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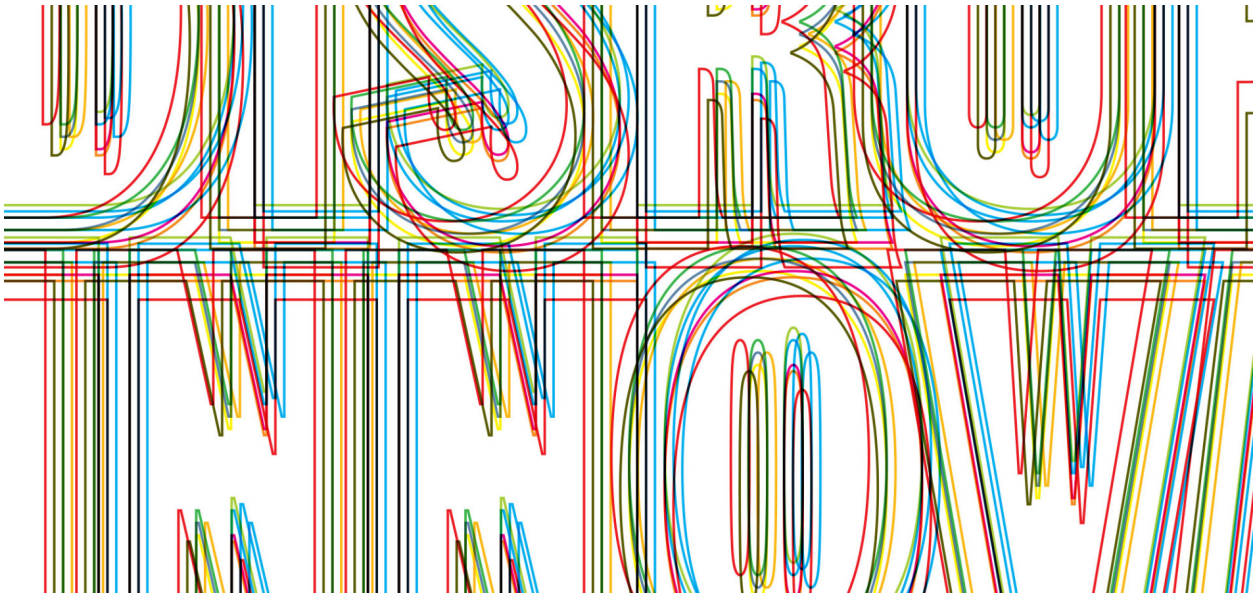


DISRUPTIVE INNOVATION

What Is Disruptive Innovation?

by Clayton M. Christensen, Michael E. Raynor, and Rory McDonald

FROM THE DECEMBER 2015 ISSUE

The theory of disruptive innovation, introduced in these pages in 1995, has proved to be a powerful way of thinking about innovation-driven growth. Many leaders of small, entrepreneurial companies praise it as their guiding star; so do many executives at large, well-established organizations, including Intel, Southern New Hampshire University, and Salesforce.com.

Unfortunately, disruption theory is in danger of becoming a victim of its own success. Despite broad dissemination, the theory's core concepts have been widely misunderstood and its basic tenets frequently misapplied. Furthermore, essential refinements in the theory over the past 20 years appear to have been overshadowed by the popularity of the initial formulation. As a result, the theory is sometimes criticized for shortcomings that have already been addressed.

There's another troubling concern: In our experience, too many people who speak of "disruption" have not read a serious book or article on the subject. Too frequently, they use the term loosely to invoke the concept of innovation in support of whatever it is they wish to do. Many researchers, writers, and consultants use "disruptive innovation" to describe *any* situation in which an industry is shaken up and previously successful incumbents stumble. But that's much too broad a usage.

