

E-Commerce

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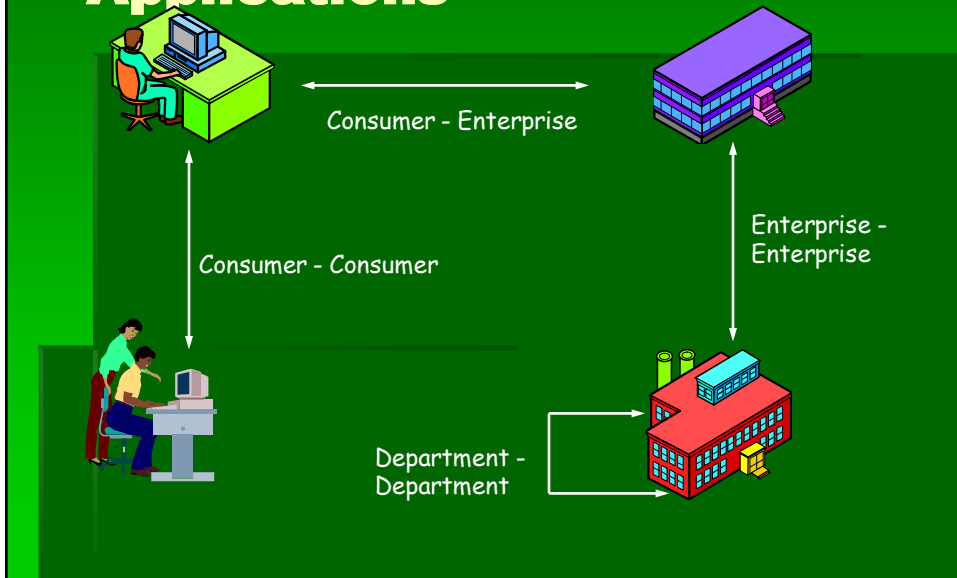
Electronic Commerce

Electronic Commerce: Buying and selling of information, products, and services via computer networks that make up Internet, Intranet, or Extranet

Perspective

- **Communications** → *To deliver info., products/services & payments over the telephone, communication networks or other means*
- **Bussiness** → *To automate bussiness transactions and work flows*
- **Service** → *To cut service costs while improving the quality of goods and increasing the speed of service delivery*
- **Online** → *To provide capability of buying and selling products & information over the Internet and other online services*

Organizational Applications



Other Apps

- Departmental Apps
 - OLTP
 - Workflow
- Enterprise Apps
 - ERP
 - Decision Support
 - Knowledge Management
- Electronic Commerce

Questions

- How standardized are organizational processes?
 - Customer service
 - Finance
 - Manufacturing
- Is software a good way to propagate best practices?

Electronic commerce

- Two varieties:
 - Supply chain management: extension of ongoing business processes to suppliers and customers
 - Marketplace: dynamic, opportunistic transactions conducted over the network
- Question:
 - What are some characteristics of these options, in terms similar to social applications?

Electronic marketplace

- Matching buyers and sellers
 - Deferred-publication style
 - Recommender systems
- Negotiating terms
 - Task or work group
 - Electronic auctions
- Consummation
 - Electronic payments and fulfillment
- Customer service

Payment options

- Account transfer authorization
- Credit/debit card
- Digital cash
- Privacy
- Security

Recommender systems

- Extend and systematize the “reference”
- Suggest coupled sales
- Customer service:
 - discussion forums
 - knowledge bases

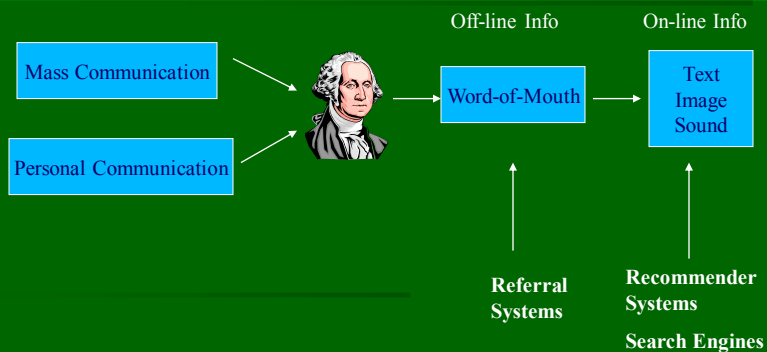
Mass customization

- Requires supply chain management
- Just-in-time production
- Supplier component integration (e.g. Dell)

Superstore

- *Dynamic* consolidation of multiple suppliers
- Major application of XML
 - Consistent presentation

Information Supply Chains



Motivation

□ Recommender Systems

- Find things liked by people who are similar to you.
- Books, Albums, Movies and so on.

