Good Days for Disruptors

In the minds of many, the financial crisis has given innovation a black eye. Disruption theorist Clayton Christensen disagrees.

INTERVIEW BY MARTHA E. MANGELSDORF

THE LEADING QUESTION
How will the economic downturn affect innovation — and is financial innovation beneficial?

FINDINGS

- **Downturns are good for innovation.**
- **There are important historical examples of beneficial disruptive innovation in financial services, such as the development of no-load mutual funds. But, to serve the public good, the securities industry needs to be regulated.**
- **Advances in the diagnosis of disease could, if coupled with a disruptive business model, make health care more affordable.**

CLAYTON M. CHRISTENSEN thinks big. In an era when academics often focus relentlessly on a narrow area of specialty, Christensen, the Robert and Jane Cizik Professor of Business Administration at Harvard Business School, seeks out new arenas in which to apply his thinking. He is the author or coauthor of a number of influential books on innovation, including *The Innovator's Dilemma* and *The Innovator's Solution*, and is best known for his theory of disruptive innovation, which describes the way new technologies (and the companies that pioneer them) can displace old ones.

But Christensen has also applied his ideas about disruptive innovation to public education — and now health care. With two physicians — Jason Hwang and the late Jerome H. Grossman — Christensen recently coauthored a book on health care, *The Innovator's Prescription* (McGraw-Hill, 2009).

Christensen spoke with *MIT Sloan Management Review* senior editor Martha E. Mangelsdorf in fall 2008 — on topics ranging from the role of innovation in financial markets to the challenges facing the U.S. health care system. The following interview has been edited for length and clarity.

Professor Christensen, tell us a little bit about what you think the effects of the financial crisis and economic downturn will be on the environment for innovation.

I think it will have an unmitigated positive effect on innovation.

That's counterintuitive.

Well, it will force innovators to not waste nearly so much money. One of the banes of successful innovation is that companies may be so committed to innovation that they will give the innovators a lot of money to spend. And, statistically, 93% of all innovations that have ultimately become successful started off in the wrong direction; the probability that you'll get it right the first time out of the gate is very low. So, if you give people a lot of money, it gives them the privilege of pursuing the wrong strategy for a very long time. And in an environment where you've got to push innovations out the door fast and keep the cost of innovation low, the probability that you'll be successful is actually much higher.

Harvard Business School Professor Clayton M. Christensen discusses how disruptive innovation applies in a variety of contexts — including health care.

JODI HILTON

In other words, what you're saying is that prosperity tends to insulate innovators from market realities and allow them to pursue their vision — a vision that is probably wrong, statistically speaking.

That's a perfect summary of how I think the world works. The breakthrough innovations come when the tension is greatest and the resources are most limited. That's when people are actually a lot more open to rethinking the fundamental way they do business.

What about innovation within the financial markets themselves? I would imagine that any crisis this large creates opportunities for innovators.

Yes, I think so. And, to back up a bit, I think the theory of disruption quite accurately explains what happened to the investment banks on Wall Street. You had commercial banks and investment banks that were segregated by the Glass-Steagall Act, and when it was repealed in 1999, that gave both types of banks the opportunity to move onto each other's turf. Until recently, no investment banks got into commercial lending, but almost every commercial lender of substance got into investment banking. Why is that? The model of disruption says that a company's direction of innovation is always driven by where the margins are — and the profit margins in consumer lending are razor-thin. In commercial lending, they're just a little bit better. So the commercial bankers, who had business models that could make money in that world, looked at investment banking, and they just salivated. Then they invaded the turf of the investment banks. Whereas the investment bankers, having become accustomed to the kind of margins that had existed there, looked over into commercial lending — and it made no sense at all to them to enter that business.

As the commercial banks disrupted the investment banks, the investment banks then, in the pursuit of profit, got into other businesses. Many of the investment securities that are among the culprits of the financial mess we are in now are products that were structured by the investment banks. The investment banks didn't actually originate the underlying assets — in many cases, those assets were mortgages that other banks made. The investment banks then structured these underlying assets in a way that ostensibly changed their risk profile (either through diversification or creating different tranches of seniority among the buyers). Then the investments banks sold them forward.

