Dynamic Capabilities at IBM:

DRIVING STRATEGY INTO ACTION

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In the early 1990s, many Wall Street analysts had written off IBM as a company; its stock price was the lowest it had been since 1983. By 1992, more than 60,000 jobs had been lost and, in spite of John Akers' (the CEO until 1993) efforts at transformation, the company was failing. When Lou Gerstner took over in 1993, the services unit was 27 percent of revenues and the software unit didn't even exist. In 2001, services and software were $35 billion and $13 billion businesses respectively and combined represented 58 percent of total revenues. IBM's market cap had increased from $30 billion in 1993 to $173 billion. The share price over that period increased 7X. Since then, with Sam Palmisano as CEO, IBM has continued this remarkable transformation so that today IBM has revenues of $91 billion, more than 70% from software and services.

During a 20-year period, IBM has gone from success to failure to success; from a technology company to a broad-based solutions provider to, perhaps, an exemplar of the new world of open systems and on-demand capabilities. Unlike other great technical companies such as Xerox, Philips, and Polaroid that failed to capture the benefits of their innovation, IBM has been able to leverage their intellectual capital into businesses as diverse as life sciences, automotive, and banking—and make healthy profits along the way.

How did this happen? While the broad story of IBM's rise, fall, and transformation has been well documented elsewhere,[1] there is a part of this story that is essential and not widely appreciated—a story about strategy and execution and how the IBM strategy process links the two. It is an illustration of how a current buzzword in strategy, "dynamic capabilities," is made real and used to help the company succeed in mature businesses, such as mainframe computers, as well as move into new ones, such as digital media. It is a lesson in how theory and practice combine to develop new insights that are useful for business and generate new thinking about strategy.[2]

To illustrate how dynamic capabilities help IBM succeed, we first review briefly the current thinking about strategy—and why dynamic capabilities are an improvement on older strategy frameworks. We then describe how the company's brush with failure led to the evolution of the IBM Business Leadership Model and how a set of related strategic processes, including deep dives, Emerging Business Opportunities, the Strategic Leadership Forum, and the Corporate Investment Fund, are managed by IBM's Strategy Group and involve 25,000 executives to help identify and capture opportunities across 140 geographies with constantly changing competitors and technologies. This process, while hardly perfect, has, in the words of former CEO Gerstner, "helped the elephant to dance."

Strategy:
Why It Is So Important—and Often Fails

We suspect that every regular reader of the business press has, in one way or another, been steeped in the logic of strategy and competitive advantage. We have all been exposed to the notions of the five forces, core competencies, SWOT, "co-opetition," and a myriad of other frameworks for how leaders can help their firms prosper.[3] For the few who missed class that day, the essence of strategy is contained in a single question: "The fundamental question in the field of strategic management is how firms achieve and sustain competitive advantage."[4]

This basic question has preoccupied managers and academics for the last century. The extent of this preoccupation is underscored by the results of a search of the academic literature using "strategy" as a keyword: More than four million citations were listed.[5] Amazon lists more than 49,000 books with strategy in the title and a broad Google search shows 800 million hits. Two obvious conclusions can be drawn from this interest: first, strategy is clearly important; and second, given the disparate approaches, there does not seem to be a consensus about "how" strategy works—in spite of the fact that there is good consensus on the definition of the term itself.

With some slight variations in definition, "strategy" is widely used to refer to the plans and actions that firms take to achieve their objectives. It is simultaneously a process by which plans for allocating resources are developed and the actions required to achieve their goals are identified. It reflects management's understanding of the firm's assets and position as well as the external forces it faces. At the most basic level, strategy is about making quality decisions and executing well on those decisions. Unfortunately, what seems so simple in theory is anything but in practice.

One of the things that makes this seemingly simple conceptual process so difficult is the uncertainty and complexity of competition and change, particularly in fast-moving markets. To compete successfully, managers need to be able to scan their environments, identify relevant opportunities and threats, to design responses that will satisfy customers in ways that competitors can't easily imitate, and, finally, to ensure that these plans are implemented, even as the firm competes across a variety of geographies and markets and in mature businesses as well as emerging ones. Yet, capturing and distilling relevant information isn't a natural capability for most senior management teams. As David Teece, who is both an academic strategist and a CEO, notes, "The skills that result in the identification or development of an opportunity are not the same as those required to profit from or 'exploit' the opportunity."[6]

Strategy is about understanding market and technology evolution and transformation as well as the ability to execute against the plans. Interestingly, the striking evidence is that some companies never see the threats or, more frequently, are unable to change quickly enough to avoid them. For many years, the senior management at Sears refused to believe that Wal-Mart was a competitor or a threat. The large integrated steel makers, such as Bethlehem Steel, discounted the emergence of mini-mills and Nucor, only to find themselves bankrupt 20 years later. Famously, in 1977, Ken Olsen, the founder and CEO of DEC, said, "There is no reason for any individual to have a computer in his home." The irony here is that in 1998 a struggling DEC was sold to Compaq, a maker of computers for people's homes—which in turn was acquired by HP. In the 1990s, mainline semiconductor manufacturers dismissed the emergence of "fab-less" semiconductor firms with the phrase "real men have fabs." Of course everything looks clearer in hindsight, but the unfortunate fact is that we often can't know ex ante where to place bets. Strategy is partly a process of hypothesis testing in which firms place bets and explore new technologies and markets and develop new competencies, even as the firm continues to exploit existing competencies in mature businesses.

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From "Five Forces" to "Dynamic Capabilities": The Evolution of Strategic Thinking

Theories of strategy abound and form the basis for the four million citations mentioned earlier. Academics have developed four main paradigms for thinking about strategy. First, there is the well-known competitive forces framework of Michael Porter in which competitive advantage comes from actions taken by a firm to create defensible positions against competitors—for example, by erecting strong barriers to entry.[7] In this framing, the strategic problem faced by managers is one of industry structure, entry deterrence, and positioning. In a second framework, the resource-based view of strategy, competitive advantage comes from difficult-to-imitate firm-specific assets that can be used to capture rents—for instance through strong intellectual property, economies of scale, or a dominant brand.[8] In this view, profits flow from having lower costs or higher quality (e.g., through efficient supply chains or operational excellence), innovative products, or customer insight that allows firms to understand and meet customer needs in the way competitors cannot. Both of these perspectives are largely static and emphasize how firms compete at a single point in time.

