Implementing E-Commerce in a Small to Mid-Size Enterprise (SME)

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I Want My MTV! This was the lament of Baby Boomers in the 1980's. This was an entirely appropriate battle cry for the leisure and entertainment world. Baby Boomers grew-up in an era of post-war prosperity that was defined by massive consumption and instant gratification The 1970's was the "Me" decade where everything new and exciting had to be obtained and consumed immediately. The 80's were a decade of greed and the beginning of the information revolution. With the advent of the internet, the 90's just accelerated the momentum, and distributed capabilities to the masses that were once the bastion of only technogeeks.

In the 70's, the chant was *I want my MRP* among the manufacturing community. The 80's chant was *I want my JIT!* Mel Nelson, a renowned industry leader and educator recounts a conversation between business executives overheard at an airport where one exec says to the other, "So, did you get your JIT?" We often want the instant gratification and the benefits of the latest business trends without having a clear understanding of their goals and objectives, much less the strategy with which we will implement the program. The same trend has continued through the 90's and into this century. Everyone knows the web has or will change the way people do business, but we're unsure what we need to do and how we need to do it.

So if the 90's was the decade of *I want my ERP*, what is the mantra of the 00's? *I want my e-?* is perhaps the most likely slogan at this time. We know it will involve something with a small e-, but aren't quite sure what it will be. The Internet is changing the way companies do business, and the changes are trickling down to the SME (Small to Mid-Sized Enterprise) marketplace. Customers demand increased visibility to supplier's inventory and schedules. The larger companies have been forced to accept and embrace the new technologies, and through realization of enormous operational benefits (or a sadistic urge to make their suppliers jump through the same hoops), larger companies are making new demands. It's not a resistance to technological change that fuels the reluctance, but the lack of resources to execute something so new and daunting. The SME does not have large IT staffs and a consulting budget equal to the GDP of Luxembourg to execute the e-Commerce program that is requested. How to keep the customers happy without burning out the people and the bank account?

The SME organization does not attain e-Manufacturing nirvana overnight, but with a progressive approach learned through the same techniques of implementing ERP systems in the 90's. The rational approach to implementing your e-Commerce strategy is to start small, but start today. Larger customers are still getting their hands around the technology, so they do not expect perfection today. The winning strategy is to "go for the low-hanging fruit" and get some quick, positive visibility from your customers, as well as a rapid return on investment. This builds a strong foundation from which to launch the more complex phase of integrated transaction processing with your customers. And once you have mastered the integration of your business with your customers, it's time to impart this to your suppliers. The integrated supply-chain really does run downhill. What's different about e-Manufacturing will be the ability of the early adopters to create differentiators for themselves by providing these capabilities to their business partners. The web *can* work from the bottom-up.

This paper will explore the history and development of implementation methodologies in the SME marketplace, and suggest a progressive e-Commerce implementation plan. The major phases this plan are:
1. Providing information access to your business partners

2. Use a Business Portal to centralize activities within the organization and then start forming communities in related business

3. Execute Business to Business transaction processing

The History of the SME Implementation

Most business implementation methodologies are developed by consulting groups working with large organizations. MRP and later ERP implementations were developed from a model that assumed large resource expenditures. The seventies and eighties were the decades of large systems, large teams and large budgets. The nineties was a decade of reduction. The technological advances of computer technology not only reduced the size of the computer that ran our businesses, but reduced the size of the organization that deployed them (in numerous ways). Reduced hardware costs made MRP/ERP technology more accessible to smaller companies. The smaller systems required less support staff to operate them, and with the advance of windows-based technology, made these systems easier to use by all. By the late nineties, sophisticated ERP technology was readily accessible to most SME's. However one more reduction of the nineties had perhaps the most dramatic impact on SME implementations. In the early nineties, the recession forced almost all companies to reduce staffs or expect more from existing staff. The "lean and mean" staffing of SME's was not congruent with the traditional implementation methodologies that had large, dedicated teams that spent 12 to 18 months to implement business systems. These systems needed to be implemented rapidly, using existing company resources on a part-time basis. Out of this necessity came more flexible software with more flexible implementation strategies. Rather than working hard for six to nine months and showing little outward progress, companies began embracing a phased implementation strategy that deployed strategic portions of the system on a progressive basis. The "Big Bang" approach to replacing the existing system with the new system on one day was replaced by phased implementations of certain functionality over a similar period of time. This strategy has some very strong attributes that will help us in the e-Manufacturing world.

