

The Future of Exchanges

White Paper

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Introduction

There's a lot of concentration today in the business-to-business (B2B) electronic marketplace on exchanges. Each week brings announcements of the establishment of even more exchanges. Obviously there's a trend going on. But where will it end? Will there be tens of thousands of exchanges in the future, or dozens? This paper takes a look at a likely outcome of business's move to the Internet and the ongoing eBusiness revolution.

Background

First, let's understand what an exchange is. The term is used quite loosely in the marketplace to refer to everything from online catalogs and stores, to true bid and ask exchanges, to electronically-enabled private supply chains.

For our purposes, there are three types of exchanges in existence today:

- Public Exchange
- Captive Exchange
- Private Exchange

A **Public Exchange** (also known as an Independent Trading Exchange) is an independent marketplace that is not majority-owned or influenced by a single industry participant. It may have agreements with industry players that a certain percentage or volume of their procurement will be routed through the exchange. In general, such exchanges need to attract 20 to 30 percent of the purchasing volume in an industry to survive. An example of a successful Public Exchange is Altra Energy, which was recently chosen the best Public Exchange by AMR Research. More than 6,000 users buy and sell energy using Altra. In general, barriers to entry are low in a Public Exchange.

A **Captive Exchange** is a marketplace that is majority-owned by one or more industry participants. The industry players either contract to have the marketplace built by third parties, or attempt to do it themselves. Covisint, the auto exchange formed by General Motors, Ford, and DaimlerChrysler, is an example of a Captive Exchange. Covisint will be established as an independent company owned by the Big Three and Renault/Nissan. Recently, auto parts supplier Delphi joined the exchange. In a Captive Exchange, suppliers often have no alternative but to join or lose business. There may be high barriers to entry, for example, in an invitation-only exchange.

A **Private Exchange** can be thought of either as a grown up extranet or as an extension of a company's supply chain. The marketplace is controlled by a single company, usually a purchaser, and the company attempts to run a substantial amount of its procurement through the exchange. The number of Private Exchanges already in place or under construction dwarfs the number of public marketplaces, according to GartnerGroup, which estimates there may be as many as 30,000 private exchanges in various stages of development. In contrast, the number of Public or Captive Exchanges now in existence is estimated to be around 600. Membership in a Private Exchange is by invitation only, and generally only a company's existing trading partners are invited.

Exchanges of all types facilitate the buying and selling of either MRO (Maintenance, Repair, and Operations) items or direct (inputs to manufacturing processes) materials. Most exchanges that operate in the B2B market focus on MRO items because of the relative ease of automating this type of procurement. Since direct materials are usually either commodities or are highly customized, this segment has developed more slowly.

Exchanges use several methods to take the friction out of procurement:

- Hosted Catalogs
- Auctions (including reverse auctions)
- RFP/RFQ
- Bid/Ask Exchanges

Hosted Catalogs, like Grainger.com, feature fixed price procurement. A purchasing agent visits the site, searches the catalog, and selects items, usually using a market basket methodology. Payment is frequently via credit card, but may involve PO's or trade credit relationships. A sophisticated catalog site will have the ability to display different prices to different users, based on negotiated contracts. Catalog aggregators make it easier on purchasing agents by bringing together several suppliers' catalogs into one site. Purchasers may even set up their own catalogs on their own Web sites for the ultimate in customization.

Auctions, such as TekSell.com, typically feature at least the so-called English auction. In an English auction, the price rises as multiple buyers top each others' bids. Other auction types include Dutch, which can have multiple winners, and reverse, where a purchaser asks suppliers to bid on providing a particular item. In Dutch auctions, prices typically rise much like an English auction. In reverse auctions, the price typically falls as vendors compete with one another to win the right to supply the item.

RFP/RFQ (Request For Proposal or Request for Quotation) methodologies, such as SupplierMarket.com, allow purchasers to publish a request for goods or services and receive bids. This method is similar to a reverse auction, and prices tend to fall as a result of competition. But RFP/RFQ services are typically used for non-commodity items with some kind of customized component.

Bid/Ask Exchanges, such as the National Transportation Exchange, are what we generally think of when we think of exchanges. Like the stock markets, there are multiple buyers and multiple sellers. Typically what is bought and sold is a commodity, such as stocks, grains, energy, or excess truck capacity. Prices rise and fall with supply and demand.

Many exchanges offer multiple purchasing methodologies, and most offer other services, such as news, job boards, and discussion groups.

