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The Architecture of Web-Based Procurement

Objective

Web-based procurement has developed rapidly into several major models, each of which has its relative strengths and weaknesses:

- Corporate e-procurement systems usually have either a buy- or a sell-side focus and provide central procurement and desktop requisitioning ability.
- Electronic catalogs can be managed by suppliers, buyers, or third parties.
- The development of the independent, Internet-based portal has meant the movement away from the one-to-many model of e-procurement.
- Electronic trading communities can focus on vertical and/or horizontal industry markets.
- The need for broader supply chain and procurement services has meant the rapid rise of many ASPs and other third-party support organizations.

Although a few industry watchers were quick to assume that there would be a continuous

Which model is best for your organization? Is it one, or is it a mixture of several?

and inevitable move away from the one-to-many model of e-procurement, the complexity of purchasing materials globally, the different approaches that ORM, MRO, and direct materials purchasing demand, and concerns over security and partnership reliability have all combined to sustain a good deal of interest in the company-sponsored model. Alternatively, particularly for the more straightforward purchasing of ORM materials, impersonal many-to-many model auctions and exchanges provide small and medium-sized companies with an opportunity to forgo complex and costly negotiations with individual vendors, and to use an online exchange, for a subscription fee, to buy goods at bid-down prices.

SELL-SIDE ONE-TO-MANY: THE STOREFRONT MODEL OR SHOPPING MALL

In order to begin to develop a company strategy for this fast-evolving marketplace, it is important to first understand the nuances of the leading models. They take several forms.

First, they have either a *buy-side* focus (designed predominantly to serve the needs of the buying organization) or a *sell-side* focus (sponsored by and most beneficial to suppliers). They are then divided according to whether they have a one-to-many focus or a many-to-many focus. For each of these combinations, there are then several variations in approach. To begin, let's start with the most basic one-to-many model.

In the sell-side one-to-many model (shown in Figure 6.1), sellers create their own Internet sites that allow any number of buyers to browse and purchase their products

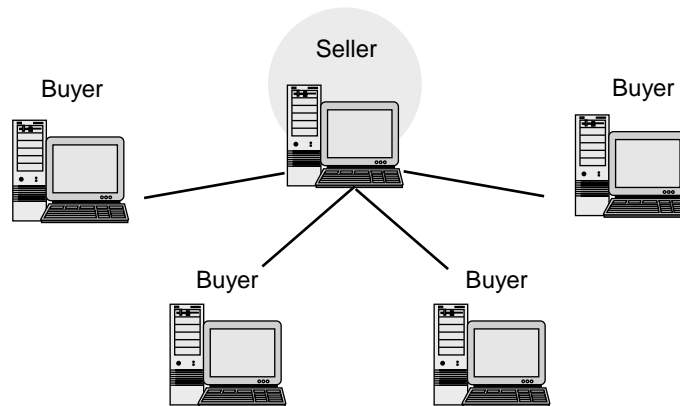


Figure 6.1 Sell-side one-to-many model.

online, with real-time, contract-specific buying. The responsibility for creating and maintaining the catalogs lies with the sellers, and they use an open Web site, or portal, on the Internet to promote what is essentially an online store for their products. Increasingly, they also make their catalogs available to intermediaries (e-markets) either through Internet links or through actual contracts for listing as “preferred suppliers”. These e-markets, which we will discuss in a moment, then provide specialized online focus to particular horizontal and vertical industry markets. In many ways, this model is more e-commerce than e-procurement (a method for selling rather than purchasing), except these *storefront* or *shopping mall* portals now provide significant opportunity for buyers to purchase goods online from all over the world.

The obvious advantage for sellers is that they can create and maintain their own catalogs. The disadvantage to the system is that, because the storefront is a common portal, it has in the past been very difficult to integrate well with the buyers’ back-end financial systems. This makes life very difficult for the buyers, because nothing is automated from their point of view—they still have to locate the supplier’s Web site, log on, and enter orders manually through the catalog Web forms, which, simply because of volume, do not normally retain the buyer’s template or company purchasing information. Each buyer must therefore rekey all the relevant profile information—company name, address, telephone numbers, account codes—each time. Obviously, for a company with hundreds of sup-

pliers, this means visiting hundreds of Web sites and continuously rekeying information. To make matters more difficult, the buyer then has to simultaneously update his or her own internal ERP system. Although this approach has obvious advantages over the pure paper-based catalog, it is not, by any practical definition, e-procurement, and for companies with more than a few suppliers (imagine doing this with 50,000 suppliers), the approach hardly seems viable.

