Harvard Business School's CLAYTON CHRISTENSEN portrays the upside of disruptive innovation

For Clayton Christensen, disruption can be both a threat and an opportunity — it all depends how a company frames it. In general, though, Mr. Christensen views disruptive innovation as a huge growth opportunity for the pharmaceutical industry.

Mr. Christensen believes the changing dynamics of the healthcare industry mean companies need to rethink their models and focus on their core critical competencies — discovery, development, and clinical research.

CAREER Highlights

Clayton M. Christensen is the Robert and Jane Cizik Professor of Business Administration at the Harvard Business School, with a joint appointment in the Technology & Operations Management and General Management faculty groups. His research and teaching interests center on the management issues related to the development and commercialization of technological and business model innovation.

Mr. Christensen is the architect of the concept of disruptive innovation, a framework that describes the process by which a product or service takes hold, initially in simple applications at the bottom of the market, ultimately moving up to displace established competitors.

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DISRUPTION EQUALS OPPORTUNITY

Please explain the concept of disruptive innovation and the opportunities this poses for the pharmaceutical industry.

CHRISTENSEN: Disruptive innovation describes a process by which a product or service takes root initially in simple applications at the bottom of a market and then relentlessly moves up market, eventually displacing established competitors. An innovation that is disruptive allows a whole new population of consumers access to a product or service that was historically only accessible to consumers with a lot of money or a lot of skill. Characteristics of disruptive businesses, at least in their initial stages, can include: lower gross margins, smaller target markets, and simpler products and services that may not appear as attractive as existing solutions when compared against traditional performance metrics.

How a company or an entire industry decides to approach disruptive innovation really depends on whether it looks at the disruption as a threat or an opportunity. Disruption can overturn your entire way of doing business, but it can also be a remarkable engine for new growth.

In the pharmaceutical industry, the big disruptor lies in molecular diagnostics. Over the next 10 to 15 years, the ability to precisely diagnose a disease by its cause rather than its symptom will have a huge impact on who can practice medicine and how they do it.

Today, we know that what we thought were diseases really aren't. For example, depression is a symptom that's shared by many different diseases; asthma is a symptom shared by many different causes; and Type 2 diabetes, which we thought was a disease, is really just a symptom that's shared by 21 different disorders; while leukemia is a symptom shared by 37.

The pharmaceutical industry is instrumental in helping diagnose by cause, which enables the development of predictably effective therapies and then care can become rules-based. When care is rules-based, nurse practitioners can begin doing more of the things that doctors had to do, and primary-care doctors can do more of the things that required the intuition of a specialist. Molecular diagnostics and the creation of predictably effective therapies will fuel the disruption of caregivers in the industry, enabling care to be provided in lower-cost venues. The revolution in genomics and molecular medicine is the key to cost reduction in the future.

The threat of disruptive innovation lies in the supply chain and the practice that many of the pharmaceutical companies have followed — outsourcing more of their activities, which in the end could kill the companies that are doing the outsourcing.

Pharmaceutical companies are outsourcing discovery, for example, to China; they outsource the management of clinical trials to a whole set of CROs; and they outsource manufacturing to other companies. Little by little, they're becoming marketing companies. The industry is outsourcing the activities that are going to be core to being prosperous in the future, while hanging on to activities that will provide less and less value. This is the threat in contrast to the opportunity; pharmaceutical companies are outsourcing the wrong things.

BITTERSWEET REWARDS OF SUCCESS

How is M&A affecting the industry?

CHRISTENSEN: Aside from the problems caused by liquidation of business models, another big issue is the pressure to keep growing to sustain a company's stock price. For example, if the market expects a $40 million company to grow 25% a year, that company must find $10 million in new business to fulfill that expectation to keep its stock price stable. For a $40 billion company to grow 25% a year, it must find $10 billion in new business. The problem is that as companies grow larger they lose their appetite for small products and small markets. Twenty years ago, a $500 million-a-year drug was viewed as an attractive opportunity. But as companies merged and grew bigger, the quest for a $2 billion drug began, and as they merged still further the focus became a $5 billion drug. As companies get bigger and bigger, they develop almost a drug addiction to blockbusters. The recent merger between Pfizer and Wyeth exacerbates this problem in a very significant way. But the world is moving in the opposite direction; as molecular diagnostics enable the more precise diagnosis of disease by cause rather than by the symptom, the number of drugs required to treat these precisely diagnosed disorders will proliferate. Therefore, the volume per drug will be smaller and less able to satisfy the screaming need for big blockbusters.

