For more than a century, business leaders have viewed technology as the primary means to execute and implement their business strategies. However, many of today’s most exciting and “disruptive” innovations now tend to occur at the intersection of market insight and technological know-how, making technology an input to the strategy process rather than an after-the-fact enabler. Guided by this insight, many of the companies that are seizing the initiative in this new competitive environment are doing so by taking a fundamentally different approach to strategy development – an approach we call technology-driven business strategy.

The new premium on market-savvy, technology-driven strategy has several important implications. First, technology matters when it comes to driving growth and, thus, to the formulation of business strategies. This is widely accepted for technology intense businesses such as Cisco, Motorola and IBM (the “bit handlers”), but increasingly is the case for companies dealing in everyday products such as household appliances and vending machines ("atom companies"), where new advances in mobile communications and sensor technologies, are radically changing the basis of innovation, consumer value and competition[1]. As a further example, it is reckoned that by 2010 more than 90 percent of the innovation in the automotive industry will be electronics related. Second, when factoring in technology, know-how is often sufficient. Many innovation-based strategies are based on the unique market application of an existing integrated set of technologies rather than requiring technological breakthrough. Third, innovation emerges where market insight and technological insight intersect, a process that is often easier to harness within the small entrepreneurial firm than in the larger, more established organization. Finally, the competitive advantage afforded by know-how can be fleeting, requiring companies to keep setting the pace within this rapidly changing technology and business context or risk being blown away by it.

How technology-driven strategies drive innovation

To learn more about how successful businesses innovate and incorporate the technology variable into business strategy development, the IBM Institute for Business Value studied ten companies that are known within their respective industries for strong innovation. These companies’ innovations stood out because they accomplished one or more of the following three achievements:

1. **Changed the basis of competition.** At a particular point in time, within any given industry, businesses typically compete on a specific subset of performance dimensions such as product features, price, customer service or breadth of offerings. Companies most often invest energy in beating the competition along these “accepted” performance dimensions. Innovative companies, on the other hand, play to a different set of strengths. Instead of competing head-to-head with industry rivals on historical performance measures, they differentiate themselves through a new dimension that
exploits an emerging or unarticulated market need. For instance, an industrial products company might shift the basis of competition from product features to rapid fulfillment, or a services company could change the focus from price to convenience. This type of innovation delivers new value to consumers, while creating competitive differentiation for the innovative company[2].

2. **Broke the rules of scale.** Within each industry, a certain set of implicit rules often exists around scale. For example, a new model of car must sell $x$ units over the product’s life to be profitable, or a new book must sell $x$ copies in its first printing to break even. Behind these heuristics are certain assumptions about scale that guide capital investment decisions, allocation of resources and market selection and entry strategies. Most companies seek to optimize operations within these boundaries. Innovative companies, however, also look for ways to break these rules – often leveraging technology to deliver profit at a lower scale point or, conversely, achieve scale advantage where previously none existed. eBay is a prime example: it managed to create scale advantage in a market that was long considered regional and hyper-fragmented.

3. **Introduced totally new business models.** In each industry, a dominant business model usually prevails. Using the standard business model (the operating model employed to deliver on its value proposition and generate profits), traditional competitors seek to drive greater efficiencies and increase revenues. Meanwhile, innovative companies are constantly seeking out alternative business models that have the ability to disrupt or undermine the incumbent industry business model. Here again, technology can play a pivotal role, allowing a business model to emerge that does not rely on the historical operating model or profit mechanisms, often shifting large amounts of market value to the innovative competitor. With its direct-to-consumer, build-to-order model, Dell turned its industry’s traditional build-to-stock model on end – allowing the company to avoid high-cost channels and excess inventory that often plagued rivals.

The accomplishments of the companies studied also reinforce the IBM view of innovation; in every case, these companies combined market insight with technological know-how to break stride with their competitors (see Exhibit 1). Looking across the broad cross-section of businesses and industries analyzed, there were no revolutionary inventions that precipitated their innovations. Most of the technologies involved were not proprietary – and most had been available for quite some time. However, these companies’ familiarity and knowledge of technology provided a new lens through which they could explore solutions to market needs and opportunities. And that timely combination led to innovation.

