



## Process Innovation

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## TRIZ and the theories of Clayton Christensen

### Part 8 in a series on P-TRIZ

Will a hot new start-up succeed or fail? Which emerging technologies are consumers most likely to embrace? Does an entrant pose a legitimate threat to a leading incumbent? Which firms will come out on top? There are the questions that Clayton Christensen explores in his theories of disruptive innovation. His work seeks to explain why successful companies are often unseated by new entrants, how incumbents can protect themselves and even fight back against upstarts. His ideas have been published in three important books, *The Innovator's Dilemma*, *The Innovator's Solution* and his *Seeing What's Next*.

Christensen's work began with an influential article that described the phenomenon of a "disruptive" innovation. Readers sensed that the concepts were important; but when they asked for help in addressing the threats and opportunities it was hard for him to offer a convincing solution. Faced with many such questions, he set about developing guidance to firms facing disruptions in their markets. He noted that for new disruptions, there wasn't enough past data available to managers to draw conclusions and to develop an action plan. The problem with existing management techniques, he noted, was that they were based on a flawed paradigm, the belief that important decisions, such as whether to develop a new product or to enter a new market, should be grounded in solid analysis of data. Christensen took a different view. He argued that when managers attempt to do something that has not been done before, or when the future is going to be different from the past, an evidence-based paradigm breaks down. Data is only available from the past, and in an old context. He realized that with or without such data, every time a manager takes an action, and every time they look into the future, they use a "theory" to guide their plans and actions, because theory is a statement of what causes what and why. Over the following years, he set about to outline a *process* for using these theories of innovation to predict industry change, even when convincing data about the potential of an innovation is not yet available. As you can imagine, corporate strategists flocked to his door.

Christensen studied industries such as health care, semiconductors, telecommunications, education and aviation. He started to see a pattern. He turned that pattern into a set of business tools that now help strategists and planners recognize those patterns and interpret the meaning of events as they unfold. Those wishing to guide their companies in uncertain times read his work and try to apply his principles. Some are willing to pay good money. They engage with the consulting firm Clayton Christensen established to spread the new practices: Innosight.

Like me, Christensen argues that innovation can be a predictable process that delivers sustainable, profitable growth. He deals at the board level, setting the context for significant management decisions. He is less concerned with low-level details such as analyzing specific problems in marketing, engineering, operations and customer service that, unless resolved, would prevent valuable disruptive ideas from being delivered into the market. He is not an

engineer, he is a business strategist. His tools are management tools. They identify the forces that cause managers to make bad decisions as they package and shape new ideas, and they offer frameworks to help managers create the right conditions, at the right time, for a disruption to succeed, or to be surmounted. The patterns documented in his work illuminate whether an idea or business model has disruptive potential and which competitive situations favour incumbents, and which favour entrants.

Some claim a lot for his methods. In his latest book, he explains how to position firms in markets where profits will be made in the future and how to spot industry-changing trends long before markets and experts recognize that change is afoot: gold dust if true.

## TRIZ and management theory

You won't find many board level managers speaking about TRIZ. TRIZ is best known as an engineering problem-solving tool. Yet the TRIZ methodology is ideally suited to the study and amplification of Christensen's market strategy work. This is because it, like Christensen's theories, deal in causes and effects and the patterns generated that lead to solution paths.

Applying TRIZ to a management theory is useful, for it helps to illuminate the theory in more depth and reveals the substance. It is also helpful to understand whether TRIZ can be used at this "management" level of thinking. It is my belief that TRIZ can be used in the board room. Indeed, if TRIZ is to be used in process design (P-TRIZ), it had better be able to deal in management strategies and business models which those processes are intended to support and execute.

Figure 1 is the very simplest TRIZ model of a typical Christensen theory. It says: Disruptive innovations give rise to new entrants which create competitive threats that counter-act the existing business models of incumbents.