Regardless of the type or methodology, exchanges are going to be big business. Industry analyst the Delphi Group found in a survey that 90 percent of the Fortune 1000 plans on joining a trading community by the end of 2001.

The Future of Exchanges

The various industry analysts mostly paint a rosy future for Internet exchanges:

- Analysts predict 2,000 to 10,000 online marketplaces by the end of 2003
- GartnerGroup estimates \$7.3 trillion in global corporate spending via exchanges in 2004, up from \$145 billion last year
- Forrester predicts trade via real-time models will reach \$746 billion in 2004
- Yankee Group says marketplace transactions will total \$850 billion by 2004
- Morgan Stanley Dean Witter estimates 5 percent of corporate goods will be obtained through auction by 2003

Despite this optimism, there are some false notes. For example, AMR Research predicts that the more than 600 Exchanges today will be reduced to 50-100 in 2001. Other analysts also predict a future consolidation of the burgeoning exchange market, with some, like Morgan Stanley Dean Witter's Mary Meeker, asserting that only one or two exchanges per industry will survive.

But GartnerGroup makes an even more chilling prediction: By 2005, "the entire supply chain between suppliers and buyers will be automated." To understand the effect of this prediction, we must first examine why public exchanges are proliferating today.

Why an Exchange?

Why are exchanges popping up all over the B2B landscape? And why are so many of them public or independent exchanges?

One reason has been the slowness of bricks and mortar (BAM) businesses to embrace the Internet. This is a classic scenario that was played out in the Amazon/Barnes & Noble drama in the business-to-consumer (B2C) arena. When Amazon launched back in July 1995, very few BAMs were thinking about the potential of the Internet to challenge their business models. Amazon provided a compelling shopping proposition for book lovers: They launched with a million titles, took credit cards securely, and shipped the product quickly, all from the comfort of your keyboard. It was years before B&N took notice, and longer before they countered. By that time, Amazon had seized the technological high ground and established a brand and a loyal franchise.

This same scenario is playing out in countless B2B industries today. One main difference is, the timeframe is very much compressed. Another difference is, many of the B2B BAMs have learned the lesson, and refuse to be Amazoned.

A case in point is ANX, the Automotive Network eXchange. It launched well in advance of the current Covisint, and had the same ambition: to connect the supply chains of the automakers with their suppliers. Before it could make much headway, however, the Big 3 weighed in with their separate exchange plans, and then with the Covisint joint venture. ANX needed to recast its business plan as a supplier of connectivity, and to work with the new venture.

It can be argued that the current exchange marketplace is the result of a lot of wired companies who "got it" and raced to beat the BAMs into the marketplace with exchanges. These innovators had the advantage of time, technical savvy, and nimbleness. The BAMs, like Sears and Carrefour with their GlobalNet Exchange and Kroger, Target, and Kmart with their Worldwide Retail Exchange, are roaring back, however. And it remains to be seen if a public exchange can survive a challenge from one or more industry BAMs.

Nonetheless, many of these combatants may be missing the point. Yes, exchanges are about procurement, but there's more to B2B than procurement.

It's the Supply Chain, Stupid!

At bottom, exchanges are really about the supply chain. Using Internet technology, they attempt to remove the friction from the myriad dealings between buyers and suppliers.

Some of these interactions pertain to commodity goods such as oil or personal computers. The value proposition of an exchange in this scenario is straightforward: Increase the efficiency of the marketplace by getting the best price for the purchaser. Relationships are less important in this type of transaction, and there tend to be low switching costs, or, importantly, low barriers to entry for either vendors or exchanges.

But what about the supply chain for direct materials, the goods and services that form an enterprise's main business? In the old business world, relationships were paramount in this arena.

Participation in a supply chain was generally based on long-term relationships. You have lunch, play golf, and then build up trust through a series of successful transactions. The switching costs in the old world were generally enormous. You need to build an entirely new relationship. You need to establish trust in a new partner. It all takes time.

Relationships and the Goals of Exchanges

Today, it is safe to assume that, on the whole, most businesses are generally satisfied with their vendors. In the BAM world, most businesses have probably been working with their suppliers for years. And most are probably satisfied with the way they acquire new vendors.

On the other hand, it is safe to assume that most vendors would love to form relationships with more customers.

Thus, buyers and sellers have fundamentally different goals: the buyer seeks efficient, low-risk relationships; the seller seeks efficient prospecting for opportunities. These goals will inevitably align with the goals of the various types of exchanges:

- Public Exchange – many-to-many – liquidity and transparency
- Captive Exchange – few-to-many – price efficiency
- Private Exchange – one-to-many – supply chain efficiency, including optimum price and high reliability

Today, then, vendors would seem to have more interest in participating in a public exchange that could help them connect with more customers. Buyers of commodities may prefer public exchanges due to the liquidity (the availability of product on immediate terms).

