What is a Business?

An organization that provides a product and/or a service that satisfies a need for which people are willing to pay money.

Makes money if revenues exceed costs.
Why Does a Company Need to Make a Profit?

- An obligation to owners/shareholders
  - Owners and shareholders have invested money and time. They expect to see something in return.

- Survival requires continued investments
  - new product development.
  - facilities and equipment.
  - acquiring other companies.
  - Invest in employees (training and salary increases)

- Stakeholders want to see performance before investing in a company’s future.
Recall: What is a System?

- Interrelated components
  - Input
  - Processing
  - Output
Business as a system

A business is an organizational system where

• economic resources (input)
• are transformed by various organizational processes (processing)
• into goods and services (output).
Business as a system
A business is an organizational system where

- economic resources (input)
- are transformed by various organizational processes (processing)
- into goods and services (output).

Information systems provide

- information (feedback) on the operations of the system
Important Things to Understand

Two terms:

1) business functions

2) business processes

Will be frequently used throughout this course.

It would be a good idea to make absolutely sure that you know what they are.
Business Functions

Function: An area of specialization within an enterprise

Analog to Sport Teams, e.g., baseball, basketball, Football, American football, and etc.
Business Functions

**Examples**

- Design
- Engineering
- Sales
- Finance
- Marketing
- Etc…
What prompts the creation and justification of business functions?

- Specialization
- Size
- Efficiency
- More cost effective
**What is a business process?**

- A designed *succession of actions* to accomplish some result in a business.

**Example**

- Order Fulfillment
A Business Process

Business Functions:
- Customer
  - Order
    - Take Order
      - Credit Check
      - Enter Order
        - Check Stock
          - Print Packing list
          - Find Goods
          - Ship
            - Print Invoice
              - Tell Mfg. to make order

- Sales
- Finance
- Inventory Control
- Warehousing
# Business Function and Process

<table>
<thead>
<tr>
<th>Functional Area</th>
<th>Business Process</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manufacturing and production</td>
<td>Assembling the product</td>
</tr>
<tr>
<td></td>
<td>Checking for quality</td>
</tr>
<tr>
<td></td>
<td>Producing bills of materials</td>
</tr>
<tr>
<td>Sales and marketing</td>
<td>Identifying customers</td>
</tr>
<tr>
<td></td>
<td>Making customers aware of the product</td>
</tr>
<tr>
<td></td>
<td>Selling the product</td>
</tr>
<tr>
<td>Finance and accounting</td>
<td>Paying creditors</td>
</tr>
<tr>
<td></td>
<td>Creating financial statements</td>
</tr>
<tr>
<td></td>
<td>Managing cash accounts</td>
</tr>
<tr>
<td>Human resources</td>
<td>Hiring employees</td>
</tr>
<tr>
<td></td>
<td>Evaluating employees’ job performance</td>
</tr>
<tr>
<td></td>
<td>Enrolling employees in benefits plans</td>
</tr>
</tbody>
</table>
Cross Functional Process

- A business process that crosses over multiple functions
- Are all business processes cross functional?
A Business Process

Order
  ↓
Take Order
  ↓
Enter Order
  ↓
Credit Check
  ↓
Check Stock
  ↓
Print Packing list
  ↓
Tell Mfg. to make order

Print Invoice
  ↓
Find Goods
  ↓
Ship

Customer

Sales

Finance

Inventory Control

Warehousing

Business Functions
A business process within a function

Example: Channel Selection Process within Marketing function

- New Product idea
- Conduct Focus Group Studies
- Find sales by channel Data for similar products
- Mine Demographic data
- Combine information Make decision

Example: Channel Selection Process within Marketing function
Processes tend to be more simple at smaller organizations

Enrollment Process at a small, fictitious university…

- Fee Processing
- Financial Aid
- Housing
- Dinning
- Recreation Membership
- Health Insurance
- Class Registration
Processes tend to be more simple at smaller organizations

Enrollment Process at UCSC...
Similarly, at small companies

Example: Capital Equipment Purchase Business Process...
Big company

Capital Equipment Purchase
Business Process

Director

manager

finance

accounting

IT Dept
Business and Firm Hierarchies

• Hierarchy with authority is concentrated at top
• Goal: Achieve Coordination
• Typical Breakdown:
  – Senior management
  – Middle management
    • Knowledge workers
  – Operational management
    • Data workers
    • Production or service workers
• Each group has different needs for information
Components of a Business

Levels in a Firm

- Long range strategic decisions
- *Create new knowledge & design products
- Produce products, deliver new services, administrative work
Discussions: Who should undertake:

1. proposing new products?
2. proposing expanding warehouse?
3. Assign a new shift of workers?
Components of a Business

The Business Environment

- Global environment factors (global)
  - Technology and science
  - Economy
  - Politics
  - International change
- Immediate environment factors (immediate)
  - Customers
  - Suppliers
  - Competitors
  - Regulations
  - Stockholders
The Role of Information Systems in a Business

- Firms invest in information systems in order to:
  - Achieve operational excellence.
  - Develop new products and services.
  - Attain customer intimacy and service.
  - Improve decision making.
  - Promote competitive advantage.
  - Ensure survival.
Systems For Different Levels of Management

- **Transaction processing systems (TPS):**
  - Keep track of basic activities and transactions
  - (e.g., sales, credit decisions, flow of materials in a factory)
- **Management information systems and decision-support systems:**
  - Assist monitoring, controlling, decision making, and administrative activities
- **Executive support systems:**
  - Help address strategic issues and long-term trends, both in firm and in external environment
• Transaction processing systems:
  • Serve operational managers.
  • Answer routine questions
    • E.g., Is the widget in stock? Was Bob paid?
  • Monitor status of internal operations and firm’s relationship with external environment.
    • E.g. Is the gizmo in production? Did we get paid?
  • Feed information to higher level info. systems.
A TPS for payroll processing captures employee payment transaction data (such as a timecard). System outputs include online and hard copy reports for management and employee paychecks.
• Management information systems and decision support system:
  • Assist middle managers with reports on firm’s performance.
  • Summarize and report on basic operations using data from TPS.
  • Provide weekly, monthly, annual results, but may enable drilling down into daily or hourly data.
  • Typically not very flexible systems with little analytic capability (in contrast to higher level systems).
How MIS Obtain Their Data from TPS

Transaction Processing Systems

- Order file
- Production master file
- Accounting files

Management Information Systems

- MIS FILES
  - Sales data
  - Unit product cost data
  - Product change data
  - Expense data

Provide answers to pre-determined questions, e.g., weekly, monthly reports, etc.

Figure 2-6
This report, showing summarized annual sales data, was produced by the MIS in Figure 2-9.

**Sample MIS Report**

Consolidated Consumer Products Corporation Sales by Product and Sales Region: 2008

<table>
<thead>
<tr>
<th>PRODUCT CODE</th>
<th>PRODUCT DESCRIPTION</th>
<th>SALES REGION</th>
<th>ACTUAL SALES</th>
<th>PLANNED</th>
<th>ACTUAL versus PLANNED</th>
</tr>
</thead>
<tbody>
<tr>
<td>4469</td>
<td>Carpet Cleaner</td>
<td>Northeast</td>
<td>4,066,700</td>
<td>4,800,000</td>
<td>0.85</td>
</tr>
<tr>
<td></td>
<td></td>
<td>South</td>
<td>3,778,112</td>
<td>3,750,000</td>
<td>1.01</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Midwest</td>
<td>4,867,001</td>
<td>4,600,000</td>
<td>1.06</td>
</tr>
<tr>
<td></td>
<td></td>
<td>West</td>
<td>4,003,440</td>
<td>4,400,000</td>
<td>0.91</td>
</tr>
<tr>
<td>TOTAL</td>
<td></td>
<td></td>
<td>16,715,253</td>
<td>17,550,000</td>
<td>0.95</td>
</tr>
<tr>
<td>5674</td>
<td>Room Freshener</td>
<td>Northeast</td>
<td>3,676,700</td>
<td>3,900,000</td>
<td>0.94</td>
</tr>
<tr>
<td></td>
<td></td>
<td>South</td>
<td>5,608,112</td>
<td>4,700,000</td>
<td>1.19</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Midwest</td>
<td>4,711,001</td>
<td>4,200,000</td>
<td>1.12</td>
</tr>
<tr>
<td></td>
<td></td>
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<td></td>
<td></td>
<td>18,559,253</td>
<td>17,700,000</td>
<td>1.05</td>
</tr>
</tbody>
</table>
Decision Support System Example:

Voyage-Estimating Decision Support System

This DSS operates on a powerful PC. It is used daily by managers who must develop bids on shipping contracts.

Focus on problems that are unique and rapidly changing!

Optimization or statistical based

Ship file (e.g., speed, capacity)
Port distance restrictions file
Fuel consumption cost file
Ship charter hire history cost file
Port expense file
Decision Support System Example:
Voyage-Estimating Decision Support System

This DSS operates on a powerful PC. It is used daily by managers who must develop bids on shipping contracts.

Focus on problems that are unique and rapidly changing!

1) Given a customer delivery schedule and freight rate, which vessels should be assigned to max profit?

Optimization or statistical based
Executive support systems (ESS):

- Serve senior managers.
- Address strategic issues and long-term trends
  - E.g., what products should we make in five years?
- Nonroutine decision making
- Provide generalized computing capacity that can be applied to changing array of problems and conditions
- Draw summarized information from MIS, DSS, and data from external events
- Links external data, e.g., stock, tax laws, economy trend, etc.
- Typically use portal with Web interface to present content
This system pools data from diverse internal and external sources and makes them available to executives in an easy-to-use form.

Figure 2-9
You may wonder how an organization manages all the aforementioned systems?

- Enterprise applications
  - Systems that span functional areas, focus on executing business processes across the firm, and include all levels of management.
    - Enterprise Resource Planning Systems (ERP)
    - Supply chain management systems (SCM)
    - Customer relationship management systems (CRM)
    - Knowledge management systems (KMS)
Enterprise Resource Planning Systems (ERP)

- Integrate data from key business processes into single system.
- Speed communication of information throughout firm.
- Enable greater flexibility in responding to customer requests, greater accuracy in order fulfillment.
- Enable managers of large firms to assemble overall view of operations.

