Seeing What's Next

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Harvard Business School Press, 2004.

Introduction

This fascinating book by Clayton Christensen, the world famous innovation guru and his co authors, Scott Anthony and Erik Roth attempts to help executives anticipate industry change. Christensen advocates a different kind of approach while trying to visualise the future. Such an approach is driven more by conceptual understanding and less by data.

Managers often swear by data. When they attempt to do something that has not been done before, or when the future is going to be different from the past, this approach does not work. Data is only available about the past.

Christensen's first book, *"The Innovator's Dilemma"* explained why launching new-growth businesses is so hard. His second book, *"The Innovator's Solution"* explained how to make the process of launching growth businesses more predictable. *The Innovator's Dilemma* and *The Innovator's Solution* introduced three important theories of innovation: the disruptive innovation theory; the resources, processes, and values theory; and the value chain evolution theory. The third book, "*Seeing What's Next*" illustrates how to use the theories from the two books to predict how innovation will change an industry. A number of case studies covering differing industries are provided in the book.

Disruptive & Sustaining innovation

According to the disruptive innovation theory, new organizations can use relatively simple, convenient, low-cost innovations to displace powerful incumbents. Existing companies can retaliate effectively when *sustaining* innovations, which improve existing products, are involved. Airplanes that fly longer distances, computers that process faster, cellular phone batteries that last longer, and televisions with better picture clarity are all examples of sustaining innovations. But established companies almost always lose out to *disruptive* innovations.

Disruptive innovations, which introduce a new value proposition are of two types: low-end and new-market. Low-end disruptive innovations typically happen when existing products and services are "too good" and hence overpriced relative to the value existing customers can use. Nucor's steel minimill, Wal-Mart's discount retail store, Vanguard's index mutual funds, and Dell's direct-to-customer business model are good examples of low-end disruptive innovations. Such innovations begin by offering existing customers a low-priced, relatively straightforward product.

New-market disruptive innovations, occur when the characteristics of existing products limit the number of potential consumers or force consumption to take place in inconvenient, centralized settings. The Kodak camera, Bell telephone, Sony transistor radio, Xerox photocopier, Apple personal computer and eBay online marketplace made it easier for people to do something that otherwise required deep expertise or lots of money.

Resources, Processes & Values

The resources, processes, and values (RPV) theory holds that resources (what a firm has), processes (how a firm does its work), and values (what a firm wants to do) collectively shape a company's strategy.

Resources are things or assets that organizations can buy or sell, build or destroy. Processes are the established patterns of work by which companies transform inputs into products or services. Values determine the criteria by which organizations allocate their resources.

Identifying resources tends to be easy. Many resources are visible, such as a firm's technology, products, or cash coffers. It is also easy to identify if not measure a firm's less visible resources: its human capital, accumulated knowledge, or established brand.

It is much more difficult to understand the nature of a firm's processes. Processes are the patterns of interaction, coordination, communication, and decision making, employees use to add value, solve problems, make financial projections, etc. When companies solve the same problem repeatedly, they develop formal and informal processes so they can successfully address the task every time it arises, minimizing the risk of failure.

Values decide how a company is likely to prioritize opportunities. A company will prioritize innovations that improve its ability to serve its most important customers. It is unlikely to do anything that destroys significant revenue streams. Companies that derive a high proportion of their income from a certain class of customers are likely to focus on innovations that target those customers. The history of past investment decisions will reveal which opportunities the company decided to target and which it decided to forgo.

The RPV theory argues that organizations successfully tackle opportunities when they have the resources to succeed, when their processes facilitate what needs to get done, and when their values allow them to give adequate priority to that particular opportunity in the face of other competing demands for the company's resources. Incumbent firms master sustaining innovations because their values prioritize them. Their processes and resources are good at handling such innovations. But incumbent firms fail in the face of disruptive innovations because their values *will not* prioritize disruptive innovations. Also the firm's existing processes are not aligned with such innovations.

