

**Electronic Commerce Business Models:  
A Conceptual Framework**

By

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## **Abstract**

*The recent boom in the new economy of internet based commerce has created a large number of firms with a variety of business models that aim to leverage the power of the internet to further their business goals. In this paper we attempt to provide a conceptual framework for understanding e-commerce business models on a number of important dimensions – nature of consumer activity, nature of e-commerce activity, target customers, targeting strategy, revenue generating modes, product/service delivery modes, payment collection modes, operating modes, market places, advantage mechanisms and domination characteristics. We also examine means of improving value proposition and net-friendliness for e-commerce activities and identify areas where e-commerce models have not been explored or fully exploited so far. Since the range of economic activities on the internet is vast and growing, newer models and opportunities are likely to emerge through improvements in internet technologies as well as innovations in their application to business contexts. Hence any conceptual framework on e-commerce business models, including our own, can never be comprehensive.*

# Electronic Commerce Business Models: A Conceptual Framework

## Introduction

The recent boom in the new economy of internet based commerce has spawned a large number of firms with a variety of business models that aim to leverage the power of the internet to further their business goals. This paper provides a conceptual framework for understanding these business models and their characteristics. The conceptual framework is shown in Figure 1.

## Locating Electronic Commerce in the Internet Economy

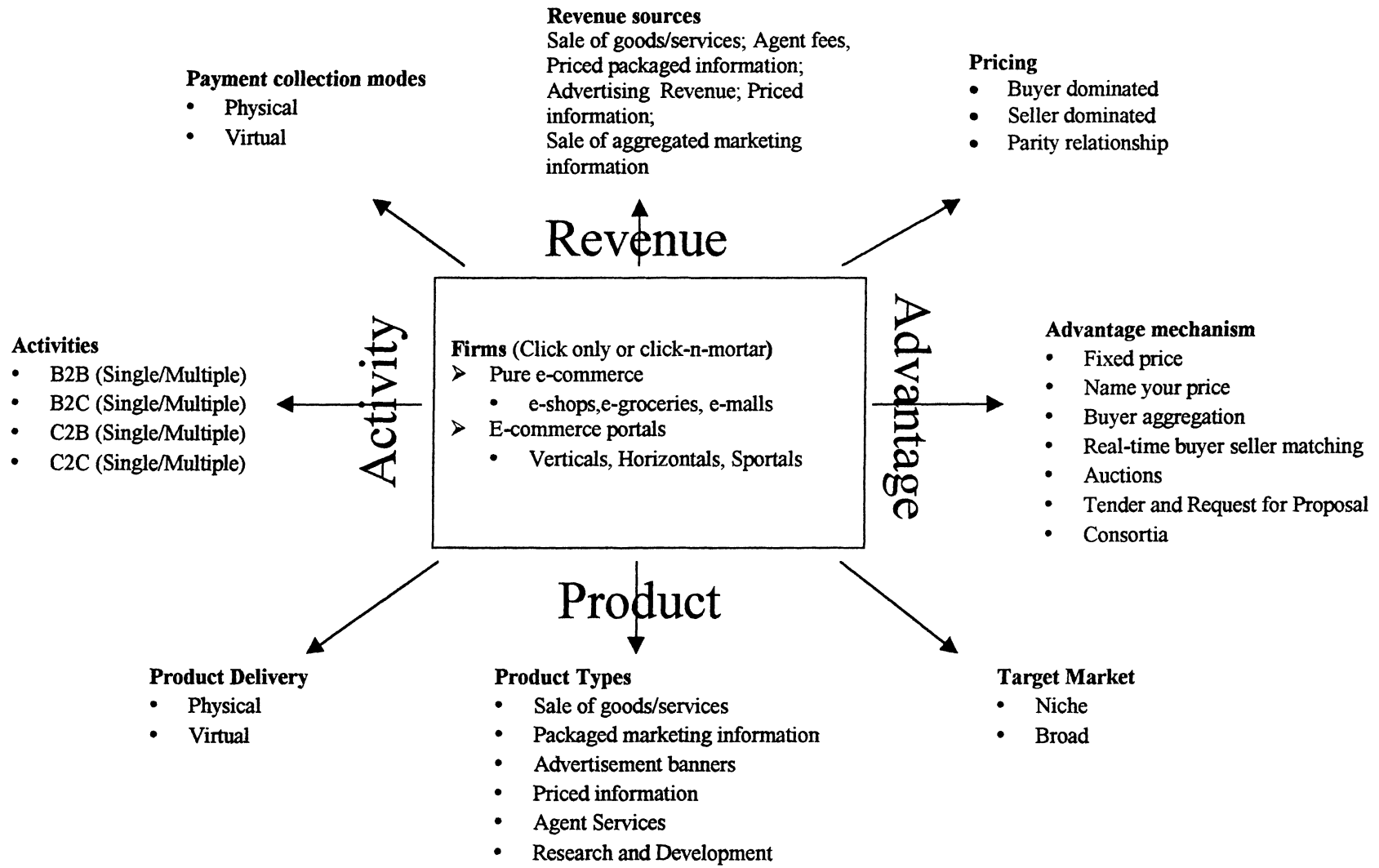
We define electronic commerce as use of the internet medium for conducting economic transactions. Electronic commerce is a part of a larger internet economy. Conceptually, the internet economy can be divided into four layers (Barua et.al., 1999). Each layer of the internet economy is listed below with descriptions of the types of companies and names of some of the actual companies in each category.