A phased implementation provides some quick benefits that provide much needed inertia. Typically the SME will operate under more restricted budgets. Large projects may be funded on an incremental basis, with subsequent phases justified by prior success. The ability to progress is based only on prior success. A phased implementation provides rapid ROI and sets the stage for progress. The obvious downside to this is that a project separated into too many phases may never be completed. Either changing business conditions or failure may leave an implementation incomplete and the professed benefits unfulfilled. Perhaps the best example of this is "Print and Rip EDI", which fulfills the customer requirement of utilizing EDI transmission, but not the business system integration goals that justify the acquisition. This use of EDI as a glorified fax and typewriter presents a less than satisfactory reputation for supply-chain integration. Therefore, a progressive e-business implementation must be well strategized and budgeted for the entire project before initiation.

The late nineties was not only known for small implementation failures, but being a decade of excess, is home to some colossal implementation failures as well. Organizational inertia is a tricky element to manage. One must provide some early successes to create momentum, but must sustain that progress or the organization may either collapse under too heavy a weight (large ERP implementations) or become too drawn-out and run out of steam due to technical setbacks. An e-Commerce implementation involves much leading-edge (sometimes bleeding-edge) technology. A recent challenge is the lack of available technical expertise to internal infrastructure of a company. This has led to an extremely large demand for out-sourced operations. The growth of ISP's, ASP's, and data hosting has spawned an entire industry. So, armed with the historical knowledge will allow us to avoid the pitfalls of traditional implementation strategies.

The winning strategy is to implement a web-based exchange of information throughout the supply-chain as the first step (the low hanging fruit). Once this has been established, the establishment of electronic communities will foster the collaboration of business partners, rather than just communicating with them. Finally, business to business transactions can be deployed with selected trading partners using the technology that is appropriate for each trading partner. Along the way, I'll present case studies of companies that have achieved success in each phase.

e-Commerce Facts

The Internet is changing the entire business landscape and revolutionizing the way many SME's do business today. The aggressive move to E-Commerce is illustrated by numerous market research projections. Although everyone knows about the explosion of consumer web sites (the Dot Coms), the explosive growth in the Internet is happening in the B2B (Business to Business) segment rather than the B2C (Business to Consumer) segment. According to Forrester Research , the B2C e-commerce transaction value will grow from $9 billion in 1998 to $108 billion by the year 2003. However, the B2B transaction value in 1998 of $43 billion is expected to swell to $1.3 trillion by the year 2003. That's 10 times the estimated value of B2C e-commerce! Forrester also reports that at least 37% of all Internet business will involve manufacturing firms.

Market research also reports how E-Commerce will directly impact a company's success. According to a recent study by Giga Information Group, companies doing E-Commerce worldwide are projected to save $1.25 trillion by 2002 through reduced costs. Those cost savings are a direct result of improved efficiencies in key business and supply chain management processes such as: order handling and processing; sell-side distribution; supply chain management and procurement; human resources transactions; marketing and customer service. This seems a better reason to justify the implementation. One also needs to stress the competitive advantage that can be gained from these implementations. As will be shown in the coming case studies, the adoption of e-manufacturing solutions became a dramatic competitive advantage.

Phase I Information Access

The easiest and most pressing demand from the marketplace is to provide and share information. This is a sensible demand for both trading partners (albeit emotionally difficult), since the customer demands to visibility of inventory levels and order status must be met as a condition of continued business, and the communication of this information is disruptive and time-consuming to the supplier. Ask any Customer Service, Sales, or Master Scheduler how much time they spend answering inquiries regarding order status or inventory availability. When a customer requests this information, it is a benign request, but it becomes a disruptive, time consuming challenge to supply. The explosion of disparate information systems made this type of information readily available within the organization, but not outside the organization. In rides the White Knight of the Internet! Browser-based inquiries of relevant data can be filtered to display only the orders for *that* particular customer. This data can be made accessible on a 24x7x365 basis that eliminates problems due to geography and time zones.

Users will be able to access views of relevant information such as customer order status, production order status and inventory stock status. For example, customers can find out the status of their orders and where the product is in the manufacturer's supply chain. Customers can view sales quotes, RMAs, service schedules, support requests and status of their shipments. Prospective customers can view marketing data, quoting, data on technical product specifications, engineer drawings and product requirements. Suppliers and Subcontractors can view technical specifications, engineer drawings, Engineer Change Revisions, Purchase Requisitions, Purchase Orders, shipment status and carrier interaction. This allows customers and suppliers to closely collaborate with the manufacturer on critical supply chain processes from the status of orders, inventory levels to shipment status. It also maximizes a manufacturer's return on investment by providing easy and less costly implementation, deployment and ongoing maintenance of their E-Commerce program.

