An Internet Portal Success Story: Leveraging EDI for Maximum Effectiveness

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Abstract. Many companies have developed Internet applications with the goal of improving efficiency and forging deeper relationships with their suppliers and customers. The purpose of this paper is to present a successful application suite and discuss the components that contribute to its success:

- The use of existing industry standards for information exchange;
- A user interface that mimics traditional paper documents, minimizing training;
- A data transport process that blends the use of existing infrastructure with GUI interfaces;
- A cost structure that is competitive with other electronic mediums for information exchange; and,
- Process improvements that benefit both parties.

Regardless of the type of business or data to be exchanged, these are concepts that will improve the acceptability and effectiveness of any application.

Background. Within the railroad industry, there exists a group of purchasing, accounting and IT professionals that develop and maintain information standards for data exchange – the Rail Industry Forum Subcommittee on Information Standards (RIF-SIS). This group originally developed standards for purchase orders and invoices transacted using EDI. The success of this group stems not only from the quality of the standards developed, but from the group's commitment in its agreement to abide by those standards. The agreement of an industry to use a single set of standards allows everyone within the industry to transact business in the same way, significantly improving the efficiency of the process.

The Challenge. EDI is useful for transacting business when large volumes of data are exchanged and the trading partners have the resources and expertise to manage EDI software. Unfortunately, this limits the number of companies that can do business electronically. The middle and lower tiers of suppliers to the major railroads have neither the financial resources nor the expertise for EDI. At the same time, traditional paper processes are inefficient due the manual labor required to distribute, process, and correct these documents. The challenge was to find a way for small and medium suppliers to send and receive data electronically without the "overhead" of EDI.

Application Development. In 1999 the RIF-SIS began discussing the possibility of using electronic forms on the Internet: “wouldn’t it be great if we could have a supplier fill out an electronic form and have it turned into EDI in the background?”. The group proceeded through a standard process to move ahead on the idea – by creating an RFP and submitting it to a variety of web technology and EDI companies. The results were discouraging. EDI vendors tried to sell the group an EDI product, and web technology developers tried to sell a web product. None of the vendors addressed all of the RFP’s requirements, and all bids came in over $100,000.

Although discouraged, the group tried another approach. One of the members had learned how to develop simple web forms, and within a couple of weeks came up with a simple, but workable invoice form. This form was presented to an EDI Value Added Network (VAN) that was known for its ability to provide data translation services. A few months and $7,000 later, the Web Invoice Application was born.

Two years later, an application suite named EPIRA (Electronic Purchasing and Invoicing Rail Application) was completed for less than $21,000. This suite allows a supplier to receive purchase orders over the Internet, and the purchasing information is stored for subsequent use when creating an invoice. A final set of enhancements to improve the user interface and add a special document for diesel fuel information was added for approximately $12,000.

Product Offering. EPIRA is most heavily used by the rail supplier community, and will be used as an example of the attributes of these web applications. (EPIRA and the companion applications Web Invoice Application and Fuel Invoicing will be demonstrated at the conference.) The home page of EPIRA is content rich with information that provides the supplier a step-by-step approach for getting started, as well as customer contact information that is useful in establishing an electronic relationship. The supplier fills out a registration form with simple data (such as name, phone, fax, e-mail information, and a customer-supplied identification number). Once the registration has been submitted, the EPIRA application provider sends a simple contract to the supplier that outlines the costs and terms of the arrangement (cost to the supplier is less than $500 per year). At the same time, a registration alert is e-mailed to the customer, which allows the railroad time to set up EDI profiles for future transactions.

Once the online registration and contract arrangements are complete, the railroad sends purchase orders to the supplier using an EDI purchase order (850 transaction set) using the industry-defined standards. Industry standards enable the application provider to bring the data from eight railroads into the application with a single data map. The purchase order data is presented on the EPIRA web site in a format very similar to a paper document, easily recognizable by the supplier. The supplier prints off the data and handles it in the same manner as a paper or faxed order. At the time the supplier pulls up the order, an acknowledgment is sent back to the customer, much like return receipt mail or an EDI 997.

The purchase order data is stored for 150 days. When the supplier is ready to send an invoice against the purchase order, the order is retrieved, and with the click of a button, an invoice form is created with the purchase order information pre-populated within it. Certain fields are editable – quantity, and price, for example; other fields, such as item numbers and units of measure, are not. The supplier modifies the quantity, adds additional charges if necessary,

changes the total, and clicks on the Submit button. The invoice is transformed into an EDI 810, again using the industry's standards, and is sent to the railroad for processing. The invoice data is stored on the site for the supplier's future reference. The site also provides a blank invoice form for purchase orders not presented on the EPIRA site.

Results. For the suppliers, the application is significantly cheaper than any other electronic tool available to them. They pay only the monthly mailbox fee; volume-based charges are paid by the railroads in order to encourage use of the application. Purchase orders are available as quickly as via fax, and invoices are received by the customer the same day. Since most railroad suppliers' terms are based on invoice receipt date, quicker delivery translates into improved cash flow. In addition, the turnaround feature from order to invoice reduces data entry errors. The forms were designed with the supplier's perspective in mind, and the help function defines all the fields on the form.

For the railroads, this site meshes perfectly with their existing EDI infrastructures. They continue to send EDI purchase orders, receive acknowledgments in EDI format for those orders, and receive EDI invoices against the orders. In addition, the invoice form is carefully constructed to edit each data field to ensure that mandated fields are completed and have the correct type of information, and that the line item details balance with the totals at the bottom of the invoice. Even when considering the subsidization of the application, the railroads have significantly reduced the cost of the supply chain.

Today, 310 suppliers are using EPIRA, each doing business with one or more of the eight participating railroads. In 2001, the railroads collectively increased the number of electronic documents processed (orders and invoices) by 50,000, and that number will increase again significantly by the end of 2002. Since its inception in 2000, EPIRA has saved the railroad industry over $1.3 million in processing savings.

Additional functionality is being considered by the RIF-SIS, including purchase order acknowledgments and shipment notifications. Suppliers have also asked for a feature that allows them to download purchase order data into their systems. The original intent was never to provide systems integration for the supplier, as there are numerous software packages better designed for this purpose; however, the RIF-SIS has learned that web technology has changed the paradigm for doing business, and no idea should be dismissed without thorough consideration. Future portal enhancements will be consistent with the RIF-SIS's commitment to standardization, simplicity, low cost, and shared benefits for the entire railroad supply chain.