

# IS6640

## IS Planning and Strategy

### Lecture 5

Tools of Analysis 1 – IT Impact Map, Five Forces and Value Chain Analysis

# Business Model Framework and Definition



## ***Business Model Definition***

A business model defines how an organization interacts with its environment to define a unique ***strategy***, attract the resources and build the ***capabilities*** required to execute the strategy, and create ***value*** for all stakeholders.

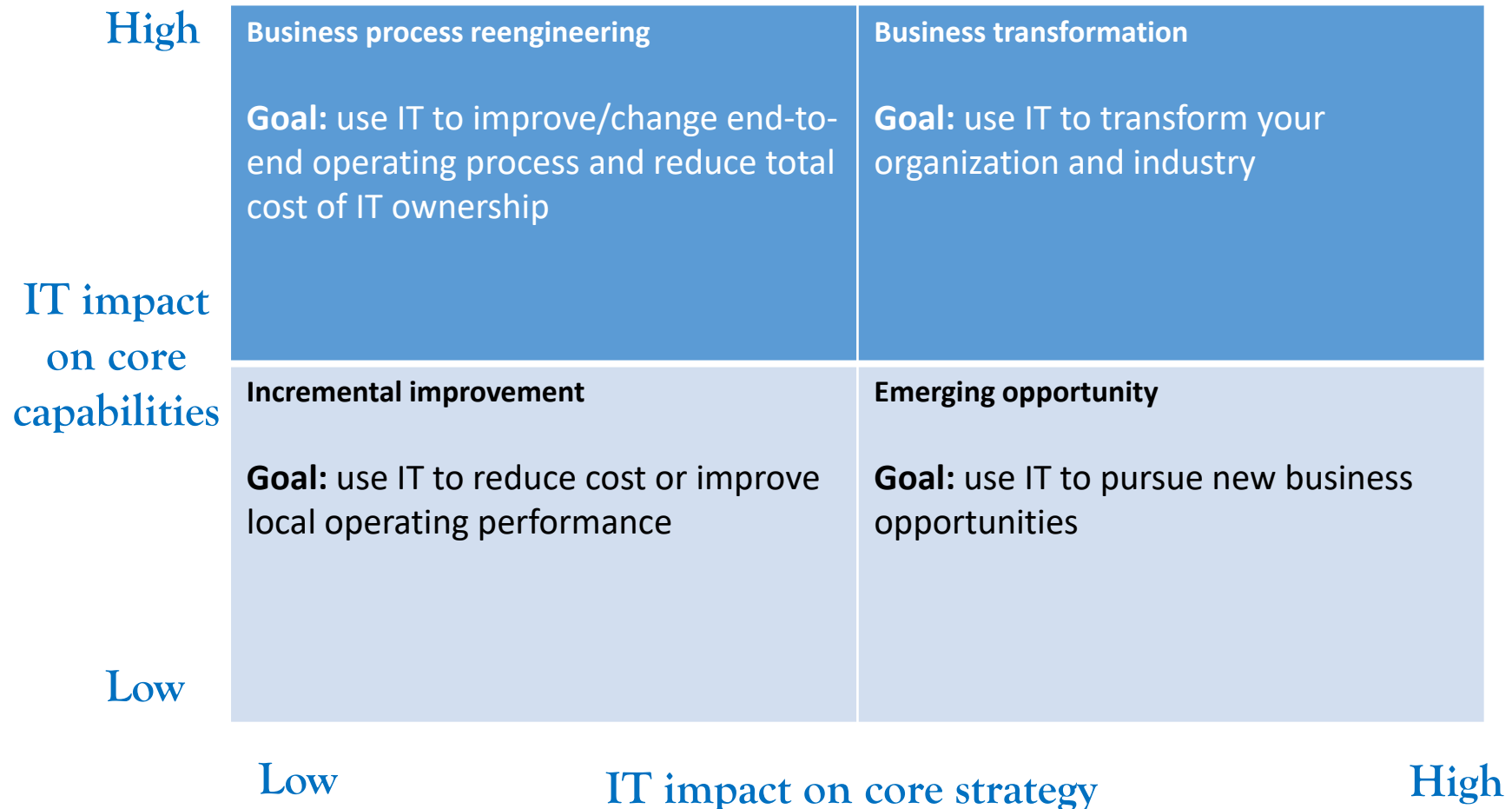
(c) Lynda Applegate 2009

- ▶ IT can impact the business model through its effects on strategy and/or organizational capabilities