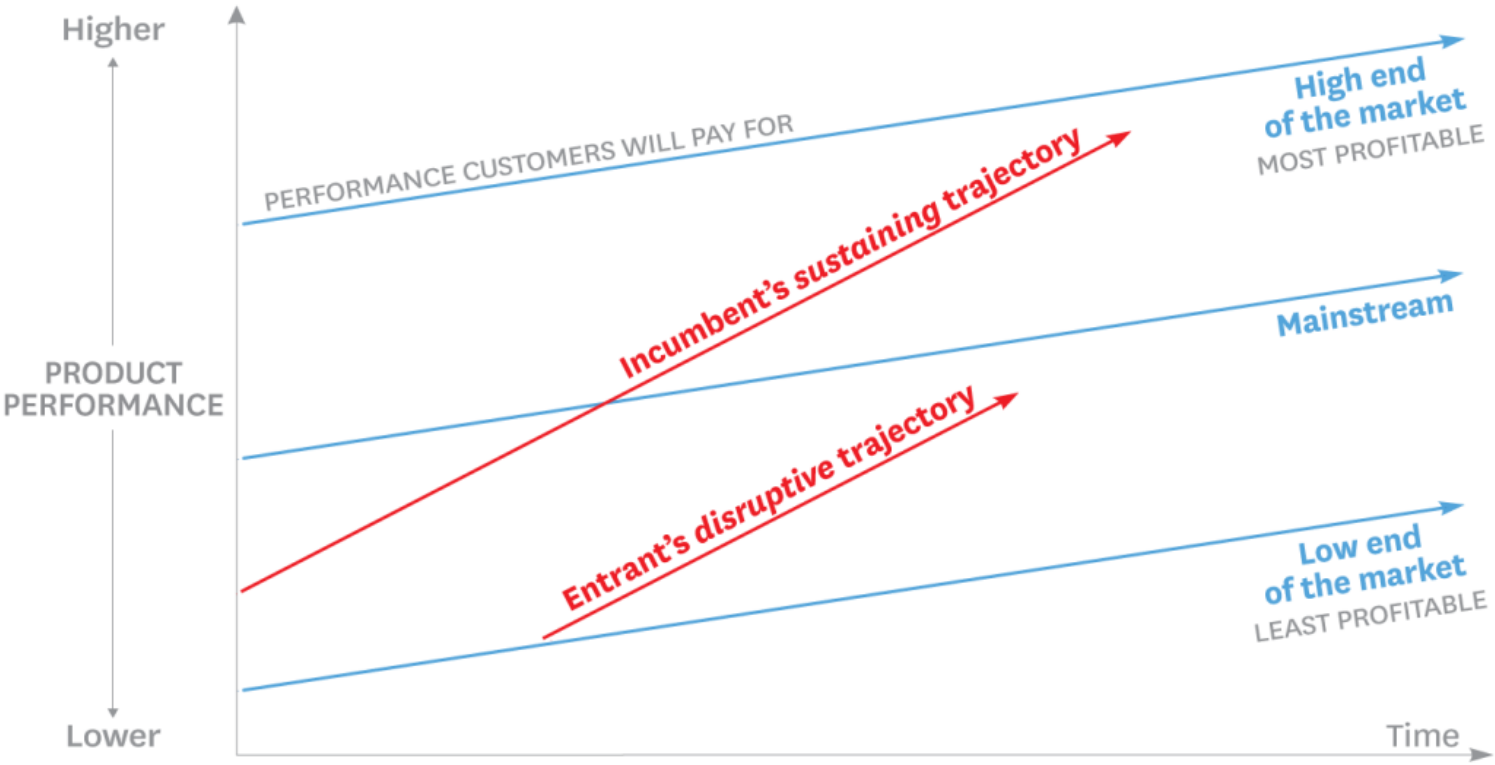
The problem with conflating a disruptive innovation with any breakthrough that changes an industry's competitive patterns is that different types of innovation require different strategic approaches. To put it another way, the lessons we've learned about succeeding as a disruptive innovator (or defending against a disruptive challenger) will not apply to every company in a shifting market. If we get sloppy with our labels or fail to integrate insights from subsequent research and experience into the original theory, then managers may end up using the wrong tools for their context, reducing their chances of success. Over time, the theory's usefulness will be undermined.