As these e-markets have become more popular, however, significant progress has been made—using new XML-based standards (see Chapter 7)—toward making it possible for buyers' ERP systems to accept some types of straightforward documents, such as purchase orders or receipts. But because the procurement process involves many other types of interaction—discounts, contract terms, buying, shipping and receiving arrangements—until greater levels of interoperability are available and more consistent communications protocol standards are agreed upon, much of the process will remain little more than an electronically enhanced paper-based system.

Many would also argue that although this type of Internet-based procurement makes it easier for employees to buy ORM materials, that same ease of use could easily invite abuse, with employees circumventing company purchasing policies and freely purchasing from any online vendor. At a time when maverick buying is seen as an area of cost concern, this type of setup seems only really appropriate for small buyers and one-off purchases.

BUY-SIDE ONE-TO-MANY MODEL

In the buy-side one-to-many model (shown in Figure 6.2), the buyer maintains in-house the catalogs and databases of multiple suppliers' goods and services, and is responsible for tying all transactions into the company's purchasing and financial systems. Although the vendors (sellers) provide catalogue information on products, services, prices, availability, and so on, the buyer, as host, is responsible for keeping that information up to date. Most systems will then tie the purchase order to an electronic invoice, providing for simultaneous settlement through electronic funds transfer, and through the ERP system, will automate the workflow and approval processes. All of this is integrated into the desktop-based requisition system.

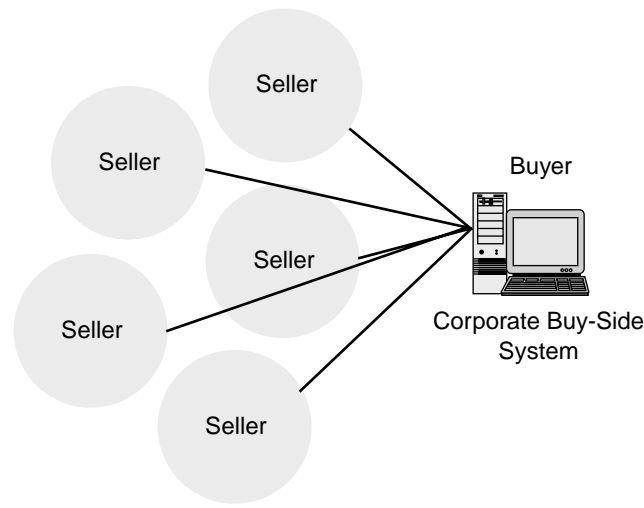


Figure 6.2 Buy-side one-to-many model.

It has the advantage of ease of use, and because many of the large ERP vendors are adding this functionality to their product suites, can theoretically provide easier and closer ties to internal ERP systems.

The obvious advantages of the buyer-managed arrangement are that it allows the purchasing department to control the products and services available on the catalogs and can tie systems—such as procurement cards—directly to employees, setting quantity limits, pricing ceilings, and other criteria. This has been, until recently, the favored model when attempting to bring the self-service desktop model to employees.

The buyer-managed model requires, by its nature, a good deal of buyer-vendor negotiation and collaboration, because the buyer has taken on the responsibility for maintaining current descriptions of products, availability, lead times for delivery, and prices. In fact, despite the current popularity of the online exchanges and subscription-based third-party e-markets, this buyer-managed model still has many proponents. It is a model that has worked well in the past for very large customers and for groups of customers and suppliers that have a long-term relationship or a natural affinity to a certain buyer-seller market.

Within this buy-side model, there are two different areas of focus: buy-side desktop requisitioning and buy-side Internet-based central procurement.

Buy-Side Desktop Requisitioning

This set of software resides both on a company's intranet and on users' desktop PCs, and allows employees to purchase items directly from their desks using preapproved catalogs. Although employees are given the freedom to purchase goods when they need them, managerial control remains with purchasing professionals, and there is a full audit trail. Guidelines, discounts, prices, contracts, and approval levels are controlled by procurement management.

