



SAN JOSE STATE UNIVERSITY
Computer, Information &
Systems Engineering
COLLEGE OF ENGINEERING

Electronic Markets and Marketplaces

Course No.: CMPE 296Z

Design and Implementation of E-Commerce Systems

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- Electronic Marketplaces

According to J. Yannis Bakos:

“An electronic marketplace (or electronic market system) --> an inter-organizational information system that allows the participating buyers and sellers to exchange information about prices and product offerings.

....

The firm operating the system is referred to as the intermediary, which may be a market participant - buyer or a seller, an independent third party, or a multi-firm consortium.”

E-markets provide an electronic, or online, method to facilitate transactions between buyers and sellers that potentially provides support for all of the steps in the entire order fulfillment process.

E-markets supports a business model from a consumer’s perspective:

- pre-purchase determination*
- purchase consummation*
- post-purchase interaction*

Economic Characteristics of Electronic Market Systems

According to J. Yannis Bakos, the economic characteristics of Electronic market systems include:

- An electronic market system can reduce customers' costs of obtaining information about the prices and product offerings of alternative suppliers.*
- An electronic market system can reduce the suppliers' cost on providing product information to their potential customers.*
- The benefits realized by individual participants in an electronic marketplace increase as more organizations join the system.*
- Electronic marketplaces can impose significant switching costs on their participants.*
- Electronic marketplaces typically require large capital investments and offer substantial economies of scale and scope.*
- Potential participants in electronic marketplaces face substantial uncertainty regarding the actual benefits of joining such a system.*

- E-market examples

- Flowers:

Calyx & Corolla have used e-commerce to radically alter the way new cutflowers are moved from the growers to the consumers.

*Calyx & Corolla's delivered price is \$54
the price on a traditional market is \$60.*

- Clothing:

The cost of per high-quality shirt in a value chain that includes a wholesaler and retailer is \$52.72.

However, elimination of these intermediaries reduces the cost to \$20.45.

Automobiles:

New car shoppers have more options and valuable information than a car dealer.

Car shoppers can buy a car, insure it, and take delivery without a trip to a dealership.

- E-market examples

- Music:

Jason and Matthew Olim founded CDnow from the basement of their Ambler, Pennsylvania home. CDnow is a cybertstore. It offers online customers with customized music CD in 24 hours.

- Books and online magazines:

Amazon.com, Books-a-millions offers online shopping for books. Some of their books are discounted as much as 30%.

- Airline tickets:

*<http://www.cheaptickets.com/>
<http://www.previewtravle.com/>*

- Online Auction:

Ebay, Automall.com, ...

- Online stock trading:

E-trade and Charles Schwab

- Classification of E-Commerce Markets:

E-commerce market is the collective product of many individuals and organizations that cooperate to built it, and then compete on the products and services they sell.

- On-line Web selling:

- Toll-free or other telephone numbers

After Web browsing, order the goods by telephone or fax.

- Shopping clubs

New customers must submitting their credit cards information via fax or telephone and subsequence purchases are billed to the card.

- Off-line ordering and paying

After Web browsing, customers send checks to the company with purchase their requests.