As mentioned earlier, providing this information to the customer is emotionally difficult. Although the host can usually restrict the access to the data by user, it is difficult to surrender the control that is associated with the information. The importance of data-sharing is an ingrained philosophy in the World Wide Web. Control of the information is a benefit as long the ball is in my court. At a recent User Group meeting for ERP users, an informal survey was taken after demonstrating web-based access to sales orders and their associated shop orders. The users were asked how many of them would want to provide this type of information *to their customers*; only a few hands went up. When asked how many would like to have visibility to this data *from their vendors*, almost every hand in the room went up. This underscores a critical mind-shift that must occur in order for successful SME's to use the web as a competitive advantage, rather than waiting for their customers to dictate compliance (like traditional EDI).

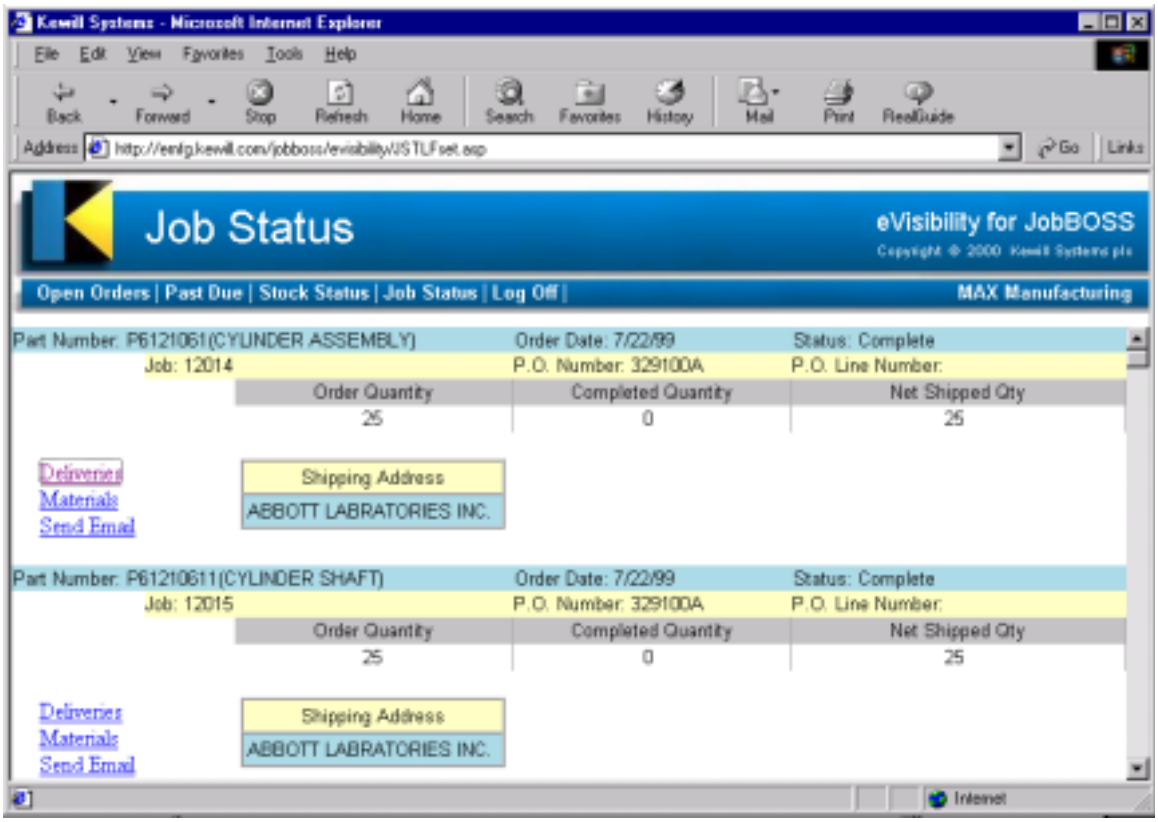
Case Study 1: Quality Machine Manufacturing

Established in 1985 and running about $6 million in annual business volume, Quality Machine Manufacturing runs two facilities in Paulina, LA— one a manufacturing site and the other a job shop repair facility. This 62-man business handles any type of machining needs from pump repair to manufacture of rotating equipment parts. QMM implemented a job-shop ERP system in 1996 and in the summer of 1999, Daniel Louque, Jr. had a good idea but needed a way to make it work. “The plan was, some of our customers wouldn’t mind the idea of us taking a portion of their inventory and managing it for them,” says Louque. “But once you take it, their own people don’t know what you have on hand at your place. It could entail sixty phone calls a week.” The solution was a web-based supply-chain visibility tool called SupplyBOSS. With this solution offering online information 24 hours a day, Louque could offer the inventory management and avoid the phone calls. “SupplyBOSS actually allows them to have another extension on their network,” he adds. “Most customers these days have an ISDN connection to the Internet. They hit the Internet icon, shortcut to my web page and check stock like they would on their own network. All the information is cross-referenced back to their own part numbers.”