A typical example is Visio, a developer of engineering and drawing software, who selected Concur Procurement, Concur Technologies' Internet-based desktop requisitioning software, as the platform for an indirect materials e-procurement initiative. The system provides employees with the ability to order materials and track their delivery directly from their desktop PCs, with an electronic approval tree and well-defined order limits. Visio reports that it saved some \$500,000 in the first year, with an ROI of less than four months.

Supporters of these desktop requisitioning systems cite the value of "off-loading" the purchase of day-to-day indirect ORM items from busy specialists in the purchasing department, and claim that desktop requisitioning greatly reduces maverick buying, forcing employees to purchase indirect goods using prearranged purchase agreements, and providing for a much more accurate record and audit trail of indirect spending.

Buy-Side Central Procurement

Increasingly powerful in terms of their performance measurement and decision support capabilities, the major buy-side applications allow purchasing professionals (central purchasing) to set parameters, develop contracts, analyze supplier performance, measure transaction costs, and understand total *true cost* of procurement. Although intended for indirect purchasing, increasingly, buy-side applications are being adapted for bulk or standardized purchase of direct goods.

The greatest drawback to these buyer-managed systems (excluding those who outsource to ASPs) remains the laborious task of catalog and system maintenance. Buyer-managed catalogs allow you to store catalog data on your own premises, with electronic updates periodically sent across the Internet by the supplier. But there is significant effort required in the initial aggregation and rationalization process. In fact, the process is ongoing, and because many large firms deal with hundreds or even thousands of suppliers in different countries, there may be thousands of items that each have multiple

specifications. Different suppliers have different terms for similar products, and various suppliers will provide images in different formats, with inconsistent product ID numbers. Accordingly, for those companies who don't necessarily see catalog and systems maintenance as a core competency, outsourcing of these tasks seems an appealing option.

It is also possible, of course, to outsource the design and maintenance of product catalogs to teams of information engineers who can organize and standardize your product catalogs for you. Companies such as Requisite Technology provide both a service and a software suite (which includes a powerful data search engine) that will help standardize the wide variety of product information of multiple suppliers, and includes the ability to scan paper catalogs.

Even if you decide to outsource these content maintenance and aggregation activities, your systems will need to provide for at least three different methods of maintenance access in order to provide for flexibility of policy in the future. The system will need to provide for Web-based maintenance so that suppliers can update their own catalogs, so that you can update the catalogs yourself, or so that you can pay a third party to maintain the catalogs for you. It is important to remember that ASPs vary widely in terms of their support for these catalog maintenance technologies.

INDEPENDENT PORTAL AND ONLINE TRADING COMMUNITIES

It may well be that the development of the independent portal site (shown in Figure 6.3)—where multiple buyers and sellers can meet electronically and transact all types of business through a single point of integration—will be one of the most significant events, both in terms of IT and economic development, since the invention of the microchip. The portal model, a single Web site entry point available to anyone on the Internet, worldwide, allows any participant to log on and transact business for a subscription fee, a transaction charge, or a percentage of exchange fee. Activities include viewing catalogs, placing orders (or bidding, in the case of online auctions), and routing payments.

It is probably not hyperbole to say that seldom in history has so much money and attention been focused so intensively on a single new growth area in the economy (see Figure 6.4). To illustrate the point, consider that in the spring of 1999, there were around 30 ver-

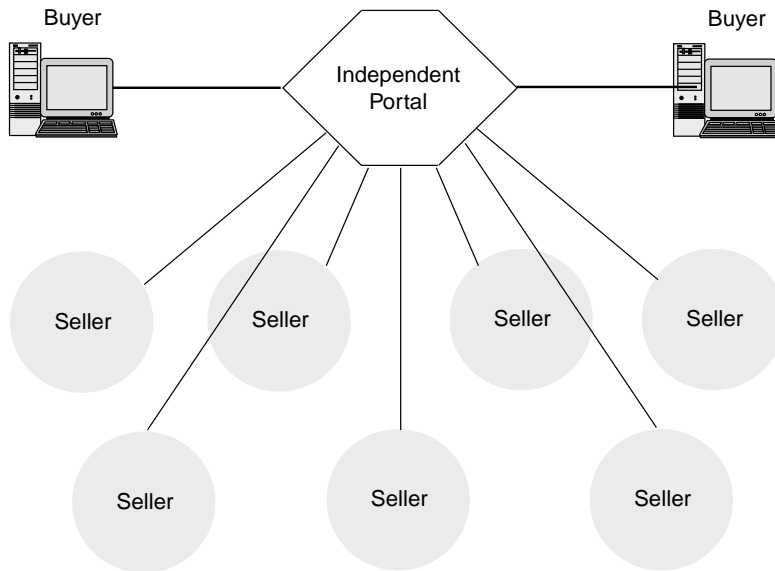


Figure 6.3 Independent portal model.

