



# Emerging Technologies and Business Innovation

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# Today's contents

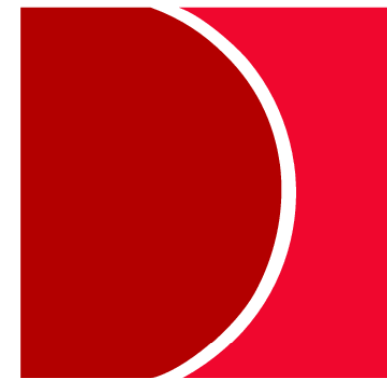
- Course introduction
- Introduction to innovation

# About Me

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at&t



UNIVERSITY OF  
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1864

# This course

- Explores emerging technologies from an innovation management perspective
- Discusses how new information technologies may have an impact in our lives

# This course will help you...

- ✓ get acquainted with the latest topics in information technology
- ✓ learn the tools necessary to identify a potential business opportunity enabled by new technologies
- ✓ provide a feasibility analysis of such an opportunity.

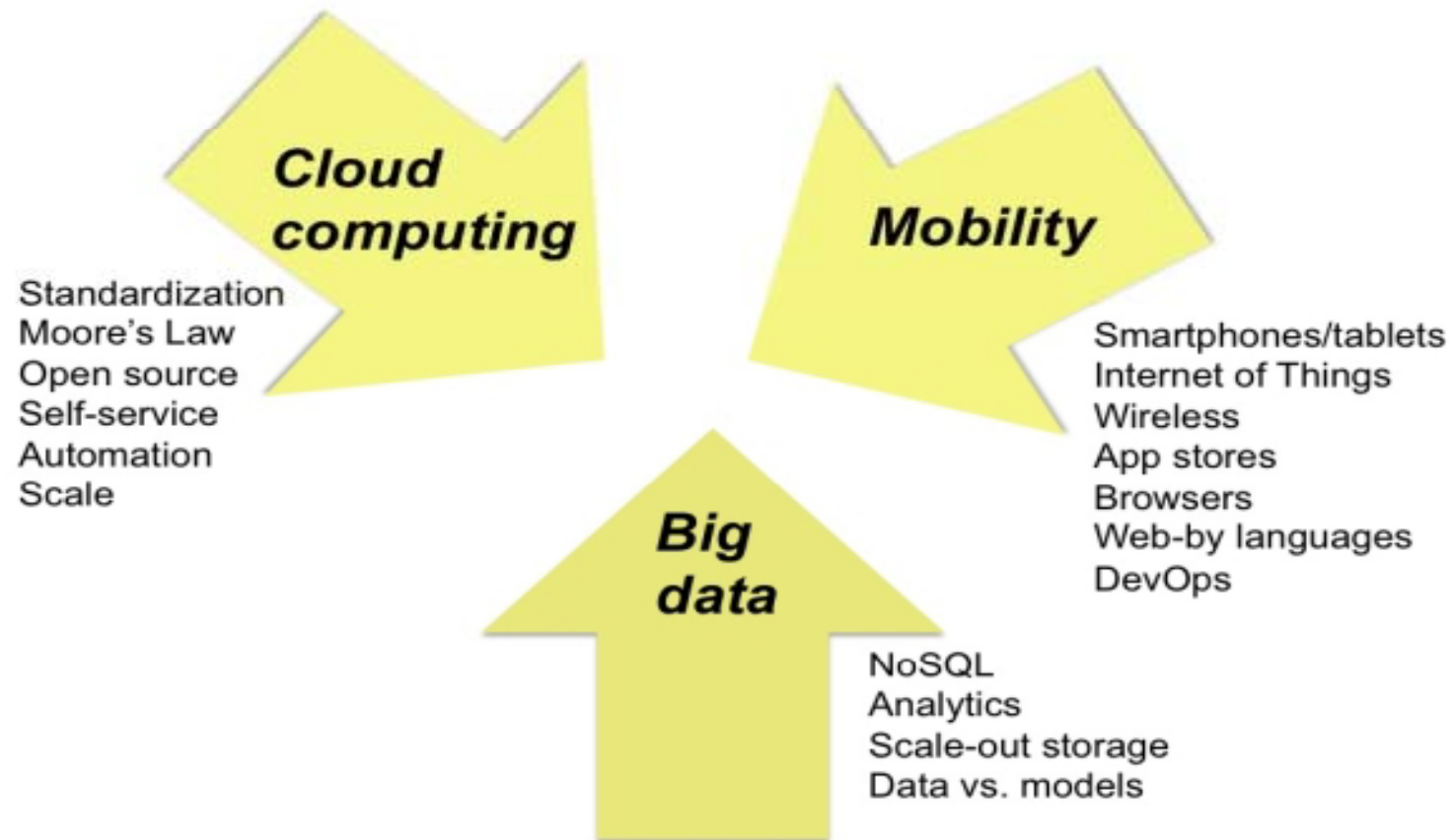
# and also enhance your

- Presentation skills
- Communication skills in English
- Critical thinking skills
  - Knowledge becomes obsolete quickly
  - But the ability to think independently persists
  - With the help of theories/frameworks

# WEEKLY THEMES

1. Overview of the course, with basic definitions, concepts and typologies
- 2-4. Topics in innovation research
5. Introduction to case study
- 6-16. Technology topics and case studies
- 17-18. Final project presentation

# Where IT is going: Cloud, mobile, and data



(Credit: Gordon Haff, 2012, <http://news.cnet.com/>)



# Technology Topics

- Cloud computing
- Augmented reality(AR),
- Social networks and social media,
- Mobile internet and Internet trends
- Big data
- 3D printing

- <http://www.youtube.com/watch?v=P9KPJlA5yds>

# Case study

We discuss 4 cases in which companies apply emerging technology in their business innovation. Each case covers one chosen emerging technology and how it is applied to business innovation.