This article is part of an effort to capture the state of the art. We begin by exploring the basic tenets of disruptive innovation and examining whether they apply to Uber. Then we point out some common pitfalls in the theory's application, how these arise, and why correctly using the theory matters. We go on to trace major turning points in the evolution of our thinking and make the case that what we have learned allows us to more accurately predict which businesses will grow.

First, a quick recap of the idea: “Disruption” describes a process whereby a smaller company with fewer resources is able to successfully challenge established incumbent businesses. Specifically, as incumbents focus on improving their products and services for their most demanding (and usually most profitable) customers, they exceed the needs of some segments and ignore the needs of others. Entrants that prove disruptive begin by successfully targeting those overlooked segments, gaining a foothold by delivering more-suitable functionality—frequently at a lower price. Incumbents, chasing higher profitability in more-demanding segments, tend not to respond vigorously. Entrants then move upmarket, delivering the performance that incumbents’ mainstream customers require, while preserving the advantages that drove their early success. When mainstream customers start adopting the entrants’ offerings in volume, disruption has occurred.

The Disruptive Innovation Model

This diagram contrasts *product performance trajectories* (the red lines showing how products or services improve over time) with *customer demand trajectories* (the blue lines showing customers' willingness to pay for performance). As incumbent companies introduce higher-quality products or services (upper red line) to satisfy the high end of the market (where profitability is highest), they overshoot the needs of low-end customers and many mainstream customers. This leaves an opening for entrants to find footholds in the less-profitable segments that incumbents are neglecting. Entrants on a disruptive trajectory (lower red line) improve the performance of their offerings and move upmarket (where profitability is highest for them, too) and challenge the dominance of the incumbents.



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Is Uber a Disruptive Innovation?

Let's consider Uber, the much-feted transportation company whose mobile application connects consumers who need rides with drivers who are willing to provide them. Founded in 2009, the company has enjoyed fantastic growth (it operates in hundreds of cities in 60 countries and is still expanding). It has reported tremendous financial success (the most recent funding round implies an enterprise value in the vicinity of $50 billion). And it has

spawned a slew of imitators (other start-ups are trying to emulate its “market-making” business model). Uber is clearly transforming the taxi business in the United States. But is it *disrupting* the taxi business?

According to the theory, the answer is no. Uber’s financial and strategic achievements do not qualify the company as genuinely disruptive—although the company is almost always described that way. Here are two reasons why the label doesn’t fit.

Disruptive innovations originate in low-end or new-market footholds.

Disruptive innovations are made possible because they get started in two types of markets that incumbents overlook. *Low-end footholds* exist because incumbents typically try to provide their most profitable and demanding customers with ever-improving products and services, and they pay less attention to less-demanding customers. In fact, incumbents’ offerings often overshoot the performance requirements of the latter. This opens the door to a disrupter focused (at first) on providing those low-end customers with a “good enough” product.

In the case of *new-market footholds,* disrupters create a market where none existed. Put simply, they find a way to turn nonconsumers into consumers. For example, in the early days of photocopying technology, Xerox targeted large corporations and charged high prices in order to provide the performance that those customers required. School librarians, bowling-league operators, and other small customers, priced out of the market, made do with carbon paper or mimeograph machines. Then in the late 1970s, new challengers introduced personal copiers, offering an affordable solution to individuals and small organizations—and a new market was created. From this relatively modest beginning, personal photocopier makers gradually built a major position in the mainstream photocopier market that Xerox valued.

A disruptive innovation, by definition, starts from one of those two footholds. But Uber did not originate in either one. It is difficult to claim that the company found a low-end opportunity: That would have meant taxi service providers had overshot the needs of a material number of customers by making cabs too plentiful, too easy to use, and too clean.