- (a) **Layer One: *The Internet Infrastructure Layer***. This layer includes companies with products and services that help create a network infrastructure, a prerequisite for electronic commerce. The categories in this infrastructure layer include: Internet backbone providers (e.g., MCI); Internet service providers (e.g. AOL); Networking hardware and software companies (e.g., Cisco); PC and Server manufacturers (e.g. HP); Security vendors; Fiber optics makers; Line acceleration hardware manufacturers (Barua, et.al., 1999).
- (b) **Layer Two: *The Internet Applications Layer***: Products and services in this layer build upon the above IP network infrastructure and make it technologically feasible to perform business activities online. The categories in this applications layer include: Internet consultants (e.g., USWeb/CKS, Scient, etc); Internet commerce applications (e.g., Netscape); Multimedia applications (e.g., RealNetworks); Web development software (e.g., Adobe); Search engine software (e.g., Inktomi); Online training; Web-enabled databases etc.(Barua et.al., 1999).

- (c) **Layer Three: *The Internet Intermediary Layer*:** Internet intermediaries increase the efficiency of electronic markets by facilitating the meeting and interaction of buyers and sellers over the Internet. They act as catalysts in the process through which investments in the infrastructure and applications layers are transformed into business transactions. The categories in this intermediary layer include: Online brokerages (e.g., E\*Trade); Online travel agents (ITN); Market makers in vertical industries; Content aggregators (e.g., Cnet,); Portals/Content providers (e.g., Yahoo); Internet ad brokers (e.g., Doubleclick); Online advertisers (Barua et.al., 1999).
- (d) **Layer Four: *The Internet Commerce Layer*:** Internet commerce involves the sales of products and services to consumers or businesses over the Internet. The categories in this Internet commerce layer include: E-tailers (e.g., Amazon.com, eToys.com); Manufacturers selling online (e.g., Cisco, Dell, IBM); Fee/Subscription-based companies (e.g., WSJ.com); Airlines selling online tickets (Southwest.com); Online entertainment and professional services (Barua et.al., 1999).

Many companies operate at multiple layers in the internet economy. For instance, Microsoft and IBM are important players at the internet infrastructure, applications, and internet commerce layers, while AOL (before the acquisition of Netscape) is a key player in the infrastructure, intermediary and commerce layers. Similarly Cisco and Dell are important players at both the infrastructure and commerce layers. As suggested by Barua et.al. (1999), even though the four-layer internet economy framework makes it difficult to separate revenues for multi-layer players, it presents a more realistic view of the internet economy than a monolithic conceptualization that does not distinguish between the different layers. Further, this classification helps in analyzing how companies choose to enter one internet layer, choosing later to extend their activities to the other layers (Barua et.al., 1999).

In this paper we treat e-commerce firms as those that principally belong to the fourth layer, but may include some from the third layer as well.



