Disruptive technology/innovation

In his book “The Innovator’s Dilemma”, Clayton Christensen (see article) made a distinction between two different types of technology that affect business, a distinction that has since become accepted wisdom. On the one hand he described what he called “sustaining technologies”, technological developments that help organisations to make marginal improvements in what they are doing. These require only gradual change and pretty much retain the status quo.

On the other hand, there are what Christensen termed disruptive technologies. These are wild and unexpected technological breakthroughs that require corporations to radically rethink their very existence. At first they seem of limited interest, but eventually they completely overturn existing products and markets. Christensen quotes the examples of the mobile phone (which took the wind out of the sails of fixed-line operators), digital photography (which sent sales of camera film plummeting and caused Kodak to change its whole business model) and online retailing (which continues to bruise many a traditional retailer).

One problem with disruptive technologies is that they do not always hit the market with a bang. They are often born prematurely, so that those firms which pioneer them see their performance deteriorate at first.

Another problem is that disruptive technologies often come at the world from unlikely directions. They rarely emerge from big established organisations, for which they do not initially seem to represent a worthwhile opportunity. Large companies are designed to be comfortable with sustaining technologies. They know their markets and want to capitalise on the value of that knowledge. They don’t want to be distracted by risky “maybes”.

In his follow-up book, “The Innovator’s Solution”, Christensen changed the term from “disruptive technology” to “disruptive innovation”, arguing that it was rarely the technology per se that was disruptive (or sustaining) but the use that companies made of it, the innovation that it enabled them to undertake.

Christensen’s distinction between the disruptive and the sustaining reflects a long-recognised dilemma of corporate strategists—whether to go for the big bang change or whether to shuffle along with business more or less as usual. For a while in the 1990s the slow shuffle was in favour, backed by concepts such as kaizen (see article), the Japanese idea of gradual improvement, and BPR or business process re-engineering (see article). But by the late 1990s, along with a disruptive innovation called the internet, a certain impatience had crept in.

More and more companies began to look for “breakthrough opportunities”, developments that would enable them to leapfrog ahead of their opponents. This they needed because more and more of them came to believe (along with GE’s legendary leader, Jack Welch) that they had to be number one or two in their markets, or not in them at all. For those at the back, there was only one way to jump into those positions—by a big dramatic change. Business as usual was just not going to make it.

Christensen believes that the best way for big organisations to harness the potential of disruptive innovations is to set up (or buy) separate “spin-off organisations” that can behave as if they are small and buzzy. Such spin-offs, however, need to have a very different culture from their parents. They need to get excited about small markets, for instance, and they have to have a much higher tolerance of failure.

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