E.g, Alcoa used ERP to eliminate redundancies and inefficiencies in its disparate systems.
Supply Chain Management Systems (SCM)

- Manage relationships with suppliers, purchasing firms, distributors, and logistics companies.
- Manage shared information about orders, production, inventory levels, and so on.
  - Goal is to move correct amount of product from source to point of consumption as quickly as possible and at lowest cost
- Type of interorganizational system:
  - Automating flow of information across organizational boundaries
Supply Chain Management Systems (SCM)

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- Type of interorganizational system:
  - Automating flow of information across organizational boundaries

Discussions: Do you have any experiences working with SCM?
Customer Relationship Management Systems (SRM)

- Help manage relationship with customers through IT technologies such as phone, message and?
- Coordinate business processes that deal with customers to optimize revenue and customer satisfaction, and increase sales, e.g., bank customer services.
- Combine sales, marketing, and service record data from multiple communication channels to provide unified view of customer, eliminate duplicate efforts.
- E.g., Saab CRM applications to achieve 360 degree view of customers resulted in greater follow-up rate on sales leads and increased customer satisfaction.
Customer Relationship Management Systems (SRM)

- Help manage relationship with customers through IT technologies such as phone, message and ?
- Coordinate business processes that deal with customers to optimize revenue and customer satisfaction, and increase sales, e.g., bank customer services.
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- E.g., Saab CRM applications to achieve 360 degree view of customers resulted in greater follow-up rate on sales leads and increased customer satisfaction.

Discussions: Do you have any experiences working with SCM?
Knowledge Management Systems (KMS)

- Intangible knowledge assets
  - Knowledge about producing and delivering products
  - Source of value and advantage for firms
- Knowledge management systems:
  - Help capture, storage, distribute, and apply knowledge so that it can be leveraged for strategic benefit.
  - Include systems for:
    - Managing and distributing documents, graphics, other digital knowledge objects
    - Creating knowledge directories of employees with specialized expertise
    - Distributing knowledge

Discussions: Do you have any experiences working with KMS?
Enterprise applications automate processes that span multiple business functions and organizational levels and may extend outside the organization.

Figure 2-14
Business Benefits of Collaboration and Teamwork

• Large business firms: “command and control” organizations in which upper management created the strategy and middle management carried out their orders.
  • Today, businesses rely on collaborative culture.
  • Teams of employees responsible for creating and building
Business Benefits of Collaboration and Teamwork

- Large business firms: “command and control” organizations in which upper management created the strategy and middle management carried out their orders.
  - Today, businesses rely on collaborative culture.
  - Teams of employees responsible for creating and building
The Time/Space Collaboration Tool Matrix

Collaboration technologies can be classified in terms of whether they support interactions at the same or different time or place, and whether these interactions are remote or colocated.

Figure 2-12
Evaluating and Selecting Collaboration Software Tools

• What are your firm’s collaboration challenges?
• What kinds of solutions are available?
• Analyze available products’ cost and benefits.
• Evaluate security risks.
• Consult users for implementation and training issues.
• Evaluate product vendors.
Business Benefits of Collaboration and Teamwork

- Large business firms: “command and control” organizations in which upper management created the strategy and middle management carried out their orders.
  - Today, businesses rely on collaborative culture.
  - Teams of employees responsible for creating and building

Discussions:

1) Is your working experience more of “command & control” or of “collaboration & teamwork”? Which one would you prefer?

2) What is your experiences of using IT-based technologies to enhance collaboration & teamwork in UCSC or elsewhere?
The Information Systems Department

• Programmers
  • Write software instructions for computers
• Systems analysts
  • Principle liaisons to rest of firm
• Information systems managers
  • Leaders of teams of programmers and analysts, project managers, physical facility managers, telecommunications managers, database specialists, managers of computer operations, and data entry staff
• Senior managers: CIO (chief information officer), CPO (chief privacy officer), CSO (chief security officer), CKO (chief knowledge officer)
• End users
• External specialists
The Information Systems Department

- **Programmers**
  - Write software instructions for computers
- **Systems analysts**
  - Principle liaisons to rest of firm
- **Information systems managers**
  - Leaders of teams of programmers and analysts, project managers, physical facility managers, telecommunications managers, database specialists, managers of computer operations, and data entry staff
- **Senior managers**: CIO (chief information officer), CPO (chief privacy officer), CSO (chief security officer), CKO (chief knowledge officer)
- **End users**
- **External specialists**

CIO: oversee IT operations, strategic use of IT
CSO: develop and maintain IT security and policies
CPO: privacy compliance
CKO: develop knowledge management system
Information Systems Services

- Services provided by the information systems department include:
  - Computing and telecommunications services
  - Data management services
  - Application software services
  - Physical facilities management services
  - IT management services
  - IT standards services
  - IT educational services
  - IT research and development services
Information Systems Services

• Services provided by the information systems department include:
  • Computing and telecommunications services
  • Data management services
  • Application software services
  • Physical facilities management services
  • IT management services
  • IT standards services
  • IT educational services
  • IT research and development services

Discussions:
What is your experiences of services provided by the IT at UCSC (or elsewhere)? Does it include all the items?
Porter Competitive Model?

- **What is it?**
  - A model to help understand the competitive environment in which a company operates.

- **What are the “5 forces”?**
  - Intra-Industry Competition
  - Bargaining power of Suppliers
  - Bargaining power of Customers
  - Substitutes
  - Threat of New Entrants.
Porter Competitive Model
(Identify the Industry and the Specific Market Being Evaluated)

- Potential New Entrants
- Bargaining Power of Suppliers
- Intra-Industry Rivalry
- Strategic Business Unit
- Bargaining Power of Buyers
- Substitute Products and Services

M. E. Porter (1979) The Five Competitive Forces That Shape Strategy, HBR.
Porter Competitive Model
(Identify the Industry and the Specific Market Being Evaluated)

Source: www.mindtools.com/pages/article/newTMC_08.htm
Intra-Industry Rivalry

SBU: AT&T
Rivals: Verizon, Sprint-Nextel, T-Mobile

Bargaining Power of Buyers
- Foreign Telcos
- Change of strategy from player in another industry

Bargaining Power of Suppliers
- Handset makers
- Equipment Manufacturers
- Employees

Potential New Entrants
- • Retail Customers
  - Corporate Customers
- • Foreign Telcos
- • Change of strategy from player in another industry

Substitute Products and Services
- • VoIP services; VoIP over wifi
  - messaging, social-networks over wifi

SBU: strategic business unit
Porter Model in Business Paper

- You must include a Porter Model in your Business Paper
  - Figure
    - Make it look nice!
  - Narrative analysis of the five forces
    - Identify the industry.
    - Identify the major buyers, suppliers, potential new entrants, substitutes, and inta-industry rivals.
    - Discuss if and why these players put strong or weak competitive pressures on your business.
Example: Usefulness of Porter Model

- Bob wants to start a dentist office
  - However, bob did not go to dental school
  - Bob will hire the dentist and other staff
  - Is this a good model?

```
<table>
<thead>
<tr>
<th>Suppliers</th>
<th>Dentist (Alice)</th>
<th>Bob’s Dentist Office</th>
<th>Buyers</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>New Entrants</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Substitutes</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
```
Example: Usefulness of Porter Model

- Bob wants to start a dentist office
  - However, bob did not go to dental school
  - Bob will hire the dentist and other staff
  - Is this a good model?

No! Dentist has too much bargaining power, she could always go into business for herself.
Example: Usefulness of Porter Model

- Suppose Alice, who is a dentist, opens an office

  **Suppliers**
  - Staff
  - Hygienists

  **Intra-industry rivals**
  - SBU: Alice’s Dentist Office
  - Other local dentist offices

  **New Entrants**
  - Dental School Graduates
  - Dentists moving in from other regions

  **Buyers**
  - Public in general
  - Insurance companies
  - Those wanting cosmetic dentistry

  **Substitutes**
  - Alternative Medicine?
“Primary” Porter Strategies

- In economics you will learn a market where
  - Product is a commodity
  - Firms all have the same production costs
  - New firms can enter market at no cost ("free entry")

profits are driven to zero.

- Consequently Firms need to
  - Differentiate and/or
  - Achieve Cost leadership
“Primary” Porter Strategies

**Differentiation**—customer values the differences that you provide in products, services or capabilities.

**Cost**—become the lowest cost provider. If this is the only primary strategy in the industry, over time there will only one ultimate winner.
Porter Supporting Strategies

- Innovation
  - Can reduce costs and or differentiate

- Growth
  - Help offset fixed costs
  - Establish reputable brand (differentiate)

- Alliances
  - Achieve more complete solution (differentiate)
  - Integration of each others technology may reduce costs
Porter Model Tips

1. Defining the industry can cause major problems

2. Identify the specific market being evaluated

3. Your company is the “Strategic Business Unit”

4. Identify rivals by name for majors, by category for minor rivals
Porter Model Tips

5. Be sure to address the **power implications** of both customers and suppliers. Power gets them what?

6. Identify buyers and suppliers by categories and mention major ones by names.

7. **Summarize** your Porter Model analysis.
What do Porter Models Have to do with IT?

Any ideas?
Porter Model and Information Systems:

1. Build entry **barriers** to prevent a company from **entering** an industry
2. Build in costs (switch costs) that would make it difficult for a customer to **switch** to another supplier
3. Change the basis for competition within the industry
4. Change the balance of power between a company and its customers or suppliers
5. Provide the basis for new products and services
Rules Regarding Strategies

- Must pick *at least* one of the two primary strategies.

- Can pick any combination of supporting strategies.