- On-line credit card entry

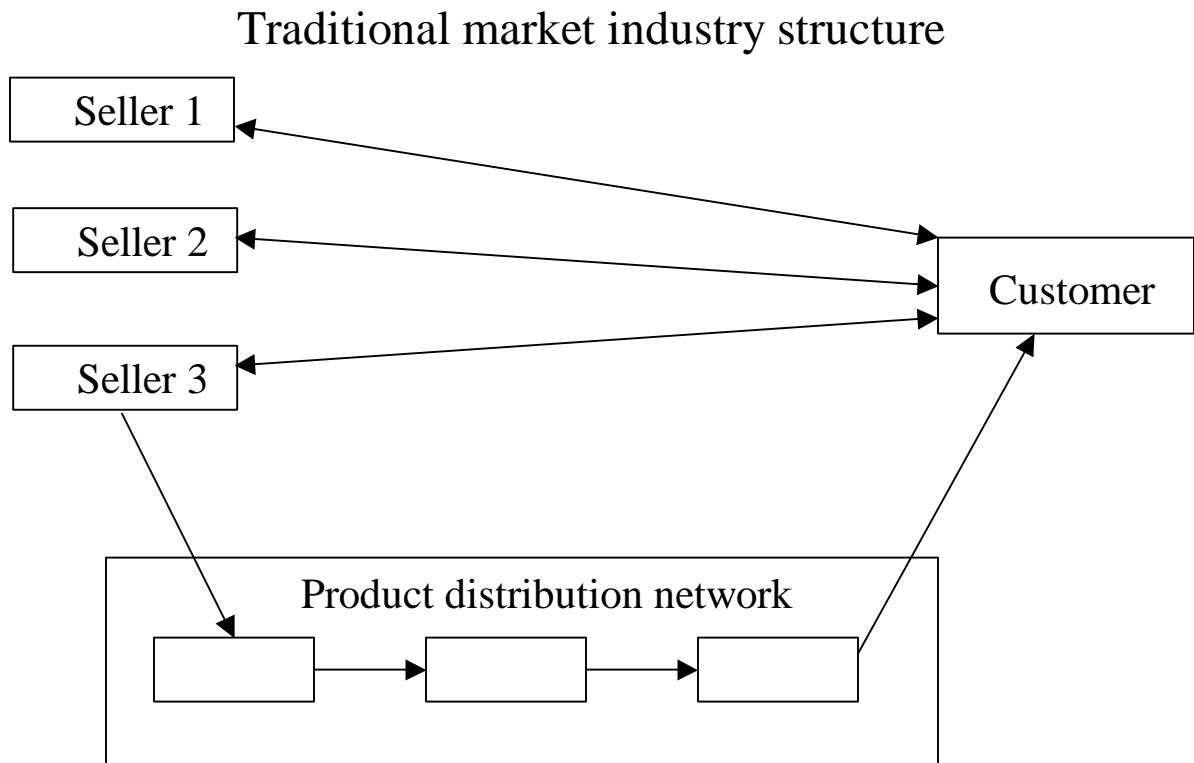
On-line purchasing and ordering

- Classification of E-Commerce Markets:

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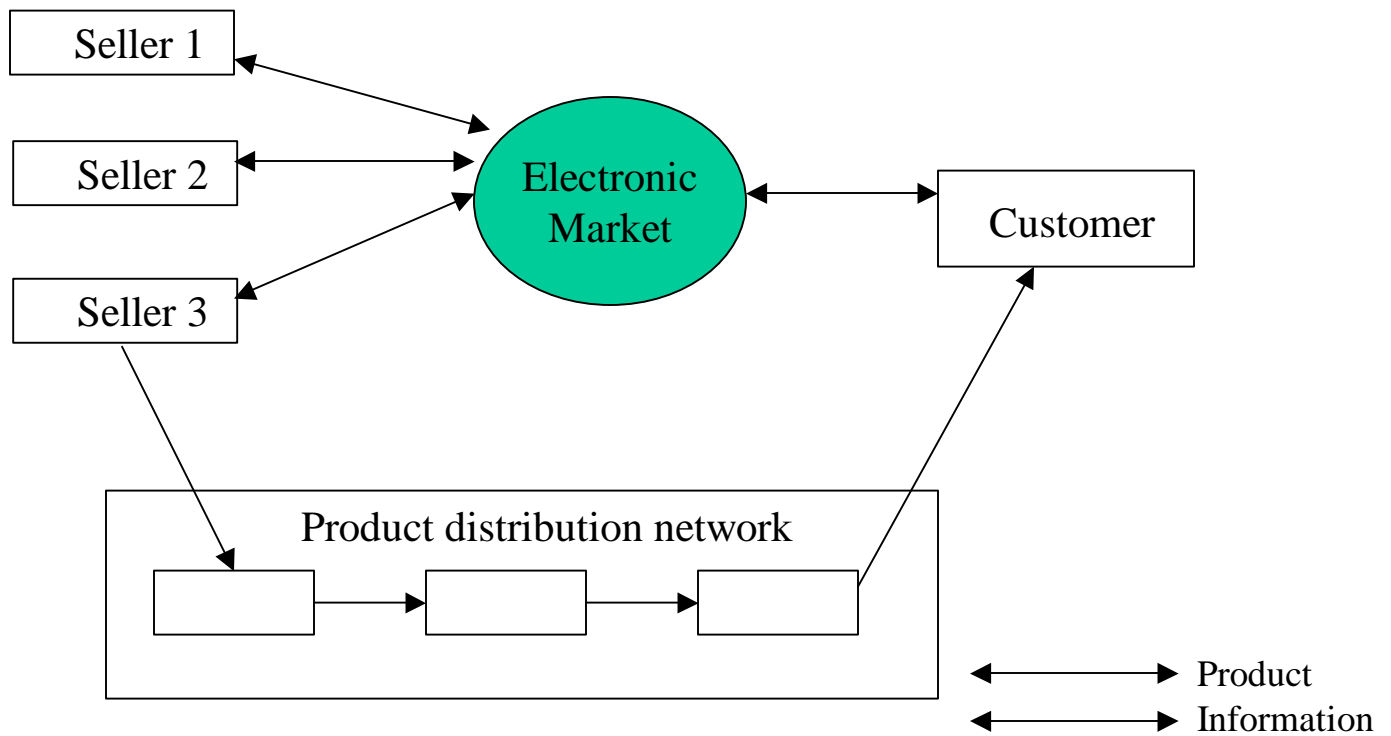
- Virtual malls***
- Advertising***
- Home banking and financial services***
- Catalog publishing***
- Interactive ordering***
- Customer service and technical support***
- Business information search***

