Summary of “Disruptive Technologies: Catching the Wave”
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There is quite a common pattern following which many well established leading companies failed. Established companies tries to satisfy today customer needs and usually missed to develop the technology, that customer will need in future. The main reason of it is that leading companies stay close to their customers and their needs.

There are two kinds of technologies – sustaining and disruptive technologies. Sustaining technology gives the customer the same that they already have and value, but with better attributes. Disruptive technology offers just another set of attributes, and may be even worse that mainstream technology, by the set of parameters, that customer values today. Established firms often choose to develop sustaining technologies, because it gives them guaranteed profits. Disruptive technologies usually are developed by entrant companies aimed firstly on emerging markets.

But a moment comes when disruptive technology becomes established in new emerging markets, sustaining innovations raised its performance to level, on which it can satisfy customers on the established markets. And company decides to invade these established markets, where leading companies stays fully unprepared for this: customers needs have changed and the disruptive technology better satisfies them now, while it is too late for leading companies to develop this technology themselves.

The good example of how dangerous it can be to stay close to customer is hard-disk-drive industry. There we see the repeating of the same pattern: leading company developed only the technologies, that customer needed, even if it made the great effort to do it, rose to its prominence and after few years was toppled by the some newcoming company, that had pursued the technologies, that at first didn´t meet the needs of the most customers. As a result not a single independent disk-drive company existed in 1976, exists today.

From this we can learn a good lesson: always aware potentially disruptive technologies, which do not meet customers´ current needs, but can be valued in future. But the surprising thing is that this pattern continuous to happen. This happens because managers keep doing what has worked in the past: serving the needs of the current, not a future customer. They just can´t waste the recourses for the technology that their key customers don´t want and that won´t give the profit. In the well-managed companies managers tend to reduce the risks. That means to choose more assured markets and stay close to the lead customers. They are just taught to do it this way.

Seagate Technology´s experience shows us the consequences of such strategy. Engineers at Seagate developed one of the first working prototypes of the 3.5-inch drive, but their main customers did not show the interest in it. So managers decided that 3.5-inch drive won´t give the sufficient sales volume and profit and postponed its launching and developing. Engineers, that developed it, left the Seagate and founded their own company — Conner Peripherals which focused on selling 3.5-inch drives in emerging markets. By the 1987 3.5-inch drives can compete by capacity with 5.25-inch drives in the main personal-computer market. Seagate introduced its
own 3.5-inch drive, but it was too late: there was already a very strong competition. It is the typical response of established companies to the emergence of the disruptive technologies — to enter the market only when it can satisfy its financial needs, when the current customers need this new technology.

How to deal with disruptive technologies successfully? **Method to spotting and cultivating disruptive technologies:**

**Determine whether the technology is disruptive or sustaining.** It is essential to identify the disruptive technologies and the threats within this set, but the companies’ similar processes for sustaining technologies can’t work here. The advice for managers is to explore that product or technology where disagreement between two parties – marketing and financial managers and technical personnel – about whether to support the project or not emerges.

**Define the strategic significance of the disruptive technology.** Ask the right people the right questions about the strategic importance of the disruptive technology. For example, mainstream customers – are the wrong people, because they demand the highest performance. The graph “How to assess Disruptive Technologies” (plotting product performance as it is defined in mainstream markets on the vertical axis and time on the horizontal axis) can help manager to identify the right people and the right questions to ask.

First draw the line “Performance improvement required by mainstream market”. Then locate the “Current performance of potentially disruptive technology”. If the technology is really disruptive the point will lie far below the first line.

If the slope of “Expected trajectory of performance improvement” is higher than the slope of the first line then the new technology is strategically critical.

The main error is to compare the anticipated rate of performance improvement of the new technology with that for the established one. Many of disruptive technologies never surpass the capability of the old technology.

**Locate the initial market for the disruptive technology.** The traditional management tool – market research – doesn’t work due to there exists no market, it is emerging. Managers must create the information about the market: customers, dimensions of the product performance crucial to them, price points. It can be done only by rapid experimenting which companies can’t afford. The decision is to allow start-ups which company funds or with no connection to the company conduct the experiments.

Good example: IBM let Apple and the others to define the personal-computers market and then conquered it. Usually companies fail in applying this approach because they wait the market to
become of the bigger size and then enter it. It happens because the traditional channels for gauging markets don’t work in this case. To avoid the pioneering companies to dominate new market the executives should monthly monitor their progress using non traditional sources of information, e.g. technologies, academics, venture capitalists.

**Place responsibility for building a disruptive technology business in an independent organization.** Creating a separate organization is needed when the disruptive technology has a lower profit margin than the mainstream business and must serve unique needs of a new set of customers. Consider the failure of Control Data Corporation in launching the 8-inch disk drive and it success in launching the 5.25-inch product by using this approach.

**Keep the disruptive organization independent.** When the emerging market becomes large and established, don’t integrate the disruptive technology independent unit into mainstream organization. Every business unit sooner or later die so don’t be afraid that this decision may kill your mainstream unit at the end.

Now let’s consider the advantages and disadvantages of the described approach. It helps you to identify the disruptive technology and its strategic significance and to maintain it. The method shows how to deal with emerging disruptive technology and that it is possible not to fail in it.

It is obvious that the management needs to think differently from usual on every described step. There emerges the need to do more job than executives usually do and of different kind. For example, now it is recommended to examine disagreements between marketing and financial managers and technical personnel concerning support of different projects, you should assess every suspicious technology and draw some graphs, etc.

The traditional tools managers relied on don’t work. Different techniques should exist in the company for dealing with disruptive technologies, for example, working with nontraditional sources of information in order to estimate the progress of pioneering companies on the emerging markets. It also takes more managers time and efforts.

Creating an independent unit in order to develop a disruptive technology also requires a lot of resources. And you should understand that ones you started it you won’t be able to integrate it back in the mainstream organization in order to reduce fixed costs, to share resources, to cannibalize established products or whatever.

But all this efforts will bring you a great benefit in future:

1. You will prevent your market from the appearing of the new entrants who previously has developed the disruptive technology. So you won’t suffer from decrease of your selling in future.

2. You will be able to strengthen your position on the market, because you will have your old product there and the new one. So you profits can increase.

3. You will also enter new emerging market as well.

4. Also your company won’t end its life with death of its mainstream business unit. It will gradually concentrate on the new market which it has developed. Anyway managing strategically important disruptive technologies is a good idea in terms of strategy.
The process of dealing with the disruptive technologies is very complicated and connected with a high risks. So you can easily spent a lot of resources on this, fail in one step, make one bad decision and lost all your money and time for nothing. It is better than you don’t lose the long work of your own independent unit, because you watched the other companies developing the new disruptive technology instead of funding your own experiments. Still you will spend a lot of time, people and money on analyzing situation in order to catch something that seems elusive. But in spite of extremely high risks, the opportunity you might catch while this continuous work may give you a fortune.

We believe that shown method of spotting and cultivating disruptive technologies is very useful. It can help to prevent the failure of the leading company to stay at the top of its industry when technology or market changes. We see that disruptive technologies can be real threats and hide behind each corner in every industry. We think the described method can be a useful weapon in your arsenal.