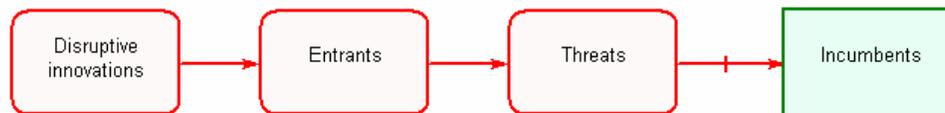


Figure 1 – Simple TRIZ model of a Christensen disruption

TRIZ generates from this model all of the possible ways to improve the situation, that is, eliminate or reduce harm (red boxes) and retain or increase use (green boxes). Based on this model, the primary directions in which an incumbent can work to protect itself are:

1. Find a way to eliminate, reduce, or prevent [the] (Entrants) in order to avoid [the] (Threats), under the conditions of [the] (Disruptive innovations).
  - 1.1. Find a way to benefit from [the] (Entrants).
  - 1.2. Find a way to decrease the ability of [the] (Entrants) to cause [the] (Threats).
2. Find a way to eliminate, reduce, or prevent [the] (Threats) under the conditions of [the] (Entrants).
  - 2.1. Find a way to benefit from [the] (Threats).

3. Find an alternative way to obtain [the] (Incumbents) that is not influenced by [the] (Threats).
  - 3.1. Find a way to increase the effectiveness of [the] (Incumbents).
  - 3.2. Find additional benefits from [the] (Incumbents).
4. Find a way to protect [the] (Incumbents) from the harmful influence of [the] (Threats).
  - 4.1. Try to compensate for the harmful influence of [the] (Threats) towards [the] (Incumbents).
  - 4.2. Try to reduce the sensitivity of [the] (Incumbents) to the harmful influence of [the] (Threats).
5. Consider replacing the entire system with an alternative one that will provide [the] (Incumbents).
  - 5.1. Consider transition to the next generation of the system that provides [the] (Incumbents), but which will not have the existing problem.
  - 5.2. Consider enhancing the current means by which the primary useful function is achieved, to the extent that the benefits will override the primary problem.
  - 5.3. Consider giving up the primary useful function to avoid the primary problem.
6. Find a way to eliminate, reduce, or prevent [the] (Disruptive innovations) in order to avoid [the] (Entrants).
  - 6.1. Find a way to benefit from [the] (Disruptive innovations).
  - 6.2. Find a way to decrease the ability of [the] (Disruptive innovations) to cause [the] (Entrants).
  - 6.3. Consider the conditions that cause [the] (Disruptive innovations) and try to change them.

This output is useful. TRIZ is a simple way to generate advice from any management theory. Over time, I am finding more and more ways to use TRIZ.

Each of the TRIZ solution pathways above is a valid response to the threat. Some will be more, or less, effective in practice. In a project that uses TRIZ, models are elaborated and refined in agreement with the stakeholders and subject matter experts. Team members typically vote on, or perform further TRIZ analysis, to find directions that are likely to lead to effective solutions that can be implemented. Solutions emerge by linking the directions to databases of previously documented solution patterns. (Previous articles in this series have described how to do this.)

### **Market disruptions are both useful and harmful**

Nothing is either entirely useful or entirely harmful. Everything is both useful and harmful. Cars are both useful and harmful. They provide travel and support a fluid economy, but the more we drive, the more they damage the environment. There is now a world-wide search to break this contradiction which must lie at the heart of any sustainable next-generation travel system. That's what it means to innovate. To find the answer is what innovation really is.

Contradictions lie at the heart of any viable response to a Christensen disruption. A competitor is both useful and harmful. The competitor validates a market, but also poses a threat, and a rallying point against which to compete. Christensen's management theories are littered with such contradictions. However, he offers little advice about how to eliminate them. Instead, he attempts to explain:

1. How new entrants can maximize the market opportunity for themselves and prevent incumbents from moving into that territory
2. How incumbents can protect themselves from the new entrants and, by eradicating barriers inherent to the incumbent model, gain access to the market

These are two of a wide range of possible responses.

Here is how that looks from the perspective of the incumbent:

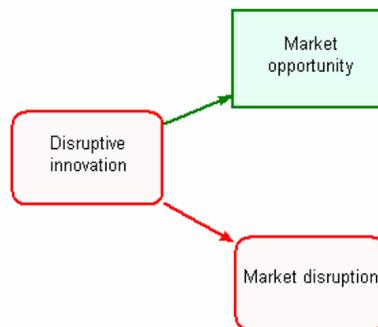


Figure 2 – Simple TRIZ model of innovation from the incumbent point of view

To the incumbent, a disruptive innovation is both useful and harmful. It produces new markets that have to be addressed and a disruption within an existing market. Here is what TRIZ suggests as the most useful primary directions in which to work:

1. Find a way to eliminate, reduce, or prevent [the] (Disruptive innovation) in order to avoid [the] (Market disruption), then think how to provide [the] (Market opportunity).
  - 1.1. Find a way to benefit from [the] (Disruptive innovation).
  - 1.2. Find a way to obtain [the] (Market opportunity) without the use of [the] (Disruptive innovation).
  - 1.3. Find a way to decrease the ability of [the] (Disruptive innovation) to cause [the] (Market disruption).
  - 1.4. Consider the conditions that cause [the] (Disruptive innovation) and try to change them.
2. Try to resolve the following contradiction: The harmful factor [the] (Disruptive innovation) should not exist in order to avoid [the] (Market disruption), and should be in place in order to provide or enhance [the] (Market opportunity).
  - 2.1. Try to apply Universal Operators to circumvent the contradiction.

3. Find an alternative way to obtain [the] (Market opportunity) that does not require [the] (Disruptive innovation).

3.1. Find a way to increase the effectiveness of [the] (Market opportunity).

3.2. Find additional benefits from [the] (Market opportunity).

4. Consider replacing the entire system with an alternative one that will provide [the] (Market opportunity).

4.1. Consider transition to the next generation of the system that provides [the] (Market opportunity), but which will not have the existing problem.

4.2. Consider enhancing the current means by which the primary useful function is achieved, to the extent that the benefits will override the primary problem.

4.3. Consider giving up the primary useful function to avoid the primary problem.

5. Find a way to eliminate, reduce, or prevent [the] (Market disruption) under the conditions of [the] (Disruptive innovation).

5.1. Find a way to benefit from [the] (Market disruption).

5.2. Try to cope with [the] (Market disruption).

5.3. Consider ways to compensate for the harmful results of [the] (Market disruption).

5.4. Consider creating a situation that makes [the] (Market disruption) insignificant or unimportant.

Here is how it looks from the perspective of the new entrant:

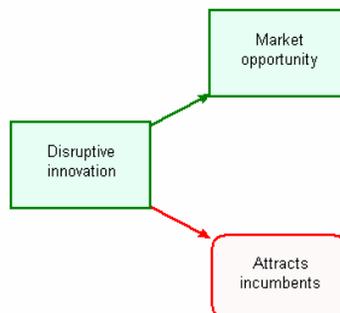


Figure 3 – Simple TRIZ model of innovation from the new entrant point of view

To the new entrant, a disruptive innovation is also both useful and harmful. It produces new markets but attracts competitors. Here is what TRIZ suggests:

1. Find an alternative way to obtain [the] (Disruptive innovation) that offers the following: provides or enhances [the] (Market opportunity), does not cause [the] (Attracts incumbents).

1.1. Find a way to increase the effectiveness of [the] (Disruptive innovation).

- 1.2. Find additional benefits from [the] (Disruptive innovation).
  - 1.3. Find a way to obtain [the] (Market opportunity) without the use of [the] (Disruptive innovation).
  - 1.4. Find a way to decrease the ability of [the] (Disruptive innovation) to cause [the] (Attracts incumbents).
2. Try to resolve the following contradiction: The useful factor [the] (Disruptive innovation) should be in place in order to provide or enhance [the] (Market opportunity), and should not exist in order to avoid [the] (Attracts incumbents).
- 2.1. Try to apply Universal Operators to circumvent the contradiction.
3. Find an alternative way to obtain [the] (Market opportunity) that does not require [the] (Disruptive innovation).
- 3.1. Find a way to increase the effectiveness of [the] (Market opportunity).
  - 3.2. Find additional benefits from [the] (Market opportunity).
4. Consider replacing the entire system with an alternative one that will provide [the] (Market opportunity).
- 4.1. Consider transition to the next generation of the system that provides [the] (Market opportunity), but which will not have the existing problem.
  - 4.2. Consider enhancing the current means by which the primary useful function is achieved, to the extent that the benefits will override the primary problem.
  - 4.3. Consider giving up the primary useful function to avoid the primary problem.
5. Find a way to eliminate, reduce, or prevent [the] (Attracts incumbents) under the conditions of [the] (Disruptive innovation).
- 5.1. Find a way to benefit from [the] (Attracts incumbents).
  - 5.2. Try to cope with [the] (Attracts incumbents).
  - 5.3. Consider ways to compensate for the harmful results of [the] (Attracts incumbents).
  - 5.4. Consider creating a situation that makes [the] (Attracts incumbents) insignificant or unimportant.

