How Big Data Is Changing Disruptive Innovation

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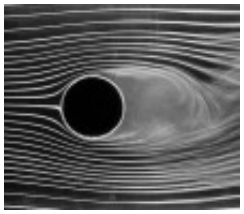

Much fanfare has been paid to the term “disruptive **innovation**” over the past few years. Professor **Clayton M. Christensen** has even re-entered the fold clarifying what he means when he uses the term. Despite the many differences in application, most people agree on the following. Disruptive **innovation**s are:

- **Cheaper** (from a customer perspective)
- **More accessible** (from a usability or distribution perspective)
- **And use a business model with structural cost advantages** (relative to existing solutions)

The reason these characteristics of disruption are important are that when all three are present, it’s difficult for an existing business to respond to competition. Whether a company is saddled with fixed infrastructure, highly trained specialist employees, or an outmoded distribution system, quickly adapting to new environments is challenging when one or all of those things becomes obsolete. Firing hundreds of employees, upsetting your core business’ distribution partners, writing off billions of dollars of investment — these things are difficult for managers to even contemplate, and with good reason.

Historically, the place we’ve looked for hints of oncoming disruptions has been in the low end of the market. Because disruptive products were cheaper, more accessible, and built on new technology architectures, they tended to be crummier than the existing highest-end solutions. Their cost advantage allowed them to reach customers who’d been priced out of an existing market; **Apple** originally made a computer that was cheap enough for students to learn on, a population that wouldn’t have dreamt of purchasing a DEC minicomputer. **Sony** famously made the transistor-based television popular based on its “portability.” No one knew that you could reasonably do that prior to the transistor. New technologies, combined with business model **innovation**, provide the structural cost advantage necessary to take large chunks of the market over time.

But if you return to the definition above, the fact that low-end entry was typical of a disruptive approach was was never core to the phenomenon. Instead, it was a byproduct. Why? Because any new entrant is hard pressed to deliver superior value to a mature market, where products have been refined over decades.

But although the low-end approach was pretty common, it wasn't what was holding incumbent firms captive. It was their own cost structures and their focus on driving marginal profit increases that kept those companies headed down the wrong paths. As long making the right decision on a short-term basis (trying to drive more value out of outdated infrastructure) is the wrong decision on a long-term basis (failing to adopt new technology platforms), **CEO**s are destined to struggle.

Unfortunately, the focus on the low-end approach of disruption is actually clouding our ability to spot the things that are: cheaper, more accessible, and built on an advantaged cost structure. Specifically, it appears that data-enabled disruptors often confound industry pundits. To get a sense for the point, just look to a few highly contested examples.

Is **Uber** disruptive? The wrong answer would be to say, "No, because their first product started in the high end of the market." The right answer would be to acknowledge that the platform they ultimately launched allowed them to add lower cost drivers (in the form of **Uber**X) and offer cheaper, more accessible, transportation options with a structural cost advantage to both taxi services and potentially even car ownership. The convenience of the app is only the most obvious, and easiest to copy, factor.

Were **Google**'s Android phones disruptive to **Nokia**? The wrong answer would be to say "No, because the initial smartphones they launched were superior in feature quality to **Nokia**'s own phones that dominated the global landscape." The right answer would be to acknowledge that the approach of creating an ecosystem of application development atop its platform allowed them to build far more comprehensive solutions, that were (on the whole) cheaper, more accessible, and structurally cost advantaged over **Nokia**.

Is 23andMe potentially disruptive to pharmaceutical companies? The wrong answer would be to say, "No, because they compete in completely different verticals." One in ancestry and the other in drug development. The right answer would be to acknowledge that 23andMe has a vast amount of data that could enable them to start developing drugs in a cheaper, more accessible, and structurally advantaged model.

In every one of these examples, the ultimate end is disruption. In every one of these examples, incumbent managers have a short term incentive to ignore the challenge — making best use of their existing infrastructure. Taxi companies tried to leverage regulation to preserve the value of their medallions and drivers. **Nokia** tried frivolously to protect its closed ecosystem and preserve employment for their thousands of Symbian focused staff members. And you can be certain that Merck, Pfizer, and Roche have strong incentives to make the best use of their high-end R&D functions before embracing the radically different path that 23andMe might take.

And over the long term, each of these short-term decisions could lead to failure.

The conversation misses that something new is going on in the world of **innovation**. With information at the core of most modern disruptions, there are new opportunities to attack industries from different angles. **Uber** built a platform in a fragmented limo market that let it come into transportation and logistics more broadly. **Netflix** captured your eyeballs through

streaming video and used the data it had to blow up the content production process. **Google** mapped the world, and then took its understanding of traffic patterns and street layouts to build autonomous cars.

There is no doubt that disruption is underway here. These players create products that are cheaper and more accessible than their peers. But it's not necessarily starting at the low end of the market, it's coming from orthogonal industries with strong information synergy. It's starting where the source of data is, then building the information enabled system to attack an incumbent industry.

It's time for executives, entrepreneurs, and innovators stop quibbling over whether something satisfies the traditional path of disruption. Data-enabled disruption may represent an anomaly to the existing theory, but it's here — and it's here to stay. The waste laid to the taxi industry by **Uber** is example that the new solution had extraordinary cost advantages and that they couldn't respond. The new questions should be:

- "How can you adapt in the face of this new type of competition?"
- "How do you evaluate new threats?"
- "What capabilities do you need and where do you get them, when data is a critical piece of any new disruption?"

To succeed in this new environment, threatened businesses need a thoughtful approach to identifying potential threats combined with the will to make the right long-term investments — despite short-term profit incentives.

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