

AN eCOMMERCE APPROACH FOR MANUFACTURING COMPANIES

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BACKGROUND

Traditional manufacturing organizations were not, in general, early adopters of eCommerce. This distinction was left to the now struggling or defunct dot-coms as well as service or distribution organizations that sold directly to consumers. However, there is now appearing a second wave of interest in eCommerce from the business-to-business manufacturing sector. The question that is being posed in the second wave usually goes something like this *“Now that the hype has died down, are there any eCommerce initiatives my company should be undertaking that can yield positive ROI results?”*

Many of the same manufacturing organizations have invested considerable time and effort implementing ERP (Enterprise Resource Planning) systems. They instinctively realize that their ERP strategy and eCommerce strategy must be linked and will eventually ask another question. *“Can we develop an approach to eCommerce that leverages the investment that has already been made in ERP systems?”*

This was the puzzle that was posed to XDconsulting by one of our clients. This started a chain of research, analysis and strategy to address this particular client’s needs. The result not only addressed these needs, but produced a general purpose eCommerce strategy for extending on ERP system through the internet to provide information and transactions to an organization’s customers,

suppliers and other trading partners. Key to the strategy is its independence from both specific ERP systems and eCommerce tool sets.

This paper presents the strategy and provides a methodology that a manufacturing organization can employ to adopt the strategy.

SCOPE

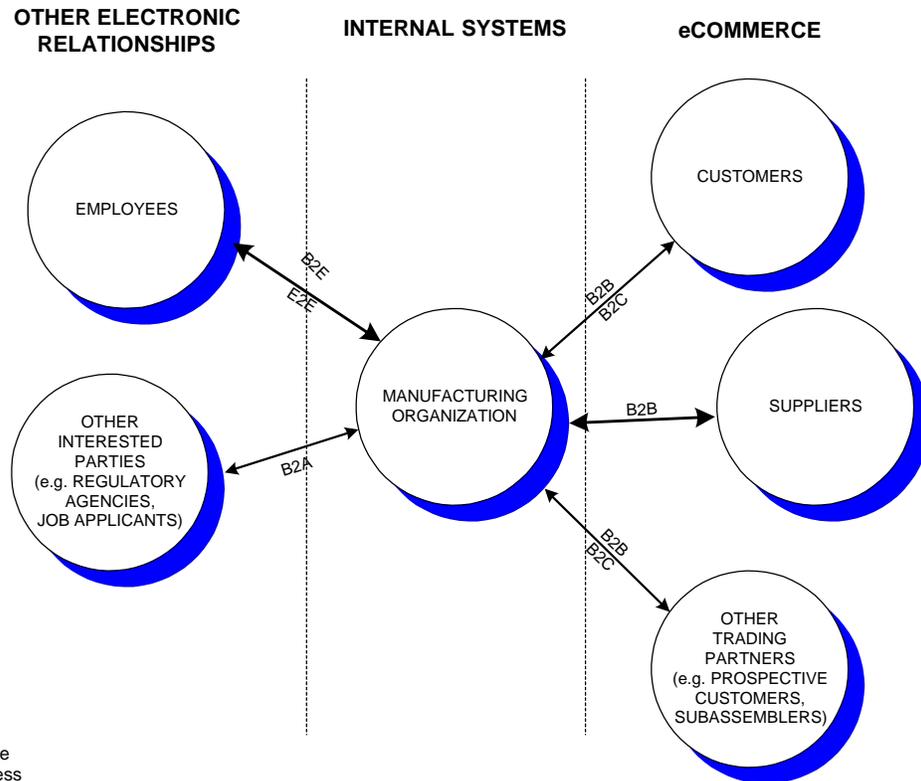
For the purpose of developing a strategy, the scope of eCommerce needs to be clearly understood. After considerable research and reading many definitions, we settled on a very succinct thirteen-word definition used by Jack Shaw in *Surviving the Digital Jungle*:

“The use of electronic information technologies to improve business relationship between trading partners”.

The beauty of this definition is that 1) The words *“electronic information technologies”* does not restrict the strategy to the internet only, and 2) *“trading partners”* implies commercial relationships, or potential commercial relationships, with customers, suppliers and other external entities. It effectively eliminates “internal only” initiatives from the scope, which is consistent with the generally accepted meaning of commerce, electronic or otherwise.