Louque realized right away that he had something that set his company apart from their competitors. “The biggest benefit is that it allowed me to market something new. My competitors here locally couldn’t offer the same service. SupplyBOSS allowed Quality Machine to offer a consignment program for customer inventory items— we’ve made some of the inventory items, they’ve produced some of them. I could say, ‘I’ll take that inventory and I'll manage it at my facility and you won't lose any connectivity to that information.“ So our customer can log into the system and obtain that inventory information from their plant, their house, anywhere.“ Soon Louque and his team found an additional use for their new tool. “Another way we use it — we have two divisions in our company, not located at the same plant site but two miles apart,” says Louque. “We created an interfaced link that allows our other division to view my raw materials inventory without having to make a daily trip to check stock. We’re using two different databases. But with SupplyBOSS, our other site is able to use the Internet to log on and check raw materials.”

At this point, the tool provides a seamless interface between Quality Machine’s database and their customers’ questions and concerns. “They can log into the database-- we allow them to see the routings of the job that’s in place for them,” said Louque. “It shows them a completed status, where the job is in relation to the delivery date. Allowing them to view that data and being that open with them saves communication time and strengthens our relationship with our customer. It’s helped us offer better customer service and reduce interruptions. But the real advantage? It’s a great marketing tool! Soon I’ll be downloading it for any customer that will allow me to give them a presentation. How many shops like ours can offer that accessibility to information?”

What started as a tool to reduce the phone calls relating to a new program has become a serious competitive advantage. The ability to use external resources to host the data allows smaller manufacturers to look much bigger in the eyes of new customers and prospects.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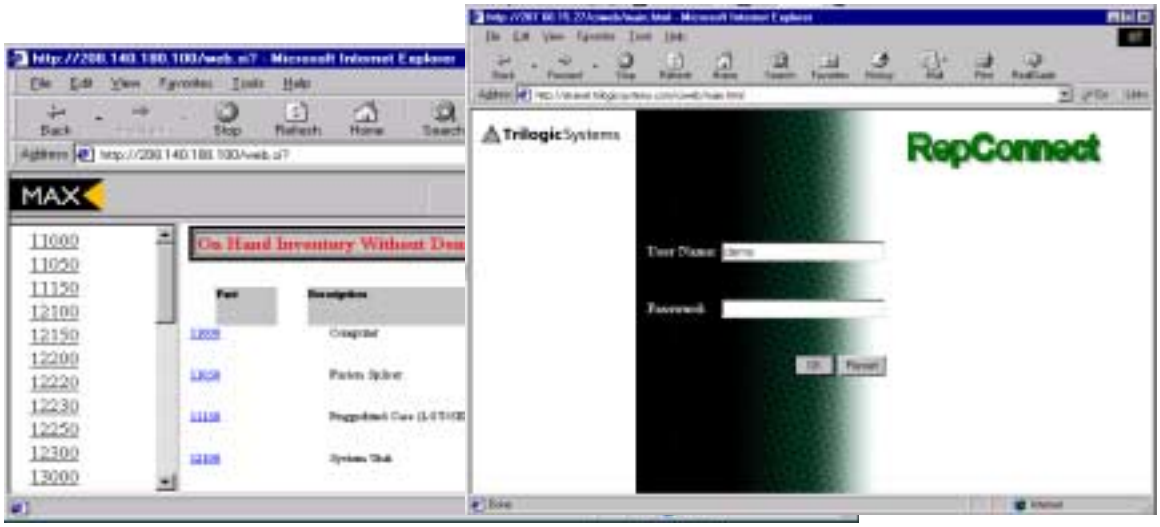
Case Study 2: Trilogic

Trilogic is a value added solutions provider of board-level hardware and software located in Wilmington, MA (www.trilogicsystems.com). In 1999, the urgency for real time information accessibility was driven by the usual unreasonable customer and competitive pressures. They believed they could accomplish this with customized, secure views of orders and order status that were readily available to field Sales Reps and key customers. Trilogic needed a way to provide their field Sales force with world class tools that allowed them to spend their time generating revenue, rather than constantly checking on order and delivery status.

Joe Cipriano, Director of Manufacturing for Trilogic, wanted to reduce the time his operations people spent answering questions of the sales staff. Questions like, "Did we get the PO? If so, when is it going to ship?" The requirement to support so many different individuals (especially sales people) quickly led them to a tool that could create a new customized view to data that was accessible outside the building. This requirement was similar to internal requests for new and easily modified ways to query data, only it needed to be accessible from a customer's browser or a hotel room. Since it was similar to the report-writing requests for their ERP implementation, Trilogic went to their ERP vendor for this solution. Joe Cipriano went to visit their ERP partner and even brought an NT server that he could leave with them to install the finished product - RepConnect . This solution was a web-enabled version of their ERP report writer- Crystal Reports. The MAX.Info product utilizes Seagate Information Server as the tool to quickly create web-based reports from existing reports in the manufacturing system. Taking existing reports from the ERP system and converting them to Seagate Information Server was an expedient way to accomplish the aggressive time-line demanded by Trilogic.