Let’s test the logic of this using Southwest Airline and Wal-Mart Stores.
Case Study: Southwest Case

Follow the Porter’s “competitive” model:

1. Understand “market landscape” using the 5 forces:
   a. Competitive rivalry
   b. Threat of new entry
   c. Buy power
   d. Supplier power
   e. Threat of substitutions

2. Discuss what the Southwest did leads to its success? (Please be specific on how its action impact each of the 5 forces.)
Southwest Airline Strategies

Primary Strategy:
  Differentiation
  Least Cost

Supporting Strategies:
  Innovation
  Growth
  Alliances
Case Study: Wal-Mart Case

Follow the Porter’s “competitive” model:

1. Understand “market landscape” using the 5 forces:
   a. Competitive rivalry
   b. Threat of new entry
   c. Buy power
   d. Supplier power
   e. Threat of substitutions

2. Discuss what the Wal-mart did leads to its success? (Please be specific on how its action impact each of the 5 forces.)
Wal-Mart Strategies

**Primary Strategy:**
- Least Cost
- Differentiation

**Supporting Strategies:**
- Innovation
- Growth
- Alliances
Announcements

• Read
  ■ Assignment about reading out (1/19) & due 1/26 Tues.
    (On ecommons): turn in as a group, max 2 pages!
  ■ Readings: Laudon & Laudon Ch 3 (41-69, can skip cases on 53 and 67)

• Office hours
  ■ E2 549B, 3-5pm, Thursday.

• Business paper group
  ■ Questions/Concerns?
Database Tutorial Sessions

- Try to attend ONE of the following three sessions
  - (they will all cover the same stuff)

Merrill Room 103

- Thursday, 1/21/16, 11:30-1:00pm
- Friday, 1/22/16, 5:00-6:30pm
- Monday, 1/25/16, 5:00-6:30pm
Information System Strategies for Dealing with Competitive Forces

1) Low-cost leadership
2) Product differentiation
3) Focus on market niche
4) Strengthen customer and supplier intimacy

Early effort has been focused on 1, and more recent are on 2-4.
3.29

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Information System Strategies for Dealing with Competitive Forces

1) Low-cost leadership

- Use information systems to achieve the lowest operational costs and the lowest prices; \( \text{profit} = \text{price} \times \text{sales-cost} \)

- E.g. Wal-Mart
  
  - Inventory replenishment system sends orders to suppliers when purchase recorded at cash register, e.g., bar code, share info with suppliers and reduced its overhead to 17% compared to 25% (Sears)
  
  - Minimizes inventory at warehouses, operating costs.
  
  - Efficient customer response system, e.g., link customers behavior (holidays) to upstream.
2) Product differentiation

- Use information systems to enable new products and services, or greatly change the customer convenience in using your existing products and services.

- E.g., Google’s continuous innovations (e.g., Google Wallet), Apple’s iPhone (New App), Amazon (check out).

- Use information systems to customize, personalize products to fit specifications of individual consumers.

  Ø E.g., Dell
### IS-Enable New Product and Services Providing Competitive Advantage*

<table>
<thead>
<tr>
<th>Product/Service</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amazon: One-click shopping</td>
<td>Amazon holds a patent on one-click shopping that it licenses to other online retailers</td>
</tr>
<tr>
<td>Online music: Apple iPod and iTunes</td>
<td>An integrated handheld player backed up with an online library of over 26 million songs</td>
</tr>
<tr>
<td>Golf club customization: Ping</td>
<td>Customers can select from more than 1 million different golf club options; a build-to-order system ships their customized clubs within 48 hours</td>
</tr>
<tr>
<td>Online person-to-person payment: PayPal.com</td>
<td>Enables transfer of money between individual bank accounts and between bank accounts and credit card accounts</td>
</tr>
<tr>
<td>IS-Enable New Product and Services Providing Competitive Advantage*</td>
<td></td>
</tr>
<tr>
<td>---------------------------------------------------------------</td>
<td></td>
</tr>
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<td><strong>Amazon: One-click shopping</strong></td>
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</tr>
</tbody>
</table>

Discussion: Any of your experience about effort by firms for “product differentiation”? e.g., Hertz, others? Anything at “local” level?
3.33

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Information System Strategies for Dealing with Competitive Forces

3) Focus on market niche (≈ product differentiation).

- Use information systems to enable specific market focus, and serve “narrow” target market better than competitors.
  - Analyzes customer buying habits, preferences, tastes (e.g., recommending system)
  - Advertising pitches to smaller and smaller target markets
- E.g., Hilton Hotel’s OnQ System
  - Analyzes data collected on guests to determine preferences and guest’s profitability

Discussion: Any of your experience of information systems that analyze buyers’ behavior and use it to enhance its business?
Information System Strategies for Dealing with Competitive Forces

Strengthen customer and supplier intimacy (switching cost ↑).

- Strong linkages to customers and suppliers increase switching costs and enhance loyalty
  - Toyota: uses IS to facilitate direct access from suppliers to production schedules
    - Permits suppliers to decide how and when to ship suppliers to factories, allowing more lead time in producing goods.
- Apple care (any experience?)
- Amazon: keeps track of user preferences for purchases, and recommends titles purchased by others
Information System Strategies for Dealing with Competitive Forces

- Strengthen customer and supplier intimacy (switching cost).
  - Strong linkages to customers and suppliers increase switching costs and enhance loyalty.
  - Toyota: uses IS to facilitate direct access from suppliers to production schedules.
    - Permits suppliers to decide how and when to ship suppliers to factories, allowing more lead time in producing goods.
  - Amazon: keeps track of user preferences for purchases, and recommends titles purchased by others.

Discussions: Do you have any experience that some firms really care about customers?
### Information System Strategies for Dealing with Competitive Forces: A Summary

<table>
<thead>
<tr>
<th>Strategy</th>
<th>Description</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low-cost leadership</td>
<td>Use information systems to produce products and services at a lower price than competitors while enhancing quality and level of service</td>
<td>Walmart</td>
</tr>
<tr>
<td>Product differentiation</td>
<td>Use information systems to differentiate products, and enable new services and products</td>
<td>Google, eBay, Apple, Starbucks</td>
</tr>
<tr>
<td>Focus on market niche</td>
<td>Use information systems to enable a focused strategy on a single market niche; specialize</td>
<td>Hilton Hotels, Harrah’s</td>
</tr>
<tr>
<td>Customer and supplier intimacy</td>
<td>Use information systems to develop strong ties and loyalty with customers and suppliers</td>
<td>Toyota Corporation, Amazon</td>
</tr>
</tbody>
</table>
Information System Strategies for Dealing with Competitive Forces

• Some companies pursue several strategies at the same time.
  • Dell emphasizes low cost plus customization of products.

• Successfully using IS to achieve competitive advantage requires precise coordination of technology, organizations, and people.
### The Internet’s Impact on Competitive Advantage:
Mapping to the Porter’s framework

<table>
<thead>
<tr>
<th>Competitive Force</th>
<th>Impact of the Internet</th>
</tr>
</thead>
<tbody>
<tr>
<td>Substitute products or services</td>
<td>Enables new substitutes to emerge with new approaches to meeting needs and performing functions</td>
</tr>
<tr>
<td>Customers’ bargaining power</td>
<td>Shifts bargaining power to customers due to the availability of global price and product information</td>
</tr>
<tr>
<td>Suppliers’ bargaining power</td>
<td>Tends to raise bargaining power over suppliers in procuring products and services; however, suppliers can benefit from reduced barriers to entry and from the elimination of distributors and other intermediaries standing between them and their users</td>
</tr>
</tbody>
</table>
### The Internet’s Impact on Competitive Advantage: Mapping to the Porter’s framework

<table>
<thead>
<tr>
<th>Competitive Force</th>
<th>Impact of the Internet</th>
</tr>
</thead>
<tbody>
<tr>
<td>Threat of new entrants</td>
<td>Reduces barriers to entry, such as the need for a sales force, access to channels, and physical assets; it provides a technology for driving business processes that makes other things easier to do</td>
</tr>
<tr>
<td>Positioning and rivalry among existing competitors</td>
<td>Widens the geographic market, increasing the number of competitors and reducing differences among competitors; makes it more difficult to sustain operational advantages; puts pressure to compete on price</td>
</tr>
</tbody>
</table>
Porter’s Value Chain

- The Competitive Model of five forces deals with the environment within which a company competes (static).

- The Value Chain addresses the flow of a product through the organization (dynamics).
  - It starts with the original idea in research and tracks its progress all the way to the customers.
  - View firm as a series of basic activities that add a margin of value (e.g., value-added supply chain) to its products/services.
The Business Value Chain Model: Highlights activities in a business where competitive strategies can best be applied and ISs are likely to have a strategic impact.

- Primary activities (physical processes)
  - Directly related to production and distribution of firm’s products or services

- Support activities (organic process)
  - Make delivery of primary activities possible, including administrative, management, human resources, technology and procurement
The Value Chain Model

**Support Activities**
- Administration and Management: Electronic scheduling and messaging systems
- Human Resources: Workforce planning systems
- Technology: Computer-aided design systems
- Procurement: Computerized ordering systems

**Primary Activities**
- **Inbound Logistics**
  - Automated warehousing systems
- **Operations**
  - Computer-controlled machining systems
- **Sales and Marketing**
  - Computerized ordering systems
- **Service**
  - Equipment maintenance systems
- **Outbound Logistics**
  - Automated shipment scheduling systems

**Sourcing and Procurement Systems**

**Industry Value Chain**
- Suppliers’ Suppliers
- Suppliers
- Firm
- Distributors
- Customers

**Benchmark**

Customer Relationship Management Systems
Discussions: Please describe the business value chain in a business where you have experience.
Using Information Systems to Achieve Competitive Advantage at industry level

**Extended Value Supply Chain to “The Value Web”**

Create a networked system
1) Synchronize the value chains of partners
2) Respond rapidly to supply and demand

e.g., create industry level standard
- increase efficiency
- raise entry cost
- minimize product substitution
Extended Value Supply Chain to “The Value Web”

For instance, with Amazon.com, you want to make it easier for

a. Suppliers to display goods and open stores at Amazon site;

b. Customers to pay for goods;

And develop a system

a. That coordinates the logistics, e.g., shipment

b. That allows tracking shipment.

