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Foundations for Growth: How To Identify and Build Disruptive New Businesses

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Foundations for Growth

How To Identify and Build Disruptive New Businesses

Many companies believe in the concept of disruptive innovation but are skeptical about making it work. Here's a blueprint to help managers understand if the conditions are right for disruption — and how to pull it off again and again.

Clayton M. Christensen, Mark W. Johnson and Darrell K. Rigby

Many companies proudly think of themselves as innovative. The great majority of them, however, are adept at producing only sustaining innovations — products or services that meet the demands of existing customers in established markets. Few companies have introduced genuinely disruptive innovations, the kind that result in the creation of entirely new markets and business models. And yet the motivation to pursue such innovations should be urgent. In almost any industry you care to examine, the most dramatic stories of growth and success were launched from a platform of disruptive innovation.[1]

Most managers understand that significant, new, sustainable growth comes from creating new markets and ways of competing. But few of them make such investments. Why? Because when times are good and core businesses are growing robustly, starting new generations of growth ventures seems unnecessary; when times are bad and mature businesses are under attack, investments to create new growth businesses can't send enough profit to the bottom line quickly enough to satisfy investor pressure for a fast turnaround.

The second problem is virtually insurmountable, so senior managers must rethink their reluctance to start new ventures in good times. After all, business units that are growing robustly today will become mature, and thus vulnerable, in the future. The only way a corporation can maintain its growth is by launching new growth businesses when the core units are strong. Our research indicates that if senior managers pursue this path — and if the growth businesses they start or acquire are truly disruptive — companies will find it less difficult and risky than many have supposed to create wave after wave of new growth.

For more than a decade, we have studied innovative successes and failures at large and small companies. (To have a truer sense of whether a disruptive strategy may work in the future, it's at least as important to understand what hasn't worked as what has.) We studied

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simple, it can be done. The key is to think through the issues rigorously and with a clear view of the obstacles and opportunities.

Distinguishing Sustaining From Disruptive Innovations

The dichotomy between sustaining and disruptive innovations has been discussed in various contexts since Clayton Christensen first wrote about it in 1993. For the purposes of this article, it's important to bear in mind the following essential elements of the theory:

1. The pace of technological progress in almost every industry outstrips the ability of customers in any given tier of the market to make effective use of the improved versions of a product. Technologies that aren't good enough to address customers' needs at one point typically improve to provide more than enough performance for those same customers at a later point.

2. Companies earn attractive profit margins when they stretch their products upmarket, targeting customers in a more demanding tier who are not yet satisfied by existing offerings. A down-market move toward customers who are already satisfied by available products yields profit margins that aren't nearly as attractive. As a result, powerful "asymmetries of motivation" grow out of disruptive technological change. Whenever entrants are motivated to attack less profitable customers in less attractive tiers of the market, established businesses will always be motivated to move toward more profitable customers.

3. Innovations that help incumbent companies earn higher margins by selling better products to their best customers are sustaining, not disruptive. Sustaining innovations comprise both simple, incremental engineering improvements as well as breakthrough leaps up the trajectory of performance improvement.

4. Industry incumbents aren't always the first to market with a sustaining innovation, but they almost always end up on top.

some ventures through the lens of history while tracking other initiatives in real time. As a result, we have devised two sets of litmus tests that senior managers can use to shape business plans to improve their chances of success. Our research suggests that any proposal must pass at least one set of tests if project investments are to have a chance of paying off.

Following an exploration of the litmus tests, we test our ideas in a detailed example that asks whether Xerox could disrupt Hewlett-Packard's ink-jet printer business. We conclude by outlining the process any company will need to institute if it wants to create an engine capable of building new disruptive businesses over and over again. Although the task is far from

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They have more resources and more at stake than new entrants, a powerful combination whenever the incumbents are motivated to win.

5. In contrast to sustaining innovations, disruptive innovations appeal to customers who are unattractive to the incumbents. Although disruptive innovations typically involve simple adaptations of known technologies, entrants almost always beat incumbents at this game because established companies lack the motivation to win. In the day-to-day internal competition for resources and attention within large companies, projects that target large, obvious markets invariably get priority over disruptive ones. And yet every major, attractive market that exists today was at its inception small and poorly defined — just as the major growth markets of tomorrow are small and poorly defined today.