A third distinct theoretical approach to strategy emphasizes a strategic conflict approach, which uses the tools of game theory to suggest how firms can outsmart their rivals.[9] The thrust of this approach emphasizes taking strategic moves, such as irreversible investments in capacity, to influence the behavior of rivals. Intel, for example, has been bold in exiting businesses such as semiconductor memory, demanding to be a sole-source provider and refusing to license their designs, and announcing capacity expansions to signal their commitment to would-be competitors.[10] Similarly, when Nokia chose to divest itself of all businesses other than telecom, it was signaling to its competitors its commitment to a single industry.

Most recently, strategy research has begun to emphasize a fourth approach, *dynamic capabilities,* which builds on the notion of core competencies but focuses on the role of management in building and adapting these competencies to address rapidly changing environments.[11] This development was stimulated by the recognition that many successful or dominant firms fail to sustain their performance as markets and technologies shift (think Memorex, RCA, Pan Am, or Sears). In spite of having the resources, these companies failed to adapt to changed circumstances. With dynamic capabilities, sustained competitive advantage comes from the firm's ability to leverage and reconfigure its existing competencies and assets in ways that are valuable to the customer but difficult for competitors to imitate. Dynamic capabilities help a firm sense opportunities and then seize them by successfully reallocating resources, often by adjusting existing competencies or developing new ones. Unlike earlier strategic frameworks that were largely static, dynamic capabilities explicitly acknowledges that as markets and technologies evolve, firms need to adjust by reallocating assets and learning new skills. In the early 1990s, for example, Johnson Controls was primarily a maker of seats for U.S. automakers. Their distinctive competencies were in manufacturing and their relationships with car companies. Recognizing that this was an increasingly competitive market and one in which they would be unlikely to dominate, they invested in design and partnering skills that enabled them to move into higher margin businesses such as design, engineering, and electronics integration. They adapted and extended their competencies in the manufacturing of seats and their relationships with auto companies to transform the company. Between 1995 and 2002, their shareholder return improved 400%.

It is the ability to adapt and extend existing competencies that differentiates dynamic capabilities from other strategic frameworks. This ability places a premium on senior management's ability to accomplish two critical tasks. First, they must be able to accurately *sense* changes in their competitive environment, including potential shifts in technology, competition, customers, and regulation.

Second, they must be able to act on these opportunities and threats; to be able to *seize* them by reconfiguring both tangible and intangible assets to meet new challenges.[12] These two fundamental capabilities are at the core of a firm's ability to survive and grow over time and represent the essence of dynamic capabilities. "Winners in the global marketplace have been firms that can demonstrate timely responsiveness and rapid flexible product innovation, coupled with the management capability to effectively coordinate and re-deploy internal and external competencies."[13] In IBM's language this requires that leaders possess both *strategic insight* and *strategic execution*. One without the other is insufficient for long-term success since the marketplace is ever changing. If a firm has resources and competencies but lacks these dynamic capabilities, it may make a competitive return in the short-term but is unlikely to sustain this in the face of change.

Each of these approaches to strategy attempts to solve the puzzle of how a firm can out-compete its rivals by either developing useful firm-specific skills or positioning itself in ways that customers value and are willing to pay for and that rivals cannot easily imitate. While earlier approaches to strategy were largely static (e.g., develop a positional advantage and protect it), dynamic capabilities call attention to the need for organizations to change over time and compete in both emerging and mature businesses.[14]

From Theory to Practice: Why Strategic Thinking Sometimes Fails

Although theories of strategy can be elegant in their formulation, they are often less helpful in practice. What passes for strategy in many organizations too often consists of three-ring binders, power point slides, and annual meetings as carefully scripted as a *Kabuki* drama—and, just as in the Japanese version, those who fail to play their roles often suffer an organizational fate much like the villains in the play. Worse, many strategists, especially academics who develop the theory, typically don't want to get their hands dirty with the myriad of details necessary for successful execution. As a result, in many organizations a barrier exists between strategists and operational executives. The failure of the conventional strategic planning group to devise executable plans has often resulted in some firms giving up on strategic planning departments.[15] Therefore, timely strategic insights often go unrecognized by those line executives responsible for execution.

Compounding this problem, many organizational strategic planning and review processes take place annually—not an immutable time frame that technology, customer needs, or competition adheres to. Firms that do annual planning in fast-changing markets and technologies are always behind. Worse, many operating managers in competitive markets have little time for the reflection and analysis that good strategy requires. The IBM saga over the past decade vividly illustrates these dangers—and offers a possible solution.

Success, Failure, and Success: Fixing Strategy at IBM

Through the mid-1980s, IBM enjoyed 40 percent of the computer industry's sales and 70 percent of its profit. In 1990, IBM sales were five times their nearest rival, but growth had slowed to less than six percent. By 1991, their stock price had reached the lowest point since 1983. From 1986 to 1993, IBM had taken $28 billion in charges and cut 125,000 people from their payroll—after avoiding layoffs for more than 70 years. On January 26, 1993, in the face of a looming disaster, CEO John Akers resigned. After a seven-month search, Lou Gerstner was appointed as CEO—the first outsider to run IBM in its history. Reflecting the company's condition, a *Business Week* reporter described Gerstner's appointment as "the toughest job in Corporate America today."[16] In describing why IBM had found itself failing, Gerstner observed that "what happened to this company was not an act of God, some mysterious biblical plague sent down from on high. It's simple. People took our business away."[17] More startling, after reviewing IBM's strategies, he concluded that "the company didn't lack for smart, talented people. Its problems weren't fundamentally technical in nature. It had file drawers full of winning strategies. Yet the company was frozen in place . . . The fundamental issue in my view is execution. Strategy is execution." What IBM lacked was not the ability to foresee threats and opportunities but the capability to reallocate assets and reconfigure the organization to address them.

