

The Innovator's Dilemma



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Introductory example

- Imagine it is about 1800 and you are head of a company that makes sailing ships that can cross an ocean:
 - Some customers want faster, bigger ships that can carry more cargo
 - You listen to these customers and build such ships
 - In doing so, you achieve ever-increasing profit margins
- Then the steamboat is invented:
 - It can move against the wind, or in the absence of wind, which makes it useful for use on inland rivers, canals and lakes
 - However, compared to your sailing ships, it is slower, costs more per mile to run and is unreliable, so it is unsuitable for use on the ocean
- What is your likely reaction to the steamboat?

Introductory example (cont')

- You *could* diversify your business:
 - Continue to build ocean-going sailing ships
 - But also invest in steam technology
- However, it is unlikely you would do so:
 - Your existing sailing-ship business serves a massive market and you barely have enough resources to meet customer demand
 - You cannot afford to divert resources into steamboats when:
 - Your existing customers do not want them
 - And there is a much smaller market for river steamboats
- Result:
 - Over time, steamboats got faster, more reliable and cheaper to operate
 - Eventually, they became “good enough” for use on the oceans
 - *None* of the sailing ship companies survived the transition to steam power

Disruptive technologies

- The introduction of steam technology for ships is an example of a *disruptive technology*:
 - It disrupted the industry of transoceanic ships *despite* (initially) being an inferior technology
 - Market-leading companies went out of business and were replaced by new companies
- An in-depth discussion of disruptive technologies is provided in the following book:
 - *The Innovator's dilemma* by Professor Clayton M. Christensen

Importance of *The Innovator's Dilemma*

- The book provides some important advice for businesses:
 - How a business can survive when a disruptive innovation is introduced to the market
 - Some do's and don'ts for introducing a disruptive innovation to your own business
- This chapter views the topic from a different point of view:
 - An *individual* innovator (rather than a business)
- The main lesson for an individual innovator is this:
 - Existing companies catering to the mainstream market may reject your innovation
 - If so, *assume* the innovation is disruptive and find a niche market for it
 - Success in a niche market will help you to eventually enter the mainstream market

1. Example: the Dyson vacuum cleaner

The Dyson vacuum cleaner

- In the 1970s, most vacuum cleaners used disposable bags to collect dirt
- James Dyson, an English inventor, noticed a problem:
 - The cleaners worked by drawing air and dirt into a bag and the air then went out through tiny pores in the bag, leaving the dirt in the bag
 - But even a small amount of dirt in the bag clogged up the pores, thus reducing the suction power
- James Dyson invented a new type of vacuum cleaner that avoided the need for bags:
 - No bags to clog up → no loss of suction
- This was a great technical breakthrough:
 - Surely he could license his technology to vacuum cleaner companies

Was this technology disruptive?

- Was the Dyson vacuum cleaner *disruptive*?
- Apparently no, because:
 - It was *superior* to mainstream vacuum cleaners (disruptive technologies are usually initially inferior)
- Apparently yes, because:
 - Mainstream vacuum cleaner manufacturers ignored the technology because they did not like the *marketing* implications
 - They made lots of money selling disposable vacuum cleaner bags
 - Disruptive technologies usually require a change in marketing, which mainstream manufacturers are reluctant to do

Suggested tactics

- The technology appears to be semi-disruptive
 - This suggests a tactic for James Dyson to use
- Tactic:
 - Stop trying to sell the technology to the mainstream manufacturers
 - They view it as disruptive, and so will never listen
 - Instead, sell it into a new, niche market
 - Use profits from the niche market to (eventually) attack the mainstream market
- Eventually, James Dyson found some small niche markets:
 - Industrial cleaners instead of consumer vacuum cleaners
 - In another country:
 - Manufacturers in Europe and America ignored the technology
 - However, he was able to license the technology in Japan

Results

- Profits from the niche markets plus additional investment enabled James Dyson to set up his own factory in England
- Results:
 - Dyson vacuum cleaners became the market leader in England despite costing 2 or 3 times more than most conventional vacuum cleaners
 - Dyson's patents limited the ability of mainstream manufacturers to compete with his new technology for several years
- You can find more details in James Dyson's autobiography:
 - The book is called *Against The Odds*
 - The book discusses many examples of dirty tricks used by business partners and mainstream companies to steal or discredit his ideas
 - The book's focus is "skills you will need, and obstacles you will face, if you want to be a successful inventor"

2. Example: Sister Kenny's treatment for polio

Polio

- Polio is a disease that affects muscles, thus causing paralysis:
 - Today, there are vaccines that make people immune to polio
 - But before the invention of the vaccine, Polio epidemics ruined the lives of millions of people
- For decades, doctors had a fundamentally flawed understanding of the nature of polio:
 - This caused them to treat polio in a way that was harmful (the treatment significantly worsened the effects of polio)
- A breakthrough in understanding polio came from a nurse:
 - Her name was Sister Elizabeth Kenny
 - “Sister” was a rank given to nurses in the Australian army