Each case has 15 points. Each group need to turn in a case write-up in the format of Power point file prior to class. Groups will be called upon to present their views on the discussion questions.

# Final Project

- The project should discuss one of the emerging technologies (not limited to what we have discussed in this class) and how it can be utilized for innovation (product, process, business model etc).
- The project should include the following sections: 1) a brief introduction of the technology; 2) product or service description, or process innovation description,

# Final Project

- 3) market analysis(for product and service proposals), including target market description, market size, expected market growth and market share. The analysis need to be based on actual data and sources of data need to be cited;
- 4) For process innovation, a benefit/cost analysis need to be provided, detailing the cost of implementing the innovation, and the expected benefit in terms of cost reduction or revenue growth;
- and 5)strategy and implementation

# Grading policy

The final grade will be based on the following criterion:

- 10% Class participation and discussions (individual-based)
- 60% Case study (group-based)
- 30% Final project (group-based)



# Course disclosure

- This course has (much) higher loading than average courses
  - Students taking more than five courses are not recommended to take this course
- This course requires lots of team collaboration

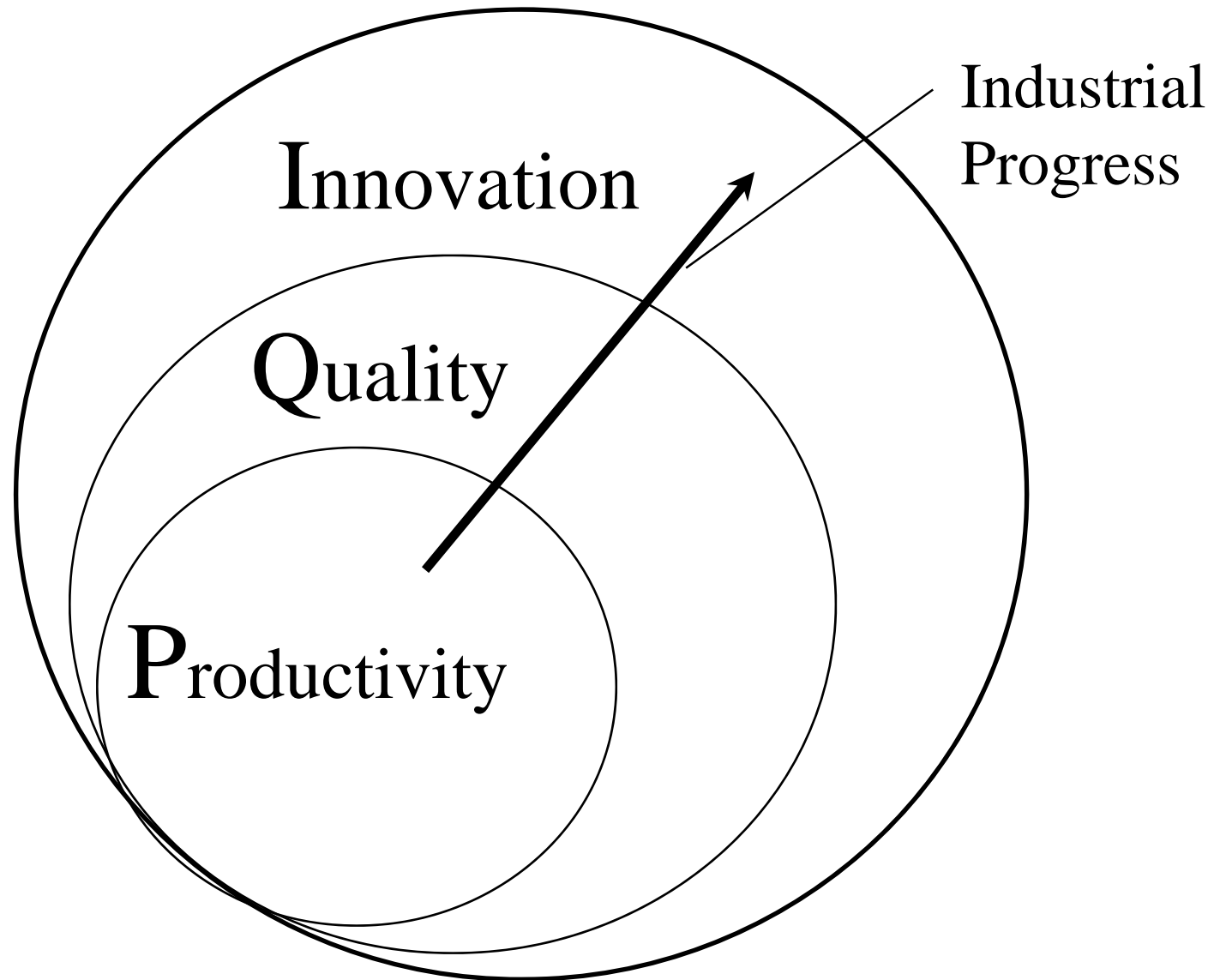
# Today's contents

- Course outline
- **Introducation to innovation**



# The importance of innovation

- Innovation is now the single most important driver of competitive success in many industries
  - Many firms earn over one-third of sales on products developed within last five years
  - Globalization has increased competitive pressure
    - Product innovations help firms protect margins by offering new, differentiated features.
    - Process innovations help make manufacturing more efficient.