After stabilizing the company in the mid-1990s, Gerstner described IBM's bet on the future this way: "Our bet was this: Over the next decade, customers would increasingly value companies that could provide solutions—solutions that integrated technology from various suppliers and, more importantly, integrated technology into the processes of the enterprise."[18] The core competence required to execute this strategy was the ability to integrate systems to solve customers' business problems—open middleware (the software that permits applications to be used across a variety of platforms) and services were key to this. Commenting on whether IBM, a traditional hardware company, could make this transition, Gerstner said, "Services is entirely different. In services, you don't make a product and sell it. You sell a capability . . . this is the kind of capability you cannot acquire."[19]

Competencies are embedded in organizational processes or routines around coordination, learning, and transformation. For IBM, this meant it would need to take its existing competencies in technology and quality and add to them the capability to learn better how to serve the customer, integrate the organization around the customer's needs, and to transform themselves from a great product company to one that solved customer's problems. In the old IBM, Gerstner observed that "all of [our] capabilities were of a business model that had fallen wildly out of step with marketplace realities."[20] To change meant walking away from the IBM history and the collapse of gross profit margins as they moved into services, but he was also optimistic, "History shows that the truly great and successful companies go through constant and sometimes difficult renewal of the base business."[21]

Since 2002, Gerstner's successor as CEO, Sam Palmisano, has continued the transformation of IBM into an "on-demand business" using advanced computer and software technologies to quicken the flow of knowledge within companies and help executives respond instantly to changes. This entails offering open architecture, integrated processes, and self-managing systems—selling computing services, not computers.[22] This has required a transformation of the company around customer needs. For instance, in a partnership with the U.S. Postal Service, IBM has developed software to optimize mail handling and shipping while with Boeing they have partnered to create technologies for network-centric warfare products. They have also partnered with the Mayo Clinic to do breakthrough work on gene profiling and with Bang & Olufsen to develop an electronic pill dispenser. Within IBM, this has required that the company re-integrate itself to bring together experts to solve customer problems—not simply to sell products or services. The most important element of this transformation, however, was the radical shift in IBM's approach to strategic insight and strategic execution and embodied in how the company approaches strategy.

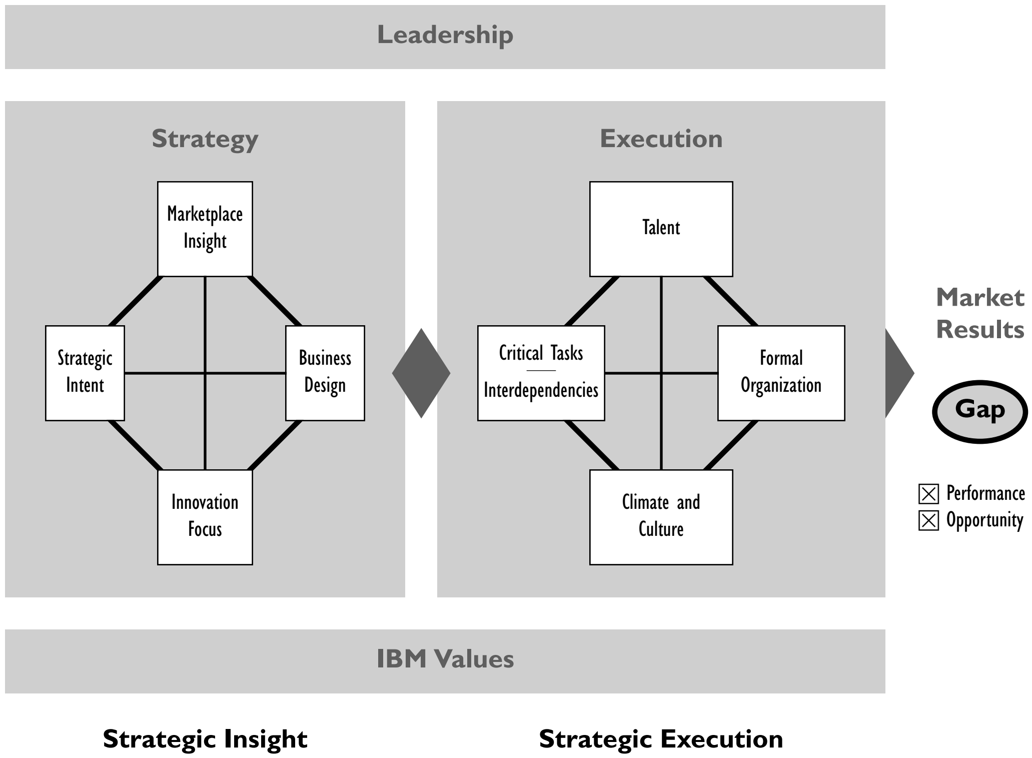
How IBM Does Strategy

Up until 1999, the strategy process at IBM looked pretty much like the process at any large, complex organization. Developments in technology were monitored, there were occasional projects to drill down into specific issues, and, most centrally, there was the annual strategic review process in which business unit heads prepared and presented their plans to the senior management group. This strategy document purported to describe what was happening in the unit's marketplace (e.g., competitor moves, technology changes) and what the financial implications were for the business. These separate documents would be rolled together for IBM in what was called "the Spring Plan."

In 1999, things changed. In preparation for one of these review meetings, Gerstner read one of the business unit's strategic plans. Irritated by what he saw, he called Harreld, the SVP of Strategy, into his office, threw the strategy paper across his desk, and asked, "Are you supposed to be in charge of strategy around here? This thing isn't worth the paper it's printed on." Knowing Gerstner, he responded, "With all due respect, this isn't the way we really do strategy. Surely you don't think this document was actually written by the business unit leader?" Gerstner stopped, reflected for a moment, and acknowledged that in his time as a group executive, he didn't write those documents either. They were farmed out to a staff expert and did not reflect the reality of the competitive landscape. For example, during the 1990s, there were more than 400 strategic planners within IBM whose primary role was to poke holes in the thinking of general managers. The actual planning process was a staff exercise undertaken to satisfy senior management, not an accurate reflection of what the business needed to do to be competitive and certainly not a blueprint for action.