- raise entry cost
- minimize product substitution
Synergies, Core Competencies, and Network-Based Strategies

• A large corporate is organized as a collection of strategic business units, and the return to the firm is directly linked to the performance of all the units.

• **Synergies:** (≈collaboration)
  
  • When output of some units can be used as inputs to other units.
  
  • When two “organizations” can pool markets and expertise (e.g., mergers, business paper).

  - Lower costs and generate profits.

  - Enabled by information systems that tie together disparate units so they act as a whole, e.g., collaborate, coordination tools, knowledge aggregator.
Synergies, Core Competencies, and Network-Based Strategies

Network-based strategies:

- **Network economics:** (v.s. diminishing return)
  - Marginal costs of adding another participant are near zero, whereas marginal gain is much larger
  - e.g., larger number of participants in Internet, greater value to all participants, yelp, travel-advisor, others?

- **Virtual company:**
  - Uses networks to link people, resources, and ally with other companies to create and distribute products without traditional organizational boundaries or physical locations, e.g., explore external vendor
Synergies, Core Competencies, and Network-Based Strategies

Core competency:

- Activities firm is world-class in
  - e.g., world’s best miniature parts designer, best package delivery service.

- Knowledge gained over many years of experience + research.

- **Information system** that encourages the sharing or fostering of knowledge across business units helps.
  - e.g., Procter & Gamble uses intranet to help people working on similar problems share ideas and expertise.
Disruptive Technologies: Riding the Wave

Disruptive technologies:

- Substitute products that perform as well or better than anything currently products.
  - Personal computers
  - World Wide Web
  - Internet music services
  - Digital photography

- First movers versus fast followers
  - First movers of disruptive technologies may fail to see potential, allowing second movers to reap rewards (fast followers), e.g., think about first-gen immigrant
## Disruptive Technologies: Riding the Wave

<table>
<thead>
<tr>
<th>Technology</th>
<th>Description</th>
<th>Winners and Losers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Microprocessor chips (1971)</td>
<td>Thousands and eventually millions of transistors on a silicon chip</td>
<td>Microprocessor firms win (Intel, Texas Instruments) while transistor firms (GE) decline</td>
</tr>
<tr>
<td>Personal computers (1975)</td>
<td>Small, inexpensive, but fully functional desktop computers</td>
<td>PC manufacturers (HP, Apple, IBM), and chip manufacturers prosper (Intel), while mainframe (IBM) and minicomputer (DEC) firms lose</td>
</tr>
<tr>
<td>Digital photography 1975</td>
<td>Using charge-coupled device (CCD) image sensor chips to record images</td>
<td>CCD manufacturers and traditional camera companies win, manufacturers of film products lose</td>
</tr>
<tr>
<td>World Wide Web (1989)</td>
<td>A global database of digital files and “pages” instantly available</td>
<td>Owners of online content, news benefit while traditional publishers (newspapers, magazines, and broadcast television) lose</td>
</tr>
</tbody>
</table>
## Disruptive Technologies: Riding the Wave

<table>
<thead>
<tr>
<th>Technology</th>
<th>Description</th>
<th>Winners and Losers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Internet music, video, TV services</td>
<td>Repositories of downloadable music, video, TV broadcasts on the Web</td>
<td>Owners of internet platforms, telecommunications providers owning Internet backbone (AT&amp;T, Verizon), local Internet service providers win, while content owners and physical retailers lose (Tower Records, Blockbuster)</td>
</tr>
<tr>
<td>PageRank algorithm</td>
<td>A method for ranking Web pages in terms of their popularity to supplement Web search by key terms</td>
<td>Google is the winner (they own the patent), while traditional key word search engines (Alta Vista) lose</td>
</tr>
<tr>
<td>Software as Web service</td>
<td>Using the Internet to provide remote access to online software</td>
<td>Online software services companies (Salesforce.com) win, while traditional “boxed” software companies (Microsoft, SAP, Oracle) lose</td>
</tr>
</tbody>
</table>
Prior to the Internet, competing globally was only an option for huge firms able to afford factories, warehouses, and distribution centers abroad. The Internet drastically reduces costs of operating globally. Globalization benefits:

- scale economies and resource cost reduction, e.g., access to resources in other countries
- higher utilization rates, fixed capital costs, and lower cost per unit of production, e.g., outsourcing
- access to greater market, e.g., any example?
- speeding time to market, e.g., any example?
Please Read Otis’s Case Study:

1. Think about the Otis’s situation using the Porter’s Competitive & value supply chain model.

2. Discuss how “e*Logistics” improved the various business processes at OTIS? Or what are problems faced by the OTIS in each of the “primary activities”? That is, what are the factors that led to the creation of e*Logistics?

3. What are the changes Bousbib wanted to see in OTIS elevator's business model?

4. What is early IS systems OTISLINE and REM elevator monitoring and how did they transform the elevator service business process at OTIS?

5. Why was SIMBA program created and how was OTIS benefited from it?
For next time

- HW 1 due by start of class Tuesday
- On ecommons’

- Database: Merrill Room 103
  - Thursday, 1/21/16, 11:30-1:00pm (today)
  - Friday, 1/22/16, 5:00-6:30pm
  - Monday, 1/25/16, 5:00-6:30pm

- Office hours
  - Thursday, 4:00pm-5:00pm
Project proposals due on 1/28!!
- 2-3 pages
- Give a plan what you will cover in report
- Cite some references, and show that you have started your research!
  - Remember references must be cited in the body of the text with footnotes or end notes.
An Apple’s iPhone Path to Market

US: Design
South Korea: Application processor
Italy: accelerator
France: gyroscope
Japan: electronic compass
German: power management
US: touch screen controller
Japan: HD display
Taiwan: manufacturing and assembly

Apple iPhone’s global supply chain of a number of different countries.
4 Ways to Organize International Business

- **Domestic exporters** (Caterpillar Corp.)
  - Heavy centralization of corporate activities in home country

- **Multinationals** (Ford, Intel Corp.)
  - Concentrates financial management at central home base
  - Decentralize production, sales, and marketing to other countries

- **Franchisers** (McDonald, Starbucks)
  - Product created, designed, financed, and initially produced in home country
  - Rely on foreign units for further production, marketing, and human resources, e.g., dollar menu

- **Transnationals**
  - Regional (not national) headquarters and perhaps world headquarters; optimizing resources as needed; global scale, e.g., Nestle
Global System Configurations

- **Centralized systems:**
  - All development and operation at domestic home base

- **Duplicated systems:**
  - Development at home base but operations managed by autonomous units in foreign locations

- **Decentralized systems:**
  - Each foreign unit designs own solutions and systems, but no “duplicated”

- **Networked systems:**
  - Development and operations occur in integrated and coordinated fashion across all units
### Global Business Organization Systems Configurations

<table>
<thead>
<tr>
<th>SYSTEM CONFIGURATION</th>
<th>Strategy</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Domestic Exporter</td>
</tr>
<tr>
<td>Centralized</td>
<td>X</td>
</tr>
<tr>
<td>Duplicated</td>
<td></td>
</tr>
<tr>
<td>Decentralized</td>
<td>x</td>
</tr>
<tr>
<td>Networked</td>
<td></td>
</tr>
</tbody>
</table>

The large Xs show the dominant patterns, and the small Xs show the emerging patterns. For instance, domestic exporters rely predominantly on centralized systems, but there is continual pressure and some development of decentralized systems in local marketing regions.

**Figure 3-5**
What Is Quality? A form of differentiation

• **Producer perspective:**
  • Conformance to specifications and absence of variation from specs

• **Customer perspective:**
  • Physical quality (reliability), quality of service, psychological quality

  Discussions: quality of wireless carrier

• **Total quality management (TQM):**
  • Quality control is end in itself
  • All people (engineers, workers, sales), functions responsible for quality

• **Six sigma:**
  • Measure of quality: 3.4 defects/million opportunities
How Information Systems Improve Quality

- Reduce “cycle time” and simplify production process.
  - Total elapsed time from start of the process to its end
- Benchmarking
  - Set standard for each step of the process
- Use customer demands (feedbacks) to improve products and services.
- Improve design quality and precision.
  - Computer-aided design (CAD) systems or even 3-D printing to create or revise the design
- Improve production precision and tighten production tolerances.
Computer-aided design (CAD) systems improve quality of product design.
• Business process management = continuous improvement

1) Identify processes for change.
2) Analyze existing processes.
3) Design new process.
   – A few “to-be” processes need to be considered
4) Implement new process.
   – Employees’ feedbacks to improve the process
5) Measure new process
   – Need to justify by reduced time, cost or enhanced customer service value, etc.
• Business process management = continuous improvement

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     – Employees’ feedbacks to improve the process
  5) Measure new process
     – Need to justify by reduced time, cost or enhanced customer service value, etc.
Competing on Business Processes

Figure 3-6

- Customer: Go to bookstore → Search shelves → Book Available? Yes → Purchase book → Take book home | No → Clerk searches → No → Inquire about ordering → Able to order? Yes
- Clerk: Clerk searches → Found → Inquire about ordering → Able to order?
- Customer: Go to another store
- Clerk: Place Order → Receive book → Notify Customer
- Customer: Return to Store → Purchase book → Take book home

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Competing on Business Processes

Figure 3-7

Access online bookstore → Search online catalog

Book Available? → Enter order and payment data

Receive book in mail

Select other online bookstore

No → Yes
Radical Change: Business Process “Reengineering”

- A radical form of fast change
- Not continuous improvement, but elimination of old processes, replacement with new processes, in a brief time period
- Can produce dramatic gains in productivity, but increases organizational resistance to change

- Could be risky as its impact or acceptance was not previously understood.
Businesses are collections of business processes—

Some times they are written in manuals, but in many cases business processes are informal.

To use IS effectively, you need to change business processes.

