FROM TRADITIONAL TO INTERNET-BASED EDI

As discussed in the chapter, the majority of B2B transactions are supported by EDI, XML, and extranets. In this appendix, we describe EDI and its transition to the Internet platform. The extranet is covered in Chapter 6.

TRADITIONAL EDI

EDI is a communication standard that enables electronic transfer of routine documents, such as purchasing orders, between business partners. It formats these documents according to agreed-upon standards. An EDI implementation is a process in which two or more organizations determine how to work together more effectively through the use of EDI.

EDI often serves as a catalyst and a stimulus to improve the business processes that flow between organizations. It reduces cost, delays, and errors inherent in a manual delivery system of documents. EDI has the following special characteristics that differentiate it from e-mail messages:

- **Business transactions messages.** EDI is used primarily to electronically transfer repetitive business transactions. These include purchase orders, invoices, approvals of credit, shipping notices, confirmations, and so on.

- **Data formatting standards.** As EDI messages are repetitive, it is sensible to use some formatting (coding) standards. Standards can shorten the length of the messages and eliminate data entry errors, since data entry occurs only once. In the United States and Canada, data are formatted according to the ANSI X.12 standard. An international standard developed by the United Nations is called EDIFACT.

- **EDI translators.** An EDI translator converts the data into standard format.

Traditional EDI has been around for almost 30 years in the non-Internet environment. It is a system that standardizes the process of trading and tracking routine business documents. EDI translates these documents into a globally understood business language and transmits them between trading partners using secure telecommunications links (Exhibit 5A.1). To distinguish it from Internet-based EDI, we call EDI on the non-Internet platform *traditional EDI*.

APPLICATIONS OF TRADITIONAL EDI

Traditional EDI has changed the landscape of business, triggering new definitions of entire industries. It is used extensively by large corporations, sometimes in a global network such as the one operated by General Electric Information System (which has over 100,000 corporate users). Well-known retailers, such as Home...
The Benefits of EDI

- EDI enables companies to send and receive large amounts of routine transaction information quickly around the globe.
- There are very few errors in the transferred data as a result of computer-to-computer data transfer.
- Information can flow among several trading partners consistently and freely.
- Companies can access partners’ databases to retrieve and store standard transactions.
- EDI fosters thru (and strategic) partnership relationships since it involves a commitment to a long-term investment and the refinement of the system over time.
- EDI creates a complete paperless TPS environment, saving money and increasing efficiency.
- Payment collection can be shortened by several weeks.
- Data may be entered offline, in a batch mode, without tying up ports to the mainframe.
- When an EDI document is received, the data may be used immediately.
- Sales information is delivered to manufacturers, shippers, and warehouses almost in real time.
- EDI can save a considerable amount of money.
LIMITATIONS OF TRADITIONAL EDI

Traditional EDI has evolved over time from a point-to-point digital communication media to a comprehensive tool that allows large companies to reengineer their supply chain systems. For example, a traditional EDI allows for a continuous replenishment by suppliers or for instant payment upon delivery.

However, despite the tremendous impact of traditional EDI among industry leaders, the set of adopters represented only a small fraction of potential EDI users. In the United States, where several million businesses participate in commerce every day, fewer than 200,000 companies have adopted traditional EDI. Furthermore, most of the companies have had only a small number of their business partners on EDI, mainly due to its complexity and high cost. Therefore, in reality, many businesses have not benefited from EDI.

The major factors that have limited the use of traditional EDI are:

- Significant initial investment is needed, and ongoing operating costs are high.
- Business processes must be restructured to fit EDI requirements.
- A long start-up time is needed.
- Use of expensive, private VANs is necessary.
- There are multiple EDI standards, so one company may have to use several standards.
- An EDI cannot support dynamic trading in marketplaces.
- The system is complex.
- A converter is required to translate business transactions to EDI code.
- The system is inflexible; it is difficult to make quick changes, such as adding business partners.

These factors suggest that traditional EDI—relying on formal transaction sets, translation software, and VANs—is not a suitable long-term solution for many corporations. Therefore, a better infrastructure is needed. Internet-based EDI coupled with XML and extranets is such an infrastructure.

INTERNET-BASED EDI

WHY INTERNET-BASED EDI?

When considered as a channel for EDI, the Internet appears to be the most feasible alternative for putting online B2B trading within reach of virtually any organization, large or small. There are several reasons for firms to create EDI ability over the Internet:

- The Internet is a publicly accessible network with few geographical constraints. Its largest attribute, large-scale connectivity (without the need for any special company networking architecture), is a seedbed for growth of a vast range of business applications.
- The global nature of the Internet offers the potential to reach the widest possible number of trading partners of any viable alternative currently available.
Using the Internet can cut communication costs by over 50 percent.

Using the Internet to exchange EDI transactions is consistent with the growing interest of business in delivering an ever-increasing variety of products and services electronically, particularly through the Web.

Internet-based EDI can complement or replace many current EDI applications.

Internet tools such as browsers and search engines are very user friendly, and most users today know how to use them.

Internet-based EDI has several functionalities not provided by traditional EDI, which include collaboration, workflow, and search engines.

**TYPES OF INTERNET-BASED EDI**

The Internet can support EDI in a variety of ways:

- Internet e-mail can be used to transport EDI messages in place of a VAN. To this end, standards for encapsulating the messages within Secure Internet Mail Extension (S/MIME) were established.

- A company can create an extranet that enables its trading partners to enter information in a Web form whose fields correspond to the fields in an EDI message or document.

- Companies can utilize the services of a Web-based EDI hosting service in much the same way that companies rely on third parties to host their commerce sites. Netscape Enterprise is an example of the type of Web-based EDI software that enables a company to provide its own EDI services over the Internet. Harbinger Express is an example of those companies that provide third-party hosting services.

**THE PROSPECTS OF INTERNET-BASED EDI**

Companies that used traditional EDI have responded positively to Internet-based EDI. The Internet simply serves as an alternative transport mechanism to a more expensive lease line. The combination of the Web, XML, and Java makes EDI worthwhile even for small, infrequent transactions. Whereas EDI is not interactive, the Web and Java were designed specifically for interactivity as well as ease of use.

Here are some examples of the transformation to or initiation of Internet-based EDI:

- Compucom Systems was averaging 5,000 transactions per month with traditional EDI; within a short time after the transition to Internet-based EDI, the company was averaging 35,000 transactions per month. The system helped the company to grow rapidly.

- Tradelink of Hong Kong was successful in recruiting only several hundred of the potential 70,000 companies that used the traditional EDI system to communicate with government agencies regarding export/import transactions. In 2001, the Internet-based system had thousands of companies registered and hundreds were being added monthly.
Atkins Carlyle Corp., which buys from 6,000 suppliers and has 12,000 customers in Australia, is a wholesaler of industrial, electrical, and automotive parts. The large suppliers were using three different EDI platforms. By moving to an Internet-based EDI called Intercommerce, the company is able to conduct collaboration with many more business partners, reducing the transaction cost by about $2 per message.

Procter & Gamble replaced a traditional EDI system with 4,000 business partners to an Internet-based system with tens of thousands of suppliers.

Many companies no longer refer to their collaborative systems as EDI, and the term may even disappear. However the properties of EDI are embedded in new e-commerce initiatives such as collaborative commerce and electronic exchanges.