After a discussion of the weaknesses of the current strategic review process at IBM and the realities of their markets, Gerstner told Harreld to go away and think about engineering a dramatic step-change in how strategy could

FIGURE 1. The IBM Business Leadership Model



"Closing the gap requires both strategy to assess the opportunities and design the business to address them and execution to assess and build the organizational capabilities to deliver market results."

—Bruce Harreld, SVP Strategy, IBM

be made more relevant at IBM—a process that would reflect the realities and complexities of their businesses and involve the responsible general managers in a real process of sensing the environment and seizing opportunities. What emerged came to be labeled the "IBM Business Leadership Model" (see Figure 1) and encompassed a process of *strategic insight* (strategic intent, marketplace insight, innovation focus, and business design) designed to systematically identify opportunities and *strategic execution* (alignment of people, structure, culture, and process) designed to seize opportunities by ensuring that every strategic initiative also had an associated plan for execution. In this way, the IBM Business Leadership Model reflects the two fundamental dynamic capabilities of sensing and seizing opportunities.

From this perspective, strategy doesn't matter unless it changes what the company does in the marketplace. Otherwise it's "chartware." Strategy is not about how to beat the competition but understanding the client's needs and removing the barriers needed to help them—beating the competition is secondary. It is the connection of knowing with great accuracy what the opportunities are with the ability to do the things necessary to accomplish them.

In a company of the size, complexity, and geographic reach of IBM it is unrealistic to think about strategy as an annual, top-down process. To be successful, IBM believes that the process must help line managers to be engaged and competent in the strategy-making process. A central part of this process is to keep strategy making at the business unit level with the people who best understand the local marketplace—but also to have a process where general managers are willing to blow the whistle and ask for help when they need it. Under the old system, the annual strategy review process created an us-versus-them mindset where senior managers attempted to poke holes in the line-of-business plans. Candor on the part of line managers was not rewarded. Furthermore, in the strategic reviews, criticisms about other's deficiencies exacerbated the tendency for leaders to be conservative in their strategies. Under the new system, the essence of strategy is "disciplined, fact-based conversations." This approach now involves more than 25,000 general managers at IBM in both the formulation and execution of strategy.

The IBM Business Leadership Model[23]

As shown in Figure 1, the IBM Business Leadership Model emphasizes the role of the general manager and the interdependence between strategy and execution. Strategy is stimulated by leaders' dissatisfaction, the perception of a gap between current and desired performance. In the IBM model, this is either a performance gap (a shortfall between expected and actual results) or an opportunity gap (a discrepancy between current business results and those achievable with a new business design). General managers define their gaps in terms of a clear business owner, financial metrics that quantify the gap, and a specific time frame for addressing it (Figure 2 provides several examples). Closing the gap requires both strategic insight to assess the opportunities and threats and strategic execution to build the capabilities to deliver market results.

Strategic Insight

As shown in the left-hand side of Figure 1, strategy formulation emphasizes four interrelated disciplines: strategic intent, market insight, innovation focus, and business design. While each of these disciplines is well known to organizational strategists, IBM emphasizes the interdependence among these elements as a key to successful strategy formulation.

- ***Strategic Intent*** sets the overall direction and goal for the organization. This statement sets priorities for the achievement of strategic advantage and defines the boundaries of any subsequent analytic effort. For example, Palmisano's 2002 declaration that IBM would become an "on-demand company" led to the development by the software organization of service-oriented architecture (SOA) to make software more adaptable and the consulting organization to emphasize component business

FIGURE 2. Performance and Opportunity Gaps

Performance Gaps	Opportunity Gaps
Our revenue growth over the past 10 years has lagged the market (4% vs. 8%). Our goal is to break out of this pattern of low growth and achieve 10% profitable revenue growth in the next 24 months. Achieving this result will result in an estimated $5 billion in top line growth. *Business Owner:* VP of Line of Business	Current revenue growth per customer in our existing markets is growing only slowly (5% per annum) and customer expectations are increasing. If we are able to move up the stack and provide solutions rather than point products, we should be able to increase revenues and profits by 20% over the next 3 years. *Business Owner:* Division GM
The business has grown dramatically over the past 5 years. During this period the quality of our products has declined. Our attempts at introducing six sigma have failed and we have lost 5 points in market share in the past 12 months. Each point lost represents roughly $500 million in revenue. Our intent is to regain this market share over the next 24 months. *Business Owner:* VP Quality	Our R&D group has developed a new technology platform which represents a potential disruptive technology in our industry. At present, we anticipate a first-mover opportunity of about 12-18 months if we can introduce this technology within the next 6 months. Our current product development cycle takes 18-24 months. To succeed, we must shorten this cycle to 6 months. *Business Owner:* VP Technology and Manufacturing
The goal of our 2003 merger was to dramatically reduce costs (estimated savings of $1 billion) and improve product development times (reduce times from 12 months to 6). In spite of a reorganization, we have failed to achieve our time, quality, or cost targets. We need to achieve our time-to-market of 6 months within the next year. *Business Owner:* VP Product Development	

modeling to help clients more easily use IBM services. Absent a clear strategic intent, it is difficult to generate a comprehensive fact-base for market insight and business design.

- ***Market Insight*** involves a focus on understanding customer needs, competitor moves, technology developments, and market economics. This is a fact-gathering, analytical effort, the goal of which is to specify in detail what is happening in the market, how profits are shifting, and the implications for the IBM business. This activity is often what passes for strategy narrowly defined. It typically includes the development of an in-depth understanding of the customer's economic drivers (revenues, costs, economic model) and leads to value propositions that speak to specific buyer's needs. For instance, the analysis may reveal opportunities to drive customer revenue, reduce costs, or use assets more efficiently. For example, IBM's recognition that the customers wanted to buy solutions to problems and not IT infrastructure led them to develop outsourcing solutions.
- ***Innovation Focus*** challenges general managers to actively experiment and challenge their thinking in the design and implementation of strategy, including taking ideas from a wide range of sources and creating pilots and experiments to shape industry change. Creativity is encouraged not simply with new products and services, but also with operational and business model innovations. Most calls for innovation implicitly focus on

the development of new products, but research suggests that innovation in business models can contribute more to shareholder return.[24] For example, Amazon, Dell, GEICO, Apple iTunes, and Wal-Mart succeeded not because of "new" products, but through business model innovation. At IBM, this business model innovation has led to the company's support of open-source software, putting IBM intellectual property in the public domain, and the development of the Engineering and Technical Services business, a new $2 billion services play, in which IBM technical experts help other companies design products and services.