### **Example disruption: Software-as-a-Service (SaaS)**

Consider a specific disruptive innovation impacting the incumbent IT industry players today: Software-as-a-Service (SaaS)<sup>1</sup>. The model is typified by the success of the CRM leader, salesforce.com. Easy to access Web-based “pay per use” or “rental” applications are challenging

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<sup>1</sup> For information about the SaaS and Web 2.0 wave, which is a resurgence of the Application Service Provider (ASP) model, see <http://saassightings.blogspot.com> and <http://salesforcedotbomb.blogspot.com>

enterprise software packages from companies such as SAP and Oracle. Each incumbent is launching its own SaaS offering in response.

According to Christensen, a disruption targets overshot customers in less-demanding tiers of a market with a “good enough” product or service at lower price point. Analysts have been drawing such parallels with the trend towards SaaS. Signals of overshot customers include: people complaining about overly complex (“On premise” software – “armies” of consultants) and/or expensive products/services (“SAP license upgrades”) and features not getting used/valued (software licenses “sitting on shelves”, 85% of software package features irrelevant to most users). Sounds plausible?

Drawing analogies with salesforce.com, analysts are pointing towards other “Christensen disruption indicators” that give credence to the theory. These include the emergence of a “different” business model for software procurement (rental, pay per use), “new” technologies (AppExchange “platform”), simplified cost structures (“customer of one” generic functionality with self-service customization – no need for sales staff) and fluid distribution systems (Web service chain). For those who claim that SaaS is a classic Christensen disruption, it all seems to add up to attractive profits at lower price points.

Indeed, it is possible to point to other “Christensen litmus tests” as evidence that the IT industry is undergoing a significant change with SaaS. For non-customers (enterprise business units waiting for applications that “Corporate IT” have failed to deliver), does the product or service (“SaaS marketplace”) help customers accomplish an important, unfulfilled task; or is success predicated upon their wanting to get done something that historically hasn’t been prioritized? Or does it (SaaS) compete against non-consumption – enabling a larger population of less-skilled or less-wealthy people (“business users without IT skills held captive by IT departments”) do things that previously had not been possible? All roads seem to point to a disruption.

The hand of Christensen can be seen at work in the way SaaS is unfolding. Comprehensive Christensen models of the SaaS disruption can be developed with TRIZ. They would generate directions such as:

6. Find a way to eliminate, reduce, or prevent [the] (Software as a Service) in order to avoid [the] (Entrants).

6.1. Find a way to benefit from [the] (Software as a Service).

6.2. Find a way to decrease the ability of [the] (Software as a Service) to cause [the] (Entrants).

6.3. Consider the conditions that cause [the] (Software as a Service) and try to change them.

These directions provide a powerful stimulus during brainstorming. Take each of the statements above. Think about each separately. No doubt solutions are beginning to occur to you, solutions that you were not thinking of before!

Did you come up with any ideas? Direction 6.2 may prompt workshop attendees to consider how to extend the SaaS model towards an alternate model that leverages the assets of the incumbent, assets that are not available to the new entrant in scale. Each direction suggested by TRIZ points to prototypical solution patterns. The following innovation patterns from the TRIZ knowledge base were prompted by direction 6.2:

6.2. Find a way to decrease the ability of [the] (Software as a Service) to cause [the] (Entrants).

- A. Introduce a damper
- B. De-concentrate or divert harmful energy
- C. Eliminate the path of the harm
- D. Create a path to draw off the harm
- E. Change the environmental conditions

No doubt these also prompt solutions.

TRIZ is an iterative method. As potential solutions emerge they can be added into existing TRIZ models or spun off to create a second more detailed model. These revised or additional models become the starting points for an analysis of the viability of solutions suggested by team members.

Instead of relying only on advice in books published by Christensen, TRIZ provide a reliable process by which progress can be made towards a solution. As we shall see, it is possible to encode any theory using a TRIZ model and generate valuable intellectual property from that model, content that can be used throughout an organization.