Before changing processes, you need to change people’s attitudes and behaviors, and even the organization itself.
Ch9: Achieving Operational Excellence and Customer Intimacy: Enterprise Applications

- How do enterprise systems help businesses achieve operational excellence?
- How do supply chain management systems coordinate planning, production, and logistics with suppliers?
- How do customers relationship management systems help firms achieve customer intimacy?
- What are the challenges posed by enterprise applications?
- How are enterprise applications taking advantage of new technologies?
What is an application?
- Computer software that performs useful capabilities for a user, organization, incorporating storage, manipulation, and communication of information.

An organizational application
- Supports an organization

Often called enterprise application
- (An enterprise is an organization with a commercial mission)
Types of organizational applications

**Departmental**
Supports a single functional department, e.g., An accounts management application for an accounting department.

**Enterprise**
Support enterprise-wide processes and goals, e.g., coordinate information between functional departments involved in fulfilling an order. (or other cross functional process.)
Some Types of organizational applications

Worker Collaboration
  – Example: video conferencing

Operations and Logistics
  – Example: coordinate movements of goods between sites.

Decision Support
  Support decision making by middle managers

Knowledge Management
  – Organize and retrieve knowledge in company’s documents and databases
Software Companies

Customer Relationship Management
- Maintain a case file of customer questions and complaints.
- Website of Freq. Asked Ques. And documentation.
- Chat application for customers to communicate with tech-support personnel.

On-Line Stock Trading
- Information management application for paying customers
- Specialized software to interface with
  - customers
  - stock exchange
  - customer’s bank
Some Types of organizational applications

**Transaction Processing Systems**
record and process data from business transactions.

**Batch Processing**
transactions are accumulated over a period of time and processed periodically.

**Online Transaction Processing (OLTP)**
transactions are processed immediately.

**Workflow Application**
supports ongoing repetitive tasks, e.g., An application that passes a case summary of a customer from customer service to tech support.
Some Types of organizational applications

**MRP (Material or Manufacturing Resource Planning)**

- **Take:**
  - Product Demand forecasts
  - Inventory Balances
  - Replenishment Lead Times

- **Develop a Production schedule for a single plant**

- **At this Point, it is a planning tool**

**Later, added on new functions**

- Order processing
- Product costing

- **The planning tool begins to take more and more of an active role in the business processes.**
A desire to Link Across Functional Departments of firm

Each functional department had its own legacy application

- Programmed in different languages
- Different Data formats

Often some data was shared between departments by duplicating it.
MRP evolves into ERP

A common software architecture with modules to support different business functions.

- Accounting, finance, sales, HRM, material management, etc...

Key features:

- Multi-functional
- Integrated
- Modular
So what exactly is ERP??
Enterprise Systems

• Also called “enterprise resource planning (ERP) systems”

• Suite of integrated software modules and a common central database

• Collects data from many divisions of firm for use in nearly all of firm’s internal business activities

• Information created by one process is immediately available and shared for other processes

  • E.g., Alcoa, leading producer of aluminum producer, 31 countries, 200 locations, ERP from Oracle, leading to 20% ↓ in overall costs
Built around thousands of predefined business processes & functions that reflect best practices

**Financial and accounting processes**, including general ledger, accounts payable, accounts receivable, fixed assets, cash management and forecasting, product-cost accounting, cost-center accounting, asset accounting, tax accounting, credit management, and financial reporting

**Human resources processes**, including personnel administration, time accounting, payroll, personnel planning and development, benefits accounting, applicant tracking, time management, compensation, workforce planning, performance management, and travel expense reporting

**Manufacturing and production processes**, including procurement, inventory management, purchasing, shipping, production planning, production scheduling, material requirements planning, quality control, distribution, transportation execution, and plant and equipment maintenance

**Sales and marketing processes**, including order processing, quotations, contracts, product configuration, pricing, billing, credit checking, incentive and commission management, and sales planning
Enterprise applications automate processes that span multiple business functions and organizational levels and may extend outside the organization.

Figure 2-14
ERP Overview

Essentials of Management Information Systems
Chapter 9 Achieving Operational Excellence and Customer Intimacy: Enterprise Applications
ERP: How Would You Do It?

How would you design an ERP?

Design a user interface for each module
- Ask user to fill in certain “fields” at particular times.
- Set up a sequence of events
  - When the sales department enters an order, that event triggers an event at the manufacturing department.

But by doing this, aren’t we presuming a particular business process?
Question: How standardized are organizational processes?
– Customer service
– Finance
– Manufacturing
– Etc.
1) Customize the application to existing organization?

Or

2) Mold organization to off-the-shelf application?

   – Is software a good way to propagate best practices?
Enterprise Systems

• To implement enterprise software, firms:
  1. Select functions of system they wish to use.
  2. Map business processes to software processes.
  3. Use software configuration tables for customizing, e.g., whether it wants to track revenue by product line, geo region, distribution channels, etc.

• If software doesn’t support business processes
  • Businesses can rewrite some portions, but this can compromise information and process integration
  • Changing business processes to match software’s processes is better alternative
How Enterprise Systems Work and Business Value

Enterprise Systems

- integrated software modules
- Central database
- Data shared by different business processes
- ...and functional areas
- Increase operational efficiency to “enforce” standard practices
The Supply Chain

- Is a Network of organizations and processes for: (materials, info and financial flow)
  - Procuring raw materials
  - Transforming them into products or intermediate (components or parts)
  - Distributing the products to distribution centers or retails

- **Upstream supply chain:**
  - Firm’s suppliers, suppliers’ suppliers, processes for managing relationships with them

- **Downstream supply chain:**
  - Organizations and processes responsible for delivering products to customers

- **Internal supply chain**
The Supply Chain

• Network of organizations and processes for:
  • Procuring raw materials
  • Transforming them into products or intermediate (components or parts)
  • Distributing the products to distribution centers or retails
• Upstream supply chain:
  • Firm’s suppliers, suppliers’ suppliers, processes for managing relationships with them
• Downstream supply chain:
  • Organizations and processes responsible for delivering products to customers
• Internal supply chain

Discussions: Any examples of supply chain
Nike’s Supply Chain

Figure 8-2
This figure illustrates the major entities in Nike’s supply chain and the flow of information upstream and downstream to coordinate the activities involved in buying, making, and moving a product. Shown here is a simplified supply chain, with the upstream portion focusing only on the suppliers for sneakers and sneaker soles.
Information Systems and Supply Chain Management

• Inefficiencies* cut into a company’s operating costs
  • Can waste up to 25 percent of operating expenses

• Just-in-time strategy (if w/ perfect info)
  • Components arrive as they are needed
  • Finished goods shipped after leaving assembly line

• Safety stock (w/ uncertainties)
  • Buffer for lack of flexibility in supply chain

• Bullwhip effect
  • Information about product demand gets distorted as it passes from one entity to next across supply chain

*: parts shortages, underused plant capacity, excessive goods, etc.
The Bullwhip Effect: uncertainty propagation!

Inaccurate information can cause minor fluctuations in demand for a product to be amplified as one moves further back in the supply chain. Minor fluctuations in retail sales for a product can create excess inventory for distributors, manufacturers, and suppliers.

Figure 9-3

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Supply Chain Management Software

- **Supply chain planning systems (planning),** e.g., a larger than normal order
  - Model existing supply chain.
  - Demand planning & forecast.
  - Optimize sourcing, manufacturing plans.
  - Establish inventory levels.
  - Identify transportation modes.

- **Supply chain execution systems (executing)**
  - Manage flow of products through distribution centers and warehouses, i.e., track the physical status of goods, materials, warehouse, shipment, etc.
Global Supply Chains and the Internet

- Global supply chain issues:
  - Greater geographical distances
  - Greater time differences
  - Participants from different countries (≈different languages)
    - Different performance standards
    - Different legal requirements
- Internet helps companies manage global complexities
  - Warehouse management
  - Transportation management
  - Logistics
- Outsourcing
Demand-Driven Supply Chains

Supply chain management systems

- **Push-based model (build-to-stock)**
  - Schedules based on “best” guesses of demand, i.e., push products to customers

- **Pull-based model (demand-driven): with “real-time” web-based SCM available**
  - Customer orders trigger events in supply chain

- **Help businesses move from sequential supply chains to concurrent supply chains**
The difference between push- and pull-based models is summarized by the slogan “Make what we sell, not sell what we make.”

**Push-Based Model**
- Supplier: Supply to forecast
- Manufacturer: Production based on forecasts
- Distributor: Inventory based on forecasts
- Retailer: Stock based on forecasts
- Customer: Purchase what is on shelves

**Pull-Based Model**
- Supplier: Supply to order
- Manufacturer: Produce to order
- Distributor: Automatically replenish warehouse
- Retailer: Automatically replenish stock
- Customer: Customer orders
Push-Versus Pull-Based Supply Chain Models

The difference between push- and pull-based models is summarized by the slogan “Make what we sell, not sell what we make.”

**Push-Based Model**
- Supplier: Supply to forecast
- Manufacturer: Production based on forecasts
- Distributor: Inventory based on forecasts
- Retailer: Stock based on forecasts
- Customer: Purchase what is on shelves

**Pull-Based Model**
- Supplier: Supply to order
- Manufacturer: Produce to order
- Distributor: Automatically replenish warehouse
- Retailer: Automatically replenish stock
- Customer: Customer orders

**Discussions:** any examples of push- and pull-based model?

**Figure 8-5**
The emerging Internet-driven supply chain operates like a digital logistics “nervous” system. It provides multidirectional communication among firms, networks of firms, and e-marketplaces so that entire networks of supply chain partners can immediately adjust inventories, orders, and capacities.

Why it becomes a supply “web”, not chain?
Business Value of Supply Chain Management Systems

- Match supply to demand.
- Reduce inventory levels.
- Improve delivery service.
- Speed product time to market.
- Use assets more effectively.
- Reduced supply chain costs lead to increased profitability.
  - Total supply chain costs can be 75 percent of operating budget.
- Increase sales.
What Is Customer Relationship Management?

• Knowing the customer
  • In large businesses, too many customers and too many ways customers interact with firm

• Customer relationship management (CRM) systems, a “single place” that
  • Captures and integrates customer data from all over the organization.
  • Consolidates and analyzes customer data.
  • Distributes customer information to various systems and customer touch points* across enterprise.
  • Provides single enterprise view of customers.