# Test your innovation IQ

- Innovation is the act of coming up with new and creative ideas.
- **False.** In business, innovation is the act of applying knowledge, new or old, to the creation of new processes, products, and services that have value for at least one of your stakeholder groups. The key word here is applying. Generating creative ideas is certainly part of the process. But in order to produce true innovation, you have to actually do something different that has value.

- Innovation is a random process.
- **False.** Innovation is a discipline that can (and should) be planned, measured, and managed. If left to chance, it won't happen.

- The biggest obstacle to innovation is a lack of organizational resources and know-how.
- **False.** In most organizations, the biggest obstacle to innovation is what people already know to be true about their customers, markets, and business. Whenever you're absolutely, positively sure you're right, any chance at meaningful innovation goes out the window.

- Most companies are not structured to innovate.
- **True.** Most organizations are physically set up with accounting in one area, marketing in another, and management off by itself. Employees rarely interact with other departments unless they need something to get their jobs done. And leaders and departments often withhold information, believing that it puts them in a position of power. Innovation requires teamwork, communication and collaboration, not isolated silos.

- Listening to your customers is a great way to innovate.
- **Trick question!** The answer is “it depends.” Research shows that customers can be a good source of ideas for improving existing products and services — if you’re looking to achieve incremental innovation. However, by itself, customer research is not sufficient for generating disruptive innovation because it only uncovers expressed, or known, customer needs. Disruptive innovation solves problems that customers didn’t even know they had or were unable to clearly articulate to themselves or their vendors. It redefines the market at a very fundamental level or, in many cases, creates a new market.

# WHAT IS INNOVATION?

- The application of new ideas to the products, processes, or other aspects of the activities of a firm that lead to increased “value.”
- This “value” is defined in a broad way to include higher value added for the firm and also benefits to consumers or other firms.



# Finding the **value** in innovation

- Curved phones
- <http://www.lg.com/us/mobile-phones/gflex>
- Smart scrolling by Samsung
- <https://www.youtube.com/watch?v=1NUjCzsltOW>

# Schumpeter's distinction between "Invention" and "innovation"

- An '**invention**' is an idea, a sketch or model for a new or improved device, product, process or system. It has not yet entered to economic system, and most inventions never do so.
- An '**innovation**' is accomplished only with the first commercial transaction involving the new product, process, system or device. *It is part of the economic system.*

**Exhibit E Invention and innovation:  
What's the difference?**

INVENTION	INNOVATION
A new-to-the-world discovery/creation	A product, service, or process that creates net new value for customers
Driven primarily by inventor curiosity or research interest	Driven primarily by desire to add customer value
Merit defined by uniqueness	Merit defined by profitable deployment
Based primarily on scientific skills	Based on a broad set of strategic, marketing, operational and technical skills

# From invention to innovation

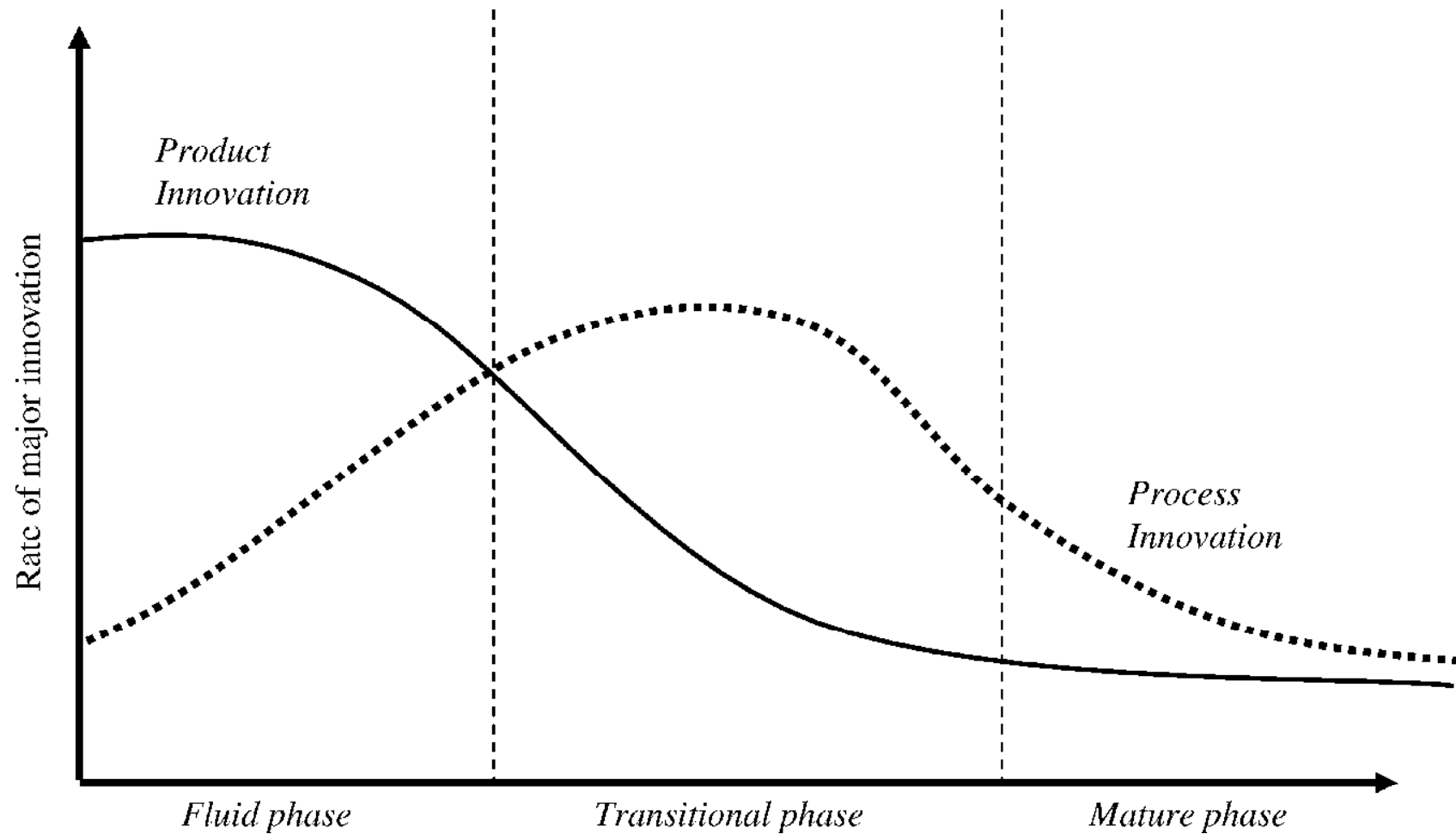
A few examples...