**Figure 1**

## Customer Activities in Electronic Commerce

Economic transactions over the internet consists of four major sequential activities by the prospective customer. The two initial activities are:

- (a) **Product or service search:** The prospective customer searches for the required product or service with appropriate features either in the physical world or over the internet. This search process can be short and simple for products with few features and quite long and difficult for products with large number of features that have to be evaluated comprehensively. Internet sites like productorium.com offer product-feature search and comparison services for relatively complex consumer products that have multiple suppliers – therefore facilitating the search and evaluation process.
- (b) **Price search:** After searching for the appropriate product or service, the prospective customer searches for price offerings on the required product or service either in the physical world or over the internet. This search process can be limited in scope in cases where brand preferences are strong, only one supplier exists, unit costs are low or the product commands low customer involvement for purchase. It can be extensive in scope in cases where low or no brand preferences exist, multiple reliable suppliers exist, unit costs are high or the product requires high involvement for purchase.

Product and price search can be iterative in some cases. These are followed by:

- (c) **Actual Purchase:** Once the appropriate product or service is found and the price search ends appropriately, the customer makes an actual purchase either in the physical world or over the internet.
- (d) **Payment:** Once the product or service has been purchased, the customer makes a payment (for the goods or services received) either in the physical world or over the internet.

These sequential activities may end at the first or second point without any economic transaction being affected. While the internet can support the first two activities and does so in most

cases, we consider an economic transaction to be part of electronic commerce only if the actual purchase utilises the internet.

### **Electronic Commerce Activities**

To affect and influence one or more of the four major sequential activities by the prospective customer as described above, e-commerce firms act directly or indirectly in several ways as given below:

- (a) Direct selling of goods and/or services over the internet:** This involves providing product information and price details on the internet to enable a customer to buy the product or service through online or offline payment mechanisms. This is what is commonly recognised as e-commerce activity.
- (b) Provision of packaged marketing or company information on a company homepage:** Though, this would not classify as e-commerce but it does provide important information about the company's products and provoke direct or indirect enquiries and subsequent purchase.
- (c) Advertising banners on popular internet sites for publicity and marketing:** Communicates packaged information regarding the company advertised and provides links to the company's homepage. The host company may also earn some revenue by providing advertising space. This is not a true form of e-commerce but adds a revenue generating activity.
- (d) Priced information:** Firms may provide priced information regarding products or services or provide comparative information that may be of value to niche customers. In some cases, the information may be provided free to end-customers as the featured firms/products pay for the service.
- (e) Agent services:** Firms may act as internet based agents and provide an internet site that helps in bringing the buyer and the seller together and therefore earn commission income.

- (f) **Research and development:** Firms may gather product preference and use information through their own sites or through popular general sites (doubleclick.com) through registration information or through contests and use the information to provide targeted products. This supports e-commerce activity.

### **Targeting Prospective Customers in E-Commerce**

The target customer segment for the firm could be either niche or broad as given below:

- (a) **Niche:** Involves targeting a niche single customer or a group of customers within a population of appropriate customers. These are typically targeted through information on specialised sites or through registration information gathered from general or specialised site or through search engine key words entered by the prospective customer.
- (b) **Broad:** Involves targeting the entire population of appropriate customers, typically through information presented on general or specialised sites depending on the product.

### **Targeting Strategy in E-Commerce**

The targeting strategy used by the firm could be either based on providing:

- (a) **Cost advantage** in terms of overall transaction and lifetime costs over other products available in either physical stores or over the internet or both. Cost leadership in the physical world involves becoming a low cost producer through gaining experience, investing in large scale production facilities, using economies of scale and carefully monitored operating costs (Porter 1985). While these hold in e-commerce also, cost leadership positions can be enhanced over the internet by reducing transaction costs through appropriate use of internet capabilities.
- (b) **Differentiation** in terms of features and/or services. Differentiation in the physical world involves development of unique products or services and building on brand or customer loyalty (Porter 1985). While these hold in e-commerce also, differentiation positions can be enhanced over the



internet by providing value added services and customisation features through appropriate use of internet capabilities.

Firms may pursue different e-commerce approaches depending on whether they are targeting a niche customer segment or a broad customer segment and whether they are adopting a differentiation strategy or a cost leadership strategy. The options are shown in Table 1 along with appropriate examples.