Value Chain Evolution

The VCE theory suggests companies ought to do inhouse any activity or combination of activities within the value chain that drive performance along dimensions that matter most to customers. Vertical integration gives companies the ability to run experiments to solve problems caused by unpredictable "interdependencies" between activities. Such interdependencies tend to frustrate specialist firms that focus on a small part of the value chain. When a specialist's piece interacts unpredictably with components that other companies design and make, its products often become unreliable and tend to perform poorly.

Integrated architectures while improving performance, tend to reduce flexibility and increase the time to respond. So companies ought to outsource non critical activities that don't influence the important characteristics of a product or service. Specialists can better optimize those parts of the value chain.

Modular architectures sacrifice raw performance for speed to market, responsiveness, and convenience. This sacrifice allows companies to customize their products by upgrading individual subsystems without having to redesign an entire product. They can mix and match components from specialised suppliers to respond conveniently to individual customers' needs.

Understanding customers

Industry trends can identified by evaluating three customer groups:

1. Customers not consuming any product or consuming only in inconvenient settings (non consumers)
2. Consuming customers who are underserved
3. Consuming customers who are overserved

Each customer group creates unique opportunities. Companies can create new-market disruptive innovations to reach nonconsumers. They can launch up-market sustaining innovations to reach underserved customers. They can launch low-end disruptive innovations or modular displacements to reach customers who are looking for something less.

Nonconsumers exist when the characteristics of existing products limit consumption to people who also have significant financial resources or specialized skills or training. Nonconsumers are left on the sidelines, unable to achieve the outcome they desire satisfactorily. No existing market offering is designed to serve them.

Identifying nonconsumption is easy. Successful new-market disruptive innovations can attack this segment in two ways:

1. They can introduce a relatively simple, affordable product or service that increases access and ability by making it easier for customers who have in the past not had the money or skills to get important jobs done.

2. They can help customers do more easily and effectively what they have been trying to get done instead of forcing them to change behavior or adopt new priorities.

New-market disruptive innovations lack the raw functionality of existing products but offer new benefits such as convenience, customization, or lower prices. They will only succeed if they target new customers or provide a new context of use. Demanding customers who are already consuming a potentially competing product will find the product unappealing because of its performance limitations.

One way to identify nonconsumers is to map the product or service delivery chain. New-market disruptive innovations tend to take a link out of this chain-allowing people to do for themselves what previously required expertise. The right kind of market research that seeks to identify unfulfilled jobs can also be quite useful.

New-market disruptions tend to be relatively low-priced. The first mobile phones, personal computers, cameras, and so on. All were expensive but were significantly more affordable than available technological solutions. For example, the only real alternative to a mobile phone in the late 1970s was CB radios, which were prohibitively expensive, highly inconvenient, and difficult to implement. The expensive nature of some new products limits consumption to people who desperately need to get a job done. Subsequent process improvements typically cut costs that enable price reductions that make the disruptive product or service available to wider customer groups.

Evaluating *current* customers may also throw up new opportunities. At the high end of a market are demanding customers. At the low end of the market are less demanding customers who have relatively fewer or less complex requirements to satisfy. Undershot customers are those for whom existing products are not good enough. Overshot customers are those for whom existing products are more than good enough.

The sustaining innovations that companies introduce to reach undershot customers are the means by which companies exploit their growth potential after they establish their initial foothold. Up-market sustaining innovations fall on a continuum between radical and incremental improvements.

Integration is an absolute necessity for radical sustaining innovations. Integrated companies can master the various interdependencies involved in managing compatibility, interoperability and legacy issues. Specialist companies do not control enough of the architecture to effectively commercialize radical sustaining innovations.

Overshooting

As companies introduce up-market sustaining innovations and improve their products and services, they eventually overshoot the performance that some of their customers can use. Thus, products eventually become too good. Overshooting is the driver behind commoditization - the process that results in companies being unable to differentiate profitably their products and services.

Overshooting opens the door for three different forms of industry change:

1. Low-end disruptions taking root among the most overshot customers
2. Specialists entering and displacing integrated players
3. Standards or rules developing that allow different types of providers to create products and services good enough to meet the minimum requirements of customer segments.