6. Companies that want to create new growth businesses should therefore seek disruptive opportunities because industry leaders will not be motivated to pursue them. This approach applies to venture-backed startups, cash-rich giants and everything in between. According to our research, the probability of creating a successful, new growth business is 10 times greater if the innovators pursue a disruptive strategy rather than a sustaining one.[2]

Two Strategies for Creating New Disruptive Growth Businesses

All ideas for new products and businesses emerge from innovators' minds only partially formed. Middle managers then oversee the shaping of these ideas into full-fledged business plans in an effort to obtain funding from senior management. They typically hesitate to throw their weight behind new product concepts whose market is not assured, fearing that their reputation for good judgment may be compromised. As a consequence, the normal corporate process for shaping and funding ideas turns them into sustaining innovations that target large, obvious markets.[3]

Many of the ideas that end up as sustaining innovations could just as readily have been shaped into disruptive business plans, given a distinctly different process and managers who understood how to use it. To that end, we have developed two general strategies for turning ideas into plans for disruptive growth businesses. The first requires the creation of a new market that can serve as a base for disruption; the second is based on disruption of the prevailing business model from the low end. The success of each strategy is predicated on managers' ability to shape ideas that conform to a set of litmus tests.

Creating a New Market as a Base for Disruption

Companies seeking to create disruptive growth should first search for ways to compete against nonconsumption: people's inability to use available products or services because they are too expensive or too complicated. It's much easier to target potential customers who aren't buying at all than to steal customers from an entrenched competitor. Strategies that disrupt by creating new market applications for entirely new customers should meet the following three litmus tests.

Test #1: Does the innovation target customers who in the past haven't been able to "do it themselves" for lack of money or skills?

Many of the most successful disruptive growth businesses have given people direct access to products or services that had been too expensive or too complex for the mainstream. For example, until the late 1970s computer jobs had to be processed by specialists in the corporate mainframe-computer center. Today, ordinary people with PCs can handle problems that are far more complex than the ones mainframes used to solve. Disruption pulled new users into the computer market by the millions, as the PC allowed people to compute conveniently for themselves.

If an idea can't be shaped to pass this litmus test, the chances for creating a new growth business diminish considerably. The innovation may succeed in satisfying some customers, but it won't create significant new growth. Take online retail banking. There just isn't a large population of nonconsumers who can be pulled into the market for bank accounts by Internet banking. Most low-income customers, and even most teenagers, have bank accounts that offer easy access to basic services. Because it can't meet this litmus test, online banking can be only a sustaining innovation that helps retail banks serve a segment of their existing customer base a bit more profitably and effectively. New entrants are unlikely to be able to use the technology to disrupt established banks (unless they can conceive a strategy that passes the second set of litmus tests).

In contrast, online retail stock brokers such as E*Trade and Charles Schwab did have the potential to create a new disruptive growth market because they could enable a new set of customers — day traders — to speculate; in addition, they made trading so simple and inexpensive that people of relatively low net worth could begin to manage their own portfolios without the help of professionals. Because these companies were initially competing against nonconsumption rather than Merrill Lynch, they could create a new wave of disruptive growth. Online retail banks, in contrast, could attract new accounts only by competing against established banks.

Test #2: Is the innovation aimed at customers who will welcome a simple product?

If the innovation enables a new population of customers to consume for themselves, it can more easily be shaped to pass the

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second litmus test: The disruptive product must be technologically straightforward, targeted at customers who will be happy with a simple product.

Established companies almost always trip up on this test. Because corporate funding processes compel disruptive innovators to quantify the magnitude and certitude of the opportunity, potential disruptions are force-fit into obvious, measurable, existing market applications. That leads corporate managers to hope for growth from improbable sources; more seriously, it pits innovators' disruptive technology against a sustaining technology already in use by entrenched competitors. The disruptive product's performance must then surpass technologies on the sustaining trajectory, which is equivalent to killing off the product. Cramming disruptions into established markets is very expensive and always fails.

Successful disruptive innovators always target customers who welcome simple products. Apple marketed its Apple II as a toy for children, while Xerox was misguidedly determined to use the same technology to automate the office. Palm's Pilot was a simple organizer, whereas Apple (having become the industry incumbent) positioned its Newton as a handheld computer. Today, NTT DoCoMo and its Japanese competitors have signed up 40 million profitable subscribers for their wireless Internet-access systems by making it easy for teenagers to download ring tones and wallpaper and by providing simple games to help young commuters kill time. Their European and American counterparts, in contrast, are struggling to provide the bandwidth and screen size that will enable existing customers to do the same things on a phone that they do today on a computer; and because wireless access isn't as good as wireline access for these applications, they have no profitable customers.[4] Similarly, voice recognition technology is taking off in applications involving simple phrases, but IBM's ViaVoice product is designed to replace keyboard word processing and leaves users deeply dissatisfied.