When dealing with direct materials, however, buyers are more interested in streamlining their interactions with suppliers. They want to drive costs out of their supply chain. They are not generally as interested in making the market more efficient. While buyers may participate in captive exchanges for competitive reasons or to exert price pressure, a buyer's supply chain is inherently a one-to-many marketplace, whereas an exchange is typically many-to-many.

So suppliers' goals are aligned with public and, to a lesser degree, captive exchanges, while buyers' goals are aligned with private exchanges.

For this reason, we predict that by the end of the decade, most enterprises will have developed private exchanges to automate and facilitate their private supply chains. The number of public exchanges will stabilize around the middle of the decade and will decrease from there through attrition and consolidation until there are relatively few public exchanges, primarily based around commodities.

The Supply Chain Evolution

The Internet compresses business time. This is evident in the way our attitudes have changed about basic things such as obtaining business news. In the old world, news came daily in the newspaper, TV, or radio, for the most part hours after the fact; weekly via industry newsletters, generally days after the fact; monthly or quarterly via magazines, generally months after the fact; or through word of mouth. Today news comes by the minute, live, online. When you read about it the next day in the newspaper, it seems old. In the future, news will find you wherever you are via wireless technology.

The Internet is similarly compressing business decision time, and this includes the decision process regarding trading partners. And the major reason for this is the availability of information. Most of the effects of the Internet can be boiled down to the fact that it has sped up the transmission, dissemination, and thus availability of information. These attributes are revolutionizing trade partner relationships and are accelerating, we believe, the transformation of supply chains into private exchanges.

The current extranets, where companies invite their partners to interact in a private secure environment, are evolving into full-fledged private marketplaces.

Much attention has been devoted to how faster, wider, and more available information has created tremendous efficiency within supply chains. Many analysts focus in on the removal of friction in the procurement process, and this is undoubtedly an important potential savings for business. According to Zona Research, "Reengineering procurement processes to generate benefits often has an almost 1-to-1 impact on the bottom line." Small wonder that procurement, especially of commodities, has received such attention.

However, there are aspects to B2B e-commerce and to the supply chain beyond straight procurement. When you think of all the interactions that go on between two trading partners, the actual placing and fulfillment of standard orders with existing trading partners may be the least important.

Increased Collaboration

Take, for example, the creation of a complex new product – a rocket engine, for example. To facilitate the creation of new products, Boeing set up a private exchange for its Rocketdyne division. The exchange was designed to enable collaborative product development with suppliers and customers. Using the exchange, project members¹:

- Designed a product that cost 30% of its predecessor
- Reduced manufacturing cycle time by 63%, from two years to nine months
- Cut development cycle time by 50%, from two years to one
- Improved product quality, reducing number of parts from 140 to five
- Created a knowledge repository for re-use on subsequent projects

This type of private exchange enabled unprecedented collaboration between the manufacturer, its suppliers, and its customers. Such a process could not have been accomplished on a public exchange; there's too much proprietary information involved. The secure collaborative facilities of a private exchange are what is required.

Rapid Re-Sourcing

Finding new sources for key direct goods may be necessary for many reasons: a supplier is late or can't handle the capacity, a vendor is not performing adequately, or competitive pressures require supplier replacement due to cost. In situations where there is only a single source for a part can make efficiency in finding a new supplier a critical business need. For example, a project manager for an aerospace company told us that a key part for an important system was supplied by a man who literally worked out of his garage. He was getting on in years, and was making noises about retiring. The project manager was worried about replacing this trading partner because, as far as he knew, there was no one else in the world who knew how to make this complicated part.

Finding a viable replacement vendor via a public exchange in situations like this might not be possible due to the confidential nature of the specifications or other intellectual property. How can you find a new supplier without yielding competitive advantage? You must first develop fairly extensive intelligence on the capabilities of candidate vendors. In the old world, this could be a very lengthy process, involving search firms, finder's fees, and credential evaluation.

In the future, online, exchange-enabled versions of third party business information sources such as Dun & Bradstreet and especially Société Générale de Surveillance (SGS) will be critical. Founded in 1878, SGS is the largest verification, testing and certification organization in the world. They have a global network of personnel that can make on-site visits to remote trading partners' facilities and assess their ability to deliver as promised. SGS, seeing the increased need for their services in the online exchange world, has created a San Francisco-based operating unit called SGS OnSite. This brings SGS's capabilities for rating vendors, verifying product specifications, drawing and preparing samples and carrying out pre-shipment inspections into the online world. They assign confidence scores to vendors based on historical and ongoing performance.