A low-end disruptive innovation is built around a business model that makes money in a

different way than established companies-for instance, lower prices but higher asset turnover, a different mix of sales and post-sales support revenue, and so on.

Specialist providers can introduce a *displacing* innovation. Unlike up-market sustaining innovations, displacements take place at a point of *modularity*. Unlike low-end disruptions that first target the least demanding customers, displacements first target the mainstream market. Specialists who focus on one particular piece of a product or service tend to introduce displacements.

When functionality and reliability are inadequate, companies that try to maximize performance, typically integrate the critical elements of design and manufacture. For example, IBM controlled every aspect of the original mainframe.

After the difficult problems relating to performance, have been solved, integration becomes less important. Specialist companies can provide good-enough pieces of a product or service at defined points of modularity. Profits flow away from firms that assemble modular products or services to those that produce critical subsystems, and to firms that integrate at points that determine speed- and convenience-defining improvements. In the PC industry, value has moved from PC assemblers to Microsoft and Intel.

The shift of one portion of a value chain from integration to modularity affects the rest of the value chain. Integration is like energy. It doesn't go away. This law of *conservation of integration* helps explain how value chains reconfigure to support an industry's basis of competition.

When an interdependent system architecture is necessary to optimize performance at a stage of value added that is not good enough, the architecture of the product or service at the adjacent stage of value added must be modular and conformable in order to optimize the performance of what is not good enough. In simple terms, the modular part of the value chain must surround the integrated part to optimize the integrated part.

The law of conservation of integration can also be called the "law of conservation of attractive profits." Companies make good money when they solve the hardest problems. Solving such problems demands tightly coupled integrated systems. When modularity and commoditization cause attractive profits to disappear at one stage of the value chain, the opportunity to earn attractive profits with proprietary products will emerge at an adjacent stage. It is upto companies to anticipate how such shifts may take place and respond suitably.

Asymmetry of motivation/skills

The first question to ask when seeking to classify a sustaining innovation is: Does the innovation occur at a point of modularity? Christensen calls such innovations displacements.

If an innovation does not take place at a point of modularity, it is either radical or incre-

mental and happens at points of interdependence. Radical sustaining innovations lie at the complex end of the continuum. Only integrated incumbents who control large portions of an industry's value chain can introduce radical sustaining innovations. Integrated companies can master the various interdependencies associated with compatibility, interoperability, and legacy issues. Specialist companies do not have enough control of the architecture to handle such situations. Radical sustaining innovations give incumbent firms an opportunity to dramatically change their relative competitive positions in a marketplace. Launching a radical sustaining innovation puts pressure on other players to upgrade.

Incremental sustaining innovations offer smaller improvements than radical sustaining innovations. Because incremental sustaining innovations occur at interdependent interfaces, integrated companies still have a big advantage. If a new entrant attempts to introduce an incremental sustaining innovation, the incumbent will retaliate.

When companies have the same capabilities and motivation, they care about the battle and have the necessary skills to retaliate. This is so in case of sustaining innovation. But the situation is different when there are asymmetries of motivation or skills. This happens when one firm wants to do something that another firm specifically does *not* want to do. Asymmetries of skills occur when one firm's strength is another firm's weakness. Asymmetries allow disruptive attackers to enter a market, grow without facing retailiation from the incumbent and mitigate the incumbent's response when it is finally motivated to counterattack. The incumbent sincerely believes every action it takes is rational. But the outcome is devastating and often leads to the decline of the established player.

Disruption capitalizes on asymmetries of motivation and skills. Disruptive markets start among customers that appear to the incumbent to be either undesirable or nonexistent. The initial absolute size of a disruptive opportunity is generally too small to justify any substantial amount of investment or even management attention. Asymmetric motivation shields companies from competitive response, because their potential challengers are just not interested in fighting. Even if they fight, their hearts are not in it. When an existing firm tries to insert a product or service with disruptive potential into its processes, the disruptive element gets blunted. When the incumbent inevitably tries to morph the product to fit into its existing processes and values, it alters the innovation to enhance its appeal to core customers and fit within its operating model. In the process, the unique features of the product become a liability rather than an asset.