- Impact of e-markets on industry structure



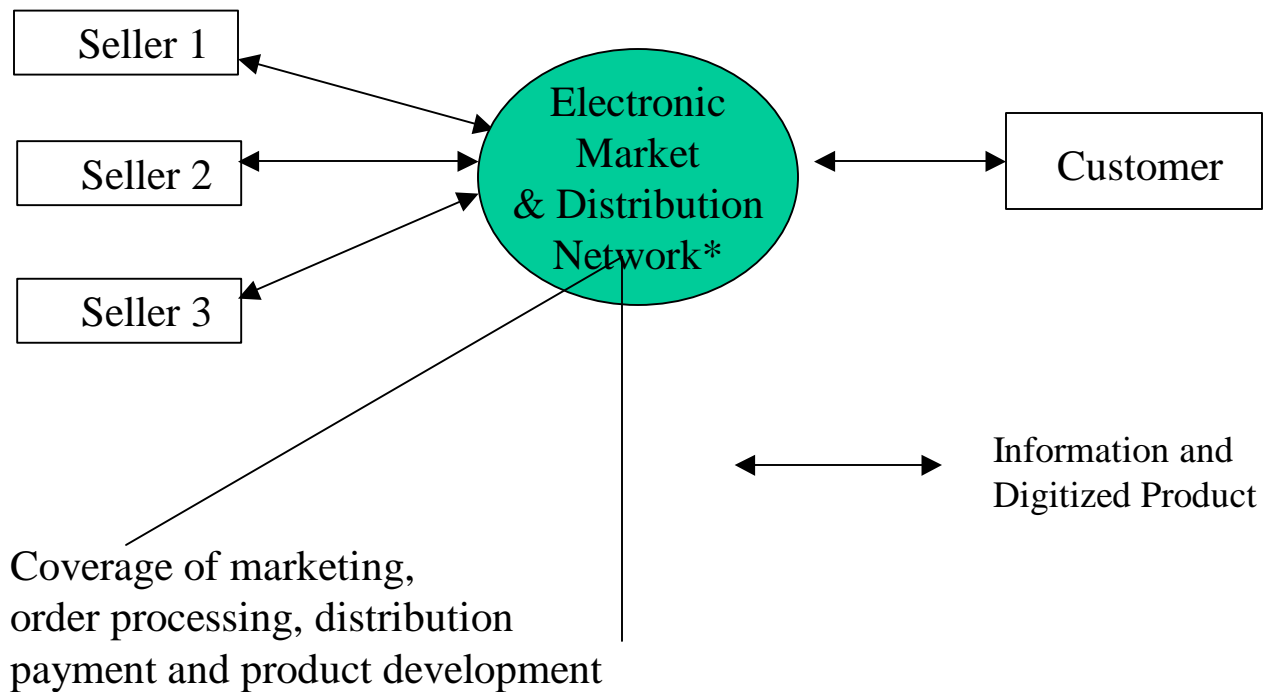
- Impact of e-markets on industry structure

