

Electronic Commerce and the Internet: Building a New Paradigm for Business

A White Paper

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Electronic Commerce: The Next Internet Explosion?

Electronic commerce. It's a vision for bringing a whole range of services into the information age on a global scale. In the past two decades, financial and business-to-business processes - from order processing to electronic funds transfer - have been automated and are now routinely handled by computer. Now, in the mid-1990's, many corporations see the possibilities for improving their businesses even further and are embracing the Internet as way to achieve this change.

Electronic commerce, however, is more than just handling the piece-parts of business transactions electronically, or just putting up a storefront on the World Wide Web (WWW). Electronic commerce is a new way of doing business. It requires a better understanding of the buyer-seller relationship. It requires a different way of thinking. It is a new paradigm for business.

This new opportunity can bring the entire process of managing the full range of business transactions on-line. Every business in the world can become accessible to every other business (and indeed, every consumer) via computer.

Just as with any dramatic change in business, there are pitfalls and obstacles. But electronic commerce also comes with its own built-in, potential marketplace: the 30 million-plus business and individual users of the Internet. Current estimates suggest that the number of Internet users worldwide grows by 10 percent each month.

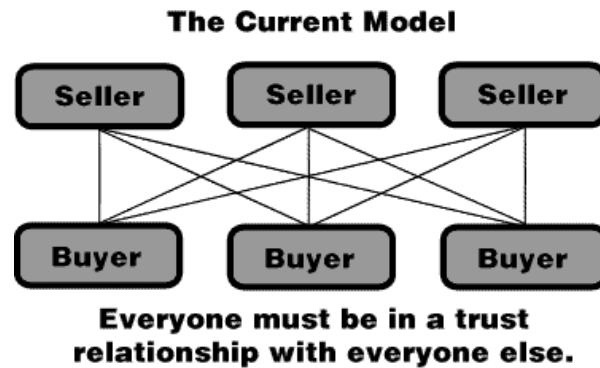
While the enormous possibilities of electronic commerce on the Internet have generated much excitement, the rush to commercialize the Internet has also brought much confusion. Companies interested in reaching this massive, fast-growing market face some fundamental questions: How do we transact business on this new electronic frontier? What exactly does this new frontier look like? How do I get started?

This paper examines trust and security in business transactions, current inter-business activities, and how those activities will be handled on the Internet. Finally, it introduces the notion of the Virtual Private Internet, which can be your first step toward electronic commerce.

The Trust Relationship: Current and Future Models

Business is based on trust between the parties, whether business is conducted in person, by phone, or electronically.

Today, trust between vendor and customer is based on well-known legal and financial instruments and on personal relationships or knowledge. The consumer at Company A knows the vendor at Company B and uses the established purchase order-invoicing-payment procedure to acquire a product or service. An individual customer pays by cash, check, or charge, backed by established banking practices.



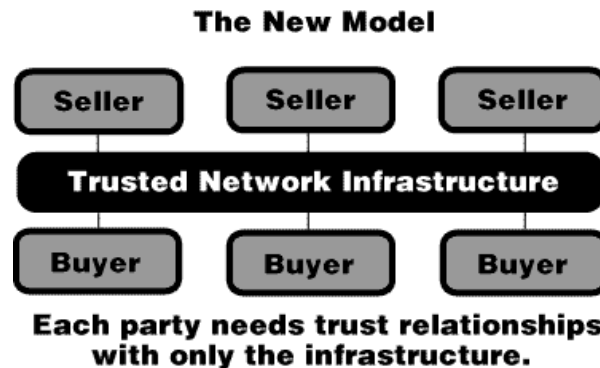
The Internet, if it's used, is simply a way for the parties to communicate. Their trust in one another exists outside the communications network. Their trust lies in the knowledge or belief that both parties will deliver, that the product will work as advertised, and that the customer has the means to pay for the product.

As a result, every party using a communications network to conduct business must first be in a trust relationship with each of its trading partners. This is the established model, for example, for today's large-scale trading partnerships that use Electronic Data Interchange (EDI) to transmit purchase orders and Electronic Funds Transfer (EFT) to transmit payments.

The current model is cumbersome. Every party must have an established relationship with every other party in the system. There is no trust outside the relationship.

The Network as Trust Broker

In order for electronic commerce to take root, the trust relationship and the network must be entwined. Trust must be embodied in the network itself, allowing businesses and consumers to believe they will get what they're paying for when they use the network to transact business.