**Technology-driven strategy innovators – common principles and practices**

We have observed six common principles that innovative companies, like the ten in our study and others that we have worked with, seem to follow in their approach business strategy development:

1. **Consider technology a core input.** Instead of viewing technology only as enabler of their business strategies, businesses should consider it a primary input to strategy formulation – on par with other necessary variables such as customers, markets and competitors. At Boston Coach, business strategies have to balance various (sometimes competing) objectives: customer satisfaction, operational efficiency and revenue growth. As dispatching, Boston Coach’s core business process, became increasingly complex, it

“Many innovation-based strategies are based on the unique market application of an existing integrated set of technologies rather than requiring technological breakthrough.”
seemed unlikely that the company could simultaneously address their business objectives with a single strategy – until they decided to factor technology into their business strategy development process. The company hired a research team to identify applicable technological innovations and assess potential business implications. Based on the research findings, the team created a proprietary scheduling algorithm and optimization engine capable of refining complex dispatch schedules in real time. These innovations have become the foundation for a new operating model that has the capacity to support up to a 10 percent increase in sales without additional vehicles, drivers or dispatchers, while simultaneously increasing productivity by 10 to 20 percent[3]. By factoring technological possibilities into its core business strategy, Boston Coach was able to break the rules of scale that had been explicitly governing its approaches up to that point. With its innovation, the company redefined the “norms” for revenue capacity per vehicle and the cost of a near-perfect on-time pickup rate – and set a new competitive benchmark.

2. Revisit strategy and technology context regularly. For many industries, the technology context has the potential to change more rapidly than the historical three- to five-year strategic planning cycle. Thus, companies need to continuously manage and revise strategy to proactively take advantage of the evolving technological environment rather than reacting to technology-induced changes to their markets and businesses. Hertz, for instance, has continually leveraged wireless and satellite technologies to create new operational capabilities and customer solutions that deliver value to the customer and differentiate it in a market susceptible to commoditization.

3. Uniquely manage emerging business opportunities. Companies need separate organizational procedures, structures and policies to manage emerging business opportunities differently than their core businesses, allowing market insight and technological know-how to intersect and innovations to take root. When Norwich Union embarked on its groundbreaking innovation for usage-based auto insurance policies, it...
shielded the emerging opportunity by setting apart a separate team dedicated to this particular project. This small team could experiment, refine their approach and make decisions much faster[4].

4. Plan for disruptions. By understanding the power of technology to change long-held business assumptions, companies can better anticipate market changes and actively plan out how to disrupt businesses, sometimes even their own. Both Norwich Union and Progressive have incorporated new technologies that make a usage-based insurance model real, creating the opportunity to unseat the historical underwriting, pricing, product and customer service models.

5. Manage for today’s and tomorrow’s context. Knowing the rapid rate of technological change, businesses should manage a diversified portfolio of capabilities — comprised of both sustaining technologies (used to keep pace with the innovation cycles in their existing businesses) and emerging technologies (technologies that can create new markets or potentially disrupt current markets). Clearly, Charles Schwab has remained at the forefront of the technological advances that are pertinent to its existing business, winning recognitions such as Gomez’s number one Internet Broker, Forbes’ Favorite brokerage web site and one of CIO Magazine’s top 100 companies. But, at the same time, the company continues to anticipate shifts and invest in emerging technologies such as grid computing. The company began to look at this emerging technology back in 2001 as a potential means to provide the computing power needed for intense advice computations like what-if simulations and Monte Carlo routines. Schwab was anxious to tap its own unused cycles and use that latent computing power to significantly enhance and scale its advice capabilities. In 2002, it ran a Grid pilot centered on providing custom portfolio recommendations for each customer. The results were impressive. By breaking down the application into manageable pieces that could be distributed to multiple processors and then re-aggregated after computation, the grid-enabled system reduced processing time from an average of 8 to 10 minutes to just 15 seconds. With this newfound capability, Schwab could now dramatically change its relationship with customers. Instead of sending an investor home to wait for recommendations by e-mail, fax or mail, an advisor can provide recommendations while sitting and discussing options with the customer, thereby creating new market opportunity potential[5].

6. Focus technology on the customers’ priorities. Rather than focusing exclusively on technology-enabled internal efficiencies, companies must also concentrate on problems their customers are trying to solve and identify technologies and new business models that can impact those particular issues. As part of its ongoing evaluation of products and markets, Siemens Medical Solutions makes a concerted effort to consider the entire business process, not just how a particular medical device is used. This holistic perspective has led the medical device manufacturer to focus on integration capabilities among devices as well as higher-value managed service offerings. For example, the company not only considers how to improve its medical imaging product, but also how to make imaging information available to clinicians when and where needed, even in the operating room. The Siemens’ “syngo” platform provides speech recognition features and online, real time discussion capabilities to support surgeons’ needs, and automates routine workflow activities such as automatically notifying the intensive care unit about the patient’s impending arrival[6].