It is important to note that in each of those cases, the targeted application, product and customer set were not foreordained by the technology. The divergent targets resulted from differences in the idea-shaping processes used by established companies and new entrants.

Test #3: Will the innovation help customers do more easily and effectively what they are already trying to do?

This test requires innovators to keep in mind one essential fact: At a fundamental level, the things that people want to accomplish in their lives don't change quickly. Because of this stability, if an idea for a new growth business is predicated on customers wanting to do something that hadn't been a priority in the past, it stands little chance of success.

Let's illustrate this test by exploring the potential for digital imaging to disrupt the market for photographic film. How do most people use photographic film? When they've finished shooting a roll, they drop off the film at the developer's, frequently ordering double prints so that copies of the best shots will be readily available to send to friends or relatives. When the prints are ready, people bring them home, flip through them, put them back into the envelope, and put the envelope into a box or drawer. Less than 5% of all images are viewed more than once, and people rarely go back to mount the best photos into an album.

The digital-imaging companies approached amateur photographers with interesting propositions: "If you'll just take the time to learn how to use this software, you can edit out the red-eye in all those flash pictures" and "You can now keep all your pictures neatly arranged in online photo albums." But the vast majority of digital camera owners do neither of these things. They weren't priorities before, and they aren't now. Digital camera users do send more images to more people over the Internet — the new technology lets people do more easily what they were trying to do in ordering double prints from film. And the recipients of the images typically view them once, close the box and put the pictures into an envelope on the hard drive.

Despite its disruptive potential, digital imaging hasn't created the major wave of new growth that digital film and camera companies so desperately need. The reason is that those companies have violated the first two litmus tests. They've concentrated on making products that can deliver images as sharp as those caught on photographic film. This has led them to violate test #2 by making devices that are not technologically simple. Because the technology they are using to capture sharper

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images is expensive, they have also violated test #1: The equipment isn't cheap enough to appeal to existing camera owners, most of whom are satisfied with the pictures they get from photographic film. These companies have, in other words, spent billions of dollars searching for growth in the wrong place. Had they instead built their cameras with cheap sensors, whose sharpness is more than adequate for images viewed on computer screens, they could have hit price points low enough to have competed against nonconsumption — selling "fun," not cameras, to teenagers and children, who use the Internet with extraordinary creativity.

Digital cameras ultimately will displace photographic film. Whether that happens after a brutal, feature-for-feature fight involving sustaining technology — or after a huge new growth market is created among a new set of customers who have found new ways and reasons for "consuming" images — depends on whether the companies in this space shape their strategies to create disruptive growth or allow the default settings of sustaining strategy to determine their targets.

Disrupting the Business Model From the Low End

Some ideas for innovative products simply can't be shaped to pass the first set of tests. That doesn't mean they should automatically be ruled out as the basis for new growth businesses. A quite different strategy — disrupting the industry leader's business model — also harnesses the power of asymmetric motivation.

A proposal that cannot compete against nonconsumption necessarily aims at the same markets dominated by industry leaders. To succeed, this second strategy must meet two litmus tests. First, it must target the least-demanding tiers of a market in which prevailing products are so good they "overserve" customers. In other words, there must be less demanding customers who would happily buy a good-enough product that is cheaper than those currently available. Second, the product must be made and marketed within a disruptive business model, one that enables the entrant to compete profitably while pricing at deep discounts. Managers who shape a strategy to conform to these litmus tests can successfully create a new growth business within an existing market.

Test #1: Are prevailing products more than good enough?

If available products aren't yet good enough, a disruptive innovation whose performance is even lower will not gain any traction in the market. Mobile telephone networks probably fall into the category of "not yet good enough" to be disrupted with this strategy; many pharmaceutical products also fit this description. For example, synthetic insulin that is free of impurities couldn't disrupt the market for insulin made from a pig's pancreas (which contains some impurities) because neither is effective enough to counteract the long-term effects of Type 2 diabetes.