For the purpose of this paper, the term ERP system includes CRM (Customer Relationship Management) and SCM (Supply Chain Management) functionality that would normally be found in Tier 1 ERP systems.

The following diagram illustrates the scope and therefore the reach of the eCommerce strategy.



B2A - Business to Anyone
 B2B - Business to Business
 B2C - Business to Consumer
 B2E - Business to Employee
 E2E - Employee to Employee

LINK BETWEEN ERP AND eCOMMERCE

Once the scope of eCommerce for a manufacturing organization was identified, we began to explore what uses trading partners would have for eCommerce. We concluded that the vast majority of potential uses could be satisfied by extending a company's existing ERP system. eCommerce business relationships could be classified into one of three basic categories:

- Providing information resident in an ERP system to trading partners
- Storing information from a trading partner in an ERP system
- Allowing business partners to initiate transactions in an ERP system

More complex business relationships can be expressed as combinations of these categories.

The key to eCommerce for a manufacturing organization is that it is, by its very nature, an extension of the ERP system. The comprehensiveness, responsiveness and accuracy of a manufacturing organization's eCommerce

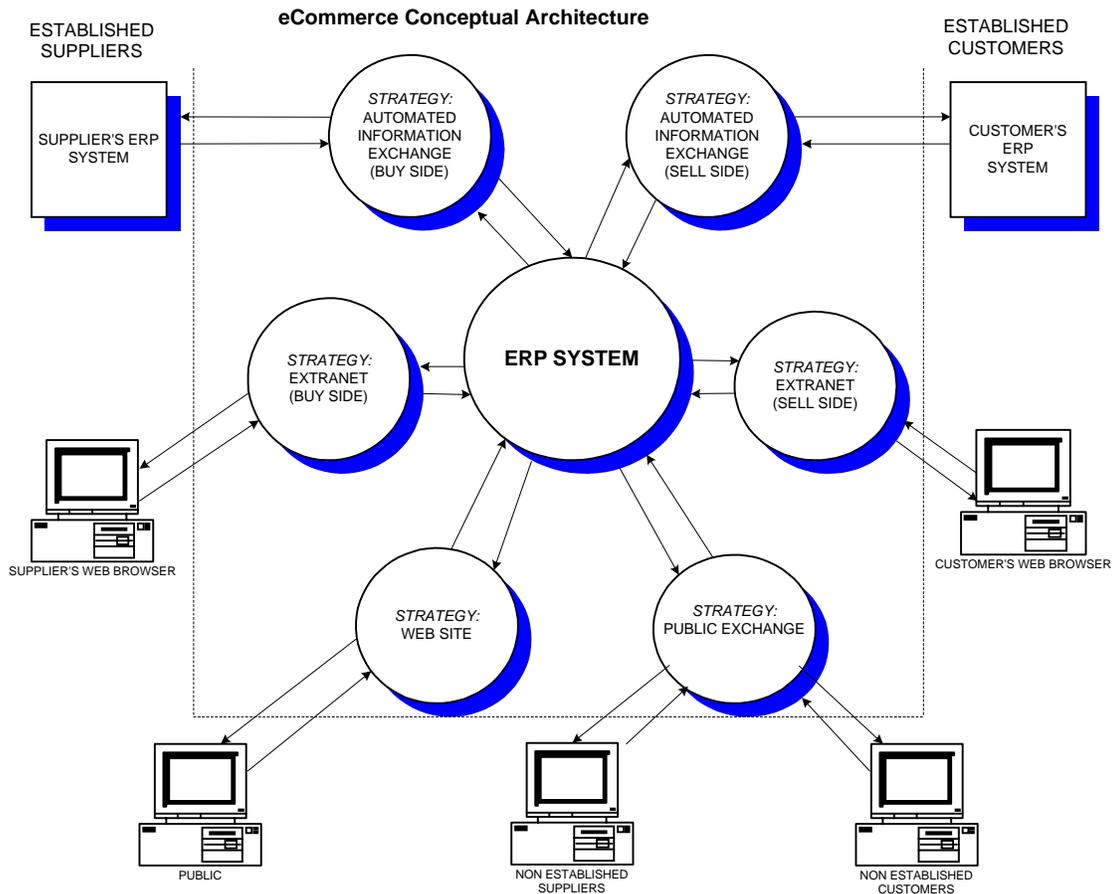
capabilities can only be as good as the comprehensiveness, responsiveness and accuracy of the ERP system.