# IT Impact Map

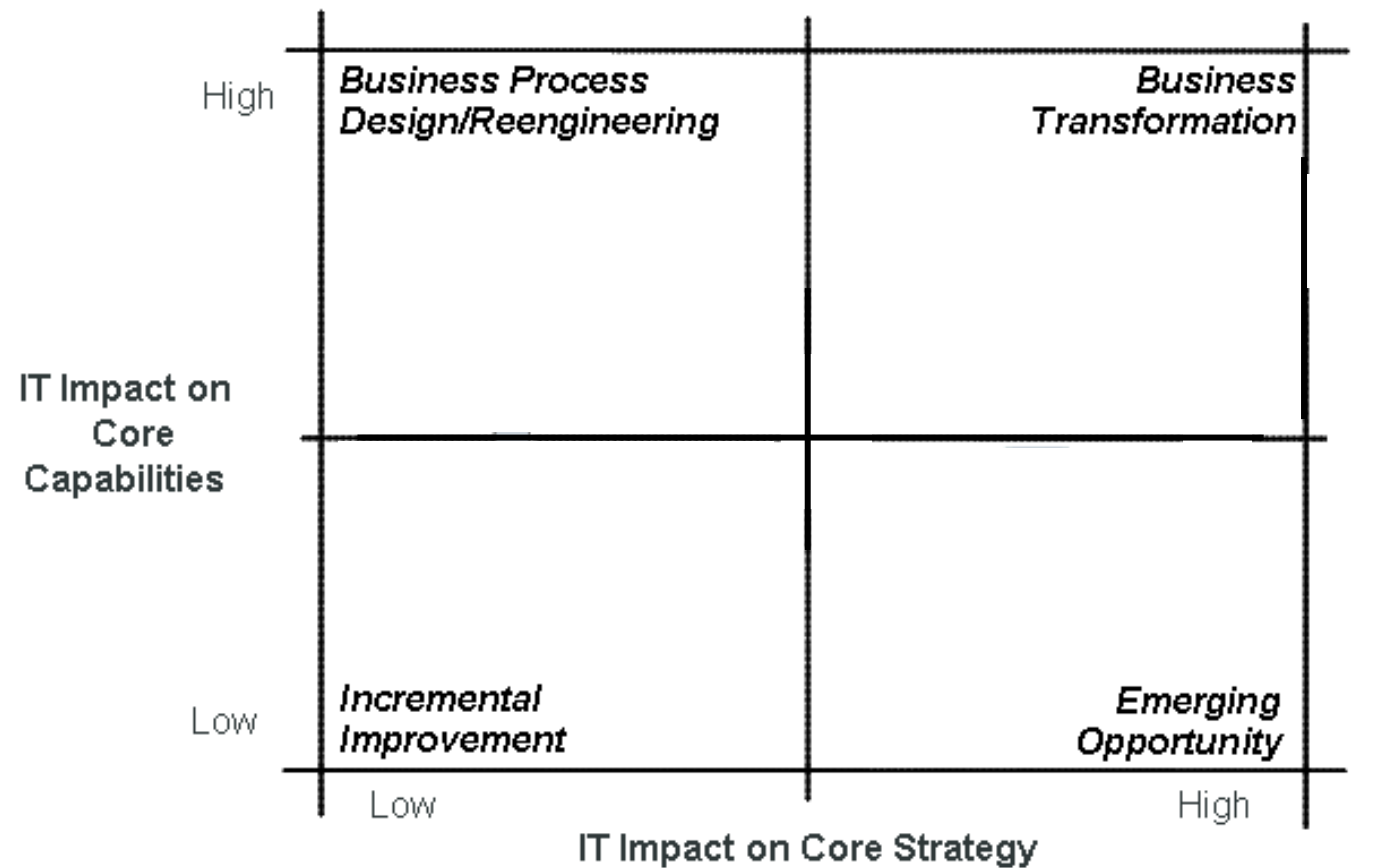
- Impact on strategy
  - The role that IT plays in determining product, market, business network, and boundary positioning
    - Drive differentiation and sustainable advantage (e.g., development of proprietary assets)
    - Define the growth path of the firm over time
- Impact on capability
  - The role that IT plays in building capabilities (processes and infrastructure, people and partners, organization and culture, leadership and governance) to execute strategy
    - Capabilities may be located within a firm or dispersed over a network of business partners

# IT Impact Map



# IT Impact Map on a Single Project

- On a single project - Drone



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# S.F. Express

Founded in 1993  
domestic and international courier  
services and related service business  
infrastructure, equipment  
improves the level of automation  
operations in the whole shipment  
process  
mobile Apps and web-based portal



# S.F. Express (HK)'s Competitors

- Multinational Operators:

- DHL, FedEx, UPS, TNT, etc.



- Hongkong Post



**Hongkong Post**

The Government of the Hong Kong Special Administrative Region

- Private Operators:

- YTO Express, UC Express, 4FX Express, PRouter Express and ZTO Express, ....



# Technology - Drone

- Low altitude flight
  - Below 100 meters when flying between tall buildings (e.g., Kowloon & HK island)
  - 2000 meters max in open areas (NT)
- Load
  - 3kg~5kg (Small & middle packages)
- R&D
  - Develop and design in-house
  - Acquisition of existing aircraft vendor (Linkall & Xaircraft)
- Complementary technology for Drone
  - Mapquest
    - Provide shortest paths solutions to deliveryman and drones
    - Real time traffic tracking





# Technology - Drone

- Fast and accurate P2P delivery
- Automation and replacement of manual labor
- Remote sites that are hard & costly for manual delivery to reach
  - Hong Kong: 1. Relatively small area; 2. High labor cost
  - Rest of China?