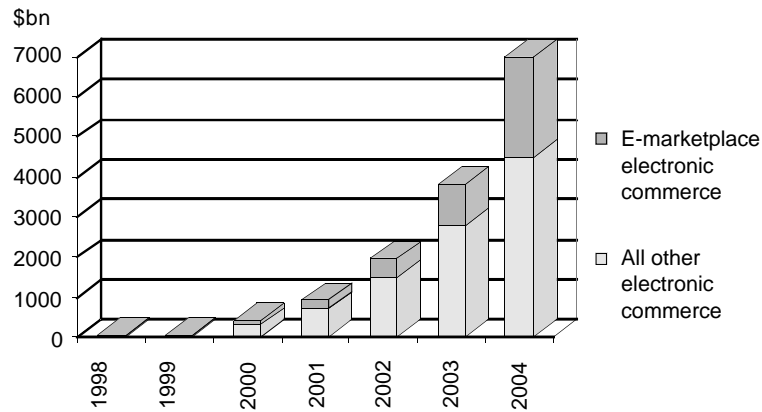


Figure 6.4 B2B e-commerce forecast. (Source: The Gartner Group as printed in "FT-IT Review 2," *The Financial Times*, October 18, 2000.)

tical e-marketplaces online. By the end of 2000, that number was approaching 1,500. There are today representatives from every conceivable support area of procurement and supply chain—software vendors, hardware suppliers, venture capitalists, and industry-leading organizations from vertical industries—that moved quickly to form collaborations with other interested parties in order to sponsor industry-focused electronic trading communities. Some analysts, alarmed at the enormous amount of activity in this area, estimate that there may be as many as 10,000 e-marketplace trading communities by 2003. Volpe Brown Whelan & Co. estimates that e-marketplaces will account for \$35 billion in transactions by 2004.¹

The sponsors for these electronic trading hubs also vary in ambition and levels of service. Taking their inspiration from companies such as Amazon.com and eBay, many exchanges are limited to providing an online many-to-many storefront for multiple buyers and suppliers, usually focused on a single horizontal or vertical industry sector. In truth, in these early days, most e-markets are primarily focused on selling indirect goods often via auctions and a “spot market,” which currently accounts for between 10% and 30% of procurement being carried out over trading hubs today.

VERTICAL E-MARKETS AND MARKETPLACE CREATORS

E-market exchanges and electronic trading communities tend to be focused on either vertical or horizontal markets, so it might be worth looking at the distinction between the two. Vertical market trading communities tend to focus on one particular industry—steel, paper, electricity, paper, chemicals, home loans—and are usually sponsored, or at least supported, by one or several of the leading companies in that area.

There are hundreds of examples of vertical markets. The chemical industry, for example, has shown early leadership in developing online marketplaces, with more than 50 announced e-markets, which range from simple online auctions to complex virtual distributorships that service entire continents. They have an advantage over other vertical industries in that chemicals for the most part adhere to well-accepted international standards in terms of naming, quality, content, and quantities, thereby making online auction-type purchasing—where the buyer may have no personal contact with the seller and

therefore must be certain of exactly what is being purchased—easier. Other vertical industry areas that have rushed to develop e-marketplaces include automotive, energy, high-tech manufacturing and electronics, communications, publishing, metals, aerospace, financial services, healthcare, and many more (see Figure 6.5).

An interesting phenomenon has occurred in this area that has surprised many industry watchers and analysts. A testament to the radical changes that the Internet can bring about, many of these vertical e-market trading communities are now being sponsored jointly and collaboratively by large and powerful industry leaders. Often long-time rivals, these *market creators*, as they have become known, have—by virtue of their industry experience, extensive business connections, and financial clout—quickly risen to critical mass to become the dominant leaders within the vertical industry electronic marketplace.