Neither did Uber primarily target nonconsumers—people who found the existing alternatives so expensive or inconvenient that they took public transit or drove themselves instead: Uber was launched in San Francisco (a well-served taxi market), and Uber's customers were generally people already in the habit of hiring rides.

Uber has quite arguably been increasing total demand—that's what happens when you develop a better, less-expensive solution to a widespread customer need. But disrupters *start* by appealing to low-end or unserved consumers and then migrate to the mainstream market. Uber has gone in exactly the opposite direction: building a position in the mainstream market first and subsequently appealing to historically overlooked segments.

Disruptive innovations don't catch on with mainstream customers until quality catches up to their standards.

Disruption theory differentiates disruptive innovations from what are called "sustaining innovations." The latter make good products better in the eyes of an incumbent's existing customers: the fifth blade in a razor, the clearer TV picture, better mobile phone reception. These improvements can be incremental advances or major breakthroughs, but they all enable firms to sell more products to their most profitable customers.

Disruptive innovations, on the other hand, are initially considered inferior by most of an incumbent's customers. Typically, customers are not willing to switch to the new offering merely because it is less expensive. Instead, they wait until its quality rises enough to satisfy them. Once that's happened, they adopt the new product and happily accept its lower price. (This is how disruption drives prices down in a market.)

Most of the elements of Uber's strategy seem to be sustaining innovations. Uber's service has rarely been described as inferior to existing taxis; in fact, many would say it is *better*. Booking a ride requires just a few taps on a smartphone; payment is cashless and convenient; and passengers can rate their rides afterward, which helps ensure high standards. Furthermore, Uber delivers service reliably and punctually, and its pricing is usually competitive with (or lower than) that of established taxi services. And as is typical when incumbents face threats

from sustaining innovations, many of the taxi companies are motivated to respond. They are deploying competitive technologies, such as hailing apps, and contesting the legality of some of Uber's services.

Why Getting It Right Matters

Readers may still be wondering, Why does it matter what words we use to describe Uber? The company has certainly thrown the taxi industry into disarray: Isn't that "disruptive" enough? No. Applying the theory correctly is essential to realizing its benefits. For example, small competitors that nibble away at the periphery of your business very likely should be ignored—unless they are on a disruptive trajectory, in which case they are a potentially mortal threat. And both of these challenges are fundamentally different from efforts by competitors to woo your bread-and-butter customers.

As the example of Uber shows, identifying true disruptive innovation is tricky. Yet even executives with a good understanding of disruption theory tend to forget some of its subtler aspects when making strategic decisions. We've observed four important points that get overlooked or misunderstood:

1. Disruption is a process.

The term "disruptive innovation" is misleading when it is used to refer to a product or service at one fixed point, rather than to the evolution of that product or service over time. The first minicomputers were disruptive not merely because they were low-end upstarts when they appeared on the scene, nor because they were later heralded as superior to mainframes in many markets; they were disruptive by virtue of the path they followed from the fringe to the mainstream.

Most every innovation—disruptive or not—begins life as a small-scale experiment. Disrupters tend to focus on getting the business model, rather than merely the product, just right. When they succeed, their movement from the fringe (the low end of the market or a new market) to the mainstream erodes first the incumbents' market share and then their profitability. This process can take time, and incumbents can get quite creative in the defense of their

established franchises. For example, more than 50 years after the first discount department store was opened, mainstream retail companies still operate their traditional department-store formats. Complete substitution, if it comes at all, may take decades, because the incremental profit from staying with the old model for one more year trumps proposals to write off the assets in one stroke.

