Electronic commerce, the handling of business transactions over communications networks, is widely used and well-understood by managers and executives. Those firms that have capitalized on its capabilities have benefited many times over from cost reduction, time compression, and streamlined business processes. The most widely established form of electronic commerce relies on electronic data interchange (EDI) as the basis for establishing business systems that link organizations (hence the name interorganization systems — IOS).

Another form of electronic commerce is emerging rapidly, with a far greater potential for business. Consider the following company practices:

- General Electric Co., headquartered in Fairfield, CT, has begun moving procurement activities within all 12 divisions onto the Internet. During 1998, GE purchased more than $1 billion in goods and supplies through its Internet initiative. The company has found that it has been able to reduce the procurement-cycle time by 50%. Moreover, the costs of the procurement process have dropped by 30% and the actual costs of supplies and materials by some 20%. Moreover, suppliers supporting GE through the Internet purchasing process, which often relies on competitive bidding, tend to offer their lowest bid prices in their initial quote, recognizing that they may not get a chance to reduce their prices later. GE expects that its annual purchasing volume will grow to $5 billion by the year 2000, with electronic links to more than 2,500 of its largest suppliers.

- To aid buyers in quickly acquiring the software they want, CNET Direct, Inc. established an electronic market in December 1996. From its BuyDirect.com Internet location, buyers find a market maker offering a choice from a wide array of software, all presented with product
information direct from the manufacturer, and delivered instantly over the network. However, this market maker provides services to business and consumer shoppers that are not typically associated with the purchase of software. For instance, the “try and buy” concept allows users to work with a fully functional copy of the software for a period of time before spending any money. Programs from BuyDirect that utilize a time lock system can be downloaded to the customer’s system for free. When a decision is made to buy the software, the demo program is instantly and automatically updated into a full, commercial version, free of any usage restrictions. The BuyDirect market services also include replacing software lost months after the original sale — even programs destroyed because of a hard disk crash. After contacting BuyDirect.com, customers can instantly download another working copy. Walk-in retail stores will have to rethink their services if they wish to compete with this electronic software market.

• CommerceNet is a consortium of companies and organizations formed to facilitate the use of an Internet-based infrastructure for electronic commerce. More than 500 commercial, education, not-for-profit, and government entities composed the early membership group. CommerceNet supports business services that normally depend on paper-based transactions. From their desktop computers, buyers browse multimedia catalogs, solicit bids, and place orders. Sellers respond to bids, schedule production, and coordinate deliveries. All necessary financial transaction support services are available through the network. Yet CommerceNet is much more than a place to strike a deal. Its members develop and test networking prototypes and pilot applications. Its working groups provide a forum for industry leaders to discuss issues. From these experiences, members define standards and best business practices for using the Internet to conduct electronic commerce.

The sheer magnitude and speed of change in business is one factor for causing forward-looking executives and managers to consider new business forms, including electronic markets, as well as the role of information technology in delivering products and services. Skyrocketing use and continuing development of the Internet is creating new opportunities for businesses, large and small, and for entrepreneurs seeking to utilize their ingenuity to deliver new products and services in innovative ways.

This chapter contrasts two forms of electronic commerce:

• Interorganizational systems, which already have become an integral part of business processes in so many firms.
• Emerging electronic markets.
The rationale for participating in electronic markets is new opportunity to create a product, deliver a service, or get in touch with potential customers. Internet commerce is one highly visible forum for electronic markets. As this chapter illustrates, the characteristics of the Internet merit its careful evaluation by executives and managers alike.

**Interorganizational Systems**

Through Interorganizational systems, buyers and sellers arrange for routine exchange of business transactions without the necessity of direct negotiation. Because information is exchanged over communications networks using prearranged formats (Exhibit 1), there is no need for telephone calls, paper documents, or business correspondence to create and carry out the transactions. Although Interorganizational systems may involve proprietary communication links, firms are, at an increasing rate, evaluating the desirability of using public networks for the systems.

**Emergence of Interorganizational Systems**

Interorganizational systems were driven by business needs and facilitated through information technology’s continuing advances. The systems are a direct result of the growing desirability of interconnecting business partners to streamline business processes by:

![Diagram of Interorganizational System for Electronic Data Interchange (EDI)]
• Reducing the costs of routine business transactions.
• Collapsing cycle time in the fulfillment of business transactions, regardless of geographic distance.
• Eliminating paper and the inefficiencies associated with paper processing.