**Table 1**

	<i>Internet Based Differentiation</i>	<i>Internet Based Cost Leadership</i>
<i>Niche Customer Segment</i>	Focus Internet Differentiation Eg. Jbmountainbikes.com	Focus Internet Cost Leadership Eg. southwest.com
<i>Broad Customer Segment</i>	Broad Internet Differentiation Eg. Oldtools.com	Broad Internet Cost Leadership Eg. amazon.com

**E-Commerce Revenue Generating Modes**

The nature of electronic commerce activity also dictates the revenue generation modes that can be adopted by the firm. Apart from revenue generation modes adopted in the physical world, firms can develop new revenue generating modes through the appropriate use of internet capabilities.

Some revenue generating modes adopted by e-commerce firms are:

- (a) Profit from purchase/sale of goods:** These are typically in the nature of trading profits as existing in the physical world though the reach of the internet can enhance its quantum.
- (b) Agent fees:** Income generated by an agent for bringing the buyer and the seller together. This is usually charged from the seller, though in some cases both parties may be charged. This is as it exists in the physical world though the reach of the internet can enhance its quantum.
- (c) Income from priced packaged information:** Revenue generated from the sale of information that is rendered more valuable to the consumer as it is appropriately collected, classified and in an easily searchable form. This is as it exists in the physical world though internet capabilities can provide greater currency to the information.

- (d) Advertising revenues:** Revenues generated through advertisements put as images or scrollbars or pop-ups on popular internet sites. Revenues may be calculated based on “page-views” (number of people visiting the page where the advertisement is displayed) or “click-throughs” (number of people clicking the advertisement image to visit the sponsors web-site). Revenues are based on measures similar to those that apply to physical hoardings or newspaper/magazine advertisements. However, internet capabilities can provide more accurate measures of viewership in terms of number and quality than possible for physical hoardings or newspaper/magazine advertisements.
- (g) Priced information:** Income generated from providing priced information regarding products or services or providing comparative information that may be of value to niche customers. These differ from agent commissions, though in some cases, the information may be provided free to end customers as the featured firms/products pay for the service.
- (h) Income from sale of aggregated marketing information:** Firms may like to sell aggregated traffic and customer data to marketing research firms. This is a revenue source for firms.

### **E-Commerce Product Delivery Modes**

There could be two types of product delivery modes in electronic commerce activity:

- (a) Physical:** Delivery through physical shops or delivery through delivery services providers such as courier services. The transaction ends with safe delivery except in cases where the physical product requires maintenance, repairs, replacements and other types of follow-up activity. In the latter cases, the follow-up can be provided either by local agents of the firm or by the firm itself. Such follow-up can be either through visits or email or a combination of the two.
- (b) Virtual:** Typically used for information products (reports, music, software etc). After payments have been made, the product may be made available for viewing on the screen or for direct download or through e-mail delivery. Any follow-up required is usually through email.

## **E-Commerce Payment Collection Modes**

There could be two types of payment collection modes in electronic commerce activity:

- (a) Physical:** Payments collected through agents from physical shops or against delivery through delivery services providers such as courier services.
- (b) Virtual:** Payments collected through credit cards, charge cards, smart cards, gift cheques, e-cash or frequent flier points.

## **E-Commerce Operating Modes**

There can be three major modes of handling electronic commerce business operations:

- (a) Completely outsourced operations:** Activities like web-hosting, back-end processing and order fulfilment are outsourced to other specialised firms or a consortia. The firm that builds the product chooses to concentrate on its physical world operations or on manufacturing alone.
- (b) Completely self-handled operations:** All e-commerce related activities like web-hosting, back-end processing and order fulfilment activities are handled in-house in parallel with its physical world operations and manufacturing.
- (c) Hybrid operations:** Part of the e-commerce activities (typically back-end processing and order fulfilment) are handled by the firm in parallel with its physical world operations and manufacturing, while the rest (typically web-hosting) are outsourced to specialised firms or to consortia.

## **E-Commerce Market Places**

The e-commerce market place (where buying and selling occurs) could take the shape of:

- (a) Pure E-Commerce Shops:** Like physical shops, pure e-commerce shops are places where only product and price information is provided and the purchase transaction is conducted. These are of three types: (1) e-shops, (2) e-groceries and (3) e-malls.