The fact that disruption can take time helps to explain why incumbents frequently overlook disrupters. For example, when Netflix launched, in 1997, its initial service wasn't appealing to most of Blockbuster's customers, who rented movies (typically new releases) on impulse. Netflix had an exclusively online interface and a large inventory of movies, but delivery through the U.S. mail meant selections took several days to arrive. The service appealed to only a few customer groups—movie buffs who didn't care about new releases, early adopters of DVD players, and online shoppers. If Netflix had not eventually begun to serve a broader segment of the market, Blockbuster's decision to ignore this competitor would not have been a strategic blunder: The two companies filled very different needs for their (different) customers.

> Because disruption can take time, incumbents frequently overlook disrupters.

However, as new technologies allowed Netflix to shift to streaming video over the internet, the company did eventually become appealing to Blockbuster's core customers, offering a wider selection of content with an all-you-can-watch, on-demand, low-price, high-quality, highly convenient approach. And it got there via a classically disruptive path. If Netflix (like Uber) had begun by launching a service targeted at a larger competitor's core market, Blockbuster's response would very likely have been a vigorous and perhaps successful counterattack. But failing to respond effectively to the trajectory that Netflix was on led Blockbuster to collapse.

2. Disrupters often build business models that are very different from those of incumbents.

Consider the health care industry. General practitioners operating out of their offices often rely on their years of experience and on test results to interpret patients' symptoms, make diagnoses, and prescribe treatment. We call this a "solution shop" business model. In contrast, a number of convenient care clinics are taking a disruptive path by using what we call a "process" business model: They follow standardized protocols to diagnose and treat a small but increasing number of disorders.

One high-profile example of using an innovative business model to effect a disruption is Apple's iPhone. The product that Apple debuted in 2007 was a sustaining innovation in the smartphone market: It targeted the same customers coveted by incumbents, and its initial success is likely explained by product superiority. The iPhone's subsequent growth is better explained by disruption—not of other smartphones but of the laptop as the primary access point to the internet. This was achieved not merely through product improvements but also through the introduction of a new business model. By building a facilitated network connecting application developers with phone users, Apple changed the game. The iPhone created a new market for internet access and eventually was able to challenge laptops as mainstream users' device of choice for going online.

3. Some disruptive innovations succeed; some don't.

A third common mistake is to focus on the results achieved—to claim that a company is disruptive by virtue of its success. But success is not built into the definition of disruption: Not every disruptive path leads to a triumph, and not every triumphant newcomer follows a disruptive path.

For example, any number of internet-based retailers pursued disruptive paths in the late 1990s, but only a small number prospered. The failures are not evidence of the deficiencies of disruption theory; they are simply boundary markers for the theory's application. The theory says very little about how to win in the foothold market, other than to play the odds and avoid head-on competition with better-resourced incumbents.

If we call every business success a “disruption,” then companies that rise to the top in very different ways will be seen as sources of insight into a common strategy for succeeding. This creates a danger: Managers may mix and match behaviors that are very likely inconsistent with one another and thus unlikely to yield the hoped-for result. For example, both Uber and Apple’s iPhone owe their success to a platform-based model: Uber digitally connects riders with drivers; the iPhone connects app developers with phone users. But Uber, true to its nature as a sustaining innovation, has focused on expanding its network and functionality in ways that make it better than traditional taxis. Apple, on the other hand, has followed a disruptive path by building its ecosystem of app developers so as to make the iPhone more like a personal computer.

4. The mantra “Disrupt or be disrupted” can misguide us.

Incumbent companies do need to respond to disruption if it’s occurring, but they should not overreact by dismantling a still-profitable business. Instead, they should continue to strengthen relationships with core customers by investing in sustaining innovations. In addition, they can create a new division focused solely on the growth opportunities that arise from the disruption. Our research suggests that the success of this new enterprise depends in large part on keeping it separate from the core business. That means that for some time, incumbents will find themselves managing two very different operations.

Of course, as the disruptive stand-alone business grows, it may eventually steal customers from the core. But corporate leaders should not try to solve this problem before it *is* a problem.

What a Disruptive Innovation Lens Can Reveal

It is rare that a technology or product is inherently sustaining or disruptive. And when new technology is developed, disruption theory does not dictate what managers should do. Instead it helps them make a strategic choice between taking a sustaining path and taking a disruptive one.