The urgency for such accessible information was not only driven by alleviating the time requirements to answer the sales questions, but by another late-90"s phenomenon: the ability to attract and keep good people. Upon arriving upon the MAX.Info solution, it was determined that the availability of this tool could be a differentiator in Trilogic's efforts to attract and recruit new sales people at an upcoming trade show. If this tool was available, Joe thought, it could be shown at the trade show to convince recruits that they would have world-class tools to go with their world-class company. This initial phase of the project was completed with 21 calendar days, and resulted in outstanding turnout at the trade show. Today they deploy over 25 reports on their own web site to selectively provide access to remote sales force and customers. This tool is also used as an internal management tool by users within the company.

"This was very well received and very functional," said Joe. He presented his experience at a regional user group meeting and assisted other users in the ERP community to launch their own sites. Joe stated that is was a relatively easy implementation, "I'm not a software guy, per se, but things went well." Joe worked side-by side with his ERP partner and had a functional product within two weeks. The only downside to the product now is endemic with the SME market: the ability to maintain and expand the existing product once it was implemented. Being a high-tech company, there is no shortage of talent to keep things rolling, just the resources to pull away from revenue generating activities. "If it's a choice between pulling someone off of a job that will ship versus maintaining the system, I've got a high



opportunity cost," says Joe, echoing a common sentiment of the SME marketplace. Trilogic's next step will be to work with their ERP partner to develop on-line ordering of their product via the web.

Phase II Business Portals and Electronic Communities

The second phase of the progressive SME implementation can actually be implemented concurrently with the third phase - electronic transactions, and is a complementary component of the hub and spoke environment (explained later).

The traditional view of ERP systems is to look within the "four walls" of the enterprise. Even in multi-site implementations, the data and applications were provided for the benefit of and the infrastructure of the internal enterprise. The arrival of Supply Chain Management prompted these organizations to begin looking outward, but it wasn't until the advent of the internet that brought the potential of this capability to the SME. A Business Portal was originally defined as a "web supersite" that provides proprietary, enterprise-wide information to company employees as well as access to selected business partners and vertical-market Web sites (suppliers, vendors, etc.). This concept is being merged with the vertical market communities (discussed later) to provide extensions outside of the original Intranet to provide an environment where business partners can come together for the purpose of extending the supply chain electronically. The manufacturing business portal can provide many different functions, those that we will discuss will include: Data and Application Hosting, Training and Services, Community Management and (later) Business to Business Transactions.

"To Host or Not To Host, That is the Question"

Information like the Data Access mentioned above can be made available in a number of different methodologies. One method is to provide a data hosting service or a full-blown Application Service Provider (ASP), where the ERP application resides on the business portal. Another method is to provide the tools or applications on the manufacturer's site. Aside from the security considerations of accessing the data within the company's system, the expense and availability of technical resources becomes a daunting challenge for the SME. Several Business Portals have sprung-up recently to accommodate the needs of the manufacturing community. These business portals allow the manufacturer an option to deploy a sophisticated solution without the expense of the infrastructure inherent with providing this visibility. Although these business portals have heretofore catered to larger organizations, there have been recent additions that cater specifically to the SME market. Now even the smallest manufacturer can take full advantage of E-Commerce without worrying about firewalls, security, hardware and other Internet back-office complications. Data hosting usually involves the retrieval of data from the host ERP system on a predetermined basis. This data is then stored on the business portal with all the secured access to customers and suppliers via a user/company name and password. The customer may be logging into what they think is the supplier's web site, but are re-directed to their area on the business portal.

"Teach Me to Fish"

The smart trend within the industry is to begin providing training and services to your customers that enhance your typical product offering and position you above the competition as a supplier that provides additional value to the customer. These services, the data access is one such service, can now be provided through the portal with various web-based tools that are extended to the customer for their own use. Some software companies have looked to the web to provide low-cost, high access training to their large user base. Rather than people incurring the cost of travelling to a training center, software training classes can be offered to their customers via the web at a cost and frequency not practical in the physical world. The ability to leverage these tools through a business portal so that a SME can provide interactive training, support, and product seminars provides the SME with the ability to look much bigger and provides an exclusive differentiator to it's customer. The services that can be provided include, but are not limited to:

<u>Support Center</u>

- Technical Support
- Product Updates and Downloads
- Knowledge Base
- Requests for Enhancements

Return Material Authorizations

Education Center
- E-Training Classes
- E-Seminars
- Remote Consulting
- Installation and Implementation Tools

Collaboration Center
- Focused Chat Rooms
- User Groups
- News Groups
- User Uploads

Industry Center
- Events
- E-Seminars
- Partners
- Associations
- Industry News and Publications

These services use the infrastructure available through the business portal that would be extremely resource intensive and typically impractical for the SME.