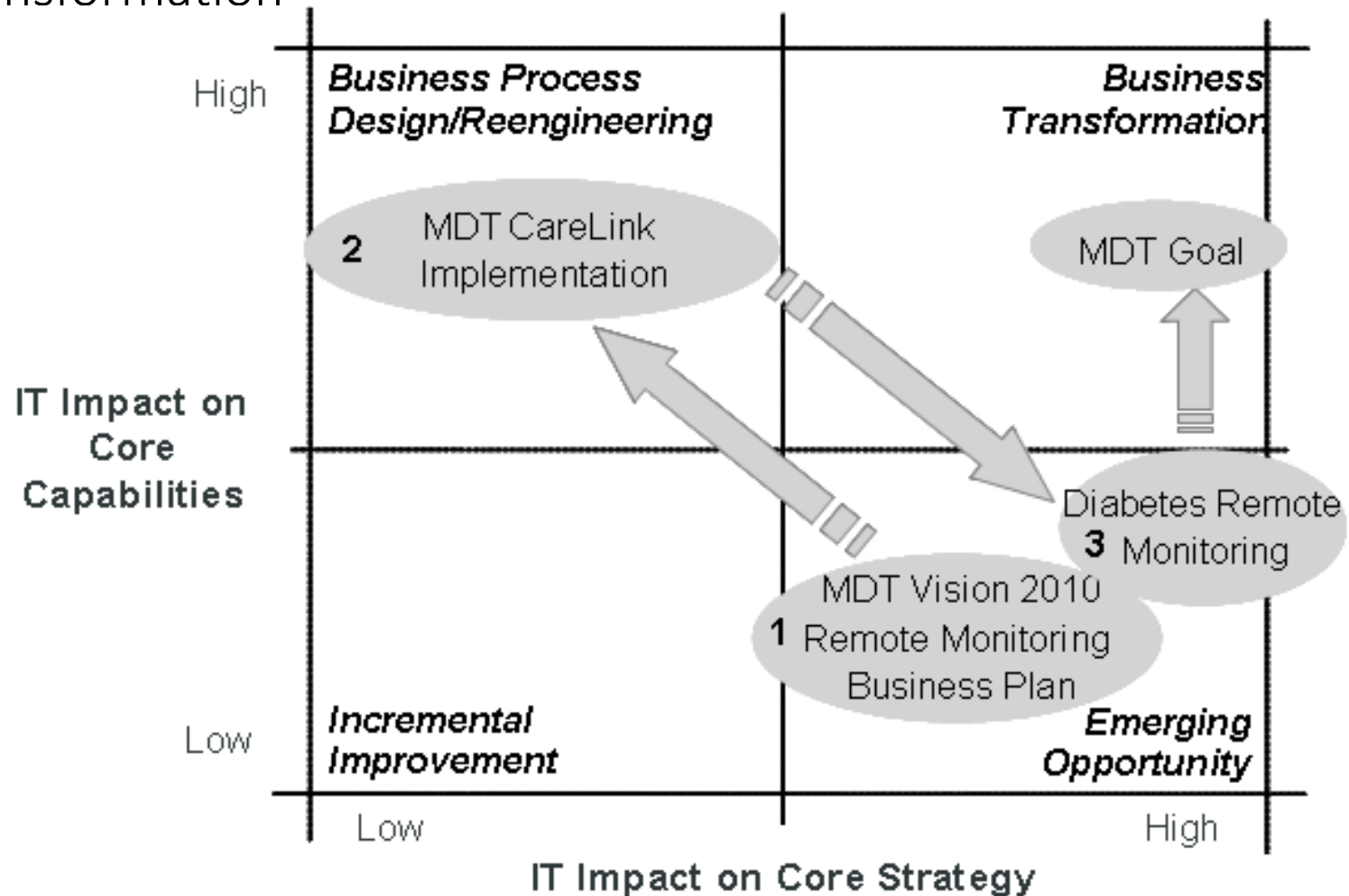
# IT Impact Map on Multiple Projects

- Medtronic

- A medical device company that invented the 1st wearable and 1st implantable cardiac pacemakers.
  - Core: cardiac pacing business
- A remote monitoring service (*cardiac pacemakers*) → [other remote monitoring services](#) (*diabetes, spinal, and neurological devices*) → New device monitoring business (*transform the company and industry*)



## IT Impact Map: Medtronic (MDT) Path to Business Transformation

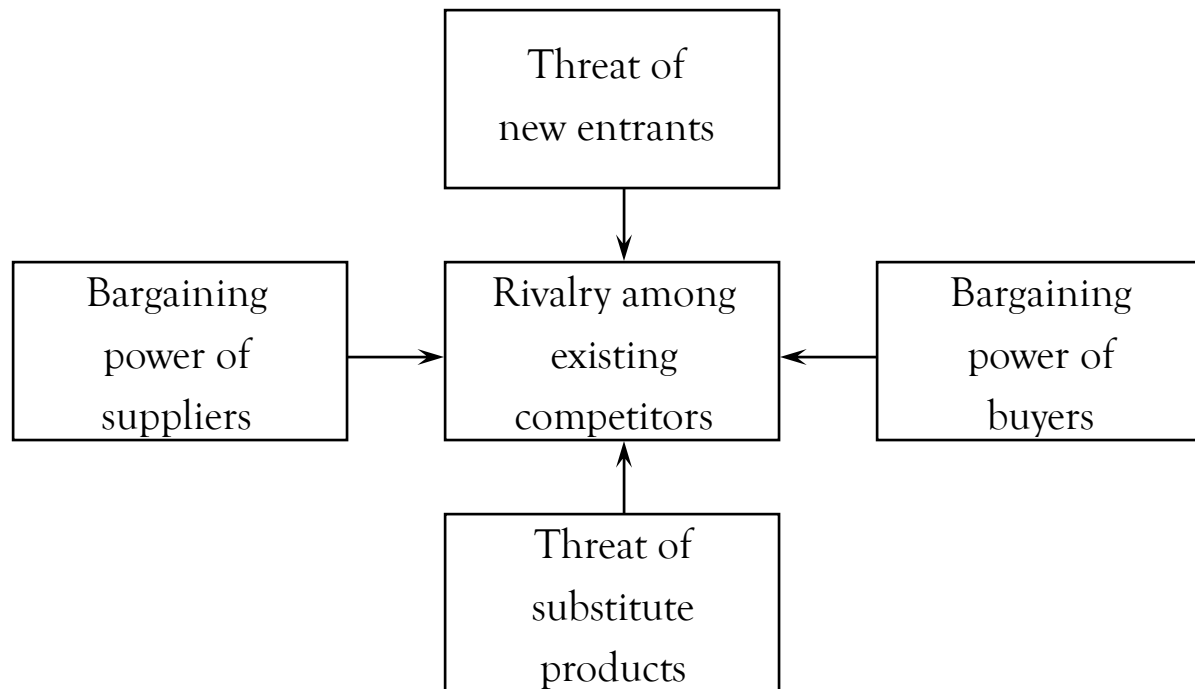


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# IT Impact Map

IT impact on core capabilities	High	<b>Business process reengineering</b>  <b>Goal:</b> use IT to improve/change end-to-end operating process and reduce total cost of IT ownership <b>Examples:</b> ERP implementation	<b>Business transformation</b>  <b>Goal:</b> use IT to transform your organization and industry <b>Examples:</b> Apple's differentiation in the consumer electronics, IoT (e.g. Owsome Tech., TAL VMI)
	Low	<b>Incremental improvement</b>  <b>Goal:</b> use IT to reduce cost or improve local operating performance <b>Examples:</b> automate back-office activities	<b>Emerging opportunity</b>  <b>Goal:</b> use IT to pursue new business opportunities <b>Examples:</b> launch of new products or enter new markets (e.g. TAL VMI, Disney+/Netflix, ...)
		Low	High
		IT impact on core strategy	