Elizabeth Kenny's first encounter with polio

- When Elizabeth was 14 she studied books on muscles:
 - The knowledge gained enabled her to devise exercises to strengthen the muscles of her weak younger brother
 - Her expertise in muscles later helped her gain insight into polio
- Later, she studied for 3 years to become a nurse:
 - She decided to become a “bush” (rural) nurse rather than work in a hospital
- At the age of 23, she encountered polio for the first time:
 - She was unfamiliar with this disease
 - She described the symptoms in a telegraph to Dr. McDonnell in the nearest hospital
 - The reply stated “No known treatment. Do the best you can with the symptoms presenting themselves.”

Initial success and opposition

- Combining her expert knowledge of muscles with experimentation, she treated and cured 6 cases
 - In doing so, she developed a theory of polio and coined several new terms to explain her theory
- Later, when she met Dr. McDonnell, he was amazed at her success:
 - He realized her theory and treatment of polio contradicted accepted medical knowledge
 - But Dr. McDonnell was a surgeon rather than an expert in polio so he could not effectively champion her unorthodox theory
- Elizabeth Kenny tried to explain her ideas to other doctors:
 - They would not listen to her
 - The problem was one of hierarchical authority: a nurse should not dare to teach a doctor

Tactics used

- Dr. McDonnell instinctively knew *The Innovator's Dilemma*:
 - Doctors (representing the mainstream market) were not interested in Elizabeth Kenny's ideas
 - Therefore, she should market her ideas elsewhere (a niche market)
 - He advised her to set up her own treatment clinics
- She took his advice:
 - Polio sufferers who had tried the mainstream doctors and not been cured went, in desperation, to Elizabeth Kenny clinics
 - Many citizens became supporters of Elizabeth Kenny
 - So did some people in government, because they saw the practical benefits
 - But still the medical establishment refused to consider her ideas

Tactics used (cont')

- Over time, she became more famous and controversial:
 - Her support among the general population increased, but...
 - After 25 years, most Australian doctors still refused to consider her ideas
- Eventually, she took her ideas to other markets:
 - English doctors were initially sceptical, but within a year she had convinced many of them
 - Within 2 years of being in America, her ideas became accepted in the USA and Canada
- Elizabeth Kenny's legacy:
 - The need for her polio treatment diminished when, years later, a polio vaccine was developed
 - However, her knowledge of muscles has had a lasting impact in *physiotherapy* (called *physical therapy* in some countries)

3. Example: Manufacturing goods without exploitation

Manufacturing goods without exploitation

- Many items you buy are manufactured abroad
 - Some of these items are made by exploiting people in slave-labour conditions
 - Let's assume you want to end slave-labour conditions around the world
- You will face the following problem:
 - Most companies use foreign, slave labour to keep down the cost of manufacture of a particular product
 - One company uses more expensive, non-slave labour for the same product
 - That company *cannot* compete on price in the mainstream market (and so risks going out of business)
- This suggests you cannot end slave labour by trying to change the practices of mainstream companies

Use of a disruptive tactic

- There *is* a way to bring about change:
 - Create a niche market for products that are not manufactured with slave labour (or other exploitative practices)
- Example:
 - Create *The Fairtrade Foundation* that controls use of a “fairtrade” logo
 - Allow non-exploitative companies to use this logo on their products
 - A minority of customers will buy fairtrade products instead of cheaper non-fairtrade products
 - Such customers value a clear conscience more than other product attributes, such as “cheapest price” or “highest quality”
 - This niche market will slowly grow if you educate consumers
 - Eventually mainstream manufacturers will notice the decline in sales of their non-fairtrade products, and will change their business practices

Widespread use of this tactic

- The Fairtrade Foundation is not the only organization to use this tactic
- Some countries have an official “organic” or “environmentally friendly” logo that can be used on conforming products
- The use of an national or international official logo is not always necessary:
 - Some companies independently market themselves for niche markets
 - Example: The Body Shop (cosmetics)
 - Example: Benny & Jerry’s (ice cream)

4. Summary

Summary

- Let's assume you have an innovation
- If you can interest mainstream companies in your innovation:
 - Great. Instant success
- If you *cannot* interest mainstream companies in your innovation then:
 - You could keep trying to interest them, but you are unlikely to succeed
 - It is probably better to find a niche market for your innovation
 - Eventually, your niche market may grow and replace the mainstream market
- Advice:
 - Be patient. It may takes decades for the niche market to grow enough to replace the mainstream market