"New to the Neighborhood"

Once the electronic communication becomes established, the electronic collaboration begins. However, judging by the high number of "Print & Rip" EDI implementations, the Community needs a helping hand to become established. The Community Management is subdivided into Community Development and Community Collaboration.

While the hub wishes to develop its supplier e-commerce community to enhance links with all its suppliers, it may not have the resources to bring on a large community and therefore might require assistance with the process of rolling out a solution to the supply chain. Some solutions have a telephone-based Community Development Team (CDT) who will contact the supplier base to progress the adoption of the proposed solution. The CDT would work closely with the hub to plan the rollout and review and monitor progress. CDT activity covers:

- Identifying all suppliers and checking addresses and telephone numbers
- Designing the letter to suppliers, a CD-ROM, describing the solution and leading suppliers to the web-based order form
- Mailing all suppliers with this information and ensuring it reaches the right person
- Following up all those not signing up immediately

The concept of a marketplace is the basis for Community Management and Collaboration. Buyers and sellers have been congregating for centuries to exchange items of value. The only difference is that now buyers and sellers are meeting on the internet. These communities typically come in two major varieties: vertical market segments and horizontal communities. The vertical markets are arranged around specific industry segments – like PlasticsNet.com for the plastics industry. Horizontal communities rise-up around certain business functions like SupplierMarket.com for the procurement of custom manufactured parts. These groups number around 500 today, but the Gartner Group predicts they will grow to 7500 by the year 2002 and will contain 80% of the Global 1000 companies. These communities hold tremendous benefits by aggregating buyers, sellers, services and content all in one place.

The ability of an SME organization to "play in the same market" as the big boys and girls is the type of leverage made common by the Internet. Having a ready connection with all the buyers and sellers without multi-million dollar marketing campaigns put a distinct advantage on "early adopters" within the SME marketplace.

Phase III Electronic Transactions

By far the most challenging of e-Commerce implementations has been the integration of supply-chain transactions between business partners. In most circles, this has been defined by EDI (Electronic Data Interchange) implementations . EDI over the past decade has been concentrated primarily in two business verticals: the automotive and retail business industries. In both cases, the adoption of EDI in these industries was a top-down mandate that became a pre-condition to becoming or retaining a supplier relationship with these limited titans of industry. Throughout the seventies and eighties, the adoption of some industry standards (ANSI X12 for the US and EDIFACT for most of Europe) propelled a common protocol from which trading partners could communicate. However, the textbook description above had very little basis in reality when it came to "standard EDI". Whereas various transmission and transaction standards were developed to define this common language, these "standards" began to mutate by industry (AIAG for the automotive industry) and even different plants or divisions within a company to fulfill the specific needs of the customer-partner. Since the customers were large, they could dictate the transaction formats and in some cases (the retail industry), inflict severe monetary penalties on a lack of compliance to their seemingly weekly changes. This condition gave rise to a large need for EDI mapping tools to "customize" the standard EDI transactions for each trading partner. When new trading partners were added or conditions changed, companies needed either internal or external resources to manage their EDI systems.

Since these resource requirements are substantial, only large companies had the resources to Integrate EDI into their ERP systems. The digital divide is only now being addressed with B2B transactions for the SME by a few offerings. Traditionally, the large organizations have some large suppliers, and many medium to small suppliers. Business conditions today dictate solutions that can cover the spectrum of needs for all of a companies suppliers. Therefore, companies need to adapt the B2B solutions to accommodate the needs of their expansive supplier base.

Case Study 3: Toys R Us

In Europe, Toys R Us has a Paretto distribution of supplier sophistication. Eighty percent of their purchased material is supplied by twenty percent of their suppliers. Based on the volume of requirements for an industry-leader like Toys R Us, this 20% was sophisticated and had the resources to implement a formal EDI system with Toys R Us. However, the remaining 80% of their suppliers accounted for 99% of their headaches, and Toys R Us needed a low-cost, easy to implement solution for the rest of the crowd.