We concluded that the eCommerce strategy for a manufacturing organization should be focused on the use of electronic information technologies to provide links, where justified, from their ERP system to trading partners.

ERP eCommerce ARCHITECTURE

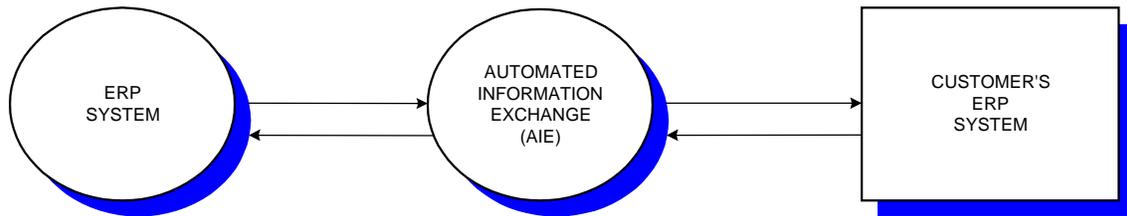
Based on the link between ERP and eCommerce discussed above, we developed a general-purpose eCommerce architecture that consists of six strategies for linking trading partners to an organization's ERP system.

These strategies are illustrated in the diagram below.



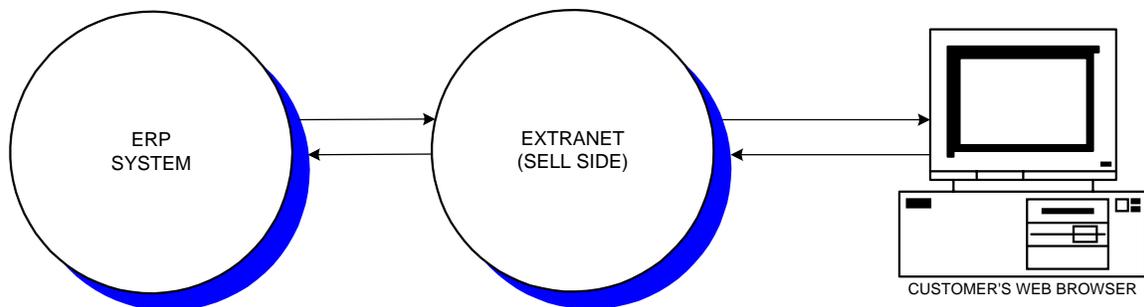
Each of the six strategies is discussed in further detail below.

AUTOMATIC INFORMATION EXCHANGE-SELL SIDE



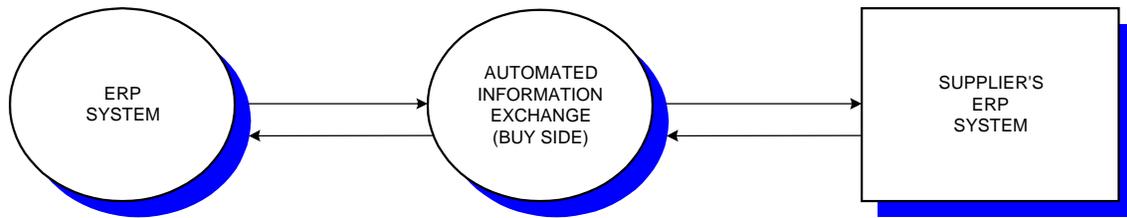
The exchange allows system-to-system transactions without manual intervention (e.g. from customer's purchase order application to your order processing application). At the heart of the AIE is a translator to handle multiple incoming file formats and convert them to the format required by your ERP system. At their simplest, AIE's can be thought of as a replacement for EDI. A number of standards are now becoming accepted for AIE's, e.g. RosettaNet XML for the electronics industry. The term 'Private Exchange' is also becoming popular for AIE's. Typical transactions that you may want to employ on an AIE include schedule sharing, inventory replenishment request, purchase orders, purchase order acknowledgement, order status and advanced shipping notification.