# Michael Porter's Competitive Forces in Industry



■ <https://hbr.org/video/2226587624001/the-five-competitive-forces-that-shape-strategy>

■ Courtesy of Prof. Bernard Tan

# Competitive Forces in Industry

Competitive force	Business implications	IS implications
Threat of new entrants	<ul style="list-style-type: none"> <li>• Provide additional capacity</li> <li>• Reduce prices</li> <li>• Create new basis for competition</li> </ul>	<ul style="list-style-type: none"> <li>• Provide entry barriers                             <ul style="list-style-type: none"> <li>– Exploit economies of scale</li> <li>– Differentiate products and services</li> <li>– Control distribution channels</li> <li>– Segment markets</li> </ul> </li> </ul>
Bargaining power of buyers	<ul style="list-style-type: none"> <li>• Reduce prices</li> <li>• Demand quality</li> <li>• Require service flexibility</li> <li>• Encourage competition</li> </ul>	<ul style="list-style-type: none"> <li>• Improve price-performance ratio</li> <li>• Differentiate products and services</li> <li>• Raise switching cost of buyers</li> <li>• Facilitate product selection for buyers</li> </ul>
Bargaining power of suppliers	<ul style="list-style-type: none"> <li>• Raise costs</li> <li>• Reduce quality</li> <li>• Reduce availability</li> </ul>	<ul style="list-style-type: none"> <li>• Track alternative suppliers</li> <li>• Extend quality control into suppliers</li> <li>• Forward planning with suppliers</li> </ul>

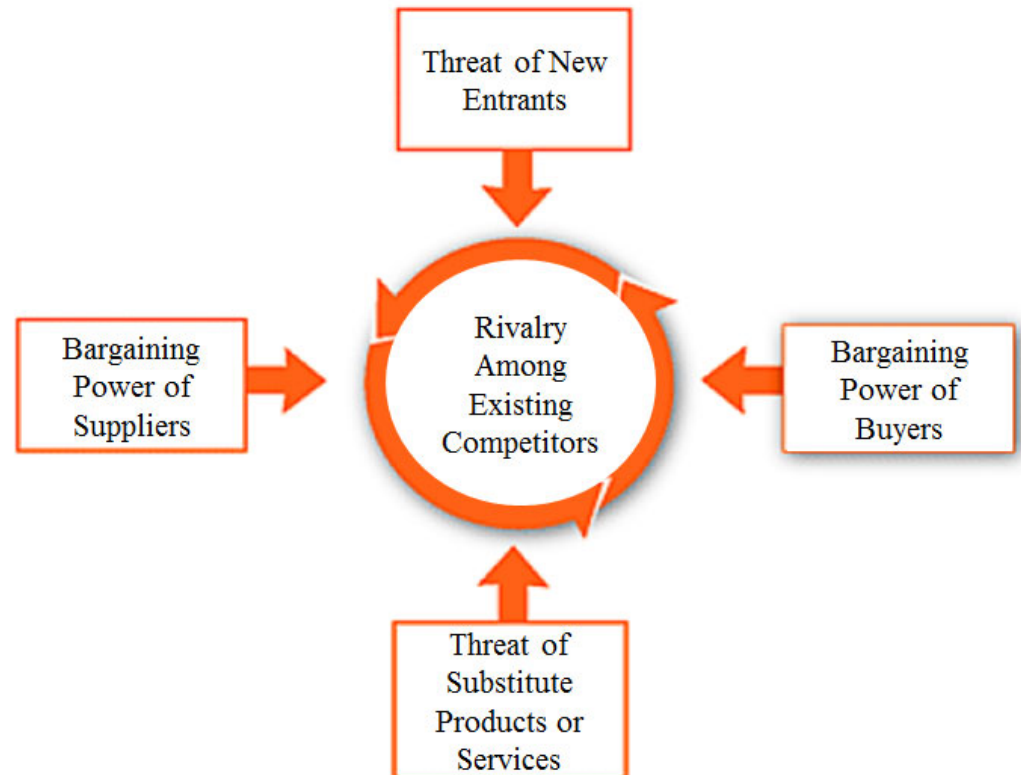
# Competitive Forces in Industry

Competitive force	Business implications	IS implications
Threat of substitute products	<ul style="list-style-type: none"><li>• Limit market sizes</li><li>• Limit profits</li><li>• Impose ceiling on prices</li></ul>	<ul style="list-style-type: none"><li>• Improve price-performance ratio</li><li>• Redefine products and services to increase value</li><li>• Redefine market segments</li></ul>
Rivalry among existing competitors	<ul style="list-style-type: none"><li>• Initiate price competition</li><li>• Increase pace of product development</li><li>• Increase importance of distribution and service</li><li>• Increase importance of customer loyalty</li></ul>	<ul style="list-style-type: none"><li>• Improve price-performance ratio</li><li>• Differentiate products and services</li><li>• Understand customer requirements better</li></ul>

# Five Forces Models

- *“Awareness of the five forces can help a company understand the structure of its industry and stake out a position that is more profitable and less vulnerable to attack.” – Michael Porter*

- An interview with Michael Porter
  - [http://www.youtube.com/watch?v=mYF2\\_FBCvXw](http://www.youtube.com/watch?v=mYF2_FBCvXw)





# Five Competitive Forces that Shape Strategy

- Five forces
  - Define an industry's structure
  - Shape the nature of competitive interaction within an industry
- Understanding industry structure is essential to effective strategic positioning
  - Defend against the competitive forces
  - Shape competitive forces in a company's favor

# 1. Threat of New Entrants

- New entrants
  - Bring new capacity and a desire to gain market share
  - Put pressure on prices, costs, and the rate of investment
- Barriers to entry
  - Proprietary assets, technologies and expertise
  - Capital requirements
  - Government policy
  - Customer switching costs
    - E.g., Once a company has installed SAP's ERP system, the costs of moving to a new vendor are very high.
  - ...