- Electric light bulb: first prototyped in 1802(Humphry Davy), first commercial product was around 1880 (Thomas Edison, Joseph Swan)
- Airplane: first flight 1903 (Wright Brothers), the first widely successful commercial jet Boeing 707, was made in 1958

# Types of Innovation

- ***Product innovation***: changes in the things (products or services) which an organization offers
- ***Process innovation***: changes in the ways in which they are created and delivered
- ***Business model innovation***
- ***Value innovation***
- ***Frugal innovation***
- Others: marketing innovation, organizational innovation, service innovation...

# Patterns of industrial innovation



# Process innovation

## Dell

- People used to go to stores and buy their computers. Dell's direct sales of personal computers online is a process innovation that saves time and money for consumers
- The direct sales model had been the key to Dell's success. The model enabled Dell to be the low-cost producer of computers and dominate an industry known for falling prices and low profit margins.
- The key was building the computer systems only after they were ordered by phone or over the Internet

# Process innovation

- Dell's direct model came under pressure as the market for PCs shifted to notebooks from desktops in 2006
  - It is harder to custom configure notebook computers, so they had to be manufactured in advance
  - Consumers were showing a preference for touching and feeling a notebook PC before buying it.
  - “The direct model has been a revolution, but it is not a religion,” Michael Dell



# Product & Process Innovation at Scott Turbon Mixer

- <https://www.youtube.com/watch?v=tBxu8G23EIE>
- What is the product innovation at Scott Trubon mixer?
- What is the process innovation?
- What else contributes to their success?

# Business model innovation

- <http://www.youtube.com/watch?v=B4ZSGQW0UMI>
- What are the components of a business model?
- How many components need to be changed for innovation?
- Is innovation about new ideas? New technology?

# Business model innovation

- Components of a business model
  - What, Who, Value, How
- Business model innovation changes at least 2 of these components
- 90% of business model innovation is creative imitation
- Business model innovation example: Razor and blade model
- More than 70% of change initiatives fail
- Steps in business model innovation:
  - Initiation, ideation, integration and implementation