**(1) e-shops:** a single shop typically selling a single type of product or service on a single site.

- (2) **e-groceries:** a single shop typically selling multiple types of related products or services on a single site.
- (3) **e-malls:** a set of multiple shops selling a variety of products and/or services that are hosted by a single mall site. The mall may have a single owner/manager or multiple owners/managers. Some malls may provide for order and/or payment consolidation across shops within the mall, while others may need the customer to place individual orders or make individual payments for each shop in the mall. Malls typically have a theme that decides the types of shops that are included in it. The theme may be based on geographical location (eg. an Indian mall) or based on the type of goods sold (eg. a clothes mall) or a combination of both.
- (b) E-Commerce Portals:** Unlike typical physical shops, these are places where apart from providing product and price information and conducting the purchase transaction, additional information and links to other related sites are provided to the customer to aid and influence the purchase decision. A portal also provides useful related or unrelated information to a potentially non-transacting customer – such as specialised repair and care information, new product or technology developments etc. Apart from revenues from the purchase and sale of goods and services, popular portals also draw commission revenues or obtain discounts from product manufacturers and providers of related services for providing them visibility. Portals can be (1) vertical (vortal) or (2) horizontal (hortal) or (3) spot (sportal).
- (1) **Vertical portal:** It typically showcases a single product category and provides information on multiple brands of that products as well as closely related product information. It typically caters to a subset of the audience that is interested in that product alone either as a buyer, user or seller and will seek out the portal to meet its needs. Vertical portals can draw commission revenues or discounts due to the targeting they provide.
- (2) **Horizontal portal:** It typically carries a range of largely unrelated product categories and provides information on multiple brands of the set of products that it chooses to carry as well as

a host of related product information as well as unrelated or loosely related information and services. It typically attempts to attract a large and wide variety of customers to its site by providing a broad range of products and services in the hope that some visiting customers may purchase from the site. Horizontal portals can draw commission revenues or discounts due to the visibility they provide.

(3) **Spot portal:** It attempts to combine the advantages of the horizontal and vertical portals (eg. computer.com). It typically carries a range of related product categories and provides information on multiple brands of the set of products that it chooses to carry as well as a host of related product information and services. Therefore it is broader in the range of products it carries than a vortal and provides more products and product information in each product category than a hortel. It typically attempts to attract a fairly large but targeted customer segment to its site that is likely to buy the type of related products that it features. Spot portals can draw commission revenues or discounts due to the combination of targeting and visibility they provide.

Table 2 depicts the types of shops and portals that are possible.

**Table 2**

	Single Product	Multiple Related Products	Multiple Unrelated Products
E Commerce Shops	E-Shop	E-Grocery	E-Mall
E Commerce Portals	Vertical Portal	Spot Portal	Horizontal Portal

**Matrix of E-Commerce Models**

Two principal business models – commonly known as B2B (business-to-business) and B2C (business-to-consumer) proliferate in the e-commerce market space today. The reverse variants like C2B (consumer-to-business) and C2C (consumer-to-consumer) are emerging but less commonly adopted. However, buyers in the e-commerce market space can be either single or multiple individual consumers or single or multiple businesses. Similarly sellers in the e-commerce market space can be either single or multiple individual consumers or single or multiple businesses. (Consumer sellers are

individuals interested in selling used products second hand or in selling partially used or unused services that they are unable to utilise fully.) Therefore the buyer-seller space in e-commerce could also be viewed more comprehensively as shown in Table 3.

**Table 3**

		Business Buyer		Consumer Buyer	
		Single	Multiple	Single	Multiple
Business Seller	Single	SB to SB	<b>SB to MB</b>	SB to SC	<b>SB to MC</b>
	Multiple	MB to SB	<b>MB to MB</b>	<b>MB to SC</b>	<b>MB to MC</b>
Consumer Seller	Single	SC to SB	SC to MB	SC to SC	SC to MC
	Multiple	MC to SB	MC to MB	MC to SC	MC to MC

*Abbreviations: S: Single; M: Multiple; B: Business; C: Consumer*

Each of these are combinations that can provide potentially viable business models. However the five models that are highlighted in the chart seem to be the most commonly adopted models. The rest are either uncommon or have not been adopted so far – providing areas for exploration and exploitation by e-commerce firms in future.