# Automobile Industry - Threat of New Entrants

- High amount of capital required
  - Factories, raw materials, employees
  - R&D to keep up with innovation
- Proprietary technologies

## AUTO INNOVATION

### PATENTS

AUTOMAKERS ARE LEADING PATENT RECIPIENTS.

*"Since 1999, patents awarded to all manufacturing industry sectors have increased in number by only 3 percent. Patents awarded to the auto industry have increased by 10 percent in the same period..."* –Center for Automotive Research

According to a recent report by the Center for Automotive Research, 3 percent to 5 percent of all patents granted in the U.S. are awarded to the auto industry, a number that has risen to approximately 5,000 new patents per year. Along with companies like General Electric, Google and Hewlett Packard, leading automakers ranked amongst the top recipients of U.S. patents granted in 2012.

➤ Therefore, **LOW** threat of new entrants

## 2. Power of Suppliers

- Powerful suppliers
  - Capture more of the value for themselves
  - Charge higher prices, limit service/product quality, or shift costs to industry participants
- A supplier is more powerful if:
  - The supplier is near monopoly (e.g., Microsoft)
  - The supplier does not depend on the industry for its revenue
  - The supplier provides differentiated product
  - ...

# Automobile Industry - Power of Supplier

- Large number of suppliers
  - E.g., Tire Suppliers



➤ Therefore, **LOW** power of supplier

### 3. Power of Buyers

- Powerful buyers
  - Capture more value by forcing down prices and demanding better quality or more service
- A buyer group is more powerful if
  - Few buyers or large-volume buyers
  - Products are standardized or undifferentiated
  - Low switching costs in changing vendors
  - ...

## Automobile Industry - Power of Buyers

	Consumer buyer	Corporate buyer
Switching Cost	Low	Low
Purchase Amount	Low	<b>High</b>
Product differentiation	Low	Low

- Consumer buyers – **MIDDLE** power
- Corporate buyers – **HIGH** power

## 4. Threat of Substitutes

- A substitute performs the same or a similar function by different means
  - Substitute products or services limit an industry's profit potential by placing a ceiling on prices
- The threat of substitute is high if:
  - Attractive price-performance trade-off to the industry's product
  - Buyer's cost of switching is low



# Automobile Industry - Threat of Substitutes

- Substitutes: Public transportation (HK)
  - Attractive price-performance trade-off to personal vehicle
    - Cost of switching - low
- **HIGH** threat of substitution

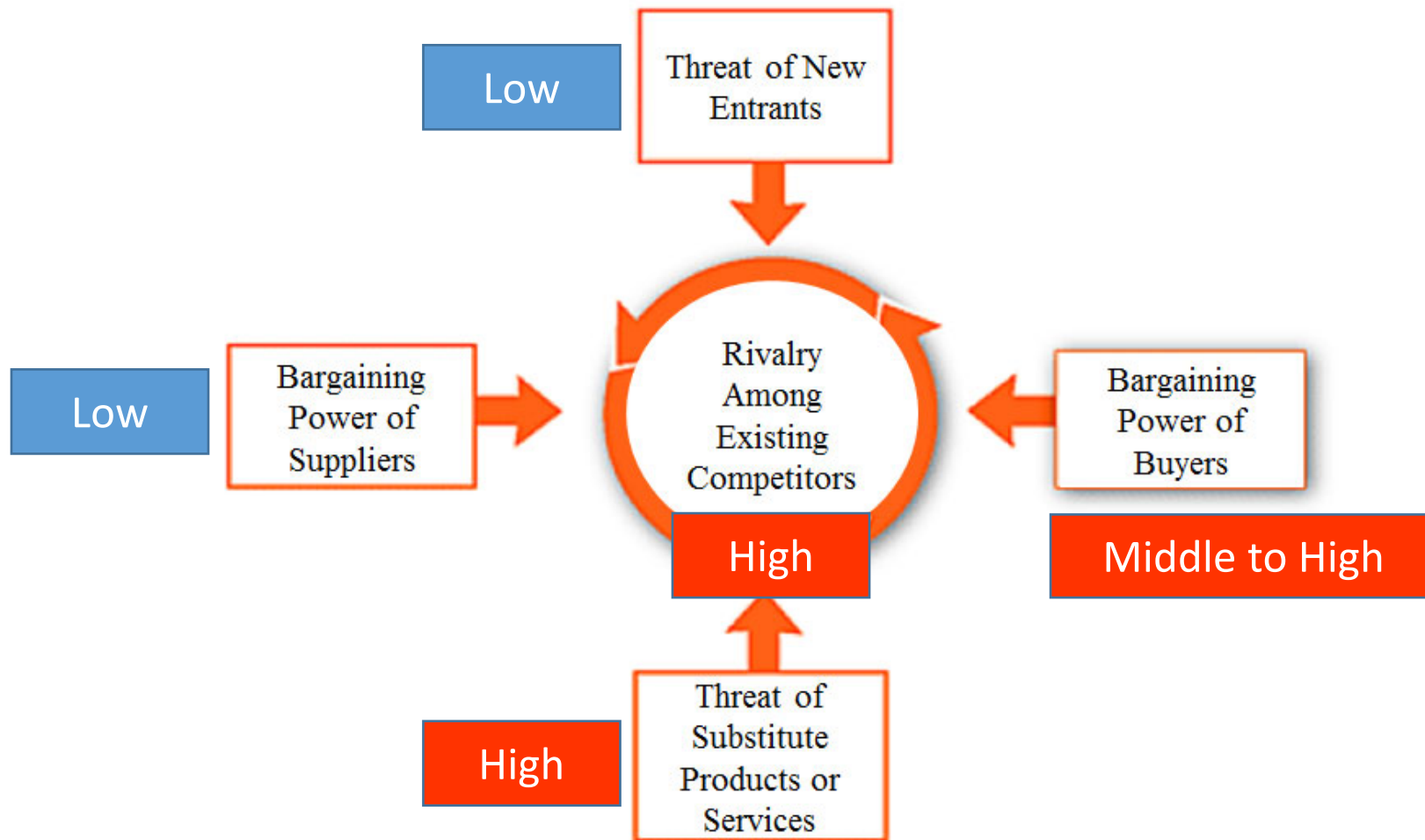
## 5. Rivalry among Existing Competitors