# Practice

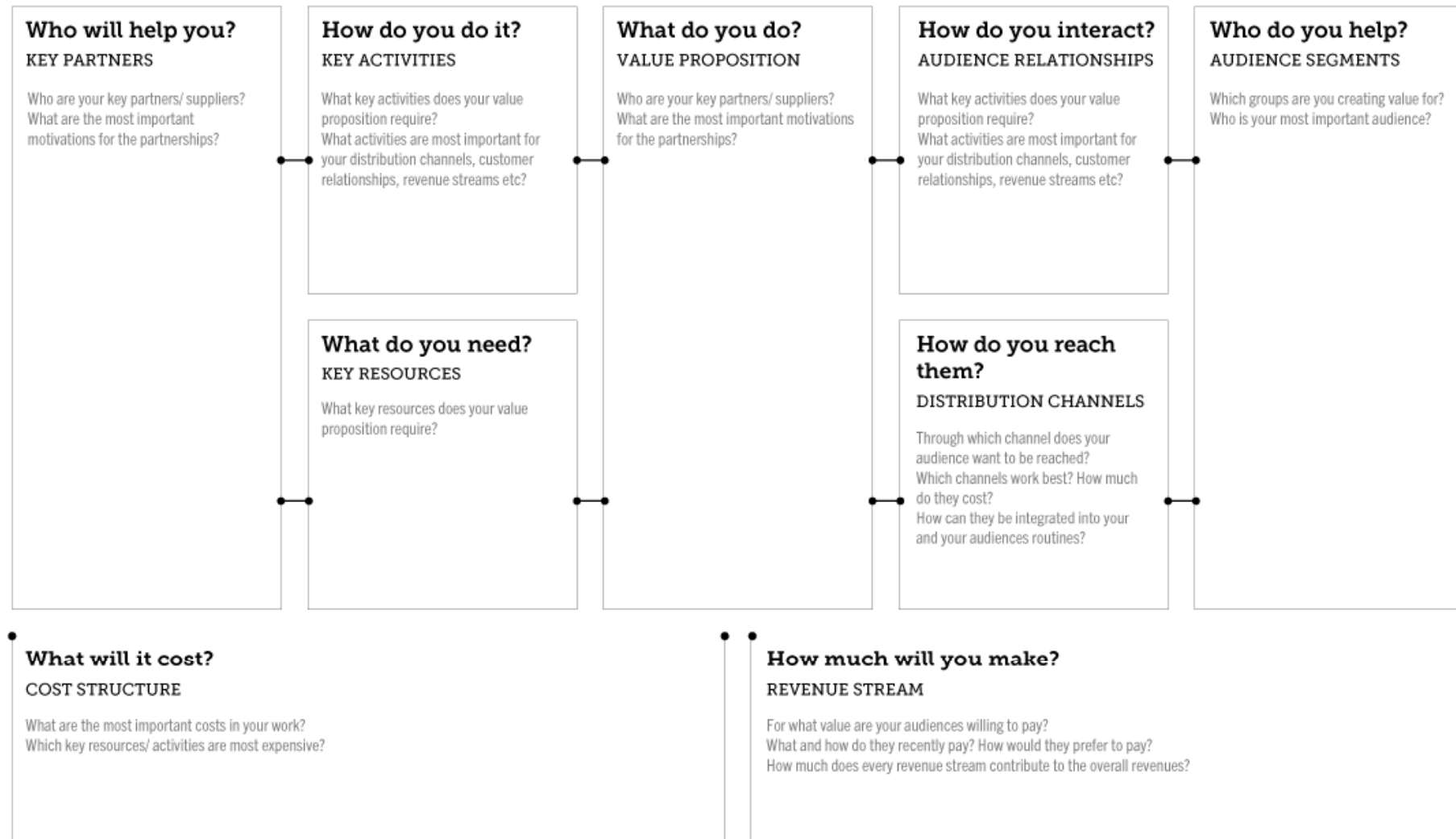
- Brainstorming as many ways as possible to generate revenue for a farm.
- What new business models could you propose to Disney?
  - Consulting
  - Education
  - Publishing

# The business model canvas

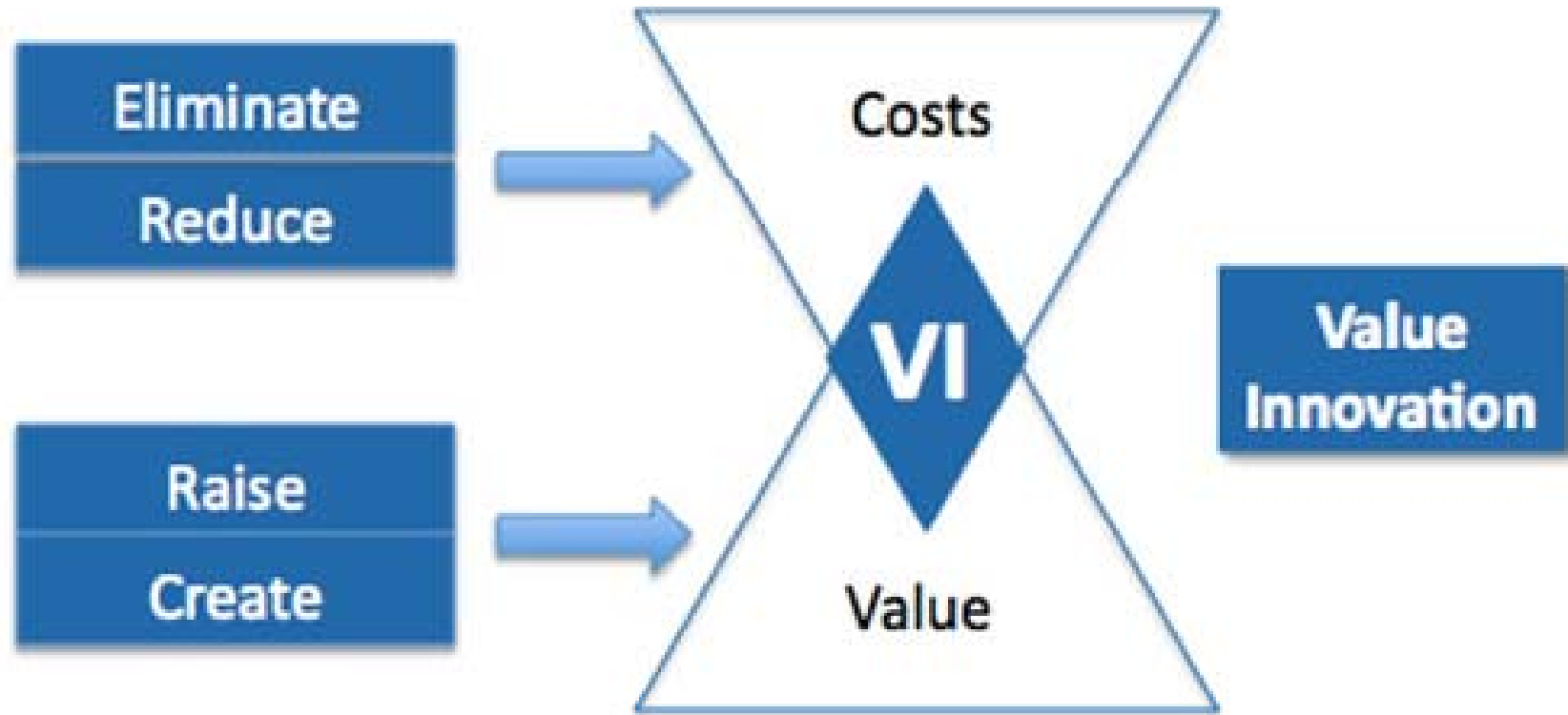
- [https://www.youtube.com/watch?v=QoAOzM  
TLP5s](https://www.youtube.com/watch?v=QoAOzM<u>TLP5s</u>)
  - A strategic management tool to describe, design, challenge, invent, and pivot business models.