Industry structure with an electronic market

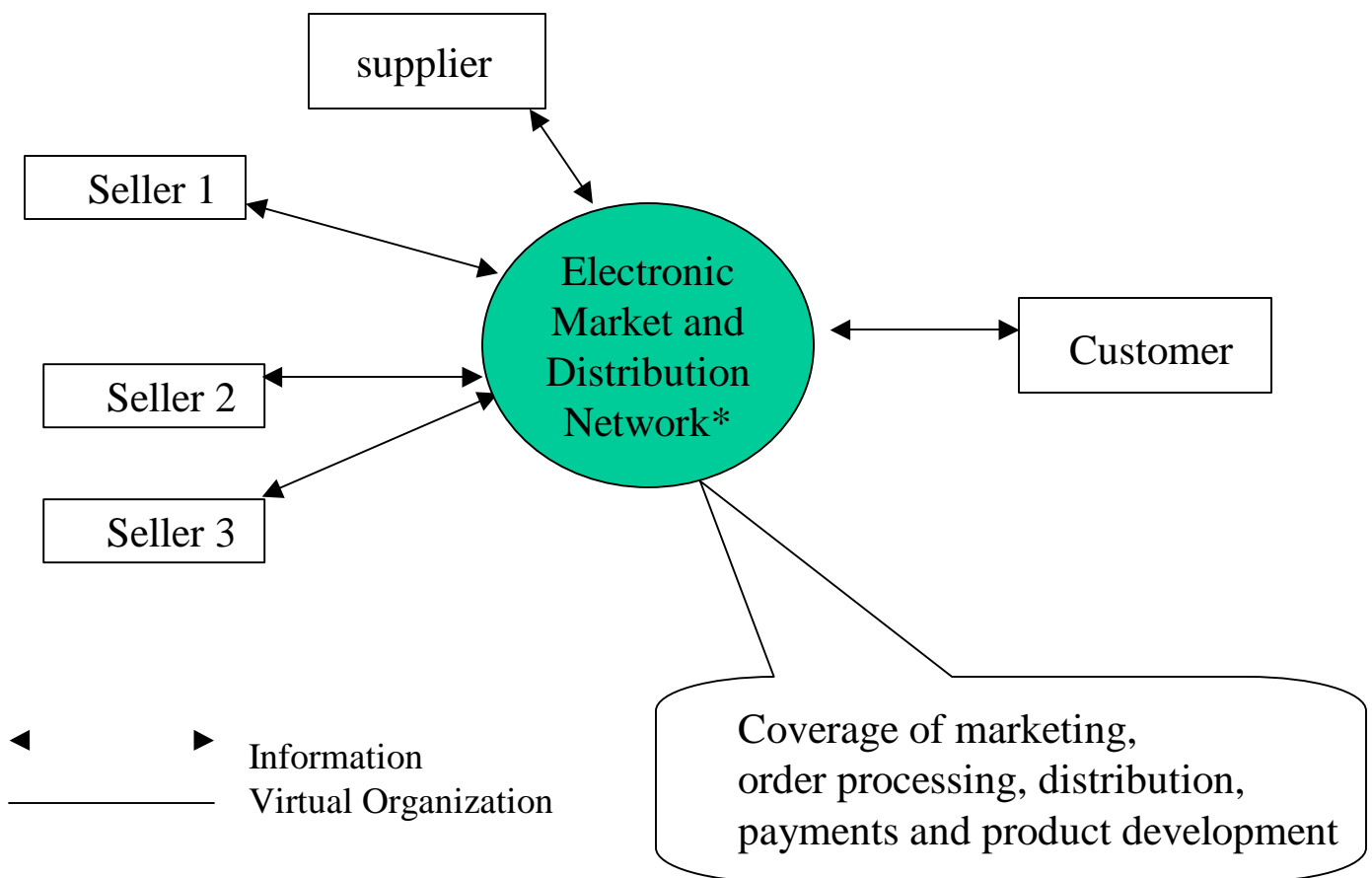


- Impact of e-markets on industry structure

Industry structure with an electronic market



Virtual organization enabled by the information infrastructure



- Factors to Affect Electronic Markets

Strader and Shaw classifies different impact factors into four categories:

- Product characteristics***
- Industry characteristics***
- Seller characteristics***
- Consumer characteristics***

Product Characteristics:

- Digitizable products.***
 - take advantage of the digitization of the market mechanism.***
 - very low transaction costs.***
 - minimize the order fulfillment cycle time***
- The magnitude of the product price***
 - the high product price --> the great the level of risk involved in the market transaction between buyers and sellers.***

- Factors to Affect Electronic Markets

- Industry characteristics:

- An industry factor that affects the impact of e-markets is the level of standards that exists in an industry for describing products.***
- A lack of available standards that both the buyer and seller recognize is a barrier to consummating sales electronically.***
- Another industry characteristic is the need for a transaction broker. Industries that requires transaction brokers, or third parties, may be affected less by electronic markets than are industries where no brokers are required.***

- Factors to Affect Electronic Markets

- Seller characteristics:

- E-markets reduce search costs that enables consumers to find sellers offering lower prices..