- Rivalry takes many different forms:
  - Price discount
  - New product introduction
  - Advertising
  - Service improvement
  - ...
- Impact of rivalry on profitability depends on
  - **Basis (dimensions)** on which they compete
    - If rivals compete on the same dimensions or product attributes, one firm's gain is often another firm's loss
  - **Intensity** with which companies compete

# Automobile Industry - Competitive Rivalry

- Competitors
  - Manufacturers of fuel vehicles
  - Manufacturers of hydrogen vehicles
  - Manufacturers of electronic cars
- Basis of competition
  - Power source (fuel / hydrogen / electronic)
  - Price range
  - ...
- Intensity of competition
  - High competition in each basis
- Rivalry among competitors
  - High

# The Five Forces – Automobile



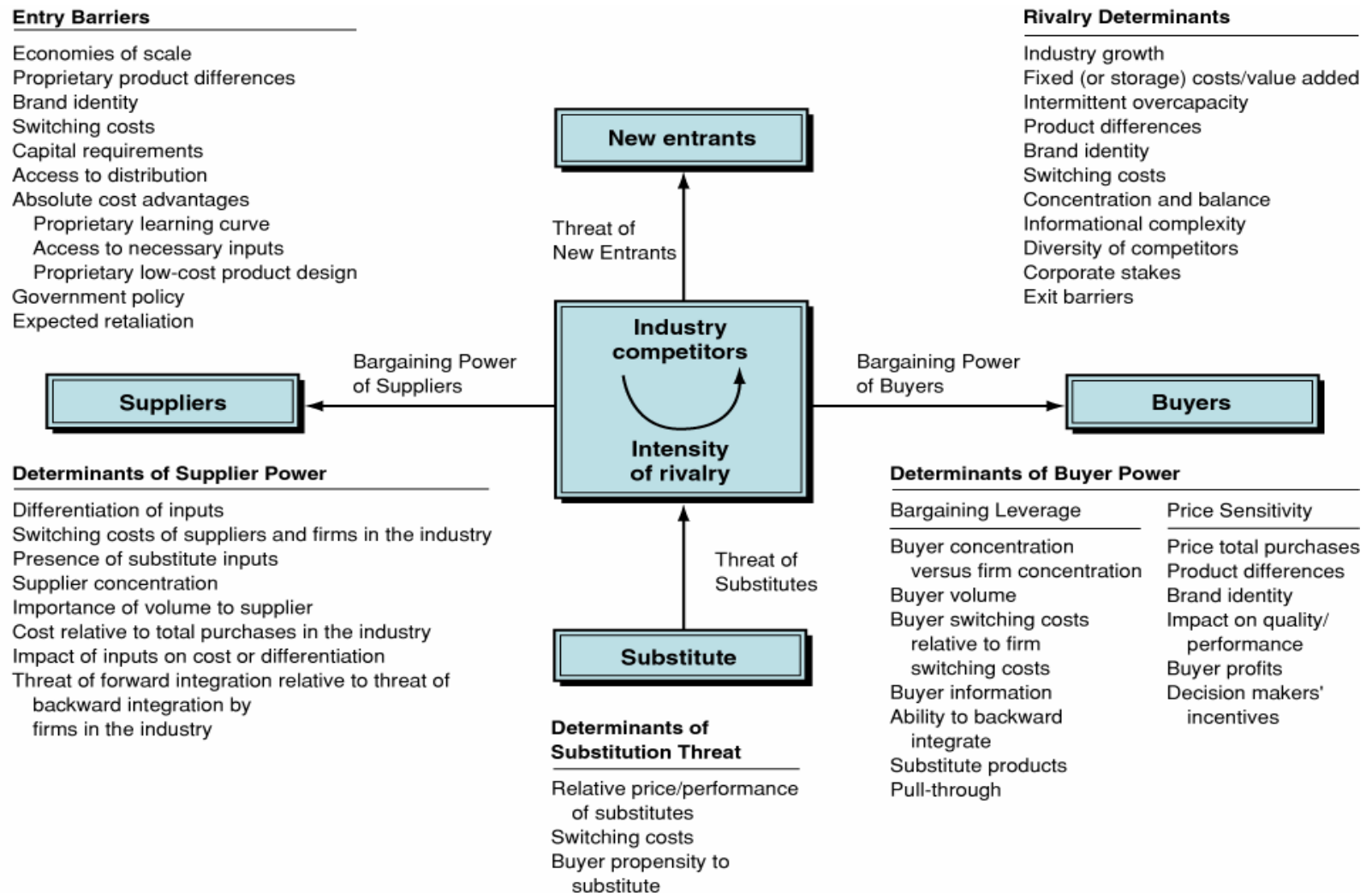
# Strategy Formulation

- “What is the potential of this business?”
  - Build defenses against the strongest competitive force(s)

