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Game changing: disruptive innovation as a strategy for business growth

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Disruptive innovation theory explains how a new entrant or an incumbent could create a successful low-end or new-market innovation to achieve business growth using simpler and affordable disruptive technologies. The strategy has also been increasingly applied to create successful disruptive products for emerging markets. In this article Prof Hang Chang Chieh explains how disruptive innovation strategy targets non-consumption and calls for a business model which is initially unattractive to established incumbents.

Introduction to disruptive innovation

The basic concept of disruptive innovation is best explained by an example:

When the transistor was first invented in the late 1940s, its performance was much poorer than the commercially successful vacuum tube. But it has other attractive characteristics, such as being smaller, cooler and more energy efficient. Sensing the future threat and potential, the established incumbents in vacuum tube consumer electronics spent tremendous Research and Development effort to improve the transistor performance so that they could be the first to introduce high-performance transistor radio, TV and other electronics products. The effort proved to be futile. After more than 10 years, it became clear that this type of radical technology creation would take an even longer time frame and further Research and Development investment to yield commercial results.

A tiny new entrant, Sony, took a totally different approach to develop a commercially successful pocket-size transistor radio just within three years. Its performance was much inferior to the mainstream vacuum tube radio; but it was affordable, portable and good enough for a new group of consumers, youngsters and drivers who needed outdoor entertainment, or a means to know the latest weather and traffic forecasts. Following this success, Sony introduced a series of successful transistor products which targeted non-consumers who appreciated affordable, good-enough products ignored by established incumbents. As transistor performance also improved over the years, Sony and other similar entrants finally introduced transistor products, which replaced the vacuum tube products in the mainstream market thus disrupting the established incumbents.

In the late 1990s Prof Clayton Christensen of Harvard Business School observed that the phenomenon described above, of new entrants introducing initially inferior but good-enough and affordable products, and eventually disrupting established incumbents, were quite pervasive. Prof Christensen coined the term ‘disruptive innovation’ to differentiate this type of innovation from the well-known radical, breakthrough type of

innovation using a superior technology, and the incremental type of innovation to sustain current business growth by established incumbents.

Examples of disruptive innovation can be not just in new technology industries such as consumer electronics (personal computers, cell phones and digital cameras) and biomedical devices (portable medical devices) but in what we might consider traditional industries such as the steel industry (mini-mills), mechanics (hydraulics excavators), the electric utility industry (distributed power generation enabled by micro-turbines), and even service industries eg. use of the internet changing the nature of financial services.

Disruptive innovation has become increasingly important over the last decade as established incumbents seek to find ways to avoid being disrupted or to create new high-growth businesses, while entrants continue to launch successful disruptive products/services as a game-changing strategy.

It may seem counter-intuitive for established incumbents to adopt a strategy to develop products/services which are initially inferior. As companies listen closely to their key customers, their resource allocation priority will consistently favour sustaining innovation which requires incremental or radical performance improvement i.e. getting better and more efficient at the things they already do. However, successful companies understand the threat of disruptive innovation and the importance of knowing how and when a disruptive attack would likely succeed by looking at the requirements of non- consumers. Apple has been successful in anticipating customer trends and potentially cannabilising its own markets; for example, the iPad is inferior to a MacBook in terms of computing capability, but offers consumers greater convenience and appeals to non-consumers looking for a simplified user experience.

Disruptive innovation theory

Prof Christensen developed disruptive innovation theory to enable incumbents or potential disruptors to assess the competition and devise strategies to defend or launch an attack from potentially disruptive products or technologies.

According to Christensen's theory, there are two essential conditions for the success of disruptive innovation. One is that there is a performance overshoot, caused by aggressive sustaining innovations which eventually create products/services with performance that exceeds the requirements of mainstream consumers i.e. current customers are over-served. The other is that the incumbents are able to move upmarket to offer high-price, higher-margin products/services, hence more willing to run away (or be relieved to get out).

Over the years, the theory has been further developed to incorporate the following concepts:

i. The disruptive technology needs to be coupled with a suitable business model identified using a 'jobs-to-be-done' approach to uncover latent customer (and non- customer) needs.
ii. There are disruptive innovations which do not involve technology i.e. purely business model innovation.
iii. Disruptive Innovation could be a primary strategy to create a new, huge market irrespective of whether it leads to incumbent disruption.

Disruptive innovation in emerging markets

In addition to identifying potential markets for disruptive innovation in the developed markets, there is a tremendous opportunity to create disruptive products/services for the emerging markets. Mass consumers, particularly the rapidly growing middle class in China, India and other developing countries, need good enough, yet affordable products/services.

Foreign firms wishing to tap this opportunity must be sensitive to the local demands emerging from the resource constraints in these markets, and the different culture/lifestyle of the consumers. They have to invest in local Research and Development and tap low-cost local manufacturing in order to meet the aggressive price/performance improvements required by such disruptive products/services. A successful example was the ultrasound machine by GE Medical. It initially served the Chinese market with machines developed in the US and Japan. But these bulky and expensive (US$100K) devices sold poorly. A local GE team in China then leveraged GE's global resources to develop a low-cost, portable machine using a laptop computer enhanced with a probe and sophisticated software. Its US$35K price, portability and brand name were attractive to rural clinics. With further Research and Development, which led to a model that sold for US$15K, the product became a hit in rural clinics.

While there will be head-on competition between foreign firms and local disruptive entrepreneurial firms in the emerging markets, there will also be increasing opportunities for technology licensing, joint venture or merger/acquisition in the new era of open innovation.

Implications for managers

Marketing managers have a special role to play as disruptive innovation strategy targets non-consumption to build a market foothold. After all, anticipating and identifying customer needs is at the core of marketing. As the potential of a disruptive technology is understood, marketing managers need to lead the organisation in answering the following question to ascertain the target market:

> "For customers at the low-end of the market or for a new market, does the potential new product or technology help them get a job done that they have always been trying to get done – but have not been able to do so in a simple, convenient way?"

Answering this question is the first step in ascertaining the target market for the disruptive innovation and the potential size of the new market. This eventually leads us to the identification of an appropriate business model which includes the customer value proposition, potential profitability and key resources and processes required within the company to introduce this.

Marketers will need to lead the case for change within the organisation as current revenue streams are threatened, disrupting other parts of the organisation which may be happy with the current market status quo.

In conclusion, disruptive innovation represents both a significant threat and opportunity to organisations; and marketers who are able to identify and steer organisations through significant changes to the marketing environment, will be valued highly.

Further Reading

1. Christensen C M: The Innovator's Dilemma. Harvard Business School Press; 1997.
2. Christensen C M and Raynor M: The Innovator's Solution. Harvard Business School Press; 2002.
3. Hang C C, Chen J and Subramanian A M: "Developing Disruptive Products for Emerging Economies: Lessons from Asian Cases". Research-Technology Management, July-August 2010, 21-26.

About the Author

Prof Hang Chang Chieh is an academic researcher, author and adviser in the field of Innovation Strategy. He is Head of the Division of Engineering & Technology Management, Faculty of Engineering, National University of Singapore (NUS) and the Founding Executive Director of its Institute for Engineering Leadership (IEL). He is also a Professor of Strategy & Policy in the NUS Business School and has published more than 200 journal and conference papers. Prof Hang Chang Cheih serves as the Chairman of several companies and was the Executive Deputy Chairman of Singapore's Agency for Science, Technology & Research.