- May increase the number of transactions that take place.

- Reduce profit margins for sellers in the long run.

- Consumer characteristics:

Consumers can be classified into two groups:

- impulse, patient or analytical consumers.

Electronic markets may have little impact on industries where a sizable percentage of purchases are made by impulse buyers.

Analytical buyers can use the facilities available to analyze a wide range of information before deciding where to buy.

Comparison of buyer costs in traditional and electronic markets

	Market	E-Market
Pb	○	●
SCb	○	●
RCb	●	○
DCb	●	○
Tb	○	●
MCb	●	○

Pb: Product price
 SCb: Search costs
 RCb: Risk costs
 DCb: Distribution costs
 Tb: Sale tax
 MCb: market costs

Lower	●
Higher	○

Comparison of seller costs in traditional and electronic markets

	Market	E-Market*	E-Market+
ACs	○	○	●
Ocs	○	○	●
ICs	○	●	●
PCb	○	●	●
DCs	○	●	●

ACs: Advertising costs

OCs: Overhead costs

ICs: Inventory costs

PCs: Production costs

DCs: Distribution costs

Lower	●
Higher	○

Comparison of seller costs in traditional and electronic markets

	<i>P_b</i>	<i>SC_b</i>	<i>RC_b</i>	<i>DC_b</i>	<i>T_b</i>	<i>MC_b</i>
<i>Product and Service Providers</i>	X		X			
<i>Transaction Intermediaries</i>		X	X	X		
<i>Interactive Service Providers</i>		X				X
<i>Government</i>					X	

Buyer transaction costs and entity revenue source implications

- Virtual Corporation

The virtual corporation was an important transitional form in the evolution toward a “postmodern” business environment.

As described by William David and Michael Malone, the virtual corporation operates “on an integrated network that includes not only highly skilled employees of the company but also suppliers, distributors, retailers, and even consumers.”

The core network technologies of the virtual corporation are

- EDI*
- client/server computing*
- technologies that drive “hub-and-spoke” models of organization*

Example:

Chrysler Corp. - a pioneer in virtual enterprise competitive strategy, work diligently to bring its suppliers into design, production, and logistics processes but continued to specify the details of parts design.

Recently, Chrysler’s suppliers of car interiors begun to gain some freedom to create their own integrated designs, rather than only build to the specs of Chrysler engineers. This implies that companies must work together to create online networks of

- Digital Economy Enterprise Model

David Ticoll and Alex Lowy defined three layers in this new digital economy enterprise model.

- the internetworked enterprise is the basic functional unit of an industry environment.
- It relies on internetworked, knowledge-based systems to enhance its capacity to learn, be agile, and respond quickly to customer requirements.

- An e-business community - a specific set of players with shared interests, who, together, seek market dominance within industry environment.

Example:

Wintel (led by Microsoft and Intel) and Java (Led by Sun, IBM, Oracle, and Netscape).

- The industry environment - the overall context in which businesses operate. An industry environment consists of multiple e-business communities, each of which is competing to dominate and control the overall environment.

- E-Business Community (EBC): The New Competitive Space

With the emergence of the World Wide Web, a totally new business environment is emerging.