It really is a case where one class of institutions disrupted another class of institutions — and they've all paid a price now.

Now, that raises a very interesting point. I've heard some commentators making a distinction between technological innovation, which they see as generally beneficial to the economy, and innovation in the financial markets, which may not always be good — and they point to the recent problems in the financial markets as an illustration of that. What do you think about that line of reasoning? Are there some markets where innovation is better than others?

No. I think innovation is universally good, but there are some markets where the public good isn't necessarily served by capitalism. Health care is a market like that. Education is a market like that. The securities industry is a market like that, as is the airline industry. Those markets need to be regulated, and one aspect of that regulation is an assurance phase that involves ensuring the quality of the products and services that are sold. That assurance phase really wasn't done for this new class of structured securities such as collateralized debt obligations and credit default swaps.

But there are big portions of financial services that have benefited greatly by disruptive innovation that has made services affordable and accessible. Forty years ago, the only people who could own a balanced portfolio of equities were really rich people. And then Fidelity Investments came in, and with its no-load mutual funds, made it so simple for any average wage earner to own a portfolio that Fidelity created an enormous wave of growth in the investment community, because it disrupted the investment managers of the prior age. Then managed mutual funds themselves were disrupted by Vanguard Group's index funds — which are just a much lower-cost way of getting a balanced portfolio. And now index funds are in turn being disrupted by the exchange-traded funds.

I think anybody who looks at the history of financial services would say that innovation has been a blessing.

ON THE WEB

- **READ Christensen and coauthors on "Finding the Right Job for Your Product" and "Institutionalizing Innovation."**
- **LISTEN to him talk on disruptive innovation and health care.**
- **VISIT his Web site, which lists recent news and articles.**

For these links and more, go to sloanreview.mit.edu/links/

In other words, don't throw out the innovation baby with the derivatives and subprime mortgage securitization bath water.

That's right.

Tell us a little bit about your new book, *The Innovator's Prescription*, and how it takes a look at health care.

It has been the most difficult and consuming intellectual challenge I have ever taken on, by a full order of magnitude. It has really been difficult. But it turns out that the problem we face in health care — that it is very expensive, very complicated and quite inaccessible — is not a problem that's unique to health care. If you go back in the history of nearly every industry, in the beginning, the products or services were only available to people who had a lot of money and a lot of skill. And if they were services, they could only be provided by people who had a lot of skill. For example, when I got out of graduate school, if I wanted to compute, I had to take my punch cards to the corporate mainframe center, where a PhD computer scientist ran the job, and the computer itself cost a couple of million dollars. So we just couldn't compute very often.

It was the same case with automobiles, with balanced portfolios, with telecommunication. At the beginning, the products and services were so expensive and complicated that only people with a lot of skill and money could play in the game. In each of these cases, however, the products and services became transformed into things that were truly affordable, simple and conveniently accessible to millions and millions of people. The mechanism for transformation was always disruption.

Every disruption has three components to it: a technological enabler, a business model innovation and a new commercial ecosystem. In computing, the technological enabler of disruption in computing was the microprocessor. It so simplified the design of a computer that Steve Wozniak and Steve Jobs could just slap one together in a garage. It transformed the industry's fundamental technological problem — the design of a computer — from a problem that took hundreds of people several years to solve into one that was much simpler.

Then that simplifying technology had to be married with a business model that could take the technology into the market in a cost-effective and convenient way. Digital Equipment Corp. had microprocessor technology, but its business model could not profitably sell a computer for less than $50,000. The technology trapped in a high-cost business model had no impact on the world, and in fact, the world ultimately killed Digital. But IBM Corp., with the very same processors at its disposal, set up a different business model in Florida that could make money at a $2,000 price point and 20% gross margins — and changed the world. It's a combination of the technology and business model that makes formerly complicated, expensive, inaccessible things affordable and accessible.

In health care, the enabling technology is the ability to diagnose diseases precisely. It turns out that our bodies have a very limited vocabulary that they can draw upon to express that disease is afoot, and the body's vocabulary consists of physical symptoms. You've got fevers, blood sugar, blood pressure, lumps, pains, rashes and so on. And there just aren't nearly enough symptoms to go around for all the diseases that exist, so the diseases share symptoms in common.