GOING FORWARD

Given shrinking pipelines, a troubled economy, etc., what actions should companies be taking and what is the prognosis for the industry's future?

CHRISTENSEN: I don't think companies should lay off the people involved in the upstream processes of discovery, development, clinical trials, and so on, because these are the industry's competencies for future success. To the extent that costs have to be reduced, cuts should come from administrative overhead, and marketing and sales should adopt tomorrow's technologies today to reach the customer.

Overall, the pharma industry is in a great position to grow and to fuel the overall disruption of healthcare. I'm not sure whether some of today's leading companies are going to be able to prosper from this opportunity, because they've gone so far down the path in the wrong direction. ✦

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A DISRUPTIVE OPPORTUNITY

Clayton Christensen explains how his concept of disruptive innovation can change the clinical-trial process and provide efficiencies to fuel future growth.

Disruptive innovation, a term of art coined by Clayton Christensen, describes a process by which a product or service takes root initially in simple applications at the bottom of a market and then relentlessly moves up market, eventually displacing established competitors.

An innovation that is disruptive allows a whole new population of consumers access to a product or service that was historically only accessible to consumers with a lot of money or a lot of skill. Characteristics of disruptive businesses, at least in their initial stages, can include: lower gross margins, smaller target markets, and simpler products and services that may not appear as attractive as existing solutions when compared against traditional performance metrics.

Mr. Christensen has recently focused his innovation lens on two vexing social issues, education and healthcare. *Disrupting Class*, which looks at the root causes of why schools struggle and offers solutions, was named one of the 10 Best Innovation and Design Books in 2008 by *BusinessWeek* and the best Human Capital book of the year in the Strategy + Business Best Books of 2008. *The Innovator's Prescription*, published in 2009, examines how to fix the problems facing healthcare. To further examine and apply his frameworks to the social sector, Mr. Christensen founded Innosight Institute, a nonprofit think tank, in 2008.

One of the disruptive innovations in the pharmaceutical industry that Mr. Christensen discusses in his book is precision medicine. He believes that this targeted approach to medicine will disrupt the traditional pharmaceutical company blockbuster model.

"Companies recruit patients for clinical trials who share symptoms, but in fact many don't have the same disease," he explains. "The result is that if a clinical trial shows 19% of patients responding to the therapy, while 81% don't; therefore, the company kills the product. Now, we understand that the 19% actually have a different disease than the 81%; the goal then is to figure out what's different about the two groups and then develop a biomarker for the different diseases."

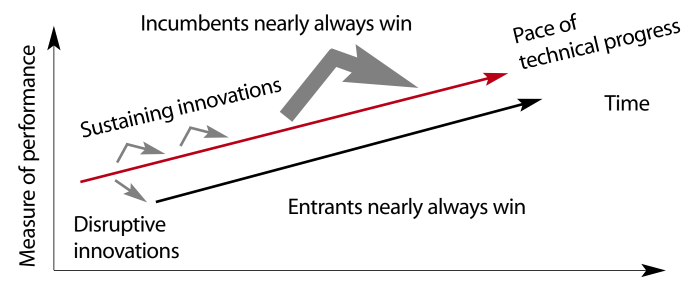
The current development model is based on very broad clinical trials that are long in duration, because most people in the trial don't have the same disease.

"In the future, trials will be smaller in scope and shorter in duration because when everybody has the same disease, there's a much quicker go/no go response," he says.

Mr. Christensen says because companies tend to innovate faster than their customers' lives change, most organizations eventually end up producing products or services that are too good, too expensive, and too inconvenient for many customers.