### Failure Analysis and Prediction

The reverse of the TRIZ problem-solving process is called TRIZ failure prediction. Instead of looking for solutions to problems, the method facilitates looking for problems in existing systems, or solutions in need of a problem to solve. In the Christensen example above, that implies looking for ways in which the incumbent can fail in the market. Here, TRIZ generates suggestions for enlisting the resources of the harmful environment in providing the disruption (i.e. Software-as-a-Service) to existing and new customers:

1. Find a method of producing [the] (Software as a Service).
2. Consider opportunities for providing [the] (Software as a Service) with help of resources of [the] (Entrants).
- 3. Consider opportunities for providing [the] (Software as a Service) with help of resources of [the] (Threats).**
4. Consider opportunities for providing [the] (Software as a Service) with help of resources of [the] (Incumbents).

Did you get ideas?

Analysis proceeds by looking at the available resources of the harmful elements of the model. This might include brand, finance, channels, relationships, approach, etc. which can be co-opted to serve the incumbent.

Resources<sup>2</sup> can be found at many levels, from super-system to system to sub-system, and in the past, the present and the future. For example, a sub-system of an entrant may be the technology

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<sup>2</sup> Resource analysis is a key component of TRIZ and will be covered in more detail in a future article. It is particularly important in P-TRIZ.

enabler they use to offer SaaS. The super-system is the value network in which they operate. Another example may be the channel relationships of the entrant that have particular relevance to the vertical industry within which the incumbent operates.

TRIZ can also formulate elimination problems:

1. Consider opportunities for preventing [the] (Software as a Service).
2. Consider opportunities for eliminating [the] (Software as a Service) to prevent [the] (Entrants).
3. Try to stop the harmful effects of [the] (Software as a Service).
4. Consider opportunities for preventing [the] (Entrants) caused by [the] (Software as a Service).
5. Consider opportunities for eliminating [the] (Entrants) to prevent [the] (Threats).
6. Try to stop the harmful effects of [the] (Entrants).
7. Consider opportunities for preventing [the] (Threats) caused by [the] (Entrants).
8. Consider opportunities for eliminating [the] (Threats).
9. Try to stop the harmful effects of [the] (Threats) to stop the hindering action of [the] (Incumbents).
10. Try to protect [the] (Incumbents) from the hindering action of [the] (Threats).

No doubt many of these directions would be rejected by the team at the outset. For example, it is doubtful if it is possible to “Try to stop the harmful effects of [the] (Software as a Service).” The trend is likely to continue unabated as it appeals to both buyers and sellers. Nevertheless, no direction should be dismissed too lightly. There are several effective ways of minimizing harm in cases where effects cannot be stopped.

- For example, it may be possible to blend the SaaS model with other attractive IT services delivery methods, creating a hybrid or chimera.
- It may also be possible to detect, prior to adoption of the model, a client’s susceptibility to the model.
- There is in addition the well known solution of “sugar coating the pill”. That is, the model could be made more acceptable to the incumbent.

To illustrate: SAP and Oracle are both launching SaaS offerings of their own, and at the same time, they are sugar coating the pill by changing the licensing policies for “on premise” software projects. IBM and CSC are creating SaaS ecosystems to encourage customers towards adopting off-premise delivery, expecting to catch a ride on the wave for related or cross-sold application and process outsourcing offerings.

That’s just a taste of using TRIZ to build a strategy to respond to a specific “Christensen” threat.

## The encoding of wisdom

Let's look at what Christensen is saying in more detail. On page xv of *Seeing What's Next*, Christensen describes the essence of his theory in Figure I-1: "The Disruptive Innovation Theory: Simple, Cheap and Revolutionary."