Asymmetric motivation is observed when companies take completely different actions that make sense to both of them. When the disruptive entrant begins to make inroads, incumbents withdraw. Changes in customer or product mix can be a clear sign of flight, as are plans to discontinue low-end product lines or to stop servicing old versions of products. When companies announce that they are "focusing on the core" or "seeking higher margin opportunities" or are “diversifying,” it is again a clear indication that flight is in progress.

What starts small gets too big for an incumbent to ignore. But when incumbents become cornered, asymmetric motivation still stymies effective response. Disruptive innovations typically introduce new benefits to a market like convenience, simplicity, customization, or affordability. For incumbents, these benefits are not aligned with their current way of doing business.

There are three factors that contribute to asymmetric motivation, all of which relate to the firm’s values. An opportunity that looks interesting and large to a small firm might not look so to a big firm. Customers do not appear to the incumbent to be worth serving. The final factor relates to an opportunity's business model. Disruptive entrants use business models that do not fit the ways established firms make money. Gross margin per unit sold tends to be lower but turnover or asset utilization tends to be higher. Disruptive innovations tend to be off-the-shelf products, in which customers turn either to a group of specialist firms or to themselves for postsales service. A company that has a business model based on long-term relationships and multiyear support agreements will have little interest in selling a product that obliterates those revenue streams.

There are two specific circumstances in which a disruptive threat may not click. The industry context makes incumbent flight unpalatable. An entrant fails to develop a distinctive business model or to create unique skills in its early stages. In these circumstances, intense rivalry is quite likely.

Moving up-market is an option choice for incumbents only when there is an adequately sized, attractive market at the high end. This isn't always the case. Firms might not have the ability to reach the next tier of undershot customers. Or undershot customers might not exist. Or an incumbent's cost structure and business model sometimes prevent it from leaving low-end markets. When there is no option but to stay in the market, incumbent firms will retaliate. And if this retaliation happens early enough, entrants don't have the time to refine their asymmetric skills. The result is often a bruising battle for market share. The airline industry is a good example.

An entrant also runs into trouble if it does not develop a business model that is unattractive to the incumbent, or if it does not hone unique skills that are matched to the disruptive business. It can create *initial growth* by taking advantage of the incumbent's disinterest in small, immeasurable markets. But once the entrant has become noticeable, the incumbent may well mobilise its internal resources to co-opt the innovation, unless the entrant has made that path unattractive. Natural incumbent motivation shifts from flight to fight. And in direct fights with comparable motivation to win, the incumbents are likely to be better placed.

Growth-driven co-option needs to occur early and entails going after an entrant's core customers. In essence, an incumbent co-opts the disruption by augmenting its existing product and service offerings to appeal to new customers.

Defensive co-option usually occurs later in a technology's development. Incumbents recognize that they have lost the game in the volume end of the market and do what they

can to block incursions from below.

Strategy formulation: Towards a new paradigm

Companies can formulate strategy in two different ways. They can follow a *deliberate* strategy, where they set a goal, define a set of steps to reach that goal, and then methodically act on each step. This conscious and analytical process involves assessment of market structure, competitive analysis, and detailed market research to determine customer needs. On the other hand, companies that follow an *emergent* strategy try to retain flexibility and gather feedback from the marketplace on what works and what doesn't. They keep changing their strategies as they respond to new information that emerges from the marketplace.

Emergent strategies work in highly uncertain situations. In these situations, managers tend to encounter unanticipated problems and outcomes. Following a rigorous deliberate strategy can lead companies to ignore market signals and become inflexible. They may continue to stick to a strategy that clearly isn't working. Emergent strategies encourage managers to respond to problems in a flexible way.

The typical planning process involves creating a set of assumptions, developing projections based on those assumptions, building a plan based on those projections, and then acting on the plan. This planning process works extremely well in established markets where companies can draw on a great wealth of data and accumulated experience.

In uncertain situations, companies can use discovery driven planning. It starts with projections. The next stage is to map out what assumptions would need to prove true for the projections to happen. As assumptions get tested, some will prove correct and some will not. Plans are adjusted accordingly. Discovery-driven planning allows a company to test uncertainties and develop contingent plans before it is too late to react.