Pursuit of these objectives was facilitated by networks that interconnected the diverse desktop and data systems used by business partners. Both proprietary network solutions and the services of value-added network carriers ensured that any firm wishing to link up could do so.

Types of Interorganizational Systems

The term interorganizational system describes a variety of business activities rather than a single entity. Following are five of the most prominent types of interorganizational systems:

• *Electronic data interchange (EDI).* Computer-to-computer (or application-to-application) exchange of standard, formatted business documents transmitted over computer networks where translation systems overcome differences in information technology used by trading partners.

• *Electronic funds transfer (EFT).* Automated exchange of money between parties in a commercial transaction or between banks representing businesses responsible for conducting the settlement portion of a business transaction.

• *Electronic forms.* Online completion and transmission of business forms (e.g., claims forms and contracts, complete with electronic signature) that the recipient can route to the appropriate in-house destination for proper handling.

• *Integrated messaging.* Delivery of electronic mail and facsimile documents through a single electronic transmission system; it may include the combining of EDI, electronic mail, and electronic forms for transmission.

• *Shared databases.* Information stored in repositories shared between trading partners and accessible to both; such databases are often used to reduce elapsed time in communicating information between parties as well as to arrange cooperative activities.

Other types of interorganizational systems will undoubtedly evolve as businesses refine and capitalize on their IT capabilities.

Scope of Interorganizational Systems

All interorganizational systems share common characteristics (Exhibit 2). The principal activities of the systems are business-to-business or business-to-government in nature. In many instances, intermediaries
**Interorganizational Systems**
Customer/supplier relationship is determined in advance with the anticipation it will be an ongoing relationship based on multiple transactions.

Interorganizational systems may be built around private or publicly accessible networks. When outside communications companies are involved, they are typically value-added carriers (VANs).

Advance arrangements result in agreements on the nature and format of business documents that will be exchanged.

Advance arrangements are made so both parties know which communication networks will be integral to the system.

Joint guidelines and expectations of each party are formulated so each knows how the system is to be used and when transactions will be submitted and received by each business partner.

**Electronic Markets**
Two types of relationships may exist:

- Customer/seller linkage is established at time of transactions and may be for one transaction only (i.e., purchase transaction).
- Customer/seller purchase agreement is established whereby the seller agrees to deliver services or products to customer for a defined period of time (i.e., a subscription transaction).

Electronic markets are typically built around publicly accessible networks. When outside communications companies are involved they are typically online service providers (which function as market makers).

Seller determines, in conjunction with the market maker, which business transactions they will provide.

Customers and sellers independently determine which communication networks they will use in participating in the electronic market. The network used may vary from transaction to transaction.

No joint guidelines are drawn in advance.

---

**Exhibit 2. Distinguishing features of interorganizational systems and electronic markets.**

operate the networks that carry the information or provide transaction processing services or database access.

The communications infrastructure of an interorganizational system is predetermined. All parties know the links over which transactions will be transmitted and where and how they will be received, including the use of electronic mailboxes. Whether public or private networks are used varies from situation to situation.

Parties participating in electronic commerce interact on the basis of a relationship that is defined and preestablished. Terms and conditions of
that relationship are often set forth either as contracts or in briefs that specify the expectations and responsibilities of each party.

Interorganizational systems are firmly established in business. The transfer of funds electronically is becoming the norm for such systems, both nationally and internationally. In the U.S. alone, some 50,000 firms conduct business by way of electronic data interchange. Although businesses use the terms electronic commerce and EDI synonymously, electronic commerce encompasses capabilities much broader than EDI. All forms of interorganizational systems promise to continue growing at an accelerating rate.

**The Business Case for Electronic Markets**

Electronic markets are rapidly emerging alongside interorganizational systems as a vehicle for conducting business. A market is a network of interactions and relationships where information, products, services, and payments are exchanged. When the marketplace is electronic, the business center is not a physical building but rather a network-based location where business interactions occur. The interactions themselves are managed by a broad array of IT applications (Exhibit 3).

In electronic markets, the principal participants — transaction handlers, buyers, and sellers — are not only at different locations but they seldom even know one another. Nor are relationships between buyers and sellers likely to be predetermined by agreements. The means of interconnection varies between parties and may change from event to event, even between the same parties. Exhibit 2 summarizes how electronic markets differ from interorganizational systems.

Executives and managers should evaluate the potential of electronic markets on the basis of five business benefits:

- Extending the firm’s reach.
- Bypassing traditional channels.
- Augmenting traditional markets.
- Boosting service.
- Advertising.