Why is this sort of development so significant? In the old world, there were high switching costs for changing vendors as well as a lengthy timeline for due diligence. Availability of vendor verification and credentialing services to online exchanges will dramatically lower switching costs, allowing the quicker establishment of new vendor relationships.

As the decade progresses, we will see much less resistance to vendor switching. Using private exchanges, companies will be able to attract, locate, partner with, and collaborate with new trading partners to a degree we cannot presently imagine. This is not a particularly far-fetched prediction. A real world company has already been built around these concepts: Dell Computer. By focusing on commodity parts, scrupulously bargaining for the lowest cost, and building machines just in time, Dell developed a ruthlessly efficient production strategy that ensured their price leadership and resiliency.

Retailer Balance of Power

A final trend that will drive the ascendance of private exchanges can be found in the consumer retail industry, particularly the grocery retail business.

For years grocery stores have strived to manage their inventory and replenishment utilizing the data derived from their laser scanning checkout counters. A movement called Efficient Consumer Response (ECR) aimed for the nirvana where the entire supply chain was optimized. In the ideal, when a consumer purchase caused shelf inventory to drop, the whole supply chain responded to ensure no out-of-stocks (you're losing sales!) and no excess inventory (you're adding costs!). If a store sold a case of canned corn, a case was ordered from the warehouse, which ordered it from the manufacturer, all automatically.

ECR was difficult to implement, and grocery chains had varying degrees of success with the concept. Now there is a trend building that promises to transform the relationship between the manufacturer and the retailer forever. It's called Scan Based Trading (SBT).

In Scan Based Trading, retailers pay for inventory only after it has been purchased by a customer and scanned at the cash register.

This is a fundamental change in the way grocery retail works, and there is little doubt it will affect other industries as well. Brokerage firm Donaldson, Lufkin, and Jenrette said, "We believe that the next wave in supply chain management or B2B is about to be rolled out. We expect the next wave to reduce retailers net investment in inventory to near zero, pull inventory out of the channel reducing markdown pressures and transaction costs, and substantially reduce out of stocks." When SBT is fully implemented, inventory in the channel can decline by up to 75% implying reduced handling costs and reduced markdowns.

DLJ predicts that more than 5% of costs will be pulled out of the supply chain channel over the next five years and retailers, suppliers and consumers will share the savings.

The impact of this efficiency? Retailers will finance their inventory with payables. Vendors will benefit from better information flow from the retail store, which helps them better plan inventory.

The SBT trend, combined with a new initiative out of MIT, will utterly transform not only the retail environment, but also the entire supply chain.

MIT's Auto-ID project has attracted Sun, Procter & Gamble, Gillette, International Paper and the Uniform Code Council. The first goal of the project is to place unique electromagnetic identification on each individual manufactured product. This, together with short-range wireless scanning technology, could replace the current UPC or bar codes. The technology can enable a machine to identify a product and access crucial information about it such as when and where a product was made, from where it was shipped, and how it should be handled, prepared and safely used.

The result will be products that can talk to the devices in your home -- like a frozen dinner that tells the microwave how to cook it, or medicine that tells the medicine cabinet to reorder. That's great for consumers, but the implications of this added intelligence to the supply chain are even larger. Products can be tracked and managed throughout their life cycle. Inventory will take significantly less time to complete. There will never again be any question of where a product is in the supply chain. And all this additional data will be managed by trading partners within private exchanges.

The adoption of SBT and intelligent product tracking virtually requires the establishment of a private exchange. These are some of the components of the ultimate automated supply chain, and they're in development today.

Conclusion

We predict that the currently burgeoning public exchange trend will result in an Exchange Crunch within the next two years. Concurrent with that, private exchanges comprised of extranets, catalogs, collaboration spaces, and automated supply chains, will become the force that transforms unwired businesses into eBusinesses. VirtualFund's B2BXchange unit, with its extranet capabilities, collaboration environments, and dynamic pricing tools such as auctions, will be well positioned to service the needs of evolving eBusinesses as they streamline their supply chains.

ⁱ Presentation at Delphi eBusiness Summit, May 7-10, 2000, "Unleashing Economic Efficiency Inside e-Business," Frank J. Bernhard, Managing Principal, Supply Chain and Telecommunications Portfolio, Omni Consulting Group, LLP