Over 500 Toys "R" Us suppliers ceased faxing information and began to trade online using Kewill.Trade, which is particularly suited to SMEs because it is low in cost, scalable, secure, easy to use and install, and only requires Internet access. "Toys "R" Us already trades electronically with many of its larger suppliers, but until now no solution suited our smaller niche suppliers. This solution is not only tailor-made to the needs of smaller players, its Web-based capacity means it is perfectly suited to an international rollout," said Mike Taylor, Toys "R" Us VP International Logistics. "Kewill.Trade will help us to speed up supply chain operations by reducing time consuming manual processes. It will open up an online dialogue with this important supplier group, allowing us to exchange vital information across borders and in the future to encompass full business to business e-commerce trading," said Mike Taylor.

The ability to manage a variety of e-Manufacturing transactions will likely spell the difference between being efficient with a select few trading partners, or extending the savings to all business partners. The different needs of the marketplace are beginning to be addressed by a few leading-edge business portals. The differentator is to select a partner that can manage not only traditional EDI, but also web-based transaction processing and even less sophisticated solutions through one service. An example of one such entity, called a message broker is described below.

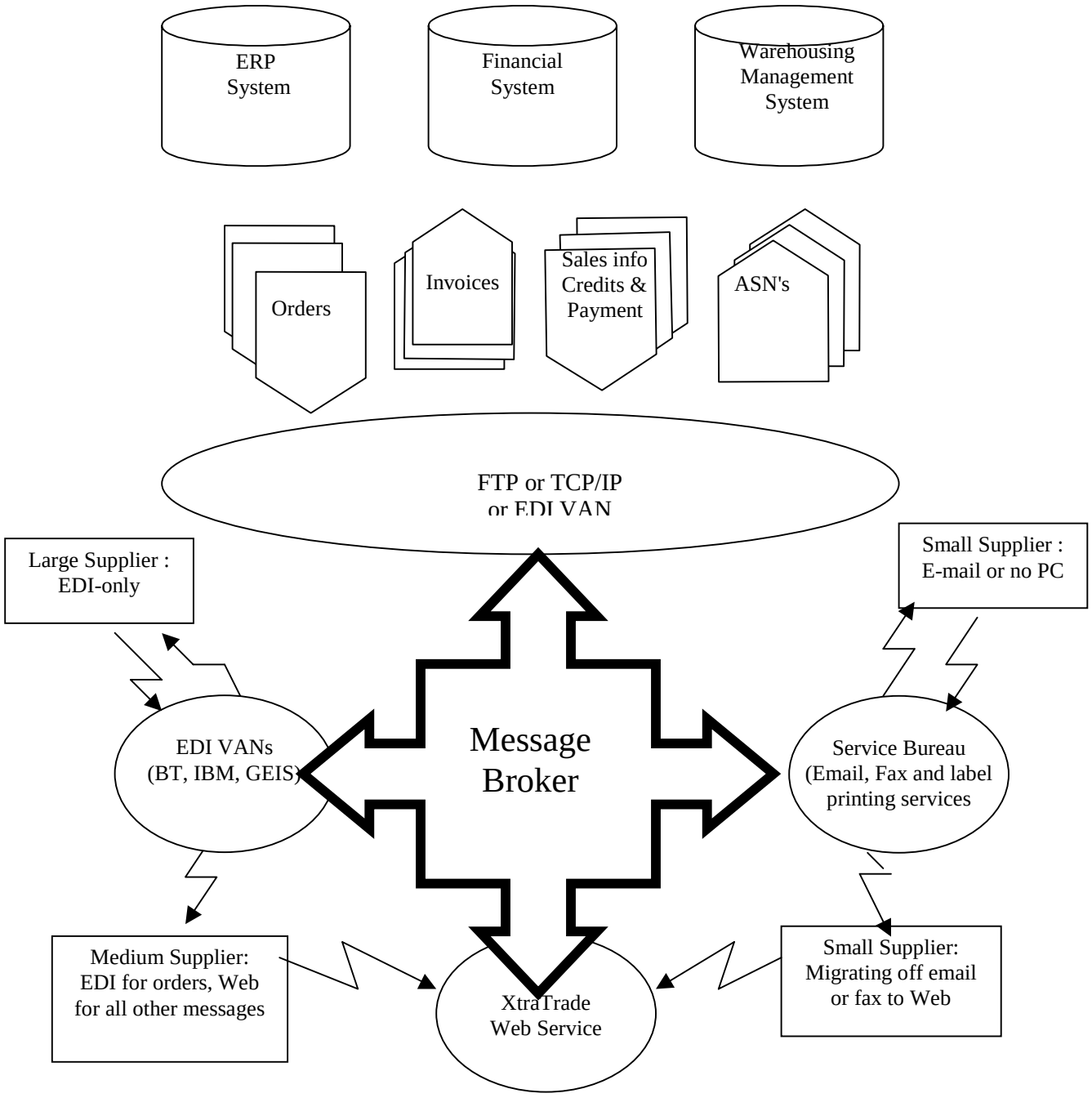


Fig 1 Managed Electronic Commerce Service

Above is a diagram showing the constituent parts of the Message Broker for a typical supply chain. The Message Broker can accept data in any format (EDI or flat file) via FTP, TCP/IP or EDI VAN and forwards it in whatever format is required by each individual supplier or customer.