**Extending the Firm’s Reach**

The ability of a firm to interact with customers or with business partners is defined by its reach. The ultimate objective is to be able to reach any potential customer, regardless of location, without the need for prior arrangement. Even though they are valuable business tools, interorganizational systems cannot achieve this objective because they depend on pre-defined relationships and communications paths.
Firms are often limited in their ability to reach customers by their sales and marketing processes. The size and location of their sales force, the breadth and depth of their distributor network, the extent of their dealer chain, the number of business locations, or the size and effectiveness of the mailing list all determine a firm's reach. These factors also determine the nature and extent of information exchange. On the other hand, the innovative use of communications networks for electronic markets can create the most dynamic form of reach: anyone, anytime, anywhere.
**Bypassing Traditional Channels**

Heightened competition and shareholder push for return on investments make it increasingly important for a firm to assess the value added, as well as the costs incurred, in working with its business partners. This is particularly true for distribution channels. If the services of a broker, representative, or distributor do not add value, firms will seek to bypass them to eliminate costs, delays, and other inefficiencies.

Largely for this reason, a growing number of firms are attempting to deal directly with manufacturers, passing along savings to customers in the form of lower prices. Electronic markets facilitate bypass if they enable firms to deal directly with actual and potential customers. Moreover, firms can enter the market even when they do not have, do not wish to create, or cannot establish access to traditional channels.

**Augmenting Traditional Markets**

Catalog companies have competed successfully against traditional retailers for many years by bypassing both traditional channels and markets where items are bought and sold (i.e., retail stores and other types or sales centers). Electronic markets are a natural evolution of catalog selling and direct dealing, except that both the catalog and order entry process, and in some cases actual fulfillment, are online. In fact, the best known catalog companies, including L.L. Bean, Lands End, and Spiegel, are expanding well beyond their traditional markets to compete in electronic markets.

Among the most effective electronic market alternatives are:

- *Electronic shopping malls (cybermalls)*. Emulations of traditional malls that encompass a variety of stores, services, and information guides.
- *Direct retail sales outlets*. Electronic storefronts where customers deal directly with the retailer to create and carry out a sales transaction.
- *Online catalogs*. A special case of the sales outlet where companies create databases that can be browsed by customers and used by the firm to distribute information.
- *Direct service centers*. Electronic locations from which customer service, advertising, marketing, and technical support are provided.

**Boosting Service**

Service knows no boundary when markets are electronic. Time windows are eliminated because online services can be delivered 24 hours a day. Important customer and supplier information is available around the clock yet inquirers need not wait for an assistant to provide the details. Careful and creative use of information technology also means that the information can consist of much more than narrative explanations, for drawings,
photographs, animated descriptions, and full multimedia presentations are all within the scope of service support in the electronic market.

Other important service options include online sections that provide answers to the most frequently asked pre- and post-sale questions. Support can go well beyond troubleshooting concerns. Organizations have found that their descriptions of product updates or new service features can be much more detailed and offer better explanations when provided in this manner. Of course E-mail and fax-back responses are easily provided as well.

Even if a company chooses to never make a single sale by way of electronic commerce, it can still build its business. Boosting service by way of electronic markets has the potential to be much more than just another business tactic.

Advertising

Awareness, visibility, and opportunity, all important benefits of advertising, take on special importance when markets are electronic. Firms are not constrained by the boundaries of a printed document or by the length of a time slot, both common constraints of advertising through conventional broadcast media.

Carefully consen listings in online catalogs and databases enable a firm’s consumers to learn about the company and its products even when they lack prior knowledge of their existence. Electronic links make it possible for shoppers to jump from the advertising spot to the firm’s location in the market. There a seemingly unlimited range of alternatives can be used to inform, educate, and perhaps convince the customer of the company’s capabilities. Product samples and colorful demonstrations, delivered electronically, are highly effective vehicles for gaining attention and garnering good will while building the business.

Creating Electronic Markets Using the Internet

Firms seeking to pursue development and cultivation of electronic markets can choose from among a variety of communications networks alternatives, including proprietary networks, online services (e.g., America Online, CompuServe, and Prodigy), and the Internet. All are elements in the frequent discussions calling for a national information structure in the United States. Similar discussions are ongoing in other nations.