The theory of disruption predicts that when an entrant tackles incumbent competitors head-on, offering better products or services, the incumbents will accelerate their innovations to defend their business. Either they will beat back the entrant by offering even better services or products at comparable prices, or one of them will acquire the entrant. The data supports the theory's prediction that entrants pursuing a sustaining strategy for a stand-alone business will face steep odds: In Christensen's seminal study of the disk drive industry, only 6% of sustaining entrants managed to succeed.

> When new technology arises, disruption theory can guide strategic choices.

Uber's strong performance therefore warrants explanation. According to disruption theory, Uber is an outlier, and we do not have a universal way to account for such atypical outcomes. In Uber's case, we believe that the regulated nature of the taxi business is a large part of the answer. Market entry and prices are closely controlled in many jurisdictions. Consequently, taxi companies have rarely innovated. Individual drivers have few ways to innovate, except to defect to Uber. So Uber is in a unique situation relative to taxis: It can offer better quality and the competition will find it hard to respond, at least in the short term.

To this point, we've addressed only whether or not Uber is disruptive to the taxi business. The limousine or "black car" business is a different story, and here Uber is far more likely to be on a disruptive path. The company's UberSELECT option provides more-luxurious cars and is typically more expensive than its standard service—but typically less expensive than hiring a traditional limousine. This lower price imposes some compromises, as UberSELECT currently does not include one defining feature of the leading incumbents in this market: acceptance of advance reservations. Consequently, this offering from Uber appeals to the low end of the limousine service market: customers willing to sacrifice a measure of convenience for monetary savings. Should Uber find ways to match or exceed incumbents' performance levels without compromising its cost and price advantage, the company appears to be well positioned to move into the mainstream of the limo business—and it will have done so in classically disruptive fashion.

How Our Thinking About Disruption Has Developed

Initially, the theory of disruptive innovation was simply a statement about correlation. Empirical findings showed that incumbents outperformed entrants in a sustaining innovation context but underperformed in a disruptive innovation context. The reason for this correlation was not immediately evident, but one by one, the elements of the theory fell into place.

First, researchers realized that a company's propensity for strategic change is profoundly affected by the interests of customers who provide the resources the firm needs to survive. In other words, incumbents (sensibly) listen to their existing customers and concentrate on sustaining innovations as a result. Researchers then arrived at a second insight: Incumbents' focus on their existing customers becomes institutionalized in internal processes that make it difficult for even senior managers to shift investment to disruptive innovations. For example, interviews with managers of established companies in the disk drive industry revealed that resource allocation processes prioritized sustaining innovations (which had high margins and targeted large markets with well-known customers) while inadvertently starving disruptive innovations (meant for smaller markets with poorly defined customers).

> Smart disrupters improve their products and drive upmarket.

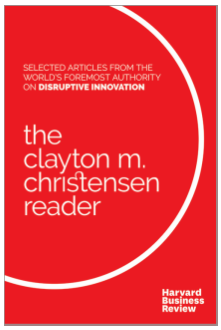
Those two insights helped explain why incumbents rarely responded effectively (if at all) to disruptive innovations, but not why entrants eventually moved upmarket to challenge incumbents, over and over again. It turns out, however, that the same forces leading incumbents to ignore early-stage disruptions also compel disrupters ultimately to disrupt.

THIS ARTICLE ALSO APPEARS IN:

The Clayton M. Christensen Reader

STRATEGY & INNOVATION BOOK
Clayton M. Christensen and Harvard Business Review (available February 9, 2016)

What we've realized is that, very often, low-end and new-market footholds are populated not by a lone would-be disrupter, but by several comparable entrant firms whose products are simpler, more convenient, or less



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costly than those sold by incumbents. The incumbents provide a de facto price umbrella, allowing many of the entrants to enjoy profitable growth within the foothold market. But that lasts only for a time: As incumbents (rationally, but mistakenly) cede the foothold market, they effectively remove the price umbrella, and price-based competition among the entrants reigns. Some entrants will founder, but the smart ones—the true disrupters—will improve their products and drive upmarket, where, once again, they can compete at the margin against higher-cost established competitors. The disruptive effect drives every competitor—incumbent and entrant—upmarket.