### **Deriving Advantage through E-Commerce Business Models**

Within each principal business model one could have mechanisms to derive advantage for the business or the customer through the nature of delivery, customisation, seller characteristics, price-setting mechanism etc. Therefore one could conceive the matrix in Table 4 for conceptualising the business model configuration (examples are provided for each of the models wherever available).

Let us see as to how each market place works:

- (a) **Fixed price model:** The seller offers a list of goods available at pre-determined prices. The consumer's choice is limited to *take it or leave it*.
- (b) **Name your price:** Different products are put out for sale. The consumer sets the price that he is willing to pay. Net agents' scout for the seller who is willing to sell at the price quoted by the consumer. The sale is fixed and the consumer is required to buy the product.

- (c) **Buyer Aggregation:** This operates on the basis of quantity discounts. The net agent collates orders from a large number of customers. As soon as the order level touches a pre-specified level, the sale is triggered and the benefit of quantity discounts passed on to the consumer.
- (d) **Real time buyer-seller matching:** A real-time exchange brings name brand retailers, small stores and individual sellers in a single market where one can instantly compare total prices (including tax & shipping). If the customer doesn't like the prices that he sees, he can ask the sellers to give the customer a better deal.
- (e) **Auctions:** They are similar to auctions in the real world. Sellers place items for sale and may quote a reserve (minimum) price. Buyers bid for the items and (typically) the highest bidder gets the item as long as his bid is higher than the reserve price.
- (f) **Tender and Request for Proposal process:** Typically used by government agencies for inviting tenders for buying and selling of items.
- (g) **Consortia:** This is a variant of buyer aggregation that is typically found in the B2B segment. A number of businesses with similar buying requirements get together for buying at a common place. On the other hand, there could be a large number of sellers willing to sell to a common pool of buyers.

**Table 4**

Advantage Mechanism	Basic Business Model			
	B2B	B2C	C2B	C2C
Fixed Price Model	Cisco, Intel	Amul.com	na	na
Name Your Price		Priceline.com	Priceline.com	na
Buyer Aggregation		Buyasone.com		na
Real Time Matching		Nextag.com		
Auctions	Freemarkets.com	e-bay.com		e-bay.com
Tender RFP Processes	Ec21.nbc.gov	na	na	na
Consortia	e-steel.com	e-steel.com	na	na

*na : not applicable*

## **Domination in E-Commerce Markets**

E-commerce markets can be designed in ways that are dominated by either the buyer or the seller in terms of who sets the price or who dominates in the price setting negotiation (if any). In a few markets neither party dominates and there is a parity relationship. The price setting process could be static (one price for all customers) or dynamic (prices change depending on the buyer and/or the time of sale).

The nature and implications of the three market domination categories are given below:

- (a) Buyer dominated:** Here the buyer has the upper hand in the transaction. These include Name Your Price, Buyer Aggregation, Tender and Request for Proposal Process, Auctions and Consortia.
- (b) Seller dominated:** Here the seller has the upper hand in the transaction. Fixed Price models fits into this category.
- (c) Parity relationship:** Here neither the buyer nor the seller dominates the transaction. Real Time Buyer-Seller matching fits in this category.

## **Click-Only or Click-n-Mortar E-Commerce Firms**

There are two broad types of firms engaged in electronic commerce: *pure plays (click-only)* and *hybrids (click-n-mortar)*. Pure plays are firms that do not have a physical presence (like Amazon.com; which sells on the net only and does not own any physical bookstores). While others have a physical as well as an internet presence (like BarnesandNoble.com, which has a large network of retail bookshops and sells on the net too). Both pure plays as well as hybrids engage in a wide variety of businesses viz. travel, books, software, consumer electronics, groceries etc.

## **Factors Affecting Potential Sale in E-Commerce**

There are several factors that can affect the potential sale of any product/ service over the internet.