□ Information Retrieval systems

- Store, index, and search the human knowledge in the forms of text, image, and sound.
- Web search engines.

□ Much valuable information might not be online

- **Economic aspect:** Value of information is partly determined by how hard it is to find!
- **Social aspect:** People may be reluctant to state sensitive information publicly; for example,
 - "Does Ford make good cars?"
 - "Does Smith do good research?"

Searching Social Networks

□ Where is this kind of information?

- Resides in the informal person-to-person social networks.
 - Much information exists in people's heads as **private knowledge**.
 - Can only be accessed by asking a person.

□ How do people find an appropriate service or person?

- Approach: through referrals (Jenny -> Neon -> Mark).
- Finding the relevant referrals is not always easy!
 - Can we automate the process using **software agents**?

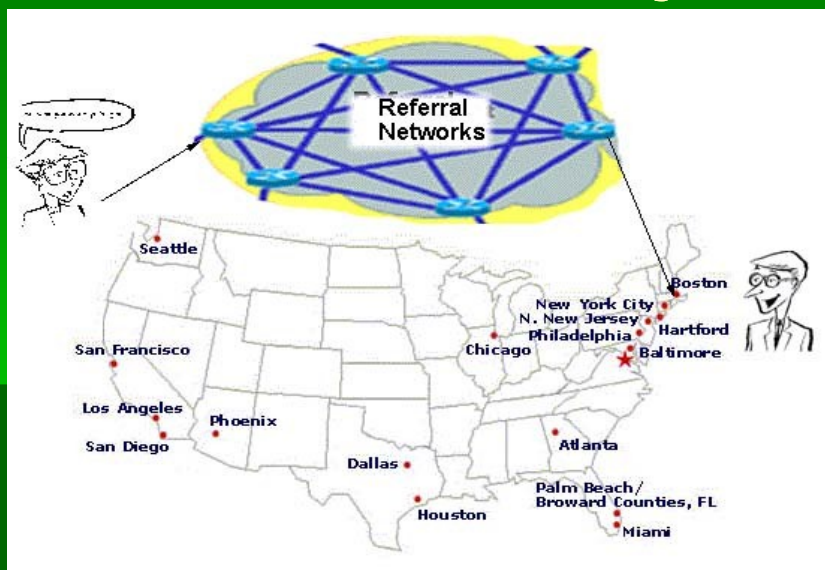
Software Agents

- **Software agents**
 - Computer programs which can perform a set of tasks autonomously for their users.
 - Know enough about its user and her activities & context to be genuinely helpful.
 - **Properties**
 - **Autonomy**
 - **Pro-activeness**
 - **Reactivity**
 - **Social Ability**
- **Multiagent systems**
 - A subarea of **Distributed Artificial Intelligence (DAI)**.
 - A set of computer programs which can cooperate to solve inherently distributed problems.

Referral Systems

- **A multiagent system for modeling, visualizing, and searching social networks**
 - **Each user is** assigned an agent, and the agents cooperate to search social networks by giving and following referrals.
- **The agent generates and updates the information of its user and neighbors**
 - Scans (all) private email and files
 - Indexes keywords and phrases
 - Creates list of acquaintance models
- **The agent matches requests against the profile**
 - Using information retrieval techniques and only forward relevant messages to their users.

Global View of Referral Systems



Business models on the Web

A business model is the method of doing business by which a company can sustain itself -- that is, generate revenue

The basic categories of business models include:

- Brokerage
- Advertising
- Infomediary
- Merchant
- Manufacturer (Direct)
- Affiliate
- Community
- Subscription
- Utility