*: aka contact point: method of interaction with customers
CRM Software

- CRM packages range from niche tools (limited functions, e.g., personalized website) to large-scale enterprise applications that capture various interactions with customers and link to other enterprise applications.

- More comprehensive have modules for:

  - **Partner relationship management (PRM):** selling partners, e.g., distributors & retailers
    - Integrating lead generation, pricing, promotions, order configurations, and availability
    - Tools to assess partners’ performances

  - **Employee relationship management (ERM)**
    - Setting objectives, employee performance management, performance-based compensation, employee training
CRM Software

CRM packages typically include tools for:

- **Sales force automation (SFA):** increase productivity by
  - focusing sales on most valuable customers: sales prospect and contact information, sales quote generation capabilities

- **Customer service:** increase efficiency of call centers, help desks by
  - assigning and managing customer service requests, Web-based self-service capabilities

- **Marketing:** support direct-market campaigns by
  - capturing prospect and customer data, scheduling and tracking direct-marketing mailings or e-mail, cross-selling
CRM systems examine customers from a “multifaceted” perspective. These systems use a set of integrated applications to address all aspects of the customer relationship, including customer service, sales, and marketing.

Figure 9-6
CRM systems examine customers from a multifaceted perspective. These systems use a set of integrated applications to address all aspects of the customer relationship, including customer service, sales, and marketing.

Figur 9-6

CRM answers following questions:
1) What is the value of a particular customer to the firm over his/her lifetime?
2) Who are our most loyal customer?
3) What do these profitable customers want to buy?
Customer Relationship Management Systems

CRM systems examine customers from a multifaceted perspective. These systems use a set of integrated applications to address all aspects of the customer relationship, including customer service, sales, and marketing.

Figure 9-6

CRM answers following questions:
1) What is the value of a particular customer to the firm over his/her life time?
2) Who are our most loyal customer?
3) What do these profitable customers want to buy?

Discussions:
1) What types of customer data that would be captured by a firm?
2) What type of valuable info does a firm need to know about its customers?
Customer relationship management software provides a single point for users to manage and evaluate marketing campaigns across multiple channels, including e-mail, direct mail, telephone, the Web, and wireless messages.

Figure 9-7
Customer relationship management software provides a single point for users to manage and evaluate marketing campaigns across multiple channels, including e-mail, direct mail, telephone, the Web, and wireless messages.

Figure 9-7

Question that was typically asked: how did you know about this product or the deal?
This process map shows how a best practice for promoting customer loyalty through customer service would be modeled by customer relationship management software. The CRM software helps firms identify high-value customers for preferential treatment.
Operational and Analytical CRM

• Operational CRM: “directly/indirectly contacts customers”
  • Customer-facing “typical” applications such as sales force automation, call center and customer service support, and marketing automation

• Analytical CRM: with analytical ability
  • Analyzes customer data output from operational CRM applications
  • Based on data warehouses populated by operational CRM systems and customer touch points
  • Customer lifetime value (CLTV)
    • e.g., promotion of Las Vegas casino, other examples?
The major CRM software products support business processes in sales, service, and marketing, integrating customer information from many different sources. Included are support for both the operational and analytical aspects of CRM.

Figure 9-8
Analytical CRM uses a customer data warehouse and tools to analyze customer data collected from the firm’s customer touch points and from other sources.

*OLAP: online analytical processing

Figure 8-11

Churn rate: Number of customers who stop using or purchasing products or services from a company
Why a company invests in Customer Relationship Management?

• **Business benefits:**
  - Increased customer satisfaction
  - Reduced direct-marketing costs
  - More effective marketing
  - Lower costs for customer acquisition/retention
  - Increased sales revenue

• **Churn rate:**
  - Number of customers who stop using or purchasing products or services from a company
  - Indicator of growth or decline of firm’s customer base
Enterprise Application Challenges

• Highly expensive to purchase and implement enterprise applications—total cost may be four to five times the price of software
  • Average cost of ERP system is more than $7 million
  • Average completion time is more than 17 months

• Technology changes

• Business process changes

• Organizational changes

• Switching costs, dependence on software vendors

• Data standardization, management, cleansing
Next-Generation Enterprise Applications

To bring greater value from enterprise applications

- **Enterprise solutions/suites**: make applications more flexible, Web-enabled, integrated with other systems
- **Inclusion of SOA (service oriented architecture) standards to link to 3rd party software**: easy integration
- **Open-source applications**
  - Not offer many capabilities as commercial ones, but low cost → good for smaller manufacturers
- **Cloud-based, on-demand solutions**
  - Run all or part of their enterprise applications in the cloud on an as needed basis, minimizing capital investment
Next-Generation Enterprise Applications

- **Social CRM:** allows a firm connect customers through social network sites
  - Incorporating social networking technologies, e.g., Facebook, Twitter, company social networks
  - Customer interaction via Facebook
    e.g., Buzzient platform integrates social media with enterprise applications to analyze social media activities in Facebook, Twitter, etc.

- **Business intelligence (BI):** enhanced flexibility to report data
  - Inclusion of BI with enterprise applications, e.g., flexible reporting, ad hoc analyses, interactive dashboards
  - Flexible reporting, ad hoc analysis, “what-if” scenarios, digital dashboards, data visualization
LEARNING OBJECTIVES

• What are the unique features of e-commerce, digital markets, and digital goods?

• What are the principal e-commerce business and revenue models?

• How has e-commerce transformed marketing?

• How has e-commerce affected business-to-business transactions?

• What is the role of m-commerce in business and what are the most important m-commerce applications?

• What issues must be addressed when building an e-commerce presence?
Look for Bargains?

Problem: How to derive profits from large and desirable user base

Solution? Enable businesses to promote brand awareness and refer back to retail sites for purchasing

Groupon: https://www.youtube.com/watch?v=tgeh607ZXA0
Problem: How to derive profits from large and desirable user base

Solution? Enable businesses to promote brand awareness and refer back to retail sites for purchasing

Groupon: https://www.youtube.com/watch?v=tgeh607ZXA0

1. What are the weaknesses of Groupon’s business model described in the videos?
2. What features of contemporary e-commerce does Groupon Now! utilize?
3. What value does this service provide subscribing merchants? What value does it provide customers?
4. What kinds of businesses are most likely to benefit from using Groupon?
5. Visit Groupon’s Web site and enter your zip code. What kinds of deals are displayed? Would you use Groupon? Why or why not?
Look for Bargains?

Problem: How to derive profits from large and desirable user base

Solution? Enable businesses to promote brand awareness and refer back to retail sites for purchasing

Groupon: https://www.youtube.com/watch?v=tgeh607ZXA0

• **Groupon** invested heavily in technologies for:
  – Massive “bargain” database (Porter’s model)
  – User social networking tools, e.g., emails, facebook?

• Demonstrates use of social networking technologies in generating new business models

• Illustrates the difficulties many social networking sites have in showing a profit or monetizing.
E-Commerce Today

- E-commerce: use of the Internet and Web to transact business; digitally enabled transactions. e.g., iTunes, streamed Netflix, ebook Amazon
  - Digitally enhanced commercial transactions between and among organizations and individuals

- Began in 1995 and grew exponentially (Netscap.com); still stable even in a recession.

- Companies that survived the dot-com bubble burst now thrive.

- E-commerce revolution is still in its early stages.
Retail e-commerce revenues grew 15–25 percent per year until the recession of 2008–2009, when they slowed measurably. In 2013, e-commerce revenues are growing again at an estimated 12 percent annually.

Figure 10-1
The New E-Commerce: Social, Mobile, Local

- **Original e-commerce marketing:**
  - Web sites
  - Display ads
  - Measures “eyeballs” and impressions of display ads
    i.e., how many times a consumer sees the ad.

- **Social, mobile, local e-commerce marketing:**
  - Social media: Facebook, Twitter, Pinterest
  - Mobile, localized ads and apps
  - Measures “conversations” and “engagement”
    i.e., focus on interactions; no only a new channel but …
Why E-Commerce Is Different

Ubiquity
Global reach
Universal standards
Richness
Interactivity
Information density
Personalization/Customization
Social technology
Why E-Commerce Is Different

Ubiquity

Internet/Web technology available everywhere: work, home, and so on, anytime, e.g., upper Yosemite fall

- Effect:
  - Marketplace removed from temporal, geographic locations to become “market-space”
  - Enhanced customer convenience (i.e., anytime and anywhere), thereby reducing “shopping costs”
Unique Features of E-Commerce Technology

Global reach

The technology reaches across national boundaries, around Earth

- Effect:
  - Commerce enabled across cultural and national boundaries seamlessly and without modification.
  - Marketspace includes, potentially, billions of consumers and millions of businesses worldwide.
  - ? How many of you had experience purchased from website in UK, Japan or other countries directly?
Unique Features of E-Commerce Technology

Universal standards

One set of technology standards: Internet standards

- Effect:
  - Disparate computer systems easily communicate with one another.
  - Lower market entry costs—costs merchants must pay to bring goods to market (i.e., to customers attention).
  - Lower consumers’ search costs—effort required to find suitable products.
Richness

Supports video, audio, and text messages

- Effect:
  - Possible to deliver rich messages with text, audio, and video simultaneously to large numbers of people.
  - Video, audio, and text marketing messages can be integrated into single marketing message and consumer experience.
  - Any examples? Experience?
Unique Features of E-Commerce Technology

Interactivity

The technology works through interaction with the user

- Effect:
  - Consumers engaged in dialog that dynamically adjusts experience to the individual.
  - Consumer becomes co-participant in process of delivering goods to market.
  - Any examples? Experience?
Unique Features of E-Commerce Technology

Information density

Large increases in information density—the total amount and quality of information available to all market participants

- Effect:
  - Greater price transparency (lower search cost)
  - Greater cost transparency
  - Enables merchants to engage in price discrimination. That is, consumer with higher WTP will pay more, e.g., eBay sites.
Unique Features of E-Commerce Technology

Personalization/Customization

Technology permits modification of messages, goods

- Effect:
  - Personalized messages can be sent to individuals as well as groups.
  - Products and services can be customized to individual preferences.
  - Any examples? Experience?
Unique Features of E-Commerce Technology

Social technology

The technology promotes user content generation and social networking

- Effect:
  - New Internet social and business models enable user content creation and distribution, and support social networks.
  - Many-to-many model
Unique Features of E-Commerce Technology

Social technology

The technology promotes user content generation and social networking

- Effect:
  - New Internet social and business models enable user content creation and distribution, and support social networks, e.g., youtube. In what context? Interactions?
  - Many-to-many model (used to be one-to-many)
# How the Internet Changes the Markets for Digital Goods?