The key to a successful electronic commerce system is the formation of tactical relationships. When you reach new trading partners via the Internet, you need to know that you can trust them and that they will deliver, because you will not have had the luxury of time in which to develop a long-term relationship of trust. The kind of trust you need is not inherent in the network itself, but it will be provided by network-based entities that you and all parties will know and trust. Such a level of trust doesn't exist yet, but it's possible - and likely - in coming years.

Trust evolved over time for the banking system and the telephone companies. Initially, neither was entirely trusted by its users, but over time they proved trustworthy, and their users gained confidence in them. The

same process will take place in the Internet. Those Internet services that prove trustworthy over time will become pillars of the electronic commerce marketplace and will collectively become an electronic commerce infrastructure.

This new network infrastructure will be a trust broker between parties.

The Network as an Open System to Support Diverse Technology

Business systems and computer technologies are diverse. In addition to serving as trust broker between parties, the network must provide technical heterogeneity to accommodate this diversity. It must be an open, non-proprietary system so that everyone can get in.

The Internet fulfills these requirements because it is an open, standards-based network.

The Network as a Provider of Business Services

The network must be able to sustain inter-company business activities. The network itself can't support these activities, but services coming on-line in the network will support the way businesses work now and ways that they might work differently in the future. Can we predict what these services might be? We can, by looking at what businesses do today.

Businesses engage in seven fundamental inter-business activities:

- **Thinking**
All companies are constantly involved in the creative process. Frequently, they reevaluate the notion of "what business are we in," redefining the scope of their business. Traditionally, this process is supported by a wealth of information—research at the library, books and industry and trade journals to read, on-line databases to search.
- **Designing**
Companies must design a service or must engineer their products. Traditionally, this process uses industry "best practices", professional organizations and standards, and sometimes computer-aided design (CAD) to achieve high-quality results.
- **Finding/Advertising**
All companies need a way to find their customers and suppliers. Typically, this is done through advertising in trade publications, general interest magazines, newspapers, television, and radio.
- **Evaluation**
The business must evaluate a potential partner to determine the partner's financial stability. Traditional methods are through Dun & Bradstreet or a specific credit investigation for a company or individual.
 - The buyer must believe that a supplier can produce the goods or services in sufficient quality and quantity and on time. Sometimes trust is based on a company's public image.
 - Evaluation is often such a painstaking process that when buyers discover a suitable supplier, they are unwilling to change to another.
- **Ordering**
Businesses need a reliable, trusted mechanism for placing, managing, and tracking an order. Legally, this process is defined and protected in the Uniform Commerce Code (UCC). Businesses depend upon

the traditional infrastructure to move information around: the U.S. post office, the telephone system, telemarketing organizations, EDI, and other methods.

- **Delivery**

The company needs a way to deliver the goods to the buyer, through a retail outlet, a delivery service, or an electronic medium.

- **Payment**

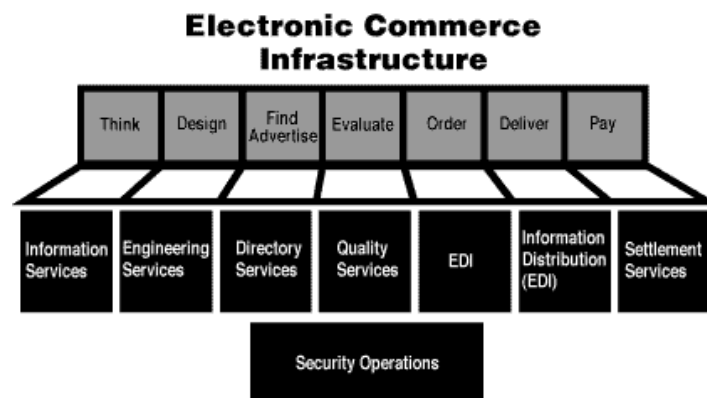
Getting paid may be the most important part of the transaction. Today's banking system fills this function with a range of financial settlement schemes, from EFT to credit cards.

A piece of the existing infrastructure a service provided to businesses supports each of these inter-business activities. These services are well understood and trusted by the business that use them.

In the electronic commerce marketplace, each inter-business activity must also be supported by a trustworthy on-line service.

How Can the Internet Support These Inter-Business Activities?

The commercialization of the Internet is producing a set of services to support inter-business activities. If these services can provide a level of seamless interoperability, then we are well on our way toward an electronic commerce infrastructure.