EXTRANET - SELL SIDE



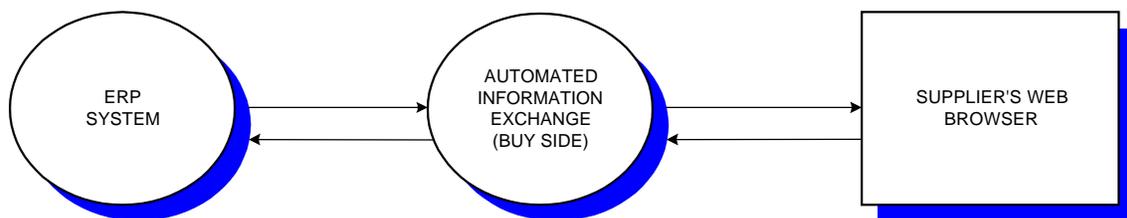
This approach can be used by less sophisticated customers who do not have the technological capability or need for an AIE, but have web access. It allows customers to enter transactions using a web browser. The extranet must be password protected and secure. The extranet can be thought of as a secure, private web-front to your ERP system. Typical transactions processed on a Sell Side Extranet are similar to those discussed above for a Sell Side AIE.

AUTOMATIC INFORMATION EXCHANGE - BUY SIDE



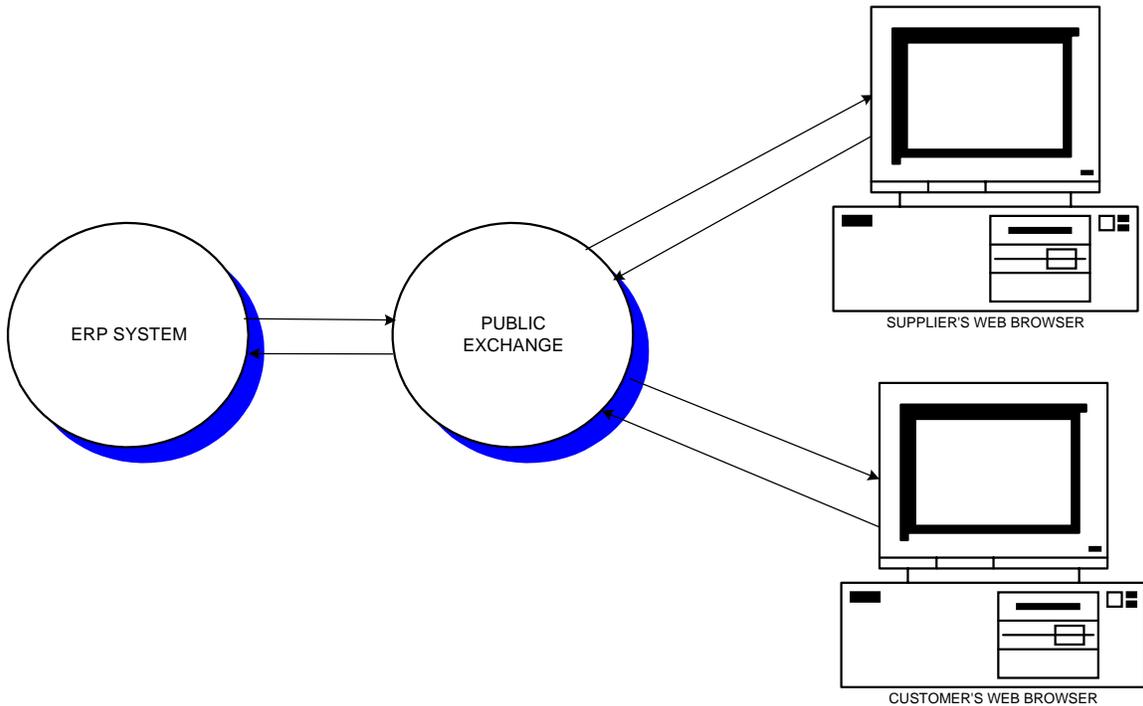
The principle behind the Automatic Information Exchange – Buy Side is the same as the sell side AIE except that the roles are reversed. In this case, you are the customer and your trading partner is the supplier, e.g. your ERP system issues P.O.'s that are accepted by your supplier's ERP system.