The theory holds that existing companies have a high probability of beating entrant attackers when the contest is about *sustaining* innovations. But established companies almost always lose to attackers armed with *disruptive* innovations. This can be illustrated using TRIZ as:

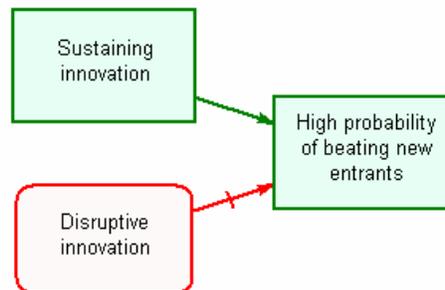


Figure 4 – The classic Christensen disruption

He goes on to describe the characteristics of the two types of innovation in this theory. Arguing that a customer's performance needs, for a specific product in a given market, tend to be relatively stable over time, he defines sustaining innovation as incremental product improvement, giving examples such as airplanes flying farther, cell batteries that last longer, etc. He then speaks of disruptions, citing product simplicity, convenience and lower cost business models as creating a new value proposition which either reshape existing markets or create new markets. Dell's direct-to-consumer business is given as an example. His theory is that low-end disruptions occur when existing products or services are "too good" and hence overpriced relative to the value existing customers are able to use. As a result, existing markets are reshaped. He then goes on to define disruptive innovation, citing the Apple Personal Computer. Such can occur, he claims, when the characteristics of existing products limit the number of potential consumers or force consumption to take place in inconvenient, centralized settings. His theory is that these disruptive innovations always make it easier for people to do something that, historically, required deep expertise or great wealth.

Let's try and unpick his advice: let's TRIZ the guru.

Any attempt to turn Christensen's two pages of text and examples into a TRIZ model is fraught with danger. Without being able to sit down with him face-to-face and agree to the logic of his argument, any interpretation of his words is likely to cause controversy. Let's do it nevertheless. Here is one interpretation of his specific words:

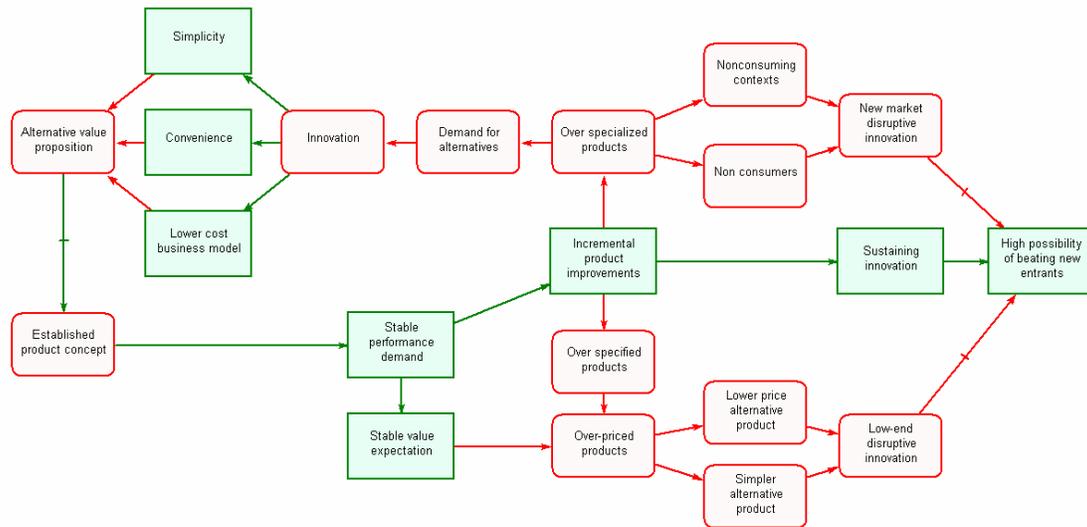


Figure 5 – Interpretation of Christensen's Theory of Business Disruption

The model looks complex, but is not. Read part of it, and you'll be able to read the whole. For example, the upper left part of the model says: innovation is harmful (to incumbents) for it generates simplicity, convenience and lower costs for customers – which drive them to look for alternatives.

Developing this model from Christensen's text was not hard, but did require some logic and some interpretation. For example, on the pages cited, he is unclear about the connection between non-consuming contexts and existing incremental product improvements. To add clarity to the model, a concept not mentioned by Christensen was added: the "over specialised product."

In developing the model, I also had to choose from which perspective it should be drawn. I chose to take the view of the incumbent, since I'm sure that most of Christensen's funded work is for established companies with deep pockets eager to find ways to protect themselves from upstarts and in need of advice on how to create disruptive innovations of their own. Therefore, in the model above, "innovation" is itself considered harmful, yet the attributes it brings, that of simplicity, convenience and lower costs, are useful in existing or new product lines. Similarly, Christensen's words about "product dimensions which customers historically value" were interpreted as stability in "performance demand." From the perspective of this model, that was labelled "useful" (since it sustains the existing business), even though it has downstream negative connotations.