With those explanations in hand, the theory of disruptive innovation went beyond simple correlation to a theory of causation as well. The key elements of that theory have been tested and validated through studies of many industries, including retail, computers, printing, motorcycles, cars, semiconductors, cardiovascular surgery, management education, financial services, management consulting, cameras, communications, and computer-aided design software.

Making sense of anomalies.

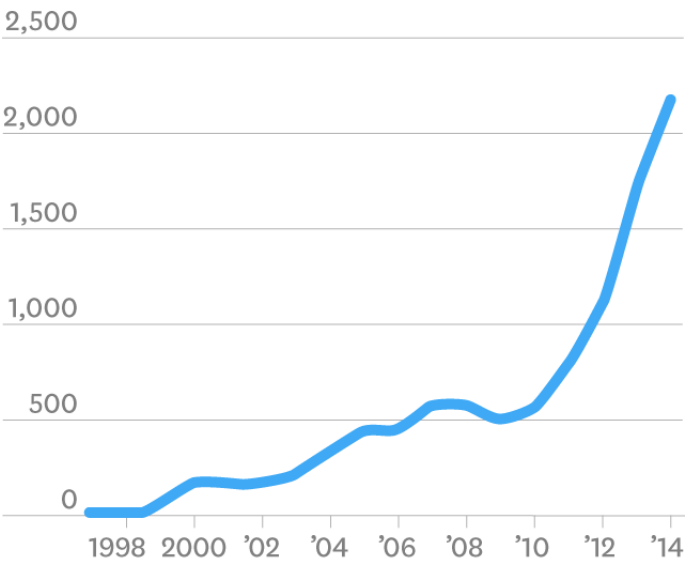
Additional refinements to the theory have been made to address certain anomalies, or unexpected scenarios, that the theory could not explain. For example, we originally assumed that any disruptive innovation took root in the lowest tiers of an established market—yet sometimes new entrants seemed to be competing in entirely new markets. This led to the distinction we discussed earlier between low-end and new-market footholds.

Low-end disrupters (think steel minimills and discount retailers) come in at the bottom of the market and take hold within an existing value network before moving upmarket and attacking that stratum (think integrated steel mills and traditional retailers). By contrast, new-market disruptions take hold in a completely new value network and appeal to

customers who have previously gone without the product. Consider the transistor pocket radio and the PC: They were largely ignored by manufacturers of tabletop radios and minicomputers, respectively, because they were aimed at nonconsumers of those goods. By postulating that there are two flavors of foothold markets in which disruptive innovation can begin, the theory has become more powerful and practicable.

The Ubiquitous "Disruptive Innovation"

"Disruptive innovation" and "disruptive technology" are now part of the popular business lexicon, as suggested by the dramatic growth in the number of articles using those phrases in recent years.



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Another intriguing anomaly was the identification of industries that have resisted the forces of disruption, at least until very recently. Higher education in the United States is one of these. Over the years—indeed, over more than 100 years—new kinds of institutions with different initial charters have been created to address the needs of various population segments, including nonconsumers. Land-grant universities, teachers' colleges, two-year colleges, and so on were initially launched to serve those for whom a traditional four-year liberal arts education was out of reach or unnecessary.

Many of these new entrants strived to improve over time, compelled by analogues of the pursuit of profitability: a desire for growth, prestige, and the capacity to do greater good. Thus they made costly investments in research, dormitories, athletic facilities, faculty, and so on, seeking to emulate more-elite institutions. Doing so has increased their level of performance in some ways—they can provide richer learning and living environments for students, for example. Yet the *relative* standing of higher-education institutions remains largely unchanged: With few exceptions, the top 20 are still the top 20, and the next 50 are still in that second tier, decade after decade.

