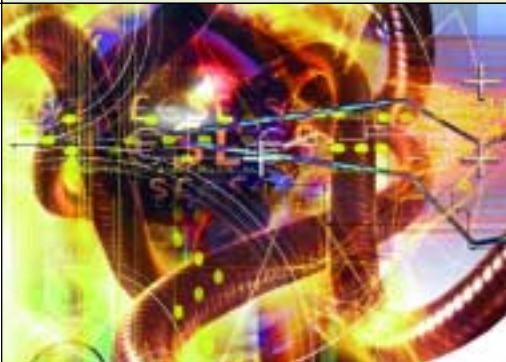


APPLICATIONS

A WHITE PAPER SERIES

WE'LL DEMONSTRATE THAT BUSINESS-TO-BUSINESS (B2B) EXCHANGES OR MARKETPLACES PROVIDE DRAMATIC OPPORTUNITIES TO AUTOMATE COLLABORATIVE BUSINESS PROCESSES WITH CUSTOMERS AND SUPPLIERS, GENERATE INTERNAL EFFICIENCIES AND REACH NEW MARKETS AT MINIMAL COST.

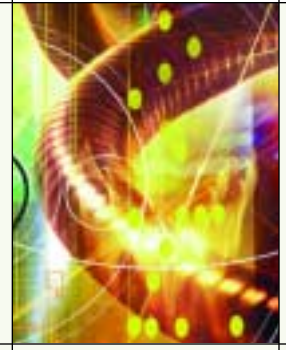
B2B Exchanges: Now That We Know Better, How to Move Forward From Here



*by Ken Kenjale and Arnie Phatak
Syntel*

SYNTEL
Consider IT Done®

- 1 TYPES OF EXCHANGES
- 2 BASIC DEVELOPMENT OPTIONS
- 3 INTEGRATION WITH LEGACY SYSTEMS
- 4 SECURITY CONSIDERATIONS
- 5 AN INNOVATIVE EXAMPLE



B2B Exchanges: Now That We Know Better, How to Move Forward From Here

The landscape is littered with hundreds of B2B exchanges that have failed, demonstrating that success is far from automatic We helped create several B2B exchanges from scratch, including SkillBay and TexYard, all of which are still operating. In this article, we'll share some of the knowledge that we have gained through this experience and discuss how to take advantage of the opportunities and avoid the pitfalls of this dynamic new marketing channel. We'll demonstrate that business-to-business (B2B) exchanges or marketplaces provide dramatic opportunities to automate collaborative business processes with customers and suppliers, generate internal efficiencies and reach new markets at minimal cost.

B2B exchanges are online marketplaces for businesses to buy and sell goods and services from other businesses. Automated business-to-business transactions are not an entirely new concept. Large organizations have been using automated systems for a number of years, and some have been programmed to exchange business transactions with other automated systems as far back as the early nineties. For example, General Electric's Aircraft Engines division had a system with which a customer could order a part, initiate the shipping process, be invoiced, and pay for the part, all without a single piece of paper and within a span of 45 minutes. However, these systems needed dedicated, expensive data communication facilities and required significant investments in large, complex software to be developed from the ground up before they even started working. The Internet brought down the cost and technological barriers; the Internet is widely and easily accessible, and needs a communication protocol that a wide variety of computers—from the smallest desktop to the largest mainframe—are capable of using.

The simpler business-to-consumer (B2C) model beat B2B to the punch in wide availability and visibility. Businesses based on the B2C model, in which the customer browses through an electronic catalog to select items for purchase, is well established at this time. Yet, the potential in terms of dollar volume and number of transactions, however, is far higher for B2B even than B2C. This is because a chain of transactions involving material suppliers and service providers lies behind every product that reaches the consumer. B2B transactions typically involve long, complex processes including searching for vendors, requests for quotation, evaluating different proposals, negotiation, supply chain planning, shared product design, document exchange, billing, payment, and extensive data analysis. As a result, B2B exchanges can go far beyond simply streamlining buying and selling: they can create customer-driven value chains that substantially reduce costs for both buyer and seller and better align the entire supply chain with the customer's needs. They can also make it possible to enter new global markets at minimal cost and substantially reduce the time required to respond to changes in demand patterns.