We list some of the factors or variables that can affect the potential sale of any product/service over the net (partly based on Rajiv and Saxena, 2000):

- (a) Value for money:** Does the sale of the product over the net provide additional benefit to the consumer? Is the benefit purely monetary in terms of price reductions or is the monetary benefit (if any) enhanced by ease of transaction or improved product delivery.
- (b) Commodity Product/Service:** Lesser the difference between products, the easier the choice process for the consumer over the net. Fewer comparisons have to be made – price becomes the major differentiating factor.
- (c) Brand image:** Products/services with a strong brand appeal are more likely to succeed over the net, especially for otherwise commodity products. They also reduce search costs over the net.
- (d) Support services:** Products/services that require lesser amount of support (order tracking, warranties, after-sales, call centres etc.) are more likely to succeed over the net. Else a delivery mechanism for support services needs to be built in along with the sale transaction mechanism.
- (e) Sensory data processing:** Products that entail greater sensory involvement of the consumer are less likely to succeed as the product cannot be sensed effectively. Else a sensory delivery mechanism for sensory involvement of the consumer needs to be built in along with the sale transaction mechanism.
- (f) Consumer choice:** Modes of selling that enable a consumer to make better choices (through product category or brand comparisons) will improve the success of the product over the net.
- (g) Payment mechanisms:** Ease of payment and security of payment mechanisms are concerns for potential customers. Ceteris paribus, barter and coupon schemes can enhance sales over the net.
- (h) Personalisation:** The more customer-friendly and personalised the interface (customers can define which related sites they wish to visit or what information they would like to be provided when they log in); greater is the likelihood that customers would be attracted to and attached to the site.

- (i) **Seamless integration:** Various stores on the site and various functionalities need to be tightly integrated (for example timely update of prices), to provide the consumer with the ease of transaction that would attract and attach the customer.
- (j) **Transaction costs:** Any lowering of transaction cost for customers will attract them to the site. This could take the form of using a single site to conduct transactions over multiple sites (snaz.com) or reduce the customer's efforts in going to a physical store to ensure quality of products.
- (k) **Unit cost:** Lower the per unit cost of the goods or service, lower the propensity to transact over the net if physical purchase transactions are fast, easy and cheap. An internet transaction, however small and simple requires a minimum fixed investment in terms of time for search and time for transaction as well as the cost of internet connectivity that may not justify purchases of small unit cost except along with other high unit cost items.
- (l) **Frequency of purchase:** Higher the frequency of purchase of the goods or service, lower the propensity to transact over the net if physical purchase transactions are fast, easy and cheap. An internet transaction, however small and simple requires a minimum fixed investment in terms of time for search and time for transaction as well as the cost of internet connectivity that may not justify frequent and repeated purchases that can be handled through rate contracts and regular door deliveries.

### **Enhancing Product/Service Value Propositions through E-Commerce**

Typically value offerings in an e-commerce transaction are derived from providing the consumer with products/services which provide greater benefit to the consumer through the transaction over the net as compared to the purely physical transaction.

This enhanced value offering can be due to:

- (a) reducing the physical space between the buyer and the seller;
- (b) reaping economies of a shortened value chain through disintermediation;

- (c) reaping economies derived from a large global consumer base; and
- (d) provision of easily accessible related information through the net.

Apart from providing purchase access to customers unable to undertake physical transactions, where these advantages are relatively large in proportion to the value of the product, it improves the value proposition for the buyer while maintaining or enhancing margins for the seller. *Ceteris paribus*, an improvement in the value proposition of the product through its transaction over the net can potentially improve the propensity of customers to purchase it over the net. This assumes that the accessibility, transaction cost and level of difficulty for both types of transactions remains the same. This is however mediated by the inherent net-friendliness of the product as described in the next section.

### **Impact of Net-Friendliness of Product/Service in E-Commerce**

Not all products/services lend themselves to an enhanced value offering through transactions over the net. In some products/services, difficulties related to the nature of the product or the nature of the transaction may reduce the value offering on a transaction over the net – thus reducing the propensity of the consumer to use the net for transactions of such products. Difficulties that are related to the nature of the product/service itself are said to be due to the inherent net friendliness of the product (Rajiv and Saxena, 2000). For example, in a fabric purchase context, the customer normally feels the texture of the fabric before purchase and therefore will be reluctant to purchase it over the net – this renders fabrics as an inherently non-net-friendly product. Therefore, we could consider a continuum of products/services from completely non-net-friendly to highly net-friendly ones depending on how important the net-friendly or non-net-friendly feature is to the purchase decision of the customer.