Managers who are shaping a disruptive strategy can determine when a product's performance has overshot what customers can use by examining rigorously, market tier by market tier, the extent to which customers are willing to pay premium prices for further improvements in the functionality, reliability or convenience of a product or service. If companies can sustain price increases in a given tier when they introduce an improvement in one of these areas, customers are not yet overserved and that tier cannot be disrupted. Online commodity exchanges illustrate the point. In the late 1990s, hundreds of millions of dollars were invested to create exchanges for commodities such as steel; their objective was to disrupt traditional distribution enterprises. The vast majority of the world's steel, however, is not purchased at the lowest price the buyer can find. Steel buyers quite consistently pay premium prices to be assured of reliable supplies from their distributors. The prevalence of the price premiums indicates that buyers are not yet overserved on the dimension of reliability and thus the market could not be disrupted by the online exchanges.[5]

Test #2: Can you create a different business model?

If the low end of a market is overserved and thus open to disruption, the second test requires managers to craft a new business model; the business must be able to earn attractive returns at prices that can steal business at the low end. A disruptive business model consists of a cost structure, operating processes and a distribution system in which profit margins are thinner but net asset turns are higher. It creates the asymmetric motivation needed for disruptive success.

Having barely enough cash forces a venture's managers to flounder around with actual customers, rather than in the corporate treasury, for ways to get money.

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Business model disruption has occurred several times in retailing. For example, full-service department stores had a model that enabled them to turn inventories three times per year with gross margins of 40%. They therefore earned 40% three times each year, for a 120% annual return on capital invested in inventory (ROCII). Discount retailers such as Wal-Mart and Kmart attacked the low end of the market — nationally branded hard goods such as paint, hardware, kitchen utensils, toys and sporting goods that were so commonplace they could sell themselves. The low end of this market was overserved by department stores; customers did not need well-trained salespeople to help them get what they needed. The discounters' business model enabled them to make money at gross margins of about 23%. Their stocking policies and operating processes enabled them to turn inventories more than five times annually, so that they also earned close to 120% annual ROCII. They did not accept lower levels of profitability; they just earned acceptable profit through a different formula.

For good reasons, full-service retailers ceded the low end of the market to the discounters. Here's why: The critical resource-allocation decision that retailing managers make is assignment of floor space. At the time discount retailers attacked the low end of their merchandise mix, managers of full-service stores could have defended the branded hard-goods businesses, which the discounters were attacking with prices that were 20% below those of department stores. But competing against the discounters by matching their prices would have sent margins plummeting to 23%, and, given the three-times-per-year inventory turns inherent in their business model, ROCII would have dropped to about 70%. Their other option was to allocate more floor space to higher-margin cosmetics and high-fashion apparel, where gross margins easily could exceed 50% and ROCII would be 150%. Clearly, it made sense for the full-service department stores to get out of the tiers of the market that the discounters were motivated to enter. Discount retailers subsequently were motivated to move further upmarket into the lowest-margin tiers of clothing, home furnishings and cosmetics. As they did so, the full-service stores' formula for profit maximization continued to motivate them to run away from rather than fight the discounters.

This is the sort of asymmetry of motivation that managers need to create if they hope to build a successful new growth business within the same market served by industry leaders. To do that, managers must start by asking: How much lower does our price need to be to penetrate the lowest tier of the market? What do our costs need to be to generate profits at that price level? How could we change our asset turns and operating processes to achieve attractive returns?

If a hopeful entrant can't define a business model with high-enough asset turns to earn attractive returns on low margins, it won't be able to attract the repeated capital investments required to sustain the upmarket march inherent in building a business. As we have reviewed business plans requesting corporate funds for new product development, we have been dismayed to see how few of the plans' developers have devised business models that can sustain a disruptive enterprise. Most seem content to wrap their plans in their existing business structure, countenancing the loss of hundreds of millions of dollars under the flag of disruption. That's not disruption — it's bad business!

The strategy of business-model disruption isn't as common as the strategy of competing against nonconsumption, but it can be very effective, as it has been repeatedly in retailing. Steel minimills such as Nucor have used this strategy to beat the integrated steel companies like Bethlehem, and online travel agencies are using it to disrupt full-service agencies.

Executives who are shaping a low-end disruptive business-model strategy need to be sure it is unattractive to *every* powerful incumbent. The failure of online drug retailers such as PlanetRx.com to do this reconnaissance led to their demise. Their online business models probably were disruptive in relation to drugstore chains. But to the giant mail-order pharmacy Merck-Medco, the Internet was a sustaining technology. The Internet helped Medco make more money in the way it was already structured to make money; and because Medco had far more resources to throw at the opportunity than startups did, it outdistanced the startups and drove them from the market.