I want to develop a clear plan  
on how to grow my idea into something bigger

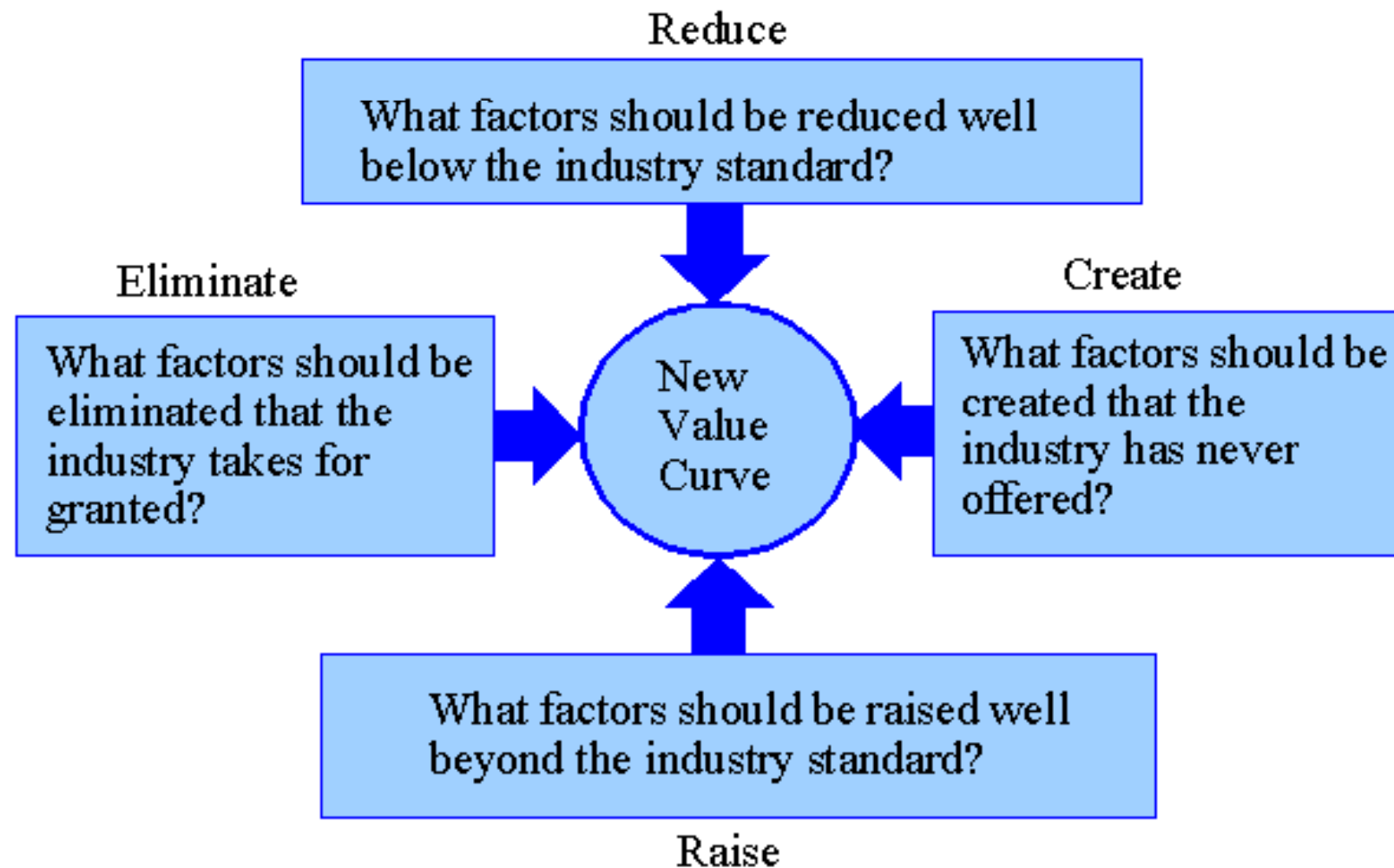
## BUSINESS MODEL CANVAS



# Value innovation