No doubt if one carefully read the entirety of Christensen's output one would develop a fuller sense for the meaning he is trying to express. A powerful set of TRIZ models could be developed, for both incumbents and new entrants. These could then be processed by a TRIZ tool to generated innovation strategies.

### Modeling gets to the essence of things

Like a lot of business writing, Christensen's text is littered with invented concepts that illuminate his argument. In reality, there is no such thing as a "value proposition" or a "new market disruptive innovation". They are linguistic devices used by management consultants to help spread the memes of their theories of business. Business people and customers know only of the actual

products and services and their qualities and attributes. Hence, in developing TRIZ models based on theory, it is important to strip models of unnecessary verbiage wherever possible. Let's try to do this. Here is a simplified version of Figure 5:

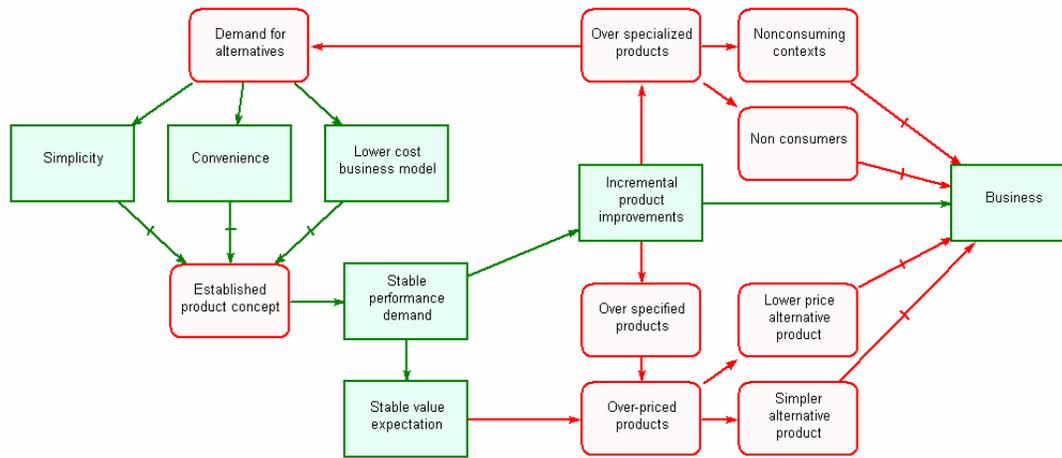


Figure 6 – Christensen theory – stripped of corporate baffle-blab

Look closely and compare with Figure 5. All that has been removed are the vague words such as “innovation”, “disruption”. As a result, some of the arrows have turned from red to green, and some are now counteractions (tick across the arrow) rather than productions. Read carefully. The diagram is starting to make a lot more sense: Incremental product improvements create business. Business is counteracted by simpler alternative products, lower priced products or lack of customers. This is hardly revelatory. And it's no surprise that simplicity, convenience and lower costs challenge existing product concepts.

Taking this simplified diagram, which still preserves the entire Christensen theory as expressed on the pages xv to xvii of his book, the following everyday business wisdom can be generated by TRIZ. Examples include:

2. Find a way to protect [the] (Business) from the harmful influence of [the] (Non-consuming contexts), (Non consumers), (Lower price alternative product) and (Simpler alternative product).

2.2. Try to reduce the sensitivity of [the] (Business) to the harmful influence of [the] (Non-consuming contexts), (Non consumers), (Lower price alternative product) and (Simpler alternative product).

3. Consider replacing the entire system with an alternative one that will provide [the] (Business).

4.4. Find a way to decrease the ability of [the] (Incremental product improvements) to cause [the] (Over specified products) and (Over specialized products).

6. Find an alternative way to obtain [the] (Stable performance demand) that offers the following: provides or enhances [the] (Incremental product improvements) and (Stable value expectation), does not require [the] (Established product concept).

7. Find a way to eliminate, reduce, or prevent [the] (Established product concept) then think how to provide [the] (Stable performance demand).

9. Find a way to eliminate, reduce, or prevent [the] (Over specified products) in order to avoid [the] (Over-priced products), under the conditions of [the] (Incremental product improvements).