“The competitive advantage afforded by know-how can be fleeting, requiring companies to keep setting the pace within this rapidly changing business context or risk being blown away by it.”
How market-informed, technology-driven strategy differs from traditional strategy development

Collectively, these fundamental principles turn the traditional strategy development approach on end (see Exhibit 2). Instead of being an implementation issue, technology becomes a catalyst at the very initial stages of strategic planning, merging with market insights to produce truly innovative ideas.

Because technology competencies are engaged at the outset, planning and prototyping can occur earlier. Companies can engage in “strategy prototyping,” testing a variety of potential strategies before a particular course is set[7]. With this iterative, learning-based approach, prototyping takes on a higher purpose – exploring a spectrum of strategic possibilities, not just validating a selected strategy’s feasibility. Strategic planning is not anchored to a calendar, but is evaluated and revised to take advantage of insights gleaned from new learning and changes in the technology context.

At its core, the technology-driven business strategy approach is fundamentally different than traditional strategy development (see Exhibit 3). In most strategic planning efforts, the emphasis is on analyzing what is known about the competition, suppliers and targeted buyers. But, under a market/technology-driven approach, the focus shifts to include exploration of new, uncharted areas – products and services that have no precedents, emerging market segments that no one else sees, new operational capabilities that change the nature of competition – actions that all support innovation.

Because of its inherent parallelism and the focus on merging market insights with technological know-how, technology-driven business strategy can offer some distinct advantages. It:

- Speeds time-to-market and reduces risk of technology obsolescence.
- Provides early warning of potential business disruption – and the means to intentionally disrupt competitors.
- Mitigates the bureaucracy of strategic planning processes that too often thwart innovation, particularly at large companies.
- Accommodates the increasing speed and complexity of business, which can become unmanageable with a traditional annual planning cycle.

Exhibit 2  Technology-driven business strategy replaces the sequential nature of traditional strategy development with a parallel approach

- Traditional approach to strategy development
- Technology-driven business strategy approach

Source: IBM Business Consulting Services analysis.
Where is your strategy development approach taking you?

Although their specific strategies change from time to time, many companies step through the same basic, calendar-driven strategy process year after year, without a second thought. And, correspondingly, many are disappointed with the degree of innovativeness their strategies exhibit – and the revenue growth they actually produce. If yours is one of those companies, it may be time to rethink your strategy development process.

Ten signs you may need to challenge your current business strategy development processes

1. Shareholder growth expectations exceed what is possible with the current product and market scope of your business.
2. New product/service introductions are consistently late or sometimes technologically obsolete by the time they reach the market.
3. Products or services lack differentiation, which has led to declining margins and commoditization.
4. Emerging business opportunities that are abandoned by your company are readily exploited by new market entrants.
5. Competitors’ new business models are challenging the industry’s current revenue and profit mechanisms.
6. The market and technology environment constantly demands more flexibility and responsiveness from your business.
7. The majority of technology-related spending is devoted to efficiency programs and process areas that do not directly contribute to market-based competitive advantage.
8. These business-led productivity programs tend to produce transitory cost savings rather than long-term structural cost reduction rooted in transformed operational capabilities.
9. Technology implementation programs typically have whale-curve ROI profiles with “hard” investments chasing after “soft” returns in out years.
10. Technologies that could break current industry rules of scale or change the basis of competition are often left unexploited until it is too late.
Set the pace of innovation in your industry

The concept and principles of a business strategy process combining market insight with technology know-how can help companies across a wide variety of sectors to improve their innovation record. It starts with the recognition that innovation is now critical to sustained growth, and increasingly happens at the intersection of market insight and technological know-how. Invention is not the same as innovation. Technological capabilities are of little value without the market insight that determines their application. And market insights left unexploited by technology create vulnerabilities that can be attacked by opportunistic competitors or new entrants. Companies that are quick to recognize the potential in the approach we call technology-driven business strategy and learn to master its principles can set the pace of innovation in their industries and drive the competitive agenda.

Notes


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