“A start-up does not have a base of interrelated systems to count on. It must therefore build the application in such a way that it can interface with a wide variety of existing systems.”

1.

TYPES OF EXCHANGES

B2B exchanges can generally be divided into three basic categories. Consortia are typically formed by a group of leading vendors in a particular industry, like Global Food Exchange. Public exchanges such as Commerce One are run by a third party, and are open to all companies that meet the standards defined by the exchange. Private marketplaces are run by a single company and its key suppliers, such as those sponsored by Wal-Mart and Dell. Another way to classify exchanges is as either vertical (which specialize in serving one particular industry) or horizontal (servicing a broad range of industries, like PurchasePro). Most of the first generation of B2B exchanges were open public marketplaces whose business models were based on a small percentage fee on all transactions conducted. Wall Street did the math, noting that the total B2B marketplace is perhaps ten times larger than the consumer marketplace because of all the intermediate transactions that are involved in bringing products to market. The result was that money from venture capital and even initial public offerings flowed freely — resulting in a large number of startups.

But many of these companies quickly failed because they were not able to attract paying suppliers and customers. The research firm IDC says that of 1,000 B2B marketplaces launched in

an 18 month period only 700 are currently active. There are two main reasons. First of all, the adoption of e-commerce has generally been somewhat slower than expected. Even more important, major players in most industries have formed their own exchanges rather than giving up a percentage of their sales. The exchanges that have been successful have largely been private exchanges that gain their revenues through a variety of different means.


Transaction fees are still a factor but they are usually at a much lower rate than originally expected and are often in effect paid by companies to themselves as the owners of the exchange. Other revenue sources include membership fees paid for access to the marketplace's members and fees paid for the software that is necessary to connect to some of the exchanges.

2.

BASIC DEVELOPMENT OPTIONS

The ideal development strategy is deeply influenced by whether the exchange is started by a new company or to serve an established firm. A start-up company does not inherit any business rules and complex





processes; some of these may exist more for historical than purely business reasons. It is able to develop the application in a cleaner fashion, and implement it on a single, most effective platform. A start-up is also under heavy pressure to bring its offering to the market quickly to gain the first-mover advantage. The clean slate that it starts with also means that the knowledge of the intricacies of the business process of the industry is not available for the company to build on. In the B2B space, no application can stand entirely on its own: it must exchange data and transactions with other, related systems. A start-up does not have such a base of interrelated systems to count on. It must therefore build the application in such a way that it can interface with a wide variety of existing systems. While the application is built on a clean business model, it must also build generalized interfacing capabilities. Building a generalized interfacing capability turns out to be a more difficult task than one that is aimed at interfacing with a known set of systems with known requirements.

An existing business, however, must start with a complex set of business practices and processes. The decision as to its preferred strategic platform has probably already been made; the new system must be designed to fit this platform. It can draw on its knowledge of the target business and processes. Also, because it can bring more financial and marketing muscle to bear, it is not under the same degree of time-to-market pressure as a start-up.

Based on our experience, a start-up company should usually plan on successive versions of the application, each new version being more sophisticated and stronger than the one it succeeds. The first version is probably best implemented with all the core functionality in place, but slim in terms of the sophistication and customization capabilities that it offers. It will serve to prove the concept on which the business is based, and can be limited in the volume of transactions it can handle. This version lets the business gain traction and start generating revenues. The start-up can then build the second version based on the knowledge gained in the process of operating the first version. This version will be able to handle large volumes of data and large numbers of users, and will be able to interface with a larger variety of surrounding systems. The first version can then be thrown away. This strategy has been adopted successfully by several start-ups. For example, SkillBay, a B2B marketplace for buying and selling professional services such as IT and engineering skills, was launched on an inexpensive server running an application developed with Allaire's ColdFusion development environment. SkillBay could provide an almost-complete service that was developed very quickly and needed limited resources to launch, but still handles the relatively small number of transactions and users very effectively.

Exchanges built to serve established businesses have a different set of requirements. They generally have a strong need for integra-

“...a more scalable development environment such as Java ...can inherently be scaled to handle considerably larger transaction volumes.”

tion with legacy systems and must be capable of handling higher traffic volumes. As a compensating factor, more funding is generally available for development. In this case, it makes sense to use a more scalable development environment such as Java that can inherently be scaled to handle considerably larger transaction volumes. Such an environment also typically provides many more options in terms of integration tools; this makes it a better choice for a company with many legacy systems that must communicate with the exchange.