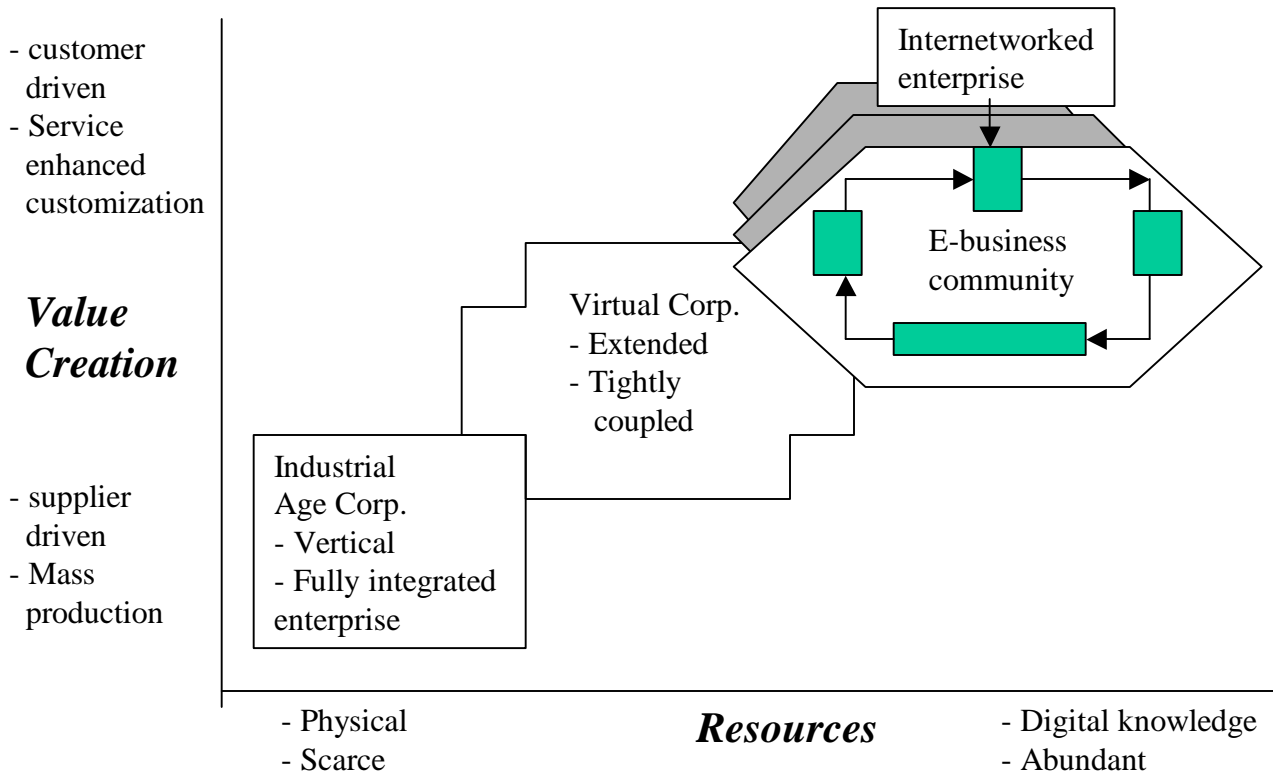
David Ticoll and Alex Lowy defined E-Business Community (EBC) below:

“We define EBC as networks of suppliers, distributors, commerce providers, and customers that use the Internet and other electronic media as platforms for collaboration and competition.”

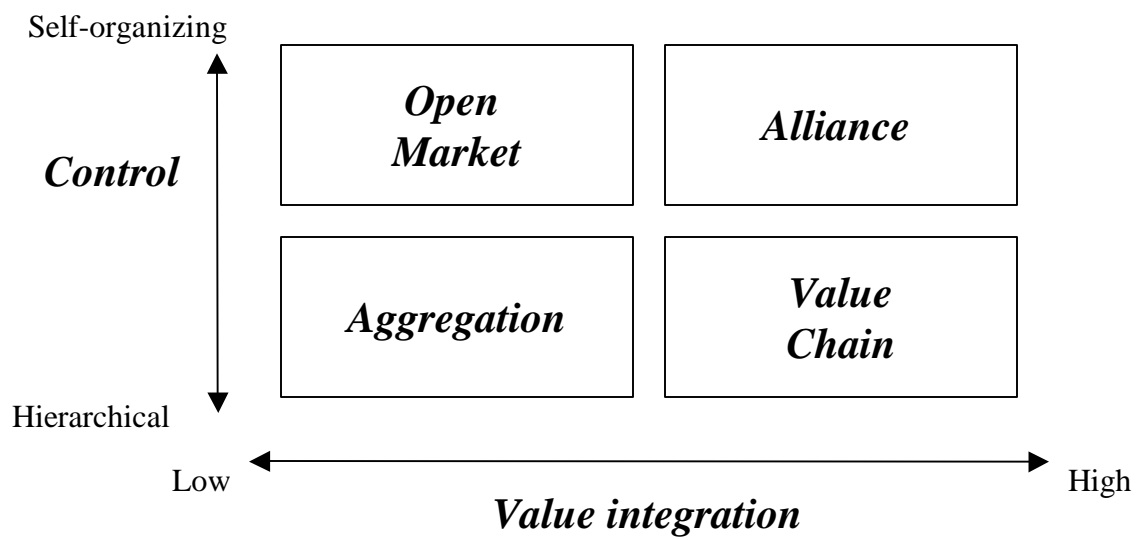
This implies that companies must work together to create online networks of customers, suppliers, and value-added processes.