Because both incumbents and newcomers are seemingly following the same game plan, it is perhaps no surprise that incumbents are able to maintain their positions. What has been missing—until recently—is experimentation with new models that successfully appeal to today's nonconsumers of higher education.

The question now is whether there is a novel technology or business model that allows new entrants to move upmarket without emulating the incumbents' high costs—that is, to follow a disruptive path. The answer seems to be yes, and the enabling innovation is online learning, which is becoming broadly available. Real tuition for online courses is falling, and accessibility and quality are improving. Innovators are making inroads into the mainstream market at a stunning pace.

Will online education disrupt the incumbents' model? And if so, when? In other words, will online education's trajectory of improvement intersect with the needs of the mainstream market? We've come to realize that the steepness of any disruptive trajectory is a function of how quickly the enabling technology improves. In the steel industry, continuous-casting technology improved quite slowly, and it took more than 40 years before the minimill Nucor matched the revenue of the largest integrated steelmakers. In contrast, the digital technologies that allowed personal computers to disrupt minicomputers improved much more quickly; Compaq was able to increase revenue more than tenfold and reach parity with the industry leader, DEC, in only 12 years.

Understanding what drives the rate of disruption is helpful for predicting outcomes, but it doesn't alter the way disruptions should be managed. Rapid disruptions are not fundamentally different from any others; they don't have different causal mechanisms and don't require conceptually different responses.

Similarly, it is a mistake to assume that the strategies adopted by some high-profile entrants constitute a special kind of disruption. Often these are simply miscategorized. Tesla Motors is a current and salient example. One might be tempted to say the company is disruptive. But its foothold is in the high end of the auto market (with customers willing to spend $70,000 or

more on a car), and this segment is not uninteresting to incumbents. Tesla's entry, not surprisingly, has elicited significant attention and investment from established competitors. If disruption theory is correct, Tesla's future holds either acquisition by a much larger incumbent or a years-long and hard-fought battle for market significance.

We still have a lot to learn.

We are eager to keep expanding and refining the theory of disruptive innovation, and much work lies ahead. For example, universally effective responses to disruptive threats remain elusive. Our current belief is that companies should create a separate division that operates under the protection of senior leadership to explore and exploit a new disruptive model. Sometimes this works—and sometimes it doesn't. In certain cases, a failed response to a disruptive threat cannot be attributed to a lack of understanding, insufficient executive attention, or inadequate financial investment. The challenges that arise from being an incumbent and an entrant simultaneously have yet to be fully specified; how best to meet those challenges is still to be discovered.

Disruption theory does not, and never will, explain everything about innovation specifically or business success generally. Far too many other forces are in play, each of which will reward further study. Integrating them all into a comprehensive theory of business success is an ambitious goal, one we are unlikely to attain anytime soon.

But there is cause for hope: Empirical tests show that using disruptive theory makes us measurably and significantly more accurate in our predictions of which fledgling businesses will succeed. As an ever-growing community of researchers and practitioners continues to build on disruption theory and integrate it with other perspectives, we will come to an even better understanding of what helps firms innovate successfully.

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Richard Kong a month ago

Thanks for clarifying the idea and it provides me a perspective in seeing the world. We are experiencing a mining downturn in Australia and traditionally the engineering EPCM industry was dominated by the big players. As the market conditions worsen, there were an increasing number of smaller firms that could offer engineering solutions at lower cost. The existing, bigger companies remained focusing in bigger projects with wider margins thus refused to compete with the smaller firms in smaller projects with lower margins. I could see that these smaller firms could eventually take down the big ones by slowly taking away the market share from the bottom. I know that this is not disruptive innovation at all and I don't want to use the wrong language, how would you then describe this phenomenon?

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