An alternative to developing a custom application involves buying and customizing a packaged exchange such as those provided by Commerce One and Ariba. The advantage of this approach is that you begin with, in most cases, considerable built-in functionality as well as a platform that has already been proven in operation and can be easily evaluated. While the packaged approach appears to offer cost and time-to-market advantages, a limiting factor in their use is that most every organization has peculiarities in its business process that are critical to its success. The result is that packaged solutions typically require a considerable amount of customization in order to optimize their performance. For example, ForestExpress, owned by a consortium of leading companies in the forest products business such as Georgia-Pacific and Weyerhaeuser, is based on the Commerce One B2B exchange platform and was customized by Syntel.

3.

INTEGRATION WITH LEGACY SYSTEMS

The ideal business model for exchanges is to accept orders and have the information immediately transmitted throughout their own and their suppliers' organizations. The basic idea is that everyone immediately knows what they have to do to fulfill the order, reducing the risk of errors and wasting little time in communication. But this is easier said than done. Typically, the order must pass through a multitude of disconnected systems, such as order entry, inventory, production, purchasing, invoicing, shipping and financial accounting. The challenge is communicating with these legacy applications, many of which are running on mainframes or midrange computers. They may have been developed decades ago and have been continually refined and upgraded over the years. A number of technical solutions exist to address these challenges.

A good example is the new generation of enterprise application integration (EAI) solutions that create a middle tier layer between the legacy application and the user interface. This layer makes it possible to link multiple e-business and legacy systems allowing a sharing of information without changing the participating applications or data. While solutions of this type help make large e-business applications





manageable, tremendous technical challenges remain. These include upgrading legacy systems, developing new Web applications and integrating everything so it works seamlessly together. Since these applications typically involve a wide range of technologies, including both leading edge and legacy systems, they require a wide range of skills. One critical requirement is for strong architectural capabilities in order to develop a coherent strategy for making all of the different pieces mesh together. Another major need is for strong development experience in both legacy and leading edge technologies which are involved in the great majority of applications.

4.

SECURITY CONSIDERATIONS

B2B exchanges implement a large volume of high-value transactions. This aspect requires that security be provided at several levels. First, a B2B exchange requires a sophisticated system of access control. Only those users who have been registered with the application should be able to access the operating part of it. A user must identify himself / herself to the application by supplying a correct name-password combination. In addition, the application must be built in such a way that only a limited number of all identified users can access sensitive functionality such as approving large purchases or initiating money transfers. Small start-ups can design their own security processes. Larger setups must, however, deploy stronger and more sophisticated security processes that integrate access control across an entire organization. Typical tools that such setups would use include LDAP (Lightweight Directory Access Protocol) and ADS (Active Directory Structure). These setups must also interface

with existing processes and tools such as main-frame-based RACF (Resource Access Control Facility).

Business data traveling over a public network such as the Internet can be intercepted on the way. To secure the data against such theft, it is coded before transmission and decoded when received. The encryption / decryption is implemented with public key systems in which each party has a pair of related keys—a public key that is published to all partners and a private key that is kept secret. The public and private keys are mathematically related to each other in such a way that computing the private key from the public key requires so much computing power as to make it impossible for all practical purposes. One approach is to establish a secure communications channel by using one of several protocols such as secure sockets layer (SSL) that operate as a layer above the standard Internet TCP protocol. Another approach to ensuring the privacy of communications, which can be used in place of or in combination with a secure protocol, involves transmitting a message in a secure form so that it cannot be opened or read by another party. Public key infrastructures (PKIs) provide the supporting services that are needed when public-key-based technologies are used on a large scale. A PKI deployment might typically consist of a certificate authority that creates the certificates and a certificate repository to provide distributed access to certificates.

5.