One thing this has meant is that you had to leave the care of patients in the hands of highly skilled and very expensive physicians. But now, through molecular diagnostics, enabled by our understanding of the genome, and

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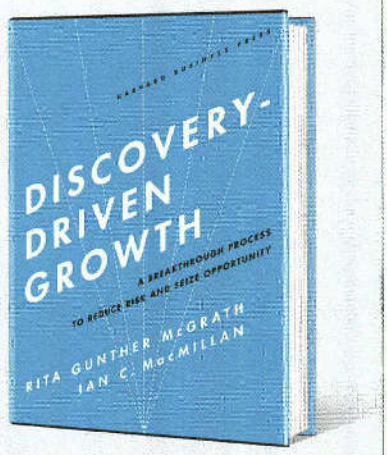

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through imaging technology that allows people to look inside the body with remarkable clarity, we are acquiring the ability to precisely diagnose more diseases by their cause, not by their symptoms. That ability then enables us to develop rules-based treatment and a predictably effective therapy. That's what molecular medicine is doing for us, at a very rapid rate.

Now, the trick is to be able, for those diseases for which rules-based treatments have been developed, to embed the delivery of care into a disruptive business model. Our hospitals are, like mainframe computer companies, hopelessly complicated and very expensive. To ever expect today's hospitals to become cheap is a pipe dream. Instead, we need to bring technology, in the form of precise diagnostics and predictably effective therapy, to outpatient clinics so you can do more and more and more of the things there that in the past required a hospital. And then we need to bring better diagnostic technology to doctors' offices, so you can do more and more things there that previously required a clinic. And to nurse practitioners, so they can take on more and more of the things that in the past required a doctor.

It's the technological enablers that bring about lower-cost venues of care and lower-cost caregivers to do progressively more and more sophisticated things. That's the mechanism by which health care becomes affordable.

Let me guess: You're probably a big fan of CVS Caremark Corp.'s MinuteClinics — walk-in clinics that inexpensively treat common disorders such as strep throat and bladder infections.

Absolutely. The hospital is really not a viable business model because its value proposition is, "Whatever's wrong with anybody, bring it here, and we'll fix it." In general, cost is driven by overhead, which is driven by complexity. In a large general hospital, much of the cost is overhead cost that's not expended in the direct care of a patient. Every patient takes a unique pathway through the hospital, and managing the cost of all that complexity is very high.

While cost is driven by complexity, quality is driven by integration. It's when we don't integrate things correctly that problems fall through the cracks. Specialized health care institutions, whether they are focused hospitals or focused diagnostics clinics, can integrate correctly, and because of their focus, they have much lower overhead costs. You get better quality and lower cost.

Another part of the solution is that there are some parts of the United States where the caregiving institution is what we call an integrated fixed-fee provider, like Kaiser Permanente or the Geisinger Health System in Danville, Pennsylvania. To belong to those systems, you pay a fixed fee, and then they'll provide whatever care is required during the year for that fee. What that means is those organizations profit from wellness, and they profit from patient happiness. They are very highly regarded. The average patient stays in a Kaiser system for 17 years, and Geisinger is considered to be innovative. Their business models can profit from wellness because with a fixed fee, if they can keep the patients healthy, they profit — whereas the rest of our country's health care system profits from sickness because it's built on a fee-for-service basis. Having institutions that can profit from wellness is just a fundamental change that we've got to create. They exist; we just have to propagate them.

How likely do you think it is we'll see substantial innovation in the structure of the U.S. health care system?

Well, one great benefit of the current economic crisis is that it will create pressure to find a real solution to the health care problem. Right now, emergencies exist at companies like General Motors, which has got to drive the cost of its health care down. Every city and town in America would be bankrupt if they kept their books the way private-sector companies keep their books — because of the obligation cities and towns have taken upon themselves to provide health care for their retirees. And so we really are in an emergency where it's likely that employers and health care providers are open to completely rethinking some of the basic assumptions that previously made innovation seem impossible.

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