<table>
<thead>
<tr>
<th></th>
<th>Digital Goods</th>
<th>Traditional Goods</th>
</tr>
</thead>
<tbody>
<tr>
<td>Marginal cost/unit</td>
<td>Zero (why?)</td>
<td>Greater than zero, high</td>
</tr>
<tr>
<td>Cost of production</td>
<td>High (most of the cost)</td>
<td>Variable</td>
</tr>
<tr>
<td>Copying cost</td>
<td>Approximately zero</td>
<td>Greater than zero, high</td>
</tr>
<tr>
<td>Distributed delivery</td>
<td>Low</td>
<td>High</td>
</tr>
<tr>
<td>cost</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inventory cost</td>
<td>Low (why?)</td>
<td>High</td>
</tr>
<tr>
<td>Marketing cost</td>
<td>Variable</td>
<td>Variable (high, e.g., ??)</td>
</tr>
<tr>
<td>Pricing</td>
<td>More variable (bundling, random pricing games)</td>
<td>Fixed, based on unit costs</td>
</tr>
</tbody>
</table>
Key Concepts: Digital Markets and Digital Goods

- Digital market effects:
  - Decreased information asymmetry (examples?, price discrimination)
  - Reduced search costs and transaction costs (examples?)
  - Delayed gratification: effects dependent on product
  - Reduced menu costs (machine’s cost of changing prices, example?)
  - Increased dynamic pricing (e.g., Amazon)
  - Increased price discrimination (e.g., eBay)
  - Increased market segmentation (differentiation; example?)
  - Switching costs: effects dependent on product (examples?)
  - Stronger network effects (examples?)
  - More dis-intermediation
The typical distribution channel has several intermediary layers, each of which adds to the final cost of a product, such as a sweater. Removing layers lowers the final cost to the consumer.

**Figure 10-2**

Cost per Sweater

<table>
<thead>
<tr>
<th>Manufacturer</th>
<th>Distributor</th>
<th>Retailer</th>
<th>Customer</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$48.50</td>
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</table>

<table>
<thead>
<tr>
<th>Manufacturer</th>
<th>Retailer</th>
<th>Customer</th>
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</thead>
<tbody>
<tr>
<td>$40.34</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Manufacturer</th>
<th>Customer</th>
</tr>
</thead>
<tbody>
<tr>
<td>$20.45</td>
<td></td>
</tr>
</tbody>
</table>
Types of E-Commerce

• Business-to-consumer (B2C)
  - Retailing products and services to individual shoppers, e.g., BarnesandNoble.com (others?)

• Business-to-business (B2B)
  - Sales of good or services among business, e.g., ChemConnect (chemicals & plastics) (others?)

• Consumer-to-consumer (C2C)
  - Consumers sell directly to consumers, e.g., eBay (others?)
E-Commerce: Business and Technology

E-Commerce Business Models

- **Portal** (gateway to the web, user’s homepage, e.g., google.com, revenue?): 2013: 17.5 billion, not including google, bing

- **E-tailer** (online retail stores, e.g., Amazon.com, revenue?): 2011, 60 billion

- **Content provider** (iTunes, others? revenue?): potcasting, streaming

- **Transaction broker** (Expedia, paypal, others?, revenue?)

- **Market creator** (build digital environment so buyers and sellers meet! eBay, Amazon merchant platform, others? revenue?)

- **Service provider** (gmail.com, dropbox, others? revenue?)

- **Community provider** (facebook, others? revenue?)
E-Commerce Revenue Models

- **Advertising** (attracting and expose large audiences to ads, e.g.,)
- **Sales** (sells good, information, e.g., Amazon, gap.com)
- **Subscription** (content, service charges, e.g., Netflix)
- **Free/Freemium** (with basic service free, fee with upgrade, e.g., flickr, spotify)
- **Transaction fee** (receiving fee for executing transactions, e.g., E*Trade)
- **Affiliate** (send/refer readers to other sites, e.g., Yelp)
E-Commerce: Business and Technology

E-Commerce Revenue Models

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- **Transaction Fee** (receiving fee for executing transactions, e.g., E*Trade)
- **Affiliate** (send/refer readers to other sites, e.g., Yelp)

A company gives away a large chunk of its services with the hope that a small # of customers will pay a premium price for extra services.

If market is large, it’s okay… but… Work better if marginal cost is low…
E-Commerce Revenue Models

- **Advertising** (attracting and expose large audiences to ads, e.g., YouTube)
- **Sales** (sells good, information, e.g., Amazon, gap.com)
- **Subscription** (content, service charges, e.g., Netflix)
- **Free/Freemium** (with basic service free, fee with upgrade, e.g., flickr, spotify)
- **Transaction Fee** (receiving fee for executing transactions, e.g., E*Trade)
- **Affiliate** (send/refer readers to other sites, e.g., Yelp)

**Discussions**
1) Any other business models that take advantage of “communicating” capability of the current technologies?
2) Other examples of freemium?
Interactive Session: Organizations
Can Pandora Succeed with Freemium?

Read the Interactive Session and then discuss the following questions:

• Analyze Pandora using the value chain and competitive forces models. What competitive forces does the company have to deal with? What is its customer value proposition?
• Explain how Pandora’s “freemium” business model works. How does the company generate revenue?
• Can Pandora succeed with its “freemium” model? Why or why not? What people, organization, and technology factors affect its success with this business model?
Interactive Session: Organizations
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Can Pandora Succeed with Freemium?

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Analyze Pandora using the value chain and competitive forces models. What competitive forces does the company have to deal with? What is its customer value proposition?

- Compete with AM/FM radio (substitutes), iTunes, spotify (rivals)
- Strong consumers’ bargain power
- Value supply chain using IT to play only those songs the customers want to hear
Interactive Session: Organizations
Can Pandora Succeed with Freemium?

Read the Interactive Session and then discuss the following questions:

Explain how Pandora’s “freemium” business model works. How does the company generate revenue?
Interactive Session: Organizations
Can Pandora Succeed with Freemium?

Read the Interactive Session and then discuss the following questions:

Explain how Pandora’s “freemium” business model works. How does the company generate revenue?

• Pandora gives away a large chunk of its services with the hope that a small number of customers will pay a premium price for extra or added services: big vs small market
• bulk of its revenues from advertising fees and referrals to other sites: Amazon.com, etc.
Interactive Session: Organizations
Can Pandora Succeed with Freemium?

Read the Interactive Session and then discuss the following questions:

Can Pandora succeed with its “freemium” model? Why or why not?
What people, organization, and technology factors affect its success with this business model?

People:
Organization:
Technology:
Interactive Session: Organizations
Can Pandora Succeed with Freemium?

Read the Interactive Session and then discuss the following questions:

Can Pandora succeed with its “freemium” model? Why or why not? What people, organization, and technology factors affect its success with this business model?

People: users are used to getting much of their content free. That’s a very tough habit to break.

Organization: the freemium model is worth the price they pay; change or renegotiate royalty agreements to reduce its costs

Technology: mixing up the music chosen for listeners can help reduce royalty costs, however…
Web 2.0, Social Networking, and the Wisdom of Crowds

- **Most popular Web 2.0 service:** social networking
  - Social networking sites sell banner ads, user preference information, and music, videos, and e-books.
- **Social shopping sites**
  - Swap shopping ideas with friends through “like”, “+1”, etc.
- **Wisdom of crowds**
  - Large numbers of people can make better decisions about topics and products than a single person.
- **Crowdsourcing**
  - Soliciting advices through social network, e.g., 1$M reward by Netflix for recommender system
- **Prediction markets:** peer-to-peer betting markets on specific outcomes (elections, sales figures, designs for new products). e.g., betfair.com
E-commerce Marketing

- Internet provides marketers with new ways of identifying and communicating with customers, e.g., search engines, data mining, recommender system.

- **Long tail marketing:**
  - Traditionally, difficult, expensive, thus trying to reach out big population (general taste)
  - Sell large number of unique items
  - Relatively few of each item sold

- **Behavioral targeting:** tracking online behavior of individuals on thousands of Web sites.

- Advertising formats include search engine marketing, display ads, rich media, and e-mail.
## E-commerce Marketing

<table>
<thead>
<tr>
<th>Marketing Format</th>
<th>2013 Revenue</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Search engine</td>
<td>$19.5</td>
<td>Text ads targeted at precisely what the customer is looking for at the moment of shopping and purchasing. Sales oriented.</td>
</tr>
<tr>
<td>Display ads</td>
<td>$8.7</td>
<td>Banner ads (pop-ups and leave-behinds) with interactive features; increasingly behaviorally targeted to individual Web activity. Brand development and sales. Includes blog display ads.</td>
</tr>
<tr>
<td>Video</td>
<td>$4.1</td>
<td>Fastest growing format, engaging and entertaining; behaviorally targeted, interactive. Branding and sales.</td>
</tr>
<tr>
<td>Classified</td>
<td>$2.7</td>
<td>Job, real estate, and services ads; interactive, rich media, and personalized to user searches. Sales and branding.</td>
</tr>
</tbody>
</table>
### E-commerce Marketing

<table>
<thead>
<tr>
<th>Marketing Format</th>
<th>2013 Revenue</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lead generation</td>
<td>$1.9</td>
<td>Marketing firms that gather sales and marketing leads online, and then sell them to online marketers for a variety of campaign types. Sales or branding orientation.</td>
</tr>
<tr>
<td>Sponsorships</td>
<td>$1.9</td>
<td>Online games, puzzles, contests, and coupon sites sponsored by firms to promote products. Sales orientation.</td>
</tr>
<tr>
<td>E-mail</td>
<td>$.22</td>
<td>Effective, targeted marketing tool with interactive and rich media potential. Sales oriented.</td>
</tr>
</tbody>
</table>
How Clickstream Tracking Work?