EXTRANET – BUY SIDE



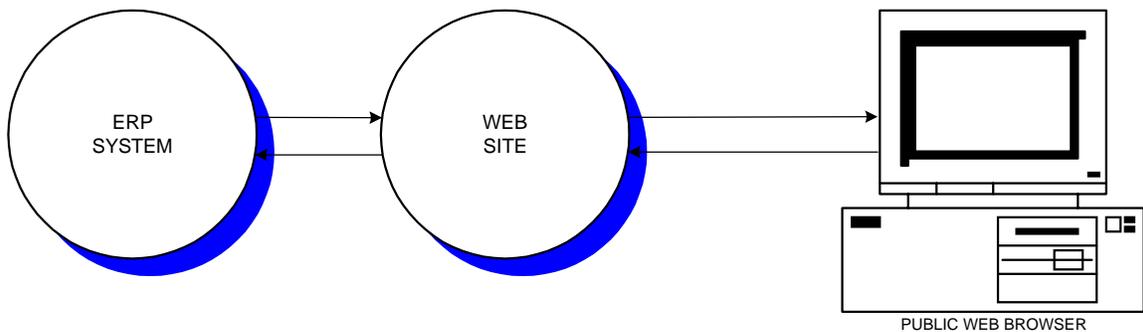
A buy side Extranet enables eCommerce with suppliers that do not have the technological infrastructure to support an AIE. It would allow them to manually enter transactions into your ERP system using a secure, private, web interface. It also allows them to respond to your requests (e.g. a request for quote).

PUBLIC EXCHANGE



Interfacing your ERP system to a public exchange allows you to conduct eCommerce with trading partners that are not necessarily established customers or suppliers. It is often used by commodity buyers and sellers to take part in auctions. Such arms' length, price-driven commerce flies in the face of years of effort expended by companies forging closer relationships and tighter bonds with their trading partners. So far, we have found very little enthusiasm for such an eCommerce strategy coming from most business-to-business manufacturers.

WEB SITE



The web site is the most established of the eCommerce strategies, and is particularly applicable to manufacturers that have a B2C element to their commerce. Most B2B companies will use this element of their eCommerce strategy for disseminating information contained within the ERP system rather than processing transactions.

IMPLEMENTING THE eCommerce STRATEGY

The following action plan has been developed as an aid for companies that wish to adopt the eCommerce strategy outlined in this paper. It is presented in a highly summarized form. Each step in the action plan is supported by a set of specific, executable tasks.

1. Perform competitive surveys

Identify and research the current eCommerce efforts of your competitors.

2. Perform customer surveys

Survey key customers and staff to determine what your customer base has been asking for in the way of Web-based services.

3. Perform a supplier analysis

Interview suppliers to determine what information they are willing to supply to help you manage procurement more efficiently.

4. Critique existing eCommerce efforts

Research existing eCommerce efforts within your company (e.g., existing Web sites) to determine what has been done to date, what has worked and what has not.

5. Create list of potential eCommerce strategies

This list should be based on the results of the competitive surveys, customer surveys, supplier analysis and existing eCommerce efforts.

6. Map initiatives against six eCommerce strategies

Assign every initiative to one or more of the six eCommerce strategies presented in this paper. Some initiatives will be a part of multiple strategies (e.g., “accept purchase order electronically” could be an initiative in both the Sell Side AIE and Sell Side Extranet). Some companies will find that they do not have any initiatives in a particular strategy. Both of the outcomes are to be expected.

7. Prepare ROI analysis

Once the initiatives are mapped into the six strategies, an ROI should be developed for each strategy. The ROI will compare the costs of implementing

the strategy against the benefit that will accrue from each of the initiatives within the category.

8. Select tool sets and technologies

For those strategies that have a positive ROI, tool sets and technologies need to be selected for implementing the strategy. These will be dependent on your existing ERP system, technical environment and throughput requirements.

Last, but not least,.....*IMPLEMENT!*