However, certain value-added services and mechanisms can shift non-net-friendly products/services to a higher level of net-friendliness. To develop such value-added services and

mechanisms firms need to understand the features that are likely to influence a product/service's degree of net-friendliness.

### Value-Proposition – Net-Friendliness Matrix

If we combine the degree of net-friendliness as a continuum with the level of improvement in the value proposition of transactions over the internet as a continuum we have the e-commerce market space given in Figure 2. It indicates that certain products and services are inherently more appropriate for e-commerce transactions. Firms can develop mechanisms to enhance value propositions and/or net-friendliness at a cost – such costs can be marginal in some products or prohibitive in others impacting the overall e-commerce business proposition.

Figure 2

	Non Net Friendly ←————→ Highly Net Friendly	
Low Value Proposition Improvement	Worst Net Product (avoid)	Good for Click & Mortar
High Value Proposition Improvement	Needs Net Friendliness Support	Best Net Product

### Mechanisms to Improve Net Friendliness:

Several mechanisms have been developed to improve the net-friendliness of inherently non-net-friendly products.

We present and explain some of the mechanisms adopted by the existing e-commerce firms:

- (a) **Sending samples by mail/courier:** Example: Sending a sample of small pieces of fabric to the customer by mail enables the customer to feel the texture prior to purchase.
- (b) **Better Computer Imaging:** Example: Car sites use high quality three dimensional imaging with multiple perspectives and “walk-arounds” to provide the customer an almost live model appearance on screen prior to purchase.

- (c) **Monitor resolution and calibration:** Example: Paint sites can accurately calibrate the image sent against the user's stated monitor type, model and settings so that the customer can view authentic undistorted "real" colours prior to purchase.
- (d) **User demonstration:** Example: Demonstration of use on screen or video where user training is essential as part of the sale process – as in household appliances.
- (e) **Onscreen trials:** Example: Viewers can try combinations of furniture sets and relative placements on a virtual drawing room to make suitability assessments prior to purchase.
- (f) **Product details and comparisons:** Example: In complex multiple feature products, sites like productorium.com provide easy selection and comparison databases and navigation tools to facilitate the customers product selection and suitability matching process

#### **Mechanisms to Improve Value Proposition over the Net:**

Several mechanisms have been developed by firms to improve the value proposition of the products they sell over the internet. These mechanisms are conceptually of three types:

- (a) those that are based on value propositions that can be offered in physical stores – these include discounts, coupons, gift cheques, games, quizzes, contests, demonstrations etc.
- (b) those that harness the capabilities of the internet to offer value propositions that cannot be offered in physical stores – these include wide or targeted search facilities, wide-net internet based auctions, electronic cash transactions, instant email alerts etc.
- (c) those based on product customisation - these involve products purchased directly from the original manufacturers over the net that are customised at the time of manufacture within a limited set of customer feature options and combinations without any major additional cost to a manufacturer who is geared for flexible manufacturing. This can be an advantage over the limited range available in physical stores.

## Conclusion

The recent boom in the new economy of internet based commerce has spawned a large number of firms with a variety of business models that aim to leverage the power of the internet to further their business goals. Forrester Research has shown that e-commerce could generate \$6.9 trillion in revenues by 2003 (Forrester Research in ABC News, 2000).

In this paper we have attempted to provide a conceptual framework for understanding e-commerce business models on a number of important dimensions like nature of consumer and e-commerce activity, target customers, targeting strategy, revenue generating modes, product/service delivery modes, payment collection modes, operating modes, market places, advantage mechanisms and domination characteristics. We have examined means of improving value proposition and net-friendliness for e-commerce activities. We have also identified areas where e-commerce models have not been explored or fully exploited so far. Since the range of economic activities on the internet is vast and growing, newer models and opportunities are likely to emerge through improvements in internet technologies as well as innovations in their application to business contexts. Hence any conceptual framework on e-commerce business models, including our own, can never be comprehensive.

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