The customer would send the Message Broker messages from their applications either via a VAN in EDI format, or from their EDI gateway in EDI format or from their FTP server in flat file format. The Message Broker then maps the data in those messages to the required format, and then distribute the messages the suppliers either to their Bureau service for E-mail or faxing, or via Web-based transaction, or

via the EDI VAN preferred by the trading partner or straight to trading partners connecting directly into the Message Broker. Messages coming from trading partners will be mapped back to the file format preferred by the customer, aggregated into one batch file and sent back directly. It is possible for a trading partner already receiving orders from the customer via EDI, to send back invoices via the Web. The Message Broker will have "split" the order message into both an EDI message and an HTML document. The supplier could see his orders in both his EDI software and on the customer's website. A good analogy is that of a railway roundhouse. The message broker is the turnstile that allows any message received in one format to be turned around into the appropriate format for a specific trading partner, and when received back from that trading partner will return it to it's original source. In this manner, the Message Broker can support traditional EDI from a customer, send EDI to Supplier A, Web-based orders to Supplier B, and an E-mail with an Excel spreadsheet to Supplier C. When each of these suppliers return the information, it will be re-converted to the originating format (EDI) and sent to the customer. Such Message Brokers have been in use in Europe since the early-to-mid nineties, and have even handled manual delivery services such as fax or even hand-delivery of documents. This environment typically replaces the EDI VAN (Value Added Network) and allows companies

Other facilities provided by the Message Broker are:

- Reformatting, duplicating, converting or splitting data, this would be for converting data from flat file to EDI standard for instance
- Setting up and managing EDI trading relationships
- Transmitting and receiving test data
- Investigating and resolving any transmission errors or failures
- Maintaining audit logs
- Producing usage reports
- Maintenance of links with the customer
- Archiving of data
- Direct Fax gateway
- Direct Email gateway

There is an additional "hidden" benefit to web-based e-commerce: additional enhancements, such as new messages or bug patches, could be added to the web site without having to "roll-out" up-dates to the PCs of your suppliers and customers. Changes would be instant and impact no-one at the client site.

This model now becomes the framework for the Hub and Spoke model of business transactions. The hub is the larger customer who will transact business electronically with all suppliers (spokes). Having the ability to extend electronic transaction processing in a variety of methods assures compliance with at least the least advanced method (fax or more probably e-mail). The least technologically astute business at least has e-mail and common industry-standard spreadsheets like Excel. Transmitting requirements in an Excel spreadsheet and accepting the return of an updated spreadsheet offers at least an electronic replacement for "Print & Rip EDI" This "Click and Go" electronic communication is ideal for working with the smallest of the SME marketplace, and as this model is adopted by the suppliers, they themselves can become hubs and propagate e-Commerce transactions to their spokes, thus e-enabling the entire supply chain.

Summary

The SME environment has traditionally had a more difficult time implementing solutions than it's larger cousins with deeper pockets. The e-Commerce arena has heretofore perpetuated the same challenges as ERP implementations of the past. However, internet technology and the explosion of the B2B transaction processing are already being exploited by companies looking to cater specifically to the SME community. The great equalizing tendencies of the internet are being perpetuated in the latest technologies for B2B transactions and Community Management.

The best advice is to begin small and seize some immediate, simple benefits that prove the technology, provide meaningful value to customers, and pay-off the initial investment quickly. Although the second phase is more complex, if it is built upon the initial success of the first phase, the justification will be easier, and any delays will be more forgiving.

The B2B transaction brokers provide a variety of solutions for what suits each trading partner best. This provides an ideal environment for multiple hub and spoke networks and deploys the right solution for the right trading partner. From one common platform, all protocols can be used and multiple, redundant platforms (VANS) can be eliminated. Multiple protocols can be used for incoming and outgoing transactions, so as to encourage trading partners to move toward web-based transaction processing, but to do so without imminent threats. Providing minimal Click and Go technology to the least sophisticated partners allows an automated link to the customer and easy to use tools for the supplier.

Both horizontal and vertical communities will expand the SME to participate in business arenas unimaginable just a few years ago. Being able to expand the territorial reach of a small firm without the expenditure of large amounts of cash for marketing will take the sting out of being an early-adopter.

The world is changing rapidly for all manufacturing entities. This time around the SME does not have to wait years to play with the big boys & girls.