• The tools record the sites users visited prior to coming the website, where those users go after leaving the site, e.g., type of OS, browser info, location data, duration of visits, items purchased, etc.

• Re-target ads to you by showing you the same ads at different sites, e.g., Google’s double click, Yahoo’s right media, etc.

• Enable to understand how well their sites is, creating personalized site that display context or ads of special interests to the users.
E-commerce Web sites have tools to track a shopper’s every step through an online store. Close examination of customer behavior at a Web site selling women’s clothing shows what the store might learn at each step and what actions it could take to increase sales.

**Figure 10-3**

How Clickstream Tracking Work?

The shopper clicks on the home page. The store can tell that the shopper arrived from the Yahoo! portal at 2:30 PM (which might help determine staffing for customer service centers) and how long she lingered on the home page (which might indicate trouble navigating the site). Tracking beacons load cookies on the shopper's browser to follow her across the Web.

The shopper clicks on blouses, clicks to select a woman’s white blouse, then clicks to view the same item in pink. The shopper clicks to select this item in a size 10 in pink and clicks to place it in her shopping cart. This information can help the store determine which sizes and colors are most popular. If the visitor moves to a different site, ads for pink blouses will appear from the same or different vendor.

From the shopping cart page, the shopper clicks to close the browser to leave the Web site without purchasing the blouse. This action could indicate the shopper changed her mind or that she had a problem with the Web site’s checkout and payment process. Such behavior might signal that the Web site was not well designed.
Firms can create unique personalized Web pages that display content or ads for products or services of special interest to individual users, improving the customer experience and creating additional value.

Figure 10-4
Firms can create unique personalized Web pages that display content or ads for products or services of special interest to individual users, improving the customer experience and creating additional value.

Figure 10-4
Advertising networks and their use of tracking programs have become controversial among privacy advocates because of their ability to track individual consumers across the Internet.

**Figure 10-5**

*If you are a large national ad company with many different clients trying to reach out to million possible customers, how to do it?*

*Creating a network of several thousand of the most popular websites, tracking the behaviors of those users across the entire network, building profiles of each users and sell those profiles to advisors!*

Studies show that “targeted” ads are 10 times more likely to ... (2013, 25% of online displays are targeted!)

![Diagram showing how an advertising network works](image)
Discussions:

1) Do you think about how advertising networks follow you around the Internet?

2) Are you aware of it? Do you like it?
Social E-Commerce and Social Network Marketing

• **Social e-commerce**
  
  • Based on idea of digital *social graph (offline)*
  
  • Mapping of all significant online relationships, i.e., lines to 10 closest people
  
  • Only six links away from linking to any other person on earth
  
  • Assuming: the purchases of one person influence others’ purchases

• **Four features of “social” e-commerce driving growth**
  
  • Social sign-on
  
  • Collaborative shopping
  
  • Network notification
  
  • Social search (recommendations)
Four features of social e-commerce driving growth

- **Social Sign-on (e.g., facebook)**
  - Allow those sites receive valuable social profile information, and use it for their marketing effort

- **Collaborating Shopping**
  - Create a place where customers can share their shopping experience, chat online about products, etc.

- **Network Notification**
  - Create a place where customers can share their (dis)approval of products, contents, geo-locations, restaurants, clubs

- **Social Search (recommendation system, google, amazon)**
  - Enable a place where customers can ask advices on products, service, goods
• **Social media:** Fastest growing media for branding and marketing (44b $, 90% Facebook)

• **Social network marketing:**
  • Seeks to leverage individuals influence over others in social graph
  • Target is a social network of people sharing interests and advice
  • Facebook’s “Like button”

• **Social networks have huge audiences**
  • Facebook: 144 million U.S. monthly visitors
Business-to-Business E-Commerce: New Efficiencies and Relationships

- Business-to-business (B2B) e-commerce (2013, 10.8t$ of which 4.4t$ e-Business)
  - Commercial transactions between firms
    - Complex
    - Require considerable human intervention
    - Consume significant resources
    - For example: $100 in administrative costs for each procurement purchase, e.g., processing papers, approving purchasing decisions, phones, fax, etc.

Challenges:
- Changing (automating) existing systems of procurement
- Implementing new Internet-based B2B solutions
Business-to-Business E-Commerce: New Efficiencies and Relationships

- Electronic data interchange (EDI) **80% of B2B eCommerce**
  - Computer-to-computer exchange of standard transactions such as invoices, shipping, purchase order, e.g., eliminating printing, faxing, etc.
  - Major industries use EDI standards to define structure and information fields.
  - More companies increasingly moving away from private networks to Internet for linking to other firms, i.e., not limited to partners linked through EDI network.
    - For example: procurement: businesses can now use Internet to locate most low-cost supplier, search online catalogs of supplier products, negotiate with suppliers, place orders, and so on
Companies use EDI to automate transactions for B2B e-commerce and continuous inventory replenishment. Suppliers can automatically send data about shipments to purchasing firms. The purchasing firms can use EDI to provide production and inventory requirements and payment data to suppliers.

Figure 10-6
Private industrial network (private exchange)

- Large firm using extranet to link to its suppliers, distributors, and other key business partners
- Owned by buyer (the “firm”)
- Permits sharing of:
  - Product design and development
  - Marketing
  - Production scheduling and inventory management
  - Unstructured communication (graphics and e-mail)
A private industrial network, also known as a private exchange, links a firm to its suppliers, distributors, and other key business partners for efficient supply chain management and other collaborative commerce activities.

Figure 10-7
• **Net marketplaces (e-hubs)**

  • Provide a single, “digital” marketplace based on **IT** for many buyers and sellers, e.g., groupon, Alibaba.
  
  • **Industry-owned or owned by independent intermediary.**

  • Generate revenue from transaction fees, other services.

  • Use prices established through negotiation, auction, RFQs (request for quotations), or fixed prices.

  • May focus on **direct (good used in production processes)** or **indirect goods (all other good, e.g., office supplies).**

  • May be **vertical** (within an industry, i.e., supply chain), e.g., automobiles, telecommunications, machine tools) or **horizontal** (across different industries e.g., office equipment) marketplaces.
Net marketplaces are online marketplaces where multiple buyers can purchase from multiple sellers.

Figure 10-8

A Net Marketplace

- Catalogs
- Sourcing
- Automated purchasing
- Processing and fulfillment
Exchanges: a Net marketplace independently owned third-party.

- Connect thousands of suppliers and buyers for spot purchasing.
- Typically provide **vertical** markets for direct goods for single industry (food, electronics), e.g., go2Paper.com
- Proliferated during early years of e-commerce; many have failed.
  - Competitive bidding drove prices down and did not offer long-term relationships with buyers or services to make lowering prices worthwhile.
M-Commerce (Mobile E-commerce)

- Use of wireless mobile devices for purchasing good or services, for services that are time-critical.
- Represents 10 percent of all e-commerce (or 8$b)
- Fastest growing form of e-commerce
  - Especially popular in online travel industry
  - Main areas of growth:
    - Retail sales at top Mobile 400 companies
      - Amazon ($4b), Apple ($1.1b)
    - Sales of digital content
      - Music, TV and movies ($4b)
Figure 10-9  Mobile e-commerce is the fastest growing type of B2C e-commerce although it represents only a small part of all e-commerce in 2011.
Location-based services and applications: ties by global position system (GPS)

- **Geosocial services** (foursquare, loopt, geosocial), e.g., where your friends are meeting
- **Geoadvertising**, e.g., where to find nearest restaurant
  - Economic foundation for m-commerce
- **Geoinformation** (wikitude.me), e.g., geo-tag the world, price of a house that you’re looking for

- **Other mobile commerce services**
  - Mobile banking
  - Mobile display advertising
  - Coupon services
Building an E-Commerce Presence

- Requires understanding of business, technology, social issues with systematic approach.

- Most important management challenges
  - Developing clear understanding of business objectives
  - Knowing how to choose the right technology to achieve those objectives

- Develop an e-commerce presence map
  - Four areas: Web sites, e-mail, social media, offline media, through different mobile devices* (think your presence in those “virtual” platforms)

- Develop a timeline: milestones
  - Breaking a project into discrete phases

* touch points where you meet your customers
An e-commerce presence requires firms to consider the four different types of presence, with specific platforms and activities associated with each.

Figure 10-10
### E-Commerce Presence Timeline: A Recipe

<table>
<thead>
<tr>
<th>Phase</th>
<th>Activity</th>
<th>Milestone</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phase 1: Planning</td>
<td>Envision Web presence; determine personnel</td>
<td>Web mission statement</td>
</tr>
<tr>
<td>Phase 2: Web site development</td>
<td>Acquire content; develop a site design; arrange for hosting the site</td>
<td>Web site plan</td>
</tr>
<tr>
<td>Phase 3: Web Implementation</td>
<td>Develop keywords and metatags; focus on search engine optimization; identify potential sponsors</td>
<td>A functional Web site</td>
</tr>
<tr>
<td>Phase 4: Social media plan</td>
<td>Identify appropriate social platforms and content for your products and services</td>
<td>A social media plan</td>
</tr>
<tr>
<td>Phase 5: Social media implementation</td>
<td>Develop Facebook, Twitter, and Pinterest presence</td>
<td>Functioning social media presence</td>
</tr>
<tr>
<td>Phase 6: Mobile plan</td>
<td>Develop a mobile plan; consider options for porting your Web site to smartphones</td>
<td>A mobile media plan</td>
</tr>
</tbody>
</table>

Table 10-8