The importance of financial discipline

People often think bigger is better. They are impressed when a company raises plenty of capital. Heavy funding enables a company to make major fixed-cost commitments and allow it to spend its way to profitability. But the fact is it must get big fast in order to provide attractive returns to the investors. This often means turning down a small, profitable opportunity that could launch it on a truly disruptive trajectory. Second, too much money allows firms to persist with a losing strategy for too long. Businesses that are unprofitable for several years often *never* become profitable. Making profits gives a company the latitude to invest and grow more. Most companies should raise enough initial capital to develop a product to bring to an initial market but not significantly more. The discipline imposed by tight purse strings forces companies to discover customers who *really* value an innovation. In most cases, get-big-fast money is only desirable after the company identifies the right customer and develops a profitable business model.

Conclusion

According to the authors, four important points about disruption must be carefully noted:

1. Disruption is a process, not an event.
2. Disruption is a relative phenomenon. What is disruptive to one company may be sustaining to another company.
3. Different or radical technology is not the same as being disruptive.
4. Disruptive innovations are not limited to high-tech markets.

One mistake innovators must avoid is to force a disruptive innovation directly into a large, mainstream market. The biggest, most lucrative customers will not initially be interested in purchasing the product because of its limitations. Management must avoid the temptation of going after the biggest market. Attempts to fit a disruptive innovation into a large existing market almost never work. Customers tend to reject the innovation. The industry leaders are also very motivated to stave off the attack and they have the resources and skills to do so. Low-end disruptors are more likely to find success when they stealthily take advantage of the asymmetries of motivation by targeting customers whom existing players are happy to avoid or get rid of.

Most innovations are not disruptive. Many of the most important and most profitable innovations take a good product or service and make it better. Although incumbents typically are good at sustaining innovations, entrants can succeed if they define success in the correct way. An entrant (unless it has a lot of money to spend), with a sustaining innovation has a low likelihood of success if it attempts to build a substantial business around the innovation. An entrant has a much higher likelihood of success if it defines success as working with an incumbent to produce a valuable augmentation that customers are willing to pay for. The entrant may even be able to sell its innovation to the incumbent at a good price.

Working with existing firms is especially important when a product or service is not good enough. Existing firms that control important pieces of an industry's value chain are more useful as partners than as competitors. Entrants that try to go head-to-head against an incumbent in an industry that still demands integration are likely to disappoint customers. The entrants' product will not be as good as the incumbents' product.

The appropriate go-to-market strategy of both entrants and incumbents changes when overshooting occurs and interfaces shift in ways that encourage modularity. Specialist companies then enter the market. Incumbents try to deal with this situation by trying to innovate faster to meet the needs of the market. But while modularity helps incumbents to innovate faster, value skates away from them to the suppliers that provide key performance-defining components and subsystems. Incumbents that recognize these shifts and act appropriately can skate to where attractive profits will lodge in the future.

The authors offer some useful tips for managers trying to anticipate industry trends.

- They must not feel threatened when someone counters their insights by referring to "unassailable" data. Truly unassailable data only exists about the past.

- Theory and data must go together. Theory can help guide data collection, provide confirmation that circumstances are changing or indicators that suggest who has the upper hand in a competitive battle.

- Everything is relative. The same innovation has very different implications for different companies. Evaluating an innovation's implications for a particular company requires understanding the company's strengths, weaknesses, mental models, and operating protocols. Every company is good at some things and bad at others. Every company is motivated to tackle some opportunities and ignore others.

- There is a difference between announcements and actions. Just because the company says it plans to do something does not necessarily mean it will. So signals must be interpreted carefully.

- Choices matter up to a point. Outcomes of competitive battles are rarely determined from day one. Firms have great discretion to make decisions to enhance or lessen their chances of eventually emerging triumphant. But firms do not have unlimited degrees of freedom. Early decisions can greatly influence a firm's capabilities and determine what strategic options will ultimately succeed.