Using the Litmus Tests To Shape a Disruptive Strategy: Xerox Versus Hewlett-Packard

To get a sense of how managers might use the litmus tests to shape an idea into a disruptive business plan, let's examine whether Xerox could disrupt Hewlett-Packard's ink-jet printing business. We don't actually know if Xerox has considered this possibility, and we use the companies' names only to make the example more vivid. We've based it solely on information from public sources.

Xerox reportedly has developed outstanding ink-jet printing technology. What can the company do with it? It could attempt to leapfrog ahead of Hewlett-Packard by producing the best ink-jet printer on the market. In taking that approach, Xerox would be fighting a battle of sustaining technology against a company with superior resources and more at stake. H-P would win that fight. Could Xerox craft a disruptive strategy for this technology? We'll use the litmus tests for the disruptive business model strategy first.

To assess whether a low-end strategy is viable, Xerox's managers should examine whether customers in each tier of the

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market are willing to pay price premiums for improvements in performance — faster printers that produce sharper images. At the highest tiers, the answer is yes. It appears, however, that consumers in less demanding tiers are increasingly indifferent to improvements. So the first litmus test is met: It does seem that a set of customers would be willing to buy a "good enough" printer that is cheaper than prevailing products.

The next litmus test is whether Xerox could define a business model that would generate attractive returns at the discounted prices required to win business at the low end. The possibilities don't look good. H-P and other printer companies already outsource the fabrication and assembly of components to the lowest-cost sources in the world. They make all their money selling ink cartridges. Xerox could enter the market by selling ink cartridges at lower prices, but unless it could define processes that would allow it to do so profitably, any lead it gained initially would be unsustainable. A disruptive business-model strategy that attacks the low end probably can't succeed in this space. The managers would have to evaluate the potential for competing against nonconsumption instead.

Is there a large, untapped population of computer users who don't have the skills to operate current printers or the money to buy one? Probably not. Hewlett-Packard and its competitors already competed successfully against nonconsumption when they launched their easy-to-use, inexpensive ink-jet printers to disrupt expensive laser printers. It might be possible, however, to entice existing printer owners to buy more printers by enabling consumption in a new context. This is where it gets interesting.

Could Xerox use its technology to help customers do something more easily that they are already trying to do? Is there a low-performance product that people would happily buy? Quite possibly. Documents created on notebook computers are not easy to print. Notebook users have to find a stationary printer and either hook its cable to the computer or transfer the file to a desktop PC via floppy disk in order to get paper copies. If Xerox incorporated a simple, inexpensive printer into the base or back of a notebook computer so that users on the go could get hard copies when they needed them, where they needed them, the company could probably win customers even if the printer wasn't as good as a stationary ink jet. Only Xerox's engineers could determine whether the idea is technologically feasible, but as a strategy, it would pass the litmus test.

A key, again, is asymmetry of motivation. In this case, we would expect H-P to ignore the notebook-printer opportunity at the outset because of the other options competing for resources within H-P's huge printer business, which needs large chunks of new revenue to sustain its growth. To create as much asymmetry as possible, Xerox would also want to develop a business model that was attractive to Xerox but unattractive to H-P. This might entail pricing ink cartridges for embedded notebook printers at levels that would send H-P scurrying upmarket, in search of the larger profits generated by higher-performance stationary printers. In that scenario, Xerox would retain the motivation to go after H-P's business, while H-P would be less motivated to fight back.

Making the Disruptive Strategy Work

Once a viable disruptive growth strategy has been defined, it needs nourishment to survive in the corporate environment. Three classes of factors that affect what a company like Xerox can do with the printer opportunity — its resources, processes and values — need to be managed carefully.[6] The meaning of the first two terms is straightforward. In this context, we use the term "values" to mean the criteria that people employ when making both big and small decisions — when giving priority to one set of activities over another. Managers need to determine which resources, processes and values to leverage to help the new business succeed.

Resources In addition to the technology, the key resources for Xerox's printer business would be management talent and cash. Who should take the reins of the new venture? In situations like this, corporate executives often tap managers who have strong records of success in the mainstream business. Such choices can be the kiss of death, however, because the kinds of challenges that will confront managers in building a new disruptive enterprise are radically different from those that most would have grappled with in the core business. The counterintuitive point is that managers whom corporate leaders have learned to trust because of their success in the mainstream business probably cannot be counted on to lead a radical new venture.