There is little doubt that both the expanding reach of the Internet and the accelerating international interest in national information infrastructures will stimulate creation of electronic marketplaces. As more and more firms take steps to move the electronic marketplace from concept to reality, a broad array of innovations will emerge, making it possible for firms
and individuals to capitalize on communications networks and overcome the traditional business barriers of time and distance.

Because the Internet has captured the attention of many IT users and observers, it is useful to examine the Internet’s value in terms of electronic markets. These following sections explore the reasons why firms may want to include the Internet in their electronic market plans.

**Internet Features**

The characteristics of the Internet are widely documented (Exhibit 4). Eight key features are of greatest importance to businesses interested in participating in electronic markets.

**Public resource.** The very public nature of the Internet is among its most important distinguishing features. Thus the vast majority of business practitioners are aware of the Internet and its widespread accessibility, even

### Exhibit 4. Internet characteristics.

<table>
<thead>
<tr>
<th>Span</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Connected host computers</td>
<td>26 million</td>
</tr>
<tr>
<td>Number of connected countries</td>
<td>100</td>
</tr>
<tr>
<td>Rate of growth</td>
<td>7% to 10%/month</td>
</tr>
<tr>
<td>Number of users on WWW</td>
<td>68 million</td>
</tr>
<tr>
<td>Rate of WWW growth</td>
<td>300,000 pages/week</td>
</tr>
</tbody>
</table>

_Sources: Bellcore; International Data Corp.; Global Internet Project_

<table>
<thead>
<tr>
<th>Internet Reach</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Total U.S. and Canadian population over age 16</td>
<td>204 million</td>
</tr>
<tr>
<td>Percent owning PCs</td>
<td>58%</td>
</tr>
<tr>
<td>Percent using the Internet/online services</td>
<td>23%</td>
</tr>
<tr>
<td>Percent on the WWW</td>
<td>17%</td>
</tr>
<tr>
<td>Percent of WWW users that search for product/service information</td>
<td>73%</td>
</tr>
<tr>
<td>Percent of people that has purchased online</td>
<td>15%</td>
</tr>
</tbody>
</table>

_PC Location (includes use in multiple locations)_

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Work</td>
<td>66%</td>
</tr>
<tr>
<td>Home</td>
<td>44%</td>
</tr>
<tr>
<td>School</td>
<td>6%</td>
</tr>
</tbody>
</table>

_Source: Intellisquest; CommerceNet/A.C. Nielsen_
though most do not yet consider its business value. However, the skyrocketing attention to the Internet by the print and broadcast media is certain to fuel the growth in public awareness. Potential customers and business partners will expect firms to be accessible on the Internet.

Because virtually anyone can participate in the Internet as a business by making only a modest start-up investment, the number and diversity of firms participating will continue to increase rapidly. Moreover, the opportunities to announce new products and services, to source materials and services, and to reach potential customers or partners (television home shopping services pale by comparison) are abundant.

**Global reach.** Approximately 20% of all interaction on the Internet originates from outside the United States (Exhibit 5). In addition, a substantial number of host sites reside in non-US cities, making it a truly international network. Both sectors are growing rapidly.

The broad international reach of the Internet means much more than business access to individuals and firms in developed countries, even though that alone is sufficient for many firms to integrate Internet commerce into their businesses. For the first time, individuals and shops in many underdeveloped countries can interact online as telephone links to
the Internet make it possible to span vast geographic distances. No one
knows how large this vastly undeveloped market will be.

**Capability to link.** The Internet’s capability to link firms has not been
fully discovered. Most business users of the Internet still view it primarily
as an electronic mail system — that is, a communications tool. Hence, only
a fraction of companies connected to the Internet have sought to capitalize
on its vast capabilities.

When viewed as a connection tool, rather than as a communications net-
work, many other intriguing possibilities emerge. A variety of different
business-to-business transactions can be passed through the network, and
there is the growing likelihood that EDI documents will also be transmitted
through the Internet. Several traditional EDI vendors have developed capa-
bilities to support Internet EDI, although not all have actually announced
their capabilities.

**Shared ownership.** No company, society, association, or individual owns
the Internet. Rather, some thousands of independently owned and oper-
ated networks are interconnected to form the Internet. As a result, the
Internet is distinguished by a collaboration, not proprietary designs. The
broad base of public participation means that new initiatives can be suc-
sessful only if the majority of participants are interested in using them.
Even more, it means that virtually every individual and firm, large or small,
has the opportunity to participate.

Shared ownership does not mean, however, that the Internet has some
awkward features, especially in the areas of security and reliability.