EBC are transforming the rules of competition, inventing new value propositions, and mobilizing people and resources to unprecedented levels of performance.

**- E-Business Community (EBC):
 The New Competitive Space**



- Four Types of EBC



- Four Types of EBC

Economic control - Only some EBCs are hierarchical in the sense that they have a boss who controls the nature of value and the flow of transactions.

- Integrated supply networks designed and managed by a major customer (like General Motors) to produce preconceived products are clearly hierarchical.

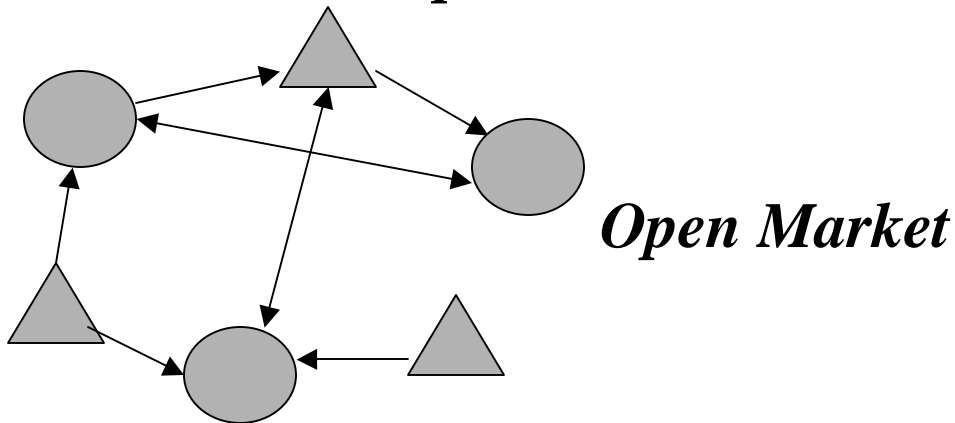
- Stock exchanges and other types of auctions are self-organizing.

Nearly all EBCs have a leader who sets the rules and standards of conduct and interchange.

Value integration - Some EBCs focus on high value integration facilitating the creation and delivery of specific product/service offerings that integrate components from multiple sources.

Others, which provide low value integration (like supermarkets), focus on facilitating trade in a diverse basket of goods and services.

Open Market EBC

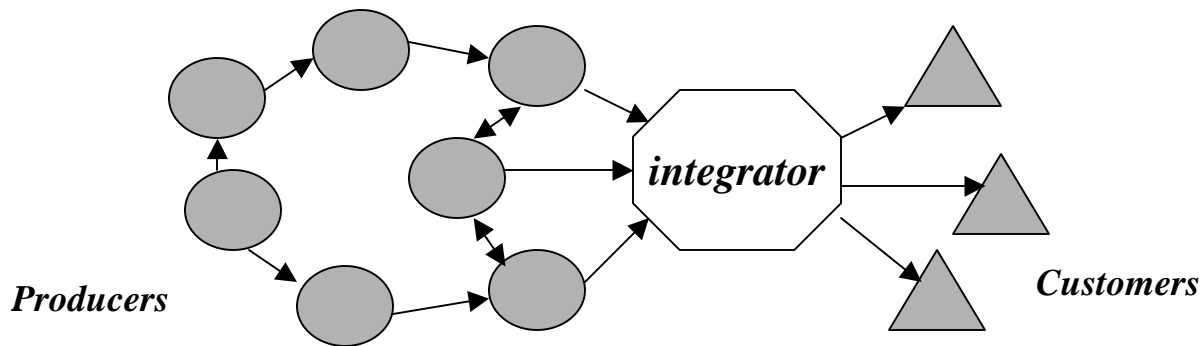


An Open Market - like the stock exchange - is the electronic version of the primitive, traditional agora, or town market. Anyone can be a buyer and a seller.

Value integration is relatively low, and no single entity is in control.