To choose the right managers to lead a new venture, it's useful to construct a three-column chart. In the left column, list the challenges that the managers will confront as they build the new venture. In the middle column, list the experiences the managers should already have had, to be certain they have the perspective to succeed. In the right column, list the backgrounds of candidates.

Thus in the left column, Xerox's managers might note that customers for the built-in printer probably would not know at the outset what features they'd need or when or how they would actually use the product. In the middle column, they would specify a manager who had successfully *and* unsuccessfully introduced new products in a fluid, emerging market. In the right column, they might evaluate the résumé of a product manager from Palm because some features of Palm's products have been warmly embraced, while others have bombed.[7]

The other important resource, cash, must be managed in a

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way that avoids two common misconceptions. The first is that access to deep corporate pockets is an advantage to a new growth business. It is not. Too much cash allows those running a new venture to follow a flawed strategy for too long. Having barely enough forces the venture's managers to flounder around with actual customers, rather than in the corporate treasury, for ways to get money. The right strategy for a disruptive business is never clear at the outset. Tight purse strings force managers to uncover a viable strategy quickly — if one exists.[8]

The second misconception is that the corporation needs to be patient — that it should be prepared to accept large losses for sustained periods in order to reap the huge upside that eventually comes from disruptive innovation. Let's be clear: Senior managers should be patient about the new venture's size but impatient for profits. The requirement to get very big very fast is lethal to new ventures. It takes time for new markets to emerge: Customers have to discover where, when and why they are using a new product, and the new venture has to define a profitable business model. All new ventures lose money for a time at the outset, but corporate executives should expect the managers of a new business to find a way to make profit within a couple of years. Small but profitable ventures need to be given time to establish the new market and grow to a substantial size.[9]

The only way to guard against such impatience is by launching new growth ventures when the corporation doesn't actually need them. When companies wait until they need huge waves of growth in a hurry, their haste triggers a sequence of behaviors that paradoxically make it impossible to grow.[10]

Processes and Values In any company, mainstream processes and criteria for setting priorities (values) have been honed to sustain the core business. Typically, key processes that work well in the core (such as strategic planning and product development) actually impede what needs to be done in an emerging business. And the criteria for setting priorities and making decisions that are inherent to the business model of the new enterprise often must be very different from those that are useful in the mainstream. That is why disruptive enterprises often need to be managed as independent business units.

A key to nurturing a new growth business is recognizing when to leverage the parent corporation's resources, processes and values, and when to create new ones. In our experience, the CEO has to make this judgment because there are no simple rules to follow. There is strong evidence that without the CEO's intervention, the power of habitual ways of doing things will direct new ventures into the sustaining mode — and the core business must be sustained, after all, even as the new one is nurtured. Whether the CEO is willing or able to make such judgment calls is another crucial litmus test of success.

For this hypothetical business, Xerox's CEO might want to emulate the former CEO of Teradyne, Alexander d'Arbeloff. Teradyne makes sophisticated integrated-circuit testing equipment. In the mid-1990s, d'Arbeloff sensed that competitors were considering a scaled-down tester that would rely on inexpensive semiconductor chips and off-the-shelf software. Such a product could test simple circuits at the low end of the market, at a quarter of the multimillion dollar cost of Teradyne's machines.

D'Arbeloff decided to get there first and set up a separate business unit to disrupt the market — and Teradyne itself. One of the keys to the development of what became the successful Integra tester business was flexibility to create appropriate processes for annual budgets, sales projections and strategic planning, compared with the standards that would have been imposed if the project had been part of a mainstream division. The venture was, however, kept to very tight cost controls. Moreover, d'Arbeloff kept the values guiding the project clear: The product was to be simple and low-cost. The team developing it had to find a market that would welcome an inexpensive tester with limited functionality. That focus paid off, as the venture reached $150 million in annualized sales within 18 months of its release in 1998.

> **A lack of good ideas is not the problem. The problem is the absence of a robust, repeatable process for creating and nurturing new growth businesses.**

Building an Innovation Engine

Ironically, successful disrupters often fall prey to disruption themselves. Digital Equipment was overtaken, literally, by Compaq, which is being overtaken by Dell. Oracle disrupted IBM and Cullinet but is now being disrupted by Microsoft. Many observers assume that an absence of good ideas is the reason for

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the fall of once-disruptive companies, and they try to focus their own companies on generating new ideas. But in our interviews with managers of companies that failed to capitalize on disruptive opportunities, not once did anyone say, "We just never thought of it." In fact, the executives had actively considered and usually experimented with the disruptions that eventually displaced them. A lack of good ideas is not the problem. The problem is the absence of a robust, repeatable process for creating and nurturing new growth businesses. We have suggested how executives might shape and implement a strategy to create a single new disruptive growth business. To establish an organizational capability to do it over and over again, senior executives should build the components that go into an innovation engine.