**Platform flexibility/diversity.** There are few limits on the nature of the
computing and communications that can be interconnected with the Inter-
net. Companies are thus free to use the systems of their choosing (e.g.,
UNIX, DOS, Windows, OS/2, Macintosh, and Sun). Yet the choice of system
platform places no restriction on others using the system or wishing to
interconnect with them.

In many instances, the computing systems attached to the Internet are
less sophisticated than those used in proprietary systems. Networking and
applications software compensate for differences in systems capabilities
even as they accommodate the diverse computing and communications
platforms.

Cost Advantages. The cost of conducting business on the Internet is
quite modest. The principal requirement is to create a business site, typi-
cally on the World Wide Web (WWW) portion of the Internet. Getting on the
WWW may cost as little as $100. Low-cost kits are readily available to con-
struct the necessary features (such as home pages, online catalogs, and
communication links). For a modest fee, the development of such features can be contracted.

Because of the many companies that have emerged to provide access to the World Wide Web or other portions of the Internet, it is not necessary to even operate a computer network to be able to participate in Internet commerce. These companies, which in effect function as “on ramps” to the network, will provide all services, at a cost that depends on the frequency of use for the service.

Some companies are investing heavily in their Internet resources, dedicating several staff members and a significant hardware and software investment into supporting their presence on the network. They are choosing to do so because, compared to other alternatives, including developing and maintaining a proprietary computer network or supporting a direct dial-up bulletin board, they view the Internet as a cost-effective resource.

Capitalizing on the Internet for Electronic Markets

Ongoing monitoring of firms using the Internet provides growing evidence that those who are capitalizing on the network’s electronic market potential appear to follow several principles:

- They treat the Internet as a new medium.
- They use the Internet to leverage existing business and support capabilities.
- They formulate clear business objectives for Internet use.

The Internet as a New Medium

Many businesses tend to consider the Internet’s features as supplementary to what they already do. Although this approach may offer attractive possibilities, greater opportunities may be found by taking a fresh approach to the Internet as a medium for reaching out, linking up, and delivering something entirely different. Hence, management should raise stimulating discussion by asking questions that will unleash creative possibilities, such as:

- What are the current limitations in linking up with business partners or supporting customers? What is the impact of those limitations?
- What new products, services, or supports can be offered?
- What opportunities exist to aid the firm’s customers in being more successful with their customers?
- How can the firm’s current competitors turn the Internet into a competitive weapon that is detrimental to the firm?
- What new businesses can be developed as a means of offering Internet capabilities to others?
Leveraging Existing Business and Support Capabilities

Firms creating value through the Internet are doing so because they are able to leverage resources and expertise already present in the firm. Hence, it is vital that firms directly address these important questions:

• What is it that the firm does best — the products or services it delivers — and how can they be leveraged into new business arenas or as new products and services to a different market?
• What important resources is the firm underutilizing and how can they be put to new or extended use by making them available through electronic markets?
• How can the knowledge-base of the firm be enhanced through access to new customers or business partners who are willing to share their insights and needs in an interactive environment?
• How can the knowledge-base be leveraged into a product or service that will be accessible to virtually any individual or firm through the power of electronic markets?

Formulating a Business Case

Unless a company's journey onto the Internet is designed to be nothing more than an exploratory adventure or distraction, any rationale for moving onto the network should be formulated as a business case. This means establishing and then measuring against clear objectives, preferably with a timetable describing expected milestones. The business case should identify points of success, whether they be potential customer contacts, information inquiries, revenue generation, or profit margins. It should clearly answer two key questions:

• What will the company gain?
• How will success be measured?

It is all too easy to seek to justify new initiatives through such nebulous terms as visibility, public relations, advertising, and public awareness. Yet if these are important reasons for joining the network, as they often are, they should be cast in measurable business terms that will enable even the strongest (or weakest) supporter to gauge success.

CONCLUSION

Electronic markets and the Internet are in their infancy. Although it is not clear how either will evolve, both represent fundamental shifts in electronic commerce with significant implications for business in general. An ever-greater portion of business will be conducted online, with extensive reliance on communications networks.
Waiting to see how the promise and possibilities of electronic markets will evolve may appear the safest strategy in the short-term, particularly for managers averse to high risk. Yet, organizations must have ample opportunity to gain insight into the potential of electronic markets and to create the necessary experience and knowledge to capitalize on the opportunities that may emerge. Organizations that do so may gain long-term advantages that latecomers will never overcome.