# The Search for Opportunity

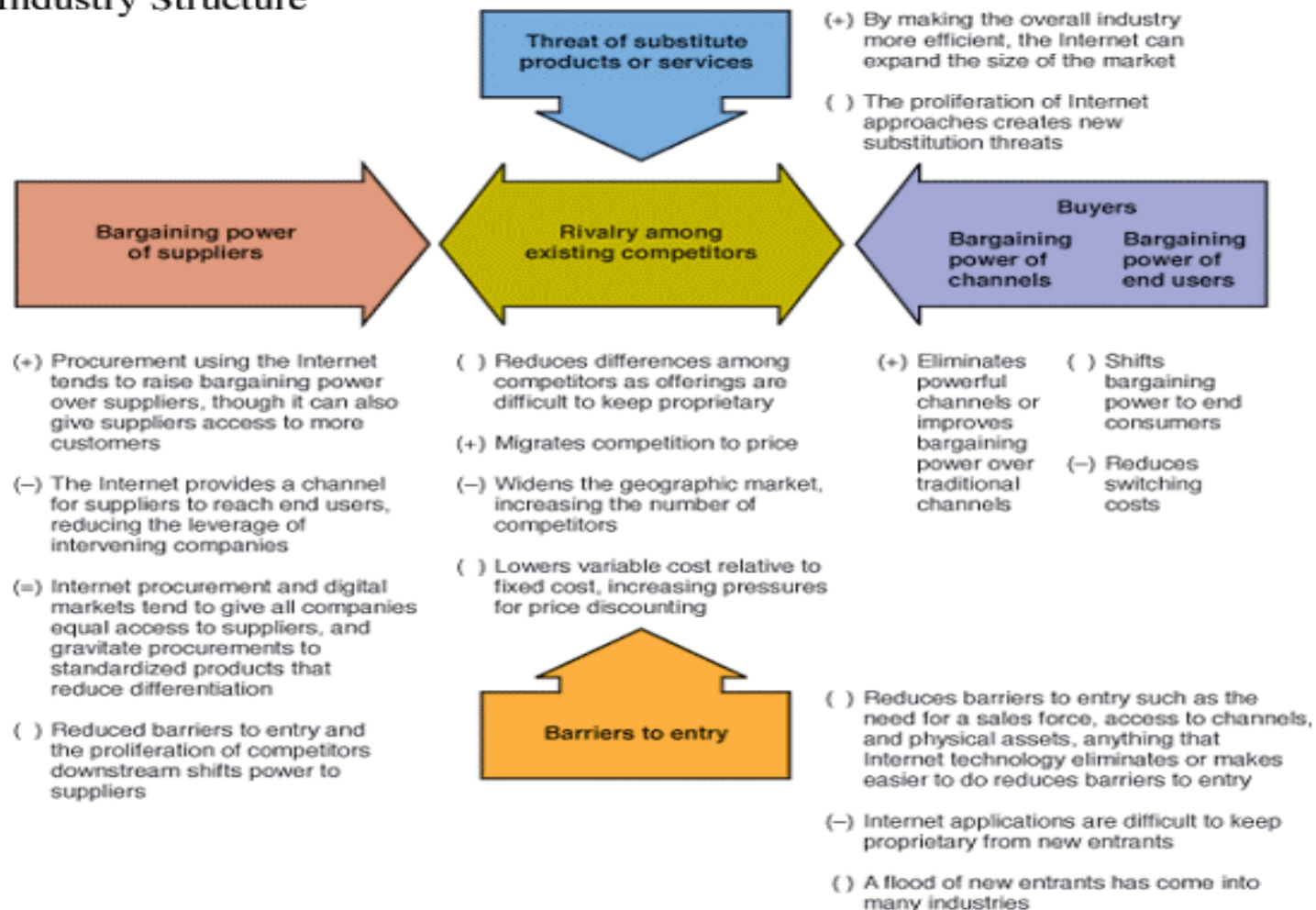
- How IT might change the relative strength of each force
  - Can IT change the basis of competition?
  - Can IT change the nature of relationships and the balance of power in buy-seller relationship?
  - Can IT build barriers to entry?
  - Can IT raise switching costs?
  - Can IT add value to existing products or services or create new ones?