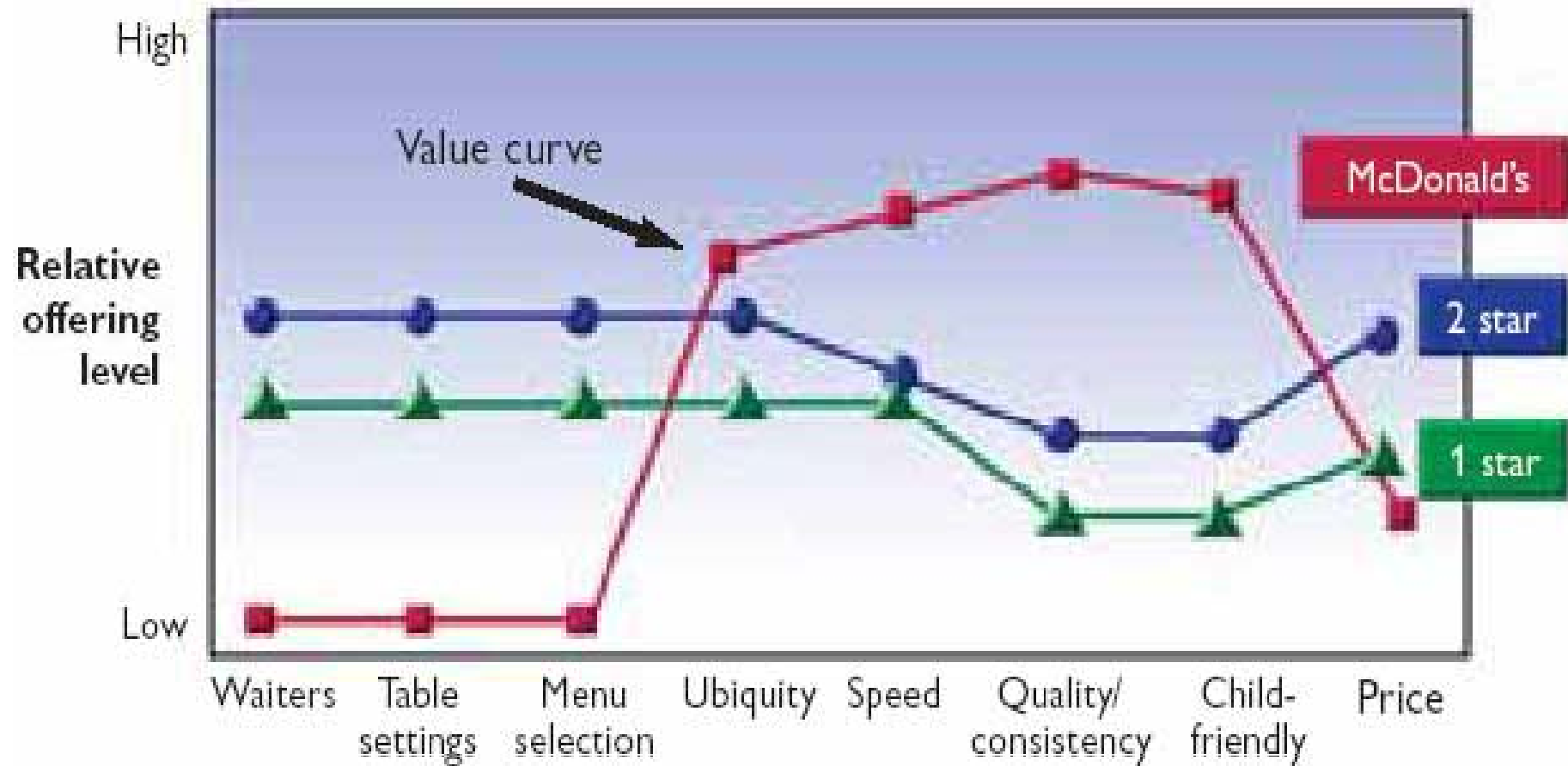
## Four Questions provide the Key to Discovering a New Value Curve\*



\* Adapted from Kim & Mauborgne's illustration on p. 85.