"By only pursuing 'sustaining innovations' that perpetuate what has historically helped them succeed, companies unwittingly open the door to disruptive innovations," he says. ✦

Disruptive Innovation: Key Concepts



Some examples of disruptive innovation include:

DISRUPTOR	DISRUPTEE
Cellular phones	Fixed line telephone
Community colleges	Four-year colleges
Discount retailers	Full-service department stores
Retail medical clinics	Traditional doctor's offices

Source: Clay Christensen. For more information, visit claytonchristensen.com/disruptive_innovation.html

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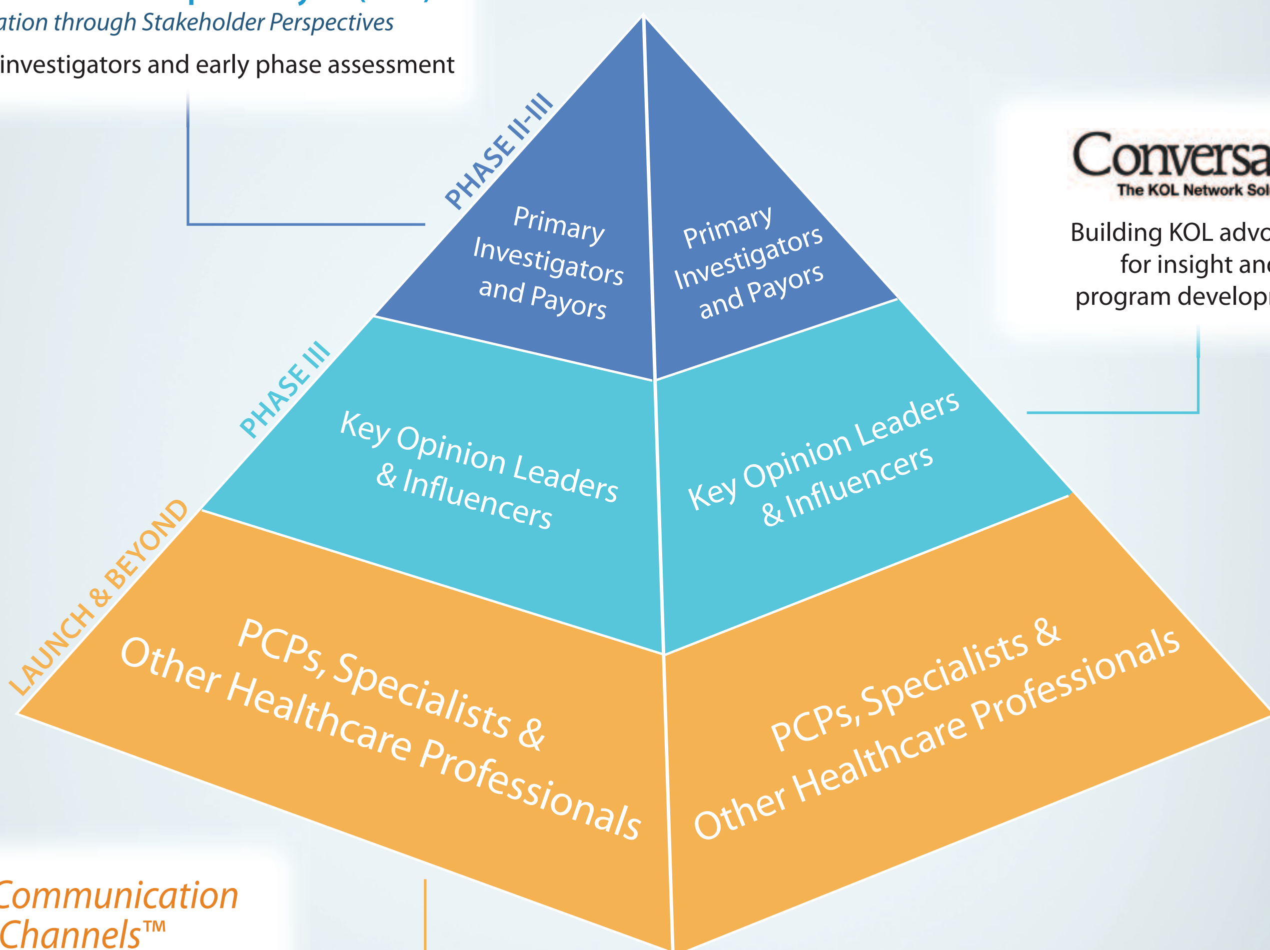

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