- ***Business Design*** is based on the external insight gained from the three elements above and specifies how the business will go to market. Business design involves answering five key questions and answers the business strategy question: "How will we compete?"
  - *Customer Selection*—What customer segments do we choose to serve—and what will we not serve? Customer selection can be defined on a number of dimensions (e.g., customer types, purchase behavior, value chain location, segment maturity, and price). The central challenge here is getting clarity on who the target customers are and who they are not. Southwest Airlines, for example, actively discourages customers who have complicated travel itineraries. Abercrombie & Fitch design their stores to appeal to a particular younger demographic segment—and discourage older shoppers.
  - *Value Proposition*—Given our customer segment, what is our offering and how will we be differentiated from our competitors? Why should any customer prefer our offering to anyone else's? This involves specifying the tangible results specific customers will get from you versus the competition and is especially important for displacing market share leaders and creating new markets. It can be based on elements such as product performance or cost, ease of use, quality and reliability, or ease of doing business. For example, the value proposition of Salesforce.Com, an on-line provider of CRM software, is to offer small businesses CRM capability without having to purchase and operate computer systems of their own.
  - *Value Capture*—Given the answers to the first two, how will we make money? This entails a deep understanding of the economics of the offering and clarity about how the business will earn money. Progressive Insurance, for instance, has successfully targeted hard-to-insure drivers and uses sophisticated statistical analysis to discriminate between those from whom they can make money from the genuinely high-risk drivers. Wal-Mart enjoys a 22 percent margin advantage in retail groceries. Iansiti and Levien estimate that two-thirds of this comes from their ability to manage their eco-system and one-third comes from operational efficiencies.[25]
  - *Scope of Activities*—What will we do internally and for what activities will we rely on our value net partners? These decisions flow from

clear marketplace insight, customer selection, and the value proposition. Those activities that provide a clear competitive differentiation are kept and others become candidates for outsourcing or joint venturing. For example, IBM has decided sharing intellectual property can promote innovation and has made available many of their patents. P&G has also decided that instead of doing all innovation internally, they would open their innovation and begin to rely on open-source innovation with partners.[26]

– *Sustainability*—How will we defend the profitability of our offerings against competitor responses? Any successful strategy will generate competitive responses. The issue is how to protect future revenue streams by identifying strategic control points. These may range from owning the standard (e.g., Microsoft, Qualcomm) to brands and patents (e.g., Intel Inside, and Rolex) to cost advantages (e.g., Southwest, Wal-Mart). The choice here is to decide in advance how to maintain profitability and to build this into the strategy.

While these components of strategic insight are comprehensive, there is little here that is novel or unique to IBM. Most organizations with sophisticated approaches to strategy would cover this same territory. What makes these elements so useful at IBM is the emphasis on complementarity—ensuring that they are aligned and work together. If marketplace insight is done well but the business design isn't reflective of this, the strategy is likely to fail. Similarly, if the business design is robust but predicated on inadequate market intelligence, failure is also likely. What makes this process unique at IBM is that general managers are charged with being both rigorous in their analysis and consistent in linking this insight to execution.

Strategic Execution

The right-hand side of Figure 1 illustrates the elements required by general managers for the execution of their strategic plan. The strategy-making process culminates in a clearly communicated business design and the allocation of required resources. Implementation begins with an honest appraisal of current organizational alignment and capabilities—identifying misalignments and specifying the steps needed to correct them. Based on the business design, execution focuses on aligning four key organizational elements to ensure that the business can deliver on the strategic intent:

- ***Critical Tasks and Processes***—These are the key success factors necessary to deliver on the value proposition and scope of activities specified in the business design. They are the concrete tasks and interdependencies needed to add value from the customer's perspective. At DaVita, a $3 billion provider of kidney dialysis, the two major key success factors are operational excellence (to control costs and ensure compliance with government regulations) and customer satisfaction (that helps patients achieve better health outcomes and attracts higher value patients with private health insurance). Identification of these key success factors is what permits organizational alignment. Said differently, if the critical tasks are unclear, it is not possible to evaluate whether the organizational alignment will help or hinder the execution of strategy.

- ***Formal Organization*—**These are the explicit structures, metrics, and rewards required to direct, control, and motivate individuals and groups to perform the unit's critical tasks. The question asked is "does the current formal organization facilitate the accomplishment of the required critical tasks and interdependencies?" For example, the complex matrix structure of IBM has been identified as a hindrance to moving quickly in new markets, so new organizational designs were developed to promote exploration.
- ***People and Skills*—**Does the unit have the requisite human resource characteristics, capabilities, and competencies needed to execute the critical tasks? Are people motivated and engaged? For example, one of IBM's technology-based business units realized that there was a large potential consumer market for their product, but in developing their strategy they discovered that they lacked any marketing capabilities required in the new segments.
- ***Culture*—**Does the existing culture (expectations about how people need to behave) support the accomplishment of the critical tasks? Given the new business design, are there new behaviors that will be required to deliver on the value proposition? One of IBM's divisions that had been competing on technical excellence in stable markets announced a new growth initiative that placed a premium on initiative and risk taking only to discover that the dominant culture was highly risk averse. The general manager realized that to be successful required a significant shift in the unit's culture.

Business unit performance is a function of having the right strategy as well as alignment or congruence among these four organizational elements.[27] The successful execution of strategy critically depends on this alignment. What is sometimes overlooked, however, is that whenever a strategy is changed, it is almost always the case that the existing organizational alignment will also need to be changed. The IBM Business Leadership Model forces line managers to be explicit in diagnosing the current versus the needed organizational alignment and to ensure that these changes are made by the top management team as a part of their new strategy. Existing organizational architectures reflect old strategies. Unless management actively realigns their business to reflect the new strategy, execution will suffer.

