuming equal costs of capability improvement for all activities, shows that one unit of added capability has the greatest impact on TSC when applied to developing culture (TSC rises by .36), followed by building relationships with retailers (+.27), developing new products (+.22), improving productivity (+.09), and marketing to consumers (+.06).
 35. For example, if distributing products is a fundamental activity for company A, and company B introduces a more efficient system for distributing products, the “bar” for competitive mastery rises and company A’s relative capability declines. Thus, a company’s capability can decline from 6/10 to 4/10 even if its absolute capability is unchanged, or its capability can remain the same despite absolute improvements in capability. This “Red Queen Effect” requires executives to attend closely to the frontiers of capability mastery in its sector.
 36. For example, see R. Keeney, “Value-Focused Thinking: Identifying Decision Opportunities and Creating Alternatives,” *European Journal of Operational Research*, 92 (1996): 537-549; R. Keeney, J. Hammond, and H. Raiffa, *Smart Choices: A Practical Guide to Making Better Life Decisions* (Boston MA: Harvard Business School Press, 1998); D. Lovallo and O. Sibony, “Distortions and Deceptions in Strategic Decisions,” *McKinsey Quarterly*, No. 1, February 2006, pp. 19-29; P. Schoemaker, “Scenario Planning: A Tool for Strategic Thinking,” *MIT Sloan Management Review*, 36/2 (Winter 1995): 25-40; P. Schoemaker and P. Tetlock, “Taboo Scenarios: How to Think about the Unthinkable,” *California Management Review*, 54/2 (Winter 2012): 5-24.
 37. This is consistent with the concept of “dynamic capabilities” but derived from different assumptions. Diligence-based strategy is not trying to explain “why certain firms build competitive advantage in regimes of rapid change” (D. J. Teece, G. Pisano, and A. Shuen, “Dynamic Capabilities and Strategic Management,” *Strategic Management Journal*, 18/7 (August 1997): 516), and it does not employ the distinction between “baseline capabilities” and “dynamic capabilities.” In diligence-based strategy, managers maximize performance not by creating “higher order” capabilities but by managing fundamental activities. This is perhaps more consistent with the Eisenhardt-Martin view of dynamic capabilities. See, for example, Teece et al., op. cit., pp. 509-533; D. J. Teece, “Explicating Dynamic Capabilities: The Nature and Microfoundations of (Sustainable) Enterprise Performance,” *Strategic Management Journal*, 28/13 (December 2007): 1319-1350; K. M. Eisenhardt and J. A. Martin, “Dynamic Capabilities: What Are They?” *Strategic Management Journal*, 21/10-11 (October/November 2000): 1105-1121; M. Peteraf, G. Di Stefano, and G. Verona, “The Elephant in the Room of Dynamic Capabilities: Bringing Two Diverging Conversations Together,” *Strategic Management Journal*, 34/12 (December 2013): 1389-1410.
 38. When combining ratings for sub-activities, managers can use their own discretion in deciding the method. The simplest method is to assign equal priority to the sub-activities and average

- the ratings; a better method is to weight the sub-activities according to priority and use a weighted average (CyT uses this method); if the sub-activities support each other in a multiplicative system, the weighted multiplicative method can also be used, as discussed earlier.
39. Consultants can play a number of roles in the diligence-based method, including process facilitation, research design, data gathering, analysis, interpretation, and providing templates for presentation. As the process evolves, companies find that they can bring more of the activity in-house.
 40. References for this paragraph are as follows: H. A. Simon, *Administrative Behavior: A Study of Decision-Making Processes in Administrative Organizations* (New York, NY: Macmillan, 1947); J. G. March and H. A. Simon, *Organizations* (New York, NY: John Wiley & Sons, 1958); H. A. Simon, "Rational Decision Making in Business Organizations," *American Economic Review*, 69/4 (September 1979): 493-513; R. M. Cyert and J. G. March, *A Behavioral Theory of the Firm* (Englewood Cliffs, NJ: Prentice Hall, 1963); H. Leibenstein, "Allocative Efficiency vs. 'X-Efficiency,'" *American Economic Review*, 56/3 (June 1966): 392-415; H. Leibenstein, *Beyond Economic Man* (Cambridge MA: Harvard Business Press, 1976); Kahneman op. cit.; Denrell et al., "The Economics of Strategic Opportunity"; Denrell, op. cit.; P. Bromiley, *Behavioral Foundations of Strategic Management* (Oxford: Blackwell, 2005); P. Bromiley and C. Papenhausen, "Assumptions of Rationality and Equilibrium in Strategy Research," *Strategic Organization*, 1/4 (November 2003): 413-437; P. Bromiley and D. Rau, "Towards a Practice-Based View of Strategy," *Strategic Management Journal*, 35/8 (August 2014): 1249-1256; A. Bhidé, "Hustle as Strategy," *Harvard Business Review*, 64/5 (September/October 1986): 121-129; J. Pfeffer and R. I. Sutton, *The Knowing-Doing Gap: How Smart Companies Turn Knowledge into Action* (Cambridge, MA: Harvard Business School Press, 2006); F. Frery, X. Lecocq, and V. Warnier, "Competing with Ordinary Resources," *MIT Sloan Management Review*, 56/3 (Spring 2015): 69-77; L. Gerstner, *Who Says Elephants Can't Dance? Leading a Great Enterprise through Dramatic Change* (New York, NY: HarperBusiness, 2003); A. Grove, *High Output Management* (New York, NY: Random House, 1983); L. Bossidy and R. Charan, *Execution: The Discipline of Getting Things Done* (New York, NY: Crown Business, 2002).
 41. Averaging keeps the range of TSC within the 0 to 10 scale of the underlying capabilities. Thus, if the variables have values 6 and 8, the sum is 14, which is outside the 0 to 10 scale. Averaging the scores preserves the additive logic while making the scale more intuitive.
 42. Intuitively, an "additive mean" (or "arithmetic mean") implies that the two variables are perfect substitutes for each other (to raise the mean, it does not matter which variable is increased); a "geometric mean" implies that the two variables are not perfect substitutes (increasing the lower value gives a different mean than increasing the higher value). Arithmetically, the "additive mean" adds the values and divides by the number of values, and the "geometric mean" multiplies the values and raises them to an exponent equal to $1 /$ (the number of values). If the two values are 8 and 2, the additive mean is $(8 + 2) / 2 = 5$; the geometric mean is $(8 \times 2)^{1/2}$ (square root of 16) = 4.

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