# Porter's Competitive Forces Model



# Impact of the Internet on Porter's Competitive Forces Model

**Exhibit 2.6** Porter's Competitive Forces Model: How the Internet Influences Industry Structure

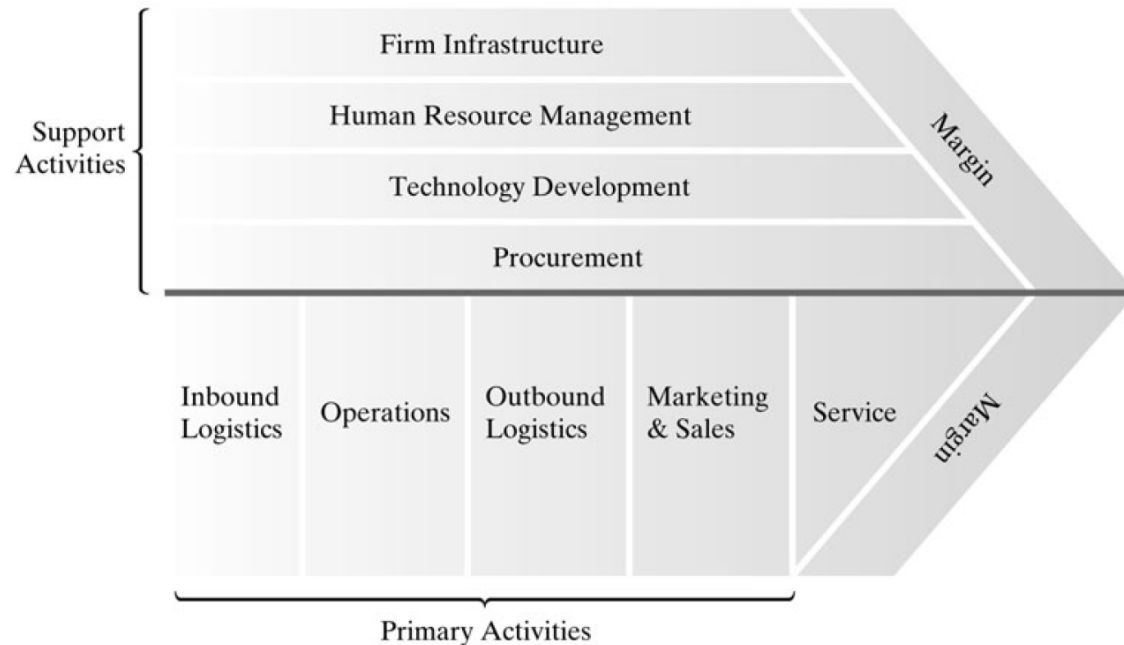


**Source:** Porter, M. E., *Competitive Advantage* (2001), p. 67. Reprinted by permission of The Free Press, a division of Simon & Schuster, Inc. Reprinted by permission of *Harvard Business Review*. From "Strategy and the Internet" by M. E. Porter, March 2001. Copyright © 2001 by the Harvard Business School Publishing Corporation, all right reserved.



# Business Networks – Value Chain

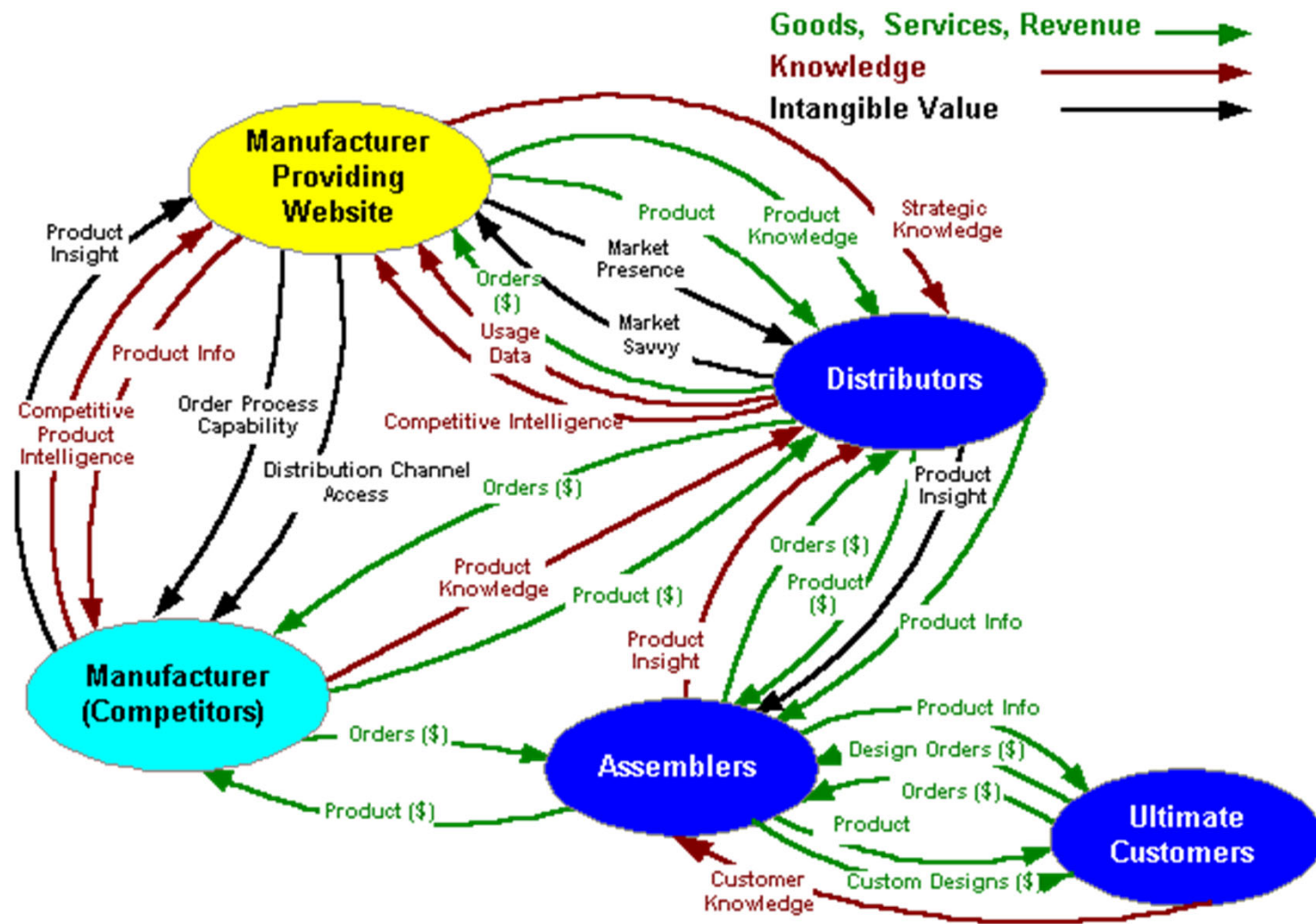
- The Value Chain



- Network of specialized roles

- What activities should we keep inside the boundaries of the firm and which we should source from outside?
- Locate activities internally when costs or risks involved in coordinating/ managing them are too high

# Value Networks



Reference: <http://drivingcommerce.com/value-chain-networking-definitions/>;

Another example: [https://rossdawson.com/value\\_networks/](https://rossdawson.com/value_networks/)

# Group Discussion

- For a company of your choice:
  - Analyze the potential impact on a company's business model with regards to the IT Impacts of a new technology of your choice
  - Identify possibilities for strategic actions