IBM's Dynamic Capabilities

Palmisano's "On Demand Business" campaign is taking the next step by transforming IBM from a set of conventional silos (e.g., hardware, software, and services) to an integrated structure oriented around providing solutions for customer needs. To make this new approach work, the entire role of the corporate strategy group at IBM needed to change. If all the group did was to manage an annual strategy process, they would be largely irrelevant to line managers—just another staff function wasting valuable resources. To be successful, the strategy group needed to help business leaders gain strategic insight and to help act on these insights. General mangers needed to be involved in the entire process.

Under the old model, IBM's strategy department was exclusively populated with strategic planning professionals who had strong skills in formulating strategic insight. However, since few of these professionals had run a business, their strategic executional capabilities were limited. Today, two-thirds of the strategy organization is composed of successful general managers who join the team for an 18- to 30-month period. These executives bring invaluable operational skills to the strategy team. Their presence has transformed the department's formerly academic planning culture to one that is much more action-oriented. In return, these general managers develop improved strategy skills, thus better preparing them for their next line management assignment.

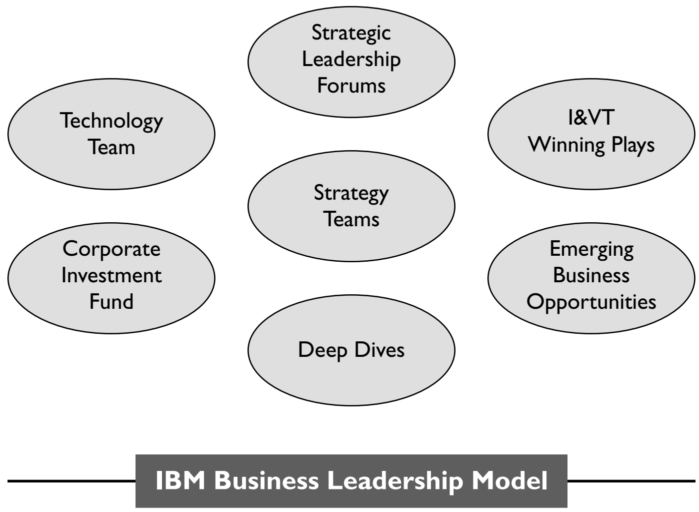
To ensure that the strategy process provides the insight necessary to sense opportunities and the execution required to seize them, a set of complementary mechanisms have evolved. The specific mechanisms that underlie the two fundamental dynamic capabilities of sensing and seizing opportunities are outlined in Figure 3. In this figure, the above-the-line activities include those actions designed to both sense new opportunities and to seize them by reallocating resources and reconfiguring the organization. In Jim March's terms, these are activities that promote "exploration" and learning.[28] "Exploitation" is equally as important and is accomplished through the existing organization—sometimes referred to within the company as a "disciplined machine." What is notable about the IBM approach to strategy is less in what they do and more in how they do it. Each of the elements shown in Figure 3 is replicable by competitors. What is more difficult to copy is the integrated way in which these activities are implemented. Figure 4 illustrates how the above the line activities map onto the dynamic capabilities of sensing and seizing opportunities.

Sensing New Opportunities: Strategic Insight

- The ***Technology Team*** meets monthly and assesses the market readiness and the potential of emerging technologies. This team draws on the deep expertise of IBM Fellows and Distinguished Engineers. Decisions can result in accelerated funding for a project or in its demise.
- The ***Strategy Team*** also meets monthly to examine the market results of existing unit strategies as well as to explore new growth areas. Decisions can result in new market entry, adjustments to existing business plans, or complete exit from a business. This team is composed of a cross section of general managers, strategy executives, and other key functional leaders.
- The ***Integration & Values Team*** is a group of 300 key leaders, selected annually by the CEO and senior executives, who are considered responsible for integrating IBM through company-wide initiatives. These initiatives, known as *Winning Plays*, are corporate-wide strategic efforts (e.g., issues that require cross-organization interdependence). Each initiative

FIGURE 3. The Strategy Process at IBM

Explore into new spaces:



Exploit existing capabilities and processes:

The IBM Company: "A Disciplined Machine"

- Metrics
- Structure
- Leader Behavior

has assigned leaders and, often, uses the "deep dive" process. Results are reported quarterly to the entire Integration & Values Team and, in abridged form, to the entire company.

- A ***Deep Dive*** is a structured process, typically requested by a general manager confronting a performance or opportunity gap and staffed jointly by the operating unit and the strategy group. This is an intensive, focused process where a topic (e.g., a new technology or change in competition) is scrutinized in great detail. This process is highly analytical and fact-based. It typically results in a strategic decision to either pursue a market or technology, to change strategy, or to exit a market. Intentionally these efforts are not run to a preset time line; the work continues until all questions are answered, the decisions are clear, and the necessary adjustments to the organizational model are clearly delineated.

Each of these processes helps ensure continuous scrutiny of the competitive environment and involves line managers in this effort. The deep dives, for

FIGURE 4. Dynamic Capabilities at IBM

Strategic Elements	Sensing	Seizing
Technology Team	X	
Strategy Team	X	
Integration and Values Team/Winning Plays	X	X
Deep Dives	X	
Emerging Business Opportunities (EBOs)		X
Strategic Leadership Forums (SLFs)		X
Corporate Investment Fund		X

example, are routinely called out by business managers facing problems. The technology team offers a way to link technological advances with business needs. The strategy team ensures dynamic adjustments to strategy and execution are made in a timely manner. The winning plays provide a way of communicating and focusing the organization on company-wide initiatives. The primary capability in sensing opportunities is the ability to make high-quality unbiased investment decisions under conditions of high uncertainty. These four mechanisms provide a multifaceted way of continually monitoring and assessing changes, a clear decision process for making timely decisions, and the ability to allocate resources in support of these decisions.