Start Before You Need To The best time to invest for growth is, in fact, when the company is growing. To build what will be a respectable portfolio of growth businesses in five years, start now — and add to the portfolio every year. Companies that build while they are growing can shield their nascent high-potential businesses from Wall Street pressure, giving each one the time it needs to iterate toward a viable strategy and then to take off.

Establish an Aggregate Project Plan An aggregate project plan is a system to allocate resources toward strategic objectives. The plan must be established before managers have considered the merits of specific product proposals; it then can be used to help company leaders systematically distribute resources to new growth businesses. To determine what percentage of available resources they should allocate to disruptive new ventures, executives must decide in advance the number of such businesses the company needs to start or acquire each year in order to have robustly growing businesses five and 10 years down the road, when growth of the core business has slowed.[11] By creating an aggregate plan, companies can keep sustaining proposals from competing with disruptive ideas for funding. Propositions for new growth businesses compete only for the planned number of disruptive slots in the plan in a given year, and sustaining ideas are matched against other sustaining possibilities.

Train People To Distinguish Between Disruptive and Sustaining Ideas In all companies, the processes that shape ideas into investment propositions have a predictable result: In order to pass the hurdles required to get funded, all ideas must be transformed into proposals that sustain the mainstream business. These processes are extremely valuable in keeping the mainstream business healthy, but they are not capable of shaping ideas into disruptive business plans. As a result, companies need to create different processes for evaluating and shaping disruptive ideas.

The process starts with training. Sales, marketing and engineering employees have the great ideas in most companies. They should be trained in the language of sustaining and disruptive innovation and understand the litmus tests so that they know what kinds of ideas they should channel into sustaining processes — and what kinds they should direct into disruptive channels. Capturing ideas for new growth businesses from people in direct contact with markets and technologies is far more productive than relying on analyst-laden business-development departments. Front-line employees are also well positioned to scout for small acquisitions with disruptive potential. If the price is reasonable, it is often better to acquire a company whose strategy passes the litmus tests than to start from scratch internally.

Create Processes for Shaping Disruptive Business Plans Ideas with disruptive potential need a destination. Senior management should therefore create a team at the corporate level that is responsible for collecting disruptive-innovation ideas and molding them into propositions that fit the litmus tests. The members of this team have to understand the litmus tests at a deep level and use them repeatedly. Such experience will help the team develop a collective intuition about how to shape disruptive business plans. We use the word *intuition* deliberately here. While the process that molds ideas into sustaining innovations can be deliberate, data-driven and analytical, the process for shaping disruptive businesses must be driven by intuitive understanding of the possibilities.

The only company in history we know of that has successfully launched a series of disruptive growth businesses is Sony. Between 1950 and 1980 Sony introduced 12 disruptions that created huge new growth markets and helped the company topple competitors that had been the leaders in the electronics industry. But the company's last successful disruption was its Walkman, launched in 1979. Between 1980 and 1997, Sony continued to be technologically innovative, but every innovation during this period was sustaining. Sony's PlayStation and Vaio notebook computers, for example, are great products, but they were late entrants targeted at well-established markets. How did the company's ability to develop sustaining innovations come to squeeze out its ability to continue generating disruptive ones?

Before 1980, Sony founder Akio Morita and a small group of trusted associates made every new product-launch decision. As a policy, they never did any market research — if a market did not exist, they believed, it could not be analyzed. The group developed an intuitive but practiced process for shaping and launching disruptive businesses. In the early 1980s, Morita withdrew from active involvement in the company in order to focus on political activities. The company began beefing up its marketing functions

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with M.B.A.s who favored the use of data-driven, analytical processes to assess market needs. Such processes can only identify and shape sustaining innovations — and as a consequence, Sony lost its ability to continue launching disruptive businesses.