How do the seven inter-business activities map to the Internet?

- **Thinking**

From Delphi to Lexus/Nexus and dozens of others, a wide variety of services provide on-line information via direct dial-up connection today. The Internet itself includes a wealth free or low-cost informational resources, from the Library of Congress to hundreds of universities, research institutions, and government agencies around the world. Almost all the on-line information providers are seeking ways to make their information available on the Internet.

- **Designing**

An astonishing number of consulting services, design services, testing services, marketing specialists, computer software development houses, and community services to name just a few are already available to Internet users. More will step up to join their ranks. Finding/Advertising. An early (and still significant) Internet challenge is finding the information or service you need, but directory services

such as the TradeWave Galaxy and Yahoo are solving this problem. These categorize information sources and provide instant hotlinks to business and individual home pages on the Internet's graphical World Wide Web (WWW), where the data can be found. This type of directory service offers a high quality venue for advertising as well.

- **Evaluation**

This critical function consists of two parts: financial and technical. The customer must know that a business is financially sound and that it is technically able to provide the desired product or service. With services like D&B on-line, financial evaluation is pretty well in hand, but there isn't yet an accepted, standardized method to evaluate on-line a company's technical qualifications. These services lag behind the rest by several years, but they will surface as business opportunities for selling them appear.

- **Ordering**

In the business-to-business marketplace, on-line ordering using EDI is a standard and widely accepted business practice. But EDI requires companies to pre-determine their business relationships before they communicate over the network. It doesn't support the formation of ad hoc tactical relationships. We can't consider it true electronic commerce. EDI vendors recognize this weakness in their current offerings and are moving toward more a flexible model.

- **Delivery**

If you have digital information to deliver to your customer, such as text, audio or video clips, the downloading capabilities of the Internet itself are a reliable delivery medium. WWW technology has made this a simple process. For hard goods, the transportation industry can be accessed through EDI channels. In some cases, overnight delivery service is the medium of choice - but with a twist. You can now place orders and track your package's progress on-line by visiting the WWW home page of Federal Express.

- **Payment**

Electronic Funds Transfer (EFT) is a trusted, on-line payment method between established trading partners, and digital cash has made some early inroads on the Internet. The current stampede is to provide credit card-based settlement services on the Internet, but even the credit card model is not sufficient to provide true electronic commerce.

Before companies can really use the Internet for business, all the traditional models for payment - cash, credit and check - must be established electronically and accepted among business and consumers.

As these inter-business services put down roots in the Internet, electronic commerce will grow. In fact, it's not necessary to wait for the entire set of services before electronic commerce can begin. Already we see a flurry of activity surrounding the simple coupling of electronic information delivery, using the Web, plus a credit card financial settlement model.

Virtual Private Internet: First Step to Electronic Commerce

Perhaps your first step into electronic commerce will be to create your own Virtual Private Internet, or VPI.

A VPI is a subsection of the Internet that is used by a company for information communication and enterprise interaction. A VPI is not defined by specialized circuits or routes. Rather, it is defined by security mechanisms and procedures that allow only appointed users access to the VPI and the information that flows through it.

The VPI that you establish has an open and standards-based system because the Internet is the network. A VPI is less expensive than a wired network because it takes advantage of inexpensive Internet access. A

VPI is flexible because the Internet model is designed for change and doesn't have to be rewired whenever a new party comes on-line. By using solid network and application-level security, this Internet-based system is made as safe as a private one.

In addition to access cost savings and flexibility advantages, a VPI enables proprietary information sharing among a company's people and sites, while still providing access to the vast amount of information available on the Internet. This virtual community can exist without recognizing the large Internet community in which it lives, or it can take advantage of the resources provided by that larger community.

For the long term, a VPI prepares a company to transition seamlessly into the electronic commerce world as that world develops and becomes fully viable.

Electronic Commerce: Coming Soon to A Business Near You

Electronic commerce is not a panacea for current business practices, nor is it a threat. It is a natural evolution of current business and technology trends. To be successful, however, electronic commerce must win the trust and acceptance of a wide range of companies and individuals.

The process of winning that trust is happening now. As it resolves its security issues and moves toward a more commercial resource, the Internet is rapidly winning converts. As more and more trustworthy infrastructure is built up to support business needs, electronic commerce is sure not to be far behind. For companies considering taking this next giant step toward the future of business, the technology you need to begin is here today. The time to act is NOW.

For more information, email us at sales@tradewave.com.