# The value creation of McDonald's

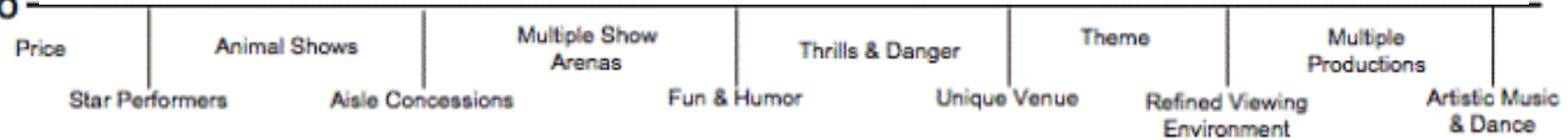


# Practice: Cirque du soleil

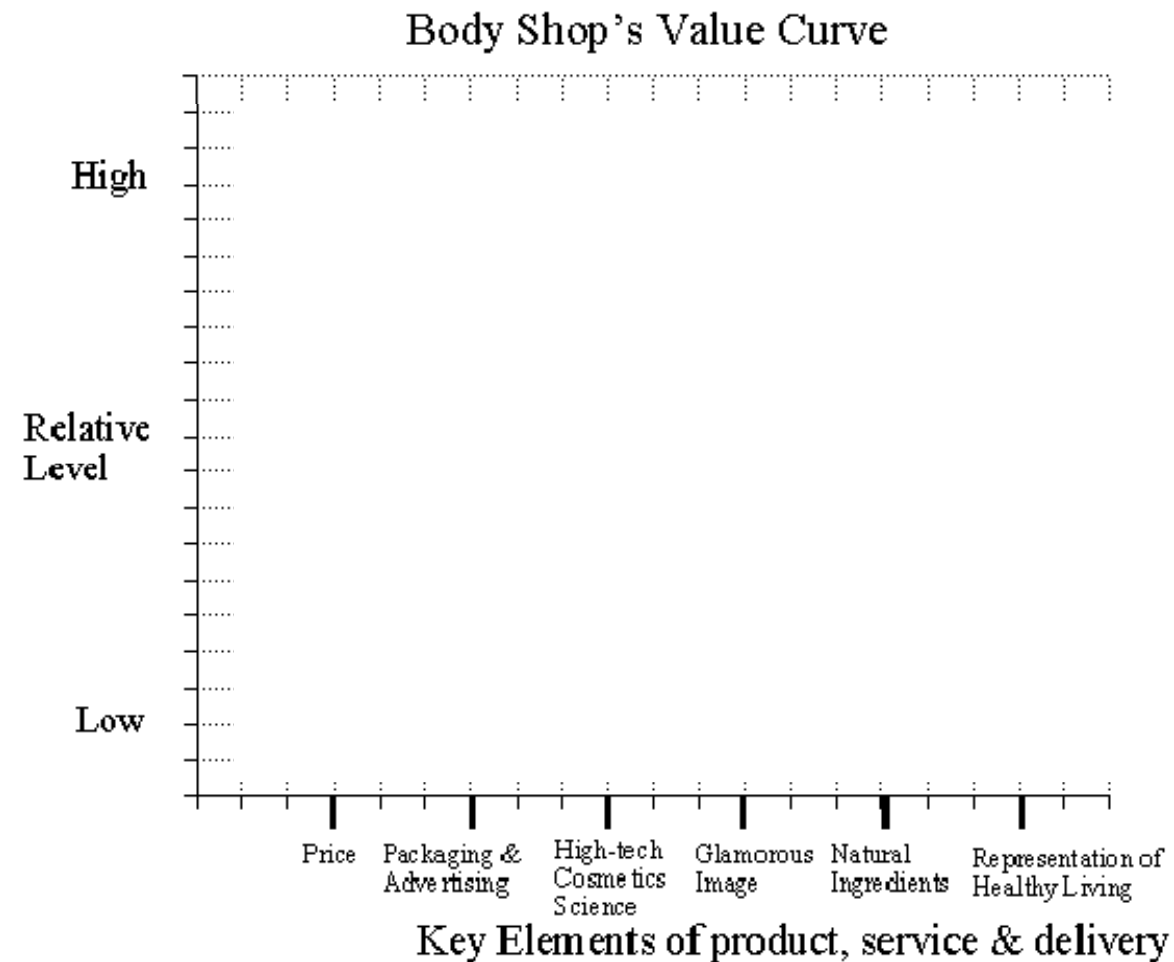
hi

offering level

lo



# The Body Shop



\* Adapted from Kim & Mauborgne's illustration p. 91.

# The blue ocean strategy

- <http://www.youtube.com/watch?v=7SQDGBSjty4>
- Key: find uncontested market place that makes competition irrelevant
- Aka. Value innovation
- Is it sustainable?

# Malaysia's National Blue Ocean Strategy

- <https://www.youtube.com/watch?v=GZpgV7hLIC4>
- What are the target market?
- What do you think about it?

# Frugal innovation

- The process of reducing the complexity and cost of a good and its production. Usually this refers to removing nonessential features from a durable good, such as a car or phone, for markets in developing countries.
- From *More for More*, to *More for Less*
- Turning non-consumers into consumers

# Mobile payment in Kenya

- M-KOPA, the home solar solution that comes literally in a box that has a solar rooftop panel, three LED lights, a solar radio, and a cell phone charger. The whole kit, though, costs 200 dollars, which is too expensive for most Kenyans, and this is where mobile telephony can make the solution more affordable.
- Today, you can buy this kit by making an initial deposit of just 35 dollars, and then pay off the rest by making a daily micro-payment of 45 cents using your mobile phone. Once you've made 365 micro-payments, the system is unlocked, and you own the product and you start receiving clean, free electricity. This is an amazing solution for Kenya, where 70 percent of people live off the grid.
- This shows that with frugal innovation what matters is that you take what is most abundant, mobile connectivity, to deal with what is scarce, which is energy.
- Adapted From *Navi Radjou* [Creative problem-solving in the face of extreme limits](#)

# Frugal banking in France

- Compte Nickel, a start-up in France, is revolutionizing the banking sector. It allows thousands of people to walk into a Mom and Pop store and in just five minutes activate the service that gives them an international bank account number and an international debit card. Compte Nickel charge a flat annual maintenance fee of 20 Euros.
- 75 percent of the customers using this service are the middle-class French who can't afford high banking fees.



# Frugal innovation: Tata Nano

**TATA**

**What makes it so cheap?**



- Priced at \$2000

# To summarize

- Different types of innovation
  - Product innovation
  - Process innovation
  - Business model innovation
  - Value innovation
  - Frugal innovation



- We should be thanking Apple for launching the \$10,000 "apple watch" as the new gold standard in douchebag detection.

-----Anna Kendrick