Because all corporations that hope to sustain growth need streams of sustaining innovations within business units and disruptive innovations in new units, we advocate the creation of a Sony-like group at the corporate level that develops a similar practiced intuition about disruptive ventures. It's not just the shaping processes that need to be different. The process for selecting managers needs to employ very different criteria from those used to promote managers within established businesses. The team should coach each new venture's management on techniques like discovery-driven planning that can speed the emergence of a winning strategy.[12]

The team must also be the visible and vocal advocate of new growth businesses. It should define and articulate throughout the company the technology or market scope governing disruptive business plans. Twice a year or so, team members should hold refresher training sessions with sales, marketing and engineering people in each operating unit. The purpose of these sessions is to provide updates on how previous ideas had been shaped into plans for high-potential growth businesses and to describe why other ideas could not pass the litmus tests. Such updates are critical because they can help innovators within the corporation refine their ability to recognize disruptive innovations when they encounter them.

Processes are not created in PowerPoint presentations; they are defined only when a group of people does something over and over again. And every process needs a home. This is why intuitive processes for creating disruptive growth businesses need to be honed in a dedicated group.

Not Just a Lucky Bet

The structure of our proposed innovation engine is quite different from a conventionally managed corporate venture-capital organization. The fundamental premise of venture capital is that creating new businesses is intrinsically unpredictable; thus many bets must be placed in order to get a few that pay off. We are proposing that starting successful growth businesses isn't as random and failure-fraught as it has appeared. It is complicated, to be sure. But it only appears random, we believe, because managers haven't understood the factors that lead to success or cause failure. Spending too much on the wrong strategy in an attempt to get big fast; putting people with inappropriate experience in charge; violating the litmus tests; and launching growth initiatives in an ad hoc manner when it is already too late — these reasons for failure can be managed and avoided. Executives who understand the potential pitfalls and work to make the creation of disruptive new businesses a corporate process — an organizational capability that is constantly practiced — can start laying the groundwork for a company future blessed by continuous healthy growth.

REFERENCES

1. See C.M. Christensen, "The Innovator's Dilemma: When New Technologies Cause Great Firms to Fail" (Boston: Harvard Business School Press, 1997).

2. Christensen, "The Innovator's Dilemma," 126.

3. See J.L. Bower, "Managing the Resource Allocation Process" (Homewood, Illinois: Richard D. Irwin, 1972).

4. J.L. Funk, "The Mobile Internet: How Japan Dialed Up and the West Disconnected" (Hong Kong: ISI Publications, 2001).

5. Our choice of wording in this paragraph is important. When customers cannot differentiate products from one another on any dimension that they can value, then price is often the customer's basis of choice. We would not say, however, that when a consumer buys the lowest-priced alternative, the axis of competition is cost-based. The right question to ask is whether customers will be willing to pay higher prices for further improvements in functionality, reliability or convenience. As long as customers reward improvements that have commensurately higher prices, we take it as evidence that the pace of performance improvement has not yet overshot what customers can use. When the marginal utility that customers receive from additional improvements on all of these other dimensions approaches zero, then cost is truly the basis of competition.

6. We have published in greater detail elsewhere on the recommendations in this section. See, for example, C.M. Christensen and M. Overdorf, "Meeting the Challenge of Disruptive Change," Harvard Business Review (March-April 2000): 66-76.

7. For a cogent account of how to recognize and train managers who are capable of succeeding in such situations, see M.W. McCall, "High Flyers" (Boston: Harvard Business School Press, 1996).

8. For strong evidence, see A. Bhide, "The Origin and Evolution of New Businesses" (New York: Oxford University Press, 2000).

9. New ventures that are successful and growing will, of course, continue to consume cash long after they begin to show *profit.* Our point is that the ventures should not be allowed to consume large amounts of profit. This is not short-sighted. It is a management mechanism that forces the venture's executives to iterate as quickly as possible toward a viable strategy and business model.

10. For an exceptionally insightful — and frightening — analysis of this problem, see "Stall Points: Barriers to Growth for the Large Corporate Enterprise" (Washington, D.C.: Corporate Strategy Board, 1998).

11. The concept of an aggregate project plan was first developed by S.C. Wheelwright and K.B. Clark in "Revolutionizing Product Development" (New York: Free Press, 1992). Their concept has been extended to the corporate resource-allocation process in a note by C.M. Christensen, "Using Aggregate Project Planning To Link Strategy, Innovation and the Resource Allocation Process," Harvard Business School note no. 9-301-041 (Boston: Harvard Business School Publishing Co., 2000).

12. R.G. McGrath and I. MacMillan, "Discovery-Driven Planning" Harvard Business Review (July-August 1995): 44-54.

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