Example, eBay, an internet-based electronic flea-market for customers and small businesses founded in 1995 with expected 1998 transaction volumes of over 200 million, a \$25 + billion emerging Open Market for electrical transmission capacity.

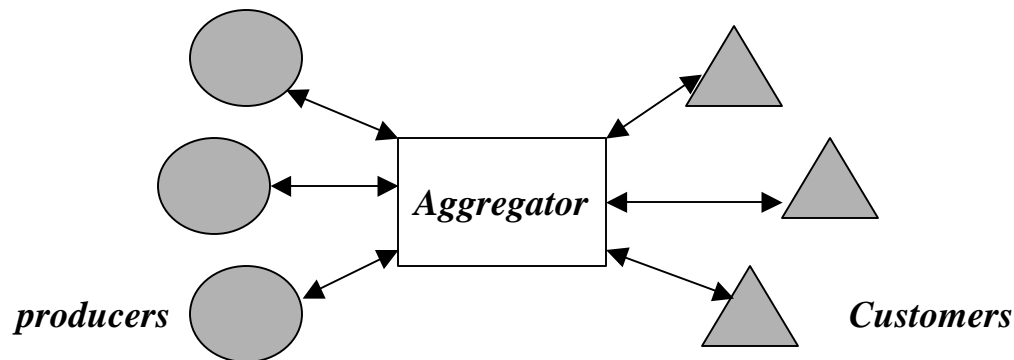
Value Chain EBC



In a Value Chain EBC, the focus is on process optimization. Similar to an Aggregation EBC, a primary company leads a more or less hierarchical fashion, but unlike an aggregator, the objective is maximizing value integration through operational effectiveness.

Cisco Systems, the leading internetworking technologies company, leverages its supply network to achieve \$585,000 in revenues per employee.

EBC Aggregator



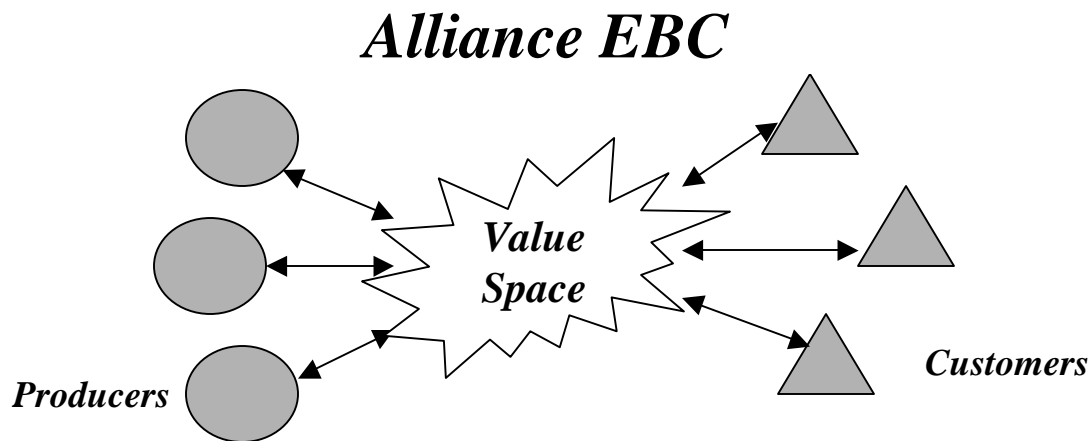
In an Aggregation EBC, one company usually leads in hierarchical fashion, positioning itself as an intermediary between producers and customers.

Wal-Mart is the master example of an Aggregation EBC leader.

As in the Open Market, value integration in an Aggregation EBC is low.

Example, America Online, the world's largest proprietary and web-based online service provider, aggregates 19,000 chat sites and more than 325 retailers.

E-Trade, the largest all-electronic brokerage service, brings together more than two dozen strategic partners.



The Alliance EBC is the most “virtual” of the EBCs, aiming to achieve high value integration in the absence of hierarchical control.

An Alliance EBC may have one or more leaders - but the leaders can not exercise control, and are continually subject to challenges.

A healthy Alliance EBC protects its participants and customers from the Wide West hazards of the Open Market EBC. It is engineered to enhance a “value space” - an idea, or a vision, of how to meet customer requirements in a specific domain.

Visa International is an example of a successful Alliance EBC. It has brought together hundreds of competitors, each of them contributes to a global brand based one shared standards and business practices.

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