Seizing New Opportunities: Strategic Execution

In addition to these mechanisms that help identify opportunities, the IBM strategic process also has a set of mechanisms to help seize them by reallocating resources and, when needed, reconfiguring the organization. The key here is the ability to recombine and reconfigure assets and structures as markets and technologies change. In addition to the Integration & Values Team and Winning Plays described above, which also have elements that help seize opportunities, three powerful mechanisms help ensure what Teece refers to as "asset orchestration."[29]

- ***Emerging Business Opportunities (EBOs)*** are an integrated set of processes, incentives, and structures designed explicitly to enable IBM to address new business opportunities and drive revenue growth. The EBO process begins with the recognition that mature, well-established businesses need to operate differently from new, exploratory ones. To succeed, emerging businesses have different key success factors and require a different style of leadership and different alignments of people, formal organizations, and culture. IBM recognized that the current management system rewarded short-term execution aimed at current markets. Trying to operate new business within a mature one can be exceedingly difficult, with the result that the new business is often killed. Further, the company lacked the disciplines for selecting, experimenting, funding, and terminating new businesses. This led to the development of a process to identify new growth opportunities and to establish separate new organizations with their own leadership, alignment, and funding—all with senior management oversight to ensure that the new businesses get the resources needed to explore the opportunity. Under the new system, these aren't product upgrades or just technical opportunities; they're business opportunities—ones that can be turned into revenue-producing businesses.

The EBO process begins when growth opportunities are identified that require significant cross-organization integration to be successful. Each EBO is typically characterized by a new value proposition—which may cannibalize existing offerings, involves multiple groups within the company, is in a high-growth domain but with offerings that may not be well-defined, and requires evangelism to develop successfully. EBOs are rigorously reviewed monthly by a senior sponsor against milestones, a process some leaders equate to "root canals." The combination of a clear discipline for identifying and attacking new opportunities, senior management oversight to protect the new business, and the ability to leverage existing infrastructure allows the company to systematically experiment in new areas, even as the rest of the firm focuses on exploitation. This process drives asset reallocation and permits the company to reconfigure itself.

In 1999-2005, 18 opportunities were identified, including Linux, autonomic computing, blade servers, digital media, and network processing. Some of these have succeeded and been folded back into existing businesses; others have failed and new ones have been added. Life Sciences, for example, was predicated on the potential opportunities offered by the needs for new hardware, software, and services demanded by pharmaceutical firms involved in proteomics and the promise of personalized medicine. A number of earlier efforts within the company to address these emerging markets had failed. However, since its founding as an EBO in 1999, its leader, Carol Kovac, has grown this business to more than $2B in revenues, has begun new businesses to address emerging opportunities, and has evolved other startup businesses to a mature category.

- The ***Strategic Leadership Forums (SLFs)*** are 3.5-day team-based workshops built around specific performance or opportunity gaps that bring extended teams together for intensive work on problems or opportunities. These workshops begin with work on refining the gap statement, challenging the strategy, a deep-root cause analysis of the specific underlying causes of the performance or opportunity gap, and the development of an action plan. Teams are selected to include all those responsible for the issue to be addressed. During the SLF, groups are supported by members of the strategy group and facilitation is provided by members of IBM's Global Executive and Organizational Capability group. This process helps line managers to have a structured, candid conversation with a common language—and to explicitly link strategic insight to execution in a disciplined way.

  These forums were used to address significant strategic initiatives such as accelerating the development of Emerging Business Opportunities such as Life Sciences, Pervasive Computing, and Technology Services, addressing performance gaps within mature businesses, linking IBM Fellows and Distinguished Engineers to the on-demand effort, and even resolving significant organizational conflicts across lines of business. A typical SLF would begin when either senior executives called out a strategic initiative or a general manager surfaced the need for a focused intervention. Once identified, the strategy group would help identify team leaders, build a fact base, and convene the SLF. At the SLF, there would be disciplined conversations about the strategy, a root cause analysis of the gap, the development of an implementation plan, and senior management follow-up to ensure execution. Given the importance of the topics addressed in these events, the SLFs were not typical corporate off-sites but intensely focused, often emotional debates about the future of the business. As Palmisano said in his introduction to one SLF, "I want you to argue and fight but leave in agreement . . . the strategy is 'IBM first.'"

The SLF is not simply education but a mechanism to solve major strategic problems. Based on the success of this effort, the strategy group now supports "mini-SLFs" throughout the company. This process, driven by the IBM Business Leadership Model, provides a powerful common methodology and language that is used throughout IBM and facilitates a common systematic approach to strategic initiatives.

- The ***Corporate Investment Fund*** was developed as a way of providing funding for new initiatives identified by the Integration & Values Team or EBOs. This $500M fund was taken from existing units and specifically designed to provide the resources to start new initiatives. Funding decisions are made once a quarter. However, as Gerstner noted, "We worked very hard at the process of starving the losers and investing in the big bets. . . . The new ventures had to be protected from the normal budgetary cycle because if things get tight, more often than not, profit-center managers would be tempted to starve the future-oriented projects."[30]

  The Corporate Investment Fund is not the conventional internal venture fund found in many companies. Rather, it is designed with the recognition that the annual budgeting process may not be sufficiently responsive to fund new initiatives as they emerge during the year—especially those that cut across business units and may not be attractive enough for any specific business to fund by itself. Funds can be used to support Winning Play initiatives or other projects that aren't included in the annual budgeting process. For example, after committing to the on-demand transformation, the fund was used to support service-oriented architecture in the software group and the development of enabling technology in the consulting organization. Funds have also been allocated to permit the accelerated development of executive talent in China and India.

Taken together, these processes emphasize strategic insight and execution as well as general management leadership responsibility. While many organizations have several of these elements as a part of their strategy process, what is different about the IBM approach is that they have an integrated set of mechanisms to both sense and seize opportunities. This allows the firm to consider trends in markets and technology, to identify issues that are relevant to customers, to examine them in detail, and to reconfigure assets to address them. Once these decisions are made, this allows the new initiatives to be embedded into the disciplined machine that characterizes IBM's more mature businesses.

The Strategy Group at IBM

Strategy, and the role of the strategy group at IBM, has a very different profile than conventional approaches. In the IBM context, strategy is an ongoing, disciplined conversation between general managers and senior executives about the future of the corporation—not an annual process or the work of a group of internal consultants. As mentioned earlier, the strategy team itself is composed largely of line managers who spend an 18- to 30-month stint deepening their strategic skills. These individuals are assigned by IBM's senior executives without the strategy unit's input. This not only broadens the perspective of the strategy group, but is a valuable developmental tool for ensuring that the future senior managers of the company have deep strategic skills.