And so on. It all seems to boil down to common sense. Can the model be simplified again? I think so.

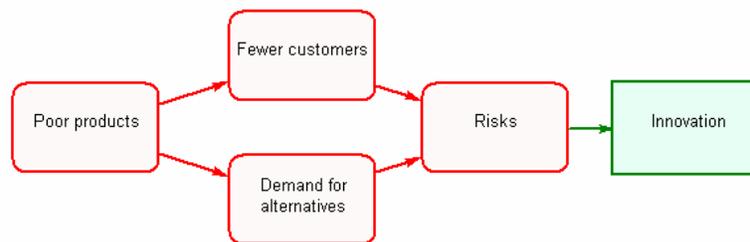


Figure 7 – The drive for innovation

Read aloud: Poor products produce fewer customers and create a demand for alternatives. This generates a risk to the business which can only be addressed by placing a focus on innovation. A key question is what lies in the box I have labeled innovation.

Understanding “what innovation is” should be the primary concern of every company. Isn’t it precisely the actions that negate the red boxes in Figure 7? And doesn’t this require more than Christensen’s advice about the placement and emergence of new ideas in markets? Isn’t it about science, engineering and problem solving?

### Everyone loves a story

The simple business situations documented in figures 6 and 7 nevertheless defect many business leaders. Companies fail to innovate and are taken by surprise by new entrants. Why? A desire to find out is one of the factors that drive the popularity of Christensen’s work.

Christensen tells us stories of innovation, extracting signs of competitor activity, signs that business people can look for in their markets. This wisdom is a sign-post to innovation. It is a technique used by many other business gurus. Business anecdotes, couched as case studies, lie beneath the words on the page. Yet while story telling can be powerful, is it sufficient and will it tell us what lies in the innovation box?

Companies know that innovation is not as simple as telling stories. Some have found an answer in systematic problem-solving tools, science and engineering. For the others, the search for “my disruption” dissolves into little more than a futile search for a ‘holy grail’ big idea that, without effort, may take a market by storm. Waiting for one of those is not an answer and unconvincing in the boardroom.

Market studies are far from a complete solution for innovation. Only a systematic process of problem-solving in which highly knowledgeable and creative people come together to work can effectively develop an idea with potential and provide all of the solutions necessary that would otherwise prevent it coming to market. In the absence of that engineering process and methodology, the innovation debate in many firms can all too easily degrade to that of waiting for someone to come forward with an intriguing idea or, worse, to focus on whoever shouts the loudest.

Although it can be useful to partition innovation into categories such as radical disrupting innovations or incremental product improvements, it hardly helps to understand the *source* of innovation. Management frameworks such as Christensen may be able to shape the direction of investment, but they provide no insight into how to intensify innovation outputs in the business.

In the idea-to-cash process, a complex cocktail of obstacles limits a company's ability to innovate, right across the value chain, from mind to market and covering every conceivable technical and managerial discipline. Most of the time, innovation is neither disruptive nor incremental, but is simply more (or less) effective. Its outcomes depend solely upon the creativity and knowledge of talented individuals applied within processes and based on experimental, scientific, methods. There are few short cuts. Innovation will always require the development of new processes, new technology and new service models. The innovator must be a problem solver. Unless you are solving problems, you are not innovating.

An ability to solve problems, reliably and in a commercial timescale, is the only factor that allows the innovator to move beyond the current state of the art. All innovation is therefore continuous and there really is no such thing as disruption. Innovation should proceed through well-defined steps to the *next generation* of products and services. This means modeling the present to generate directions for the future. The useful and harmful functions of existing products should be analyzed in detail. From these models, the path to new value can be found. Each red box represents a problem to solve. Each step taken requires the innovator to avoid compromise, eradicate obstacles and bypass contradictions that, if not addressed, would limit value creation: products and services that either don't live up to customer expectations, incur unnecessary resource expenditures or time lost that may allow competitors to catch up.

## Summary

The world is awash with business theory. Take it, TRIZ it, and its value is amplified a thousand fold. We can now encode the management consultant's wisdom. It can be transferred to the rest of us.

One day, someone will perform a comprehensive analysis of what lies beneath management theory. To do so will be valuable. TRIZ boils down theory to its essence. In this way we shall be able to understand and judge management theorists' contribution to our ability to innovate.