AN INNOVATIVE EXAMPLE

An example of an innovative e-business exchange initiative is TexYard.com, the online sourcing solution for the European apparel industry. TexYard.com brings buyers and suppli-

ers together in a neutral trading environment to make the process of apparel sourcing easier, faster, and more efficient. Buyers can put their complete sourcing process online to lower their administrative costs, obtain the best possible price, and accelerate the time-to-market. Buyers can also use a comprehensive database to find, investigate, and start working with new suppliers from around the world. They can gain access to major European retailers, expand their customer base, and increase their business opportunities. They can market their services and products, and lower their cost of doing business. Accommodating both forward and reverse auctions, the exchange allows buyers to define full details of an upcoming production contract—from technical specifications and quality measures, through to shipping and delivery instructions and get bids on these contracts. The time spent communicating requests, comparing quotes, and negotiating prices is drastically reduced.

The team that developed TexYard.com used Cold Fusion with an Oracle database to develop the application. This application is believed to provide the most sophisticated Request for Quotation (RFQ) process ever created by a trading exchange. It was needed to account for the many complexities involved in purchasing textiles. The project was managed and developed by a global team in five locations with 35 members including a project manager, six business and systems analysts, two XML developers, 25 application programmers, one test professional, and one production support professional. This arrangement allowed for an around-the-clock project schedule that dramatically reduced time to value. The developers in India handed off the code for testing at the end of their day and, by the time they came in the next morning, the testing group had a new set

of issues for them to address. As a result, the exchange was released to market early with relatively low development costs. It has been successful in attracting customers and suppliers and recently obtained a new round of financing.

What is the future of B2B exchanges? Our opinion is that Jack Welch was right when he was quoted to the effect that in the next five years we won't be using the term e-business because all business will be e-business. We foresee an environment in which buyers and sellers are interconnected by exchanges that provide instantaneous information to decision-makers in enterprises as well as consumers. Consider the potential impact on the economy. Most recessions are caused by inventory buildups that in turn are caused by lack of information about the intentions of purchasers as well as the time lag involved in passing information up and down the decision supply. In a surprisingly short period of time, we will begin to witness the emergence of the real time organization in which every bit of information, from time cards to financial statements, is updated in real time. The benefits will be enormous, as will be the competitive advantages that accrue to the companies that are first to put them into effect.

All in all, B2B exchanges have the potential to radically reduce buyers' costs and allow sellers to reach out to new customers. Yet, the failure of many first-generation exchanges has caused many buyers and seller to sit on the sidelines and wait for the dust to settle. This article has provided guidelines on what works and what doesn't based on experience gained in producing many successful first-generation sites. If you are considering development of a B2B exchange, move thoughtfully but confidently forward.





about SYNTEL:

about the authors

Ken Kenjale

Ken Kenjale, *Chief Technology Officer* of Syntel, has over 20 years of experience with the software services industry. Mr. Kenjale is responsible for providing Syntel's clients with high-quality IT solutions. He has innovated techniques for taking an engineering approach to simultaneous quality and cost management of systems functions. Mr. Kenjale has served as a quality consultant to large MIS organizations, and has helped Syntel grow into several lines of business since joining the Company in 1988. He holds a master's degree and a bachelor's degree in computer science.

Ken Kenjale
Chief Technology Officer
Syntel

Arnie Phatak

Arnie Phatak joined Syntel in August 1996 and is currently the Director of Research and Development. He has more than twenty years of experience in software development and technologies with expertise in applications architecture. He is responsible for exploring and developing methodologies and tools, and identifying technological opportunities for Syntel. He has made significant contributions to developing Syntel's advanced technology practices.

Arnie Phatak
Director of Research
and Development
Syntel

Syntel is a global Applications Outsourcing and e-Business company that delivers real-world technology solutions to Global 2000 corporations. Founded in 1980, Syntel's portfolio of services includes complex application development, management, product engineering, and enterprise application integration services, as well as e-Business development and integration, wireless solutions, data warehousing, CRM, and ERP.

We maximize outsourcing investments through an onsite/off-shore Global Delivery Service, increasing the efficiency of how complex IT projects are delivered. Syntel's global approach also makes a significant and positive impact on speed-to-market, budgets, and quality. We deploy a custom delivery model that is a seamless extension of your IT organization to fit your business goals and a proprietary knowledge transfer methodology to guarantee knowledge continuity.

SYNTEL

525 E. Big Beaver, Suite 300
Troy, MI 48083
phone 248.619.3503
info@syntelinc.com



visit Syntel's web site at www.syntelinc.com

SYNTEL
Consider IT Done®