One of the enablers of IBM's strategy process is that the career strategists within the strategy department have no designs on any other jobs within the company; their role is to facilitate difficult or critical conversations with a focus on the facts and not some larger but hidden agenda. Further, if the input from the strategy group is to be effective, this team needs to be in place through several investment cycles in order to ensure consistency of strategic choice over time. Without this continuity, the aggregate effects of investments are unlikely to give the strategy a chance to succeed.

The IBM Business Leadership Model explicitly makes three important points. First, leadership by general managers requires both strategic insight and execution. To be timely, this capability cannot reside in an annual, centralized strategy process. Second, the strategy is anchored on either a performance or opportunity gap as manifest in hard performance outcomes such as market share gain, margins, growth, or profit. The metrics used to assess the success of strategy implementation are always grounded in business outcomes—and where the business is gaining or losing traction. In Harreld's view, it is about only two things: customer satisfaction and shareholder return.

Third, this process highlights the importance of alignment or complementarities among the components. For example, strategic execution occurs not from attention to people or incentives or culture but from the alignment of all of them with the critical tasks necessary to execute the chosen strategy. Effective strategy is not simply the articulation of a strategic intent, but the linking of it to innovation, solid marketplace insight, and an appropriate business design. The overarching challenge is to ensure general management involvement and ownership in this process—and not to let it become a staff function. As useful as the IBM Leadership Model might be, the danger is that lower-level managers might see it as another set of overheads—and might become cynical about it. Part of the strategy group's responsibility is to make sure that this does not happen.

Dynamic Capabilities: Driving Strategy Into Action

Harreld is the first to acknowledge that the IBM approach to strategy is imperfect.

Amidst all the praise he received for transforming IBM, Gerstner was also suitably modest and noted that when he left in 2002, IBM was in the same businesses that it had been when he arrived (e.g., hardware, software, and even services). The real change required was for the company to reallocate assets and to reconfigure itself to be able to compete in a different way. It meant walking away from its history and long-standing business model. This required seeing the marketplace differently—but Gerstner claimed that IBM already had the right strategies. More importantly, it required a cultural transformation that allowed the company to reconfigure itself and to reallocate resources so that they could execute these strategies. As Gerstner noted at his last annual shareholder meeting, "In the new IBM, we've always believed that our ability to execute is as important as the strength of our strategies."[31] This is the essence of dynamic capabilities: the ability of a firm to sense new opportunities and to seize them.

What the transformation of IBM illustrates is that while organizations are often characterized by strong inertial forces that limit change, it is by no means impossible. Teece argues this in saying that "Genetic engineering is possible with organizations; but it is not easy . . . The key to sustained profitable growth is the ability to recombine and reconfigure assets and organizational structures as markets and technologies change."[32] To accomplish such change, however, requires that senior managers be able to not only sense the changes needed by their firms, but also to be able to seize them by allocating resources and reconfiguring the organization to address them. This involves seeing things realistically, being willing to cannibalize existing businesses when necessary, and being ambidextrous or able to manage both mature and emerging businesses.[33]

In this regard, a key leadership element is the importance of fit or complementarity among strategy, structure, culture, and process. As Michael Porter observed, "Strategic fit among activities is fundamental not only to competitive advantage, but also to the sustainability of competitive advantage. It is harder for a rival to match an array of interlocked activities than it is merely to imitate a particular sales approach, match a process technology, or replicate a set of product features."[34] In this sense, dynamic capabilities composed of complementary processes—such as the ability to reallocate and reconfigure assets—form the basis of a difficult-to-imitate competitive advantage. The fact that such "soft" capabilities cannot be easily purchased but must be developed over time only enhances their value.

At IBM, these dynamic capabilities have been developed over time as an integral part of how the company does strategy. It is the combination and complementarities among those processes that promote strategic insight (e.g., deep dives, winning plays, and ownership by general managers in the strategy-making process) and those that link this insight to execution (e.g., EBOs, the Strategic leadership Forum, and the Corporate Investment Fund), which allows the firm to compete simultaneously in emerging and mature markets. This approach permits the company to make small, frequent investments and to learn from them. It encourages organizational learning—not solely by making smart decisions from the top down, but through an evolutionary process of variation-selection-retention.

Conclusion

Helping organizations develop dynamic capabilities is, we believe, the fundamental and enduring task of executive leadership. As Alfred Chandler has shown, organizations, especially successful ones, can stagnate over time.[35] Pursuing the same strategy and sticking with the same core competencies may make a firm successful in the short term but is likely to be fatal in the long term. Senior leaders are responsible for ensuring that this does not happen. Unfortunately, the evidence shows that too often firms get trapped by their own success. The only way out of this trap is for senior leaders to help their firms develop the dynamic capabilities that promote sustained competitive advantage.

In the past decade, IBM has undergone a remarkable transformation. While there are many reasons for this success, at least part of it has been in their ability to both sense and seize opportunities and to reconfigure the company's structure and competencies to address them. In strategic terms, these dynamic capabilities have been made real through an ongoing process of disciplined, fact-based conversations; a common language and problem-solving methodology as manifest in the IBM Business Leadership Model; and a clear commitment by leaders to compete in mature as well as emerging markets. This language and process is employed throughout the company—from the senior executive levels to first-level managers. It is an integrated way to focus on both the formulation of strategy and its implementation.

Unlike other piecemeal approaches to strategy, the IBM process is one driven by line management based on the realities of the marketplace as seen in performance and opportunity gaps, not a staff exercise or slide deck. This has moved the strategy-making process from an annual ritual to a continual process, from an emphasis on planning to one on action, from a staff function to one that line managers own, and from a concern with strategy only to a focus on both strategy and execution. It has changed the role of the strategy group from that of a critic to a partner in fixing problems—and one that is aligned with general managers in identifying future problems and opportunities for the company.

Dynamic capabilities are not abstract academic concepts but a concrete set of mechanisms that help managers address the fundamental question of strategy, which is to develop a truly sustainable competitive advantage. Interestingly, we are beginning to realize that sustainability is fleeting unless it is aligned with capabilities to continually *sense* how the marketplace is changing and *seize* these changes through dynamic organizational realignment.

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