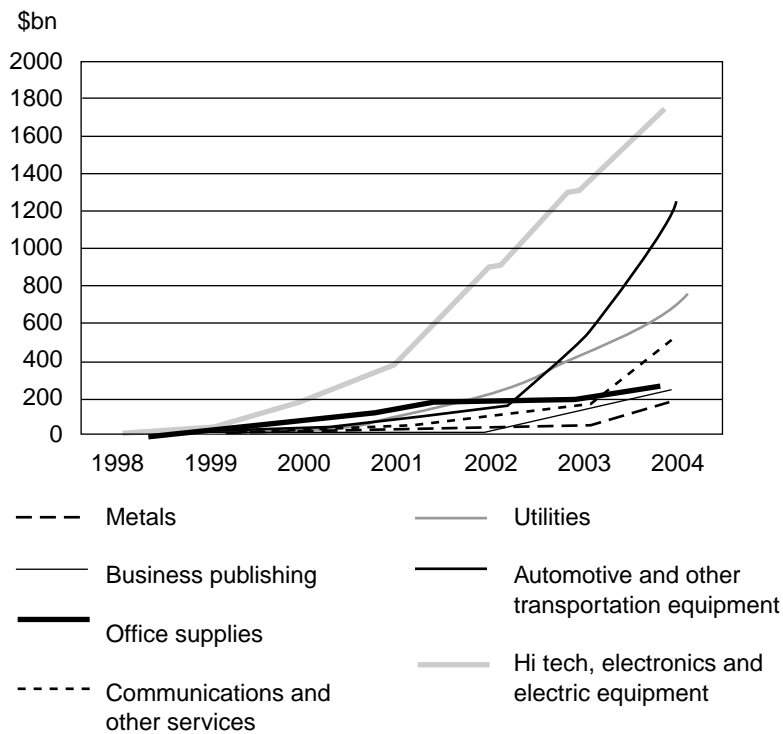


Figure 6.5 B2B e-commerce forecast by industry. (Source: The Gartner Group as printed in “Electronic Trading Is Expected to Surge,” *The Financial Times*, October 18, 2000.)

The Covisint alliance between Ford, General Motors, Daimler-Chrysler, and Renault-Nissan is probably the most famous example. This massively powerful collaboration involves 750,000 tier-three and tier-four suppliers, 50,000 tier two suppliers, and 1,500 tier one suppliers, all tied to 14 vehicle manufacturers. As a reflection of the influence and power of this group, in return for installing the robust and sophisticated procurement platform, Commerce One will be paid not only a good amount of cash, but will also collect a portion of Covisint's gross revenues for 10 years, and get a 2% equity stake in the venture. In return, GM and Ford will share an equity stake in Commerce One worth \$1.23 billion.²

In high-tech manufacturing, a group of 12 important industry leaders, including Hewlett-Packard, Compaq, NEC, Gateway, Hitachi, Samsung, and others, have joined together to form an electronic trading community that will focus on the estimated \$600 billion high-tech components and parts market, and will offer open sourcing, auctions, and supply planning and logistics support.

In chemicals, giants such as British Petroleum, Dow, Shell, BASF, Bayer, and DuPont have formed an online chemical trading community that provides for exchange of virtually any chemical-related item, from broad procurement to key product areas such as plastics and laboratory chemicals. There are announced sites for agrochemicals, bulk chemicals, and custom-made chemicals, for shipping and logistics services, for trade of excess inventory, and for special geographical areas such as China, India, Singapore, and Europe. And although trading volume is still comparatively small, online transactions are growing rapidly, and these exchanges are already beginning to link with other online markets—such as automotive and aerospace—with which they share a large number of customers.

The retail industry has seen a similar scramble among long-time competitors to create consortium-sponsored exchanges. Sears joined up with France's Carrefour and five equity partners to set up Global-NetXchange, and were quickly challenged by the WorldWide Retail Exchange, made up of 11 other prominent international retail firms, including Safeway, Target, Kmart and CVS from the U.S., Tesco and Marks & Spencers from the U.K., and Casino from France. Over 1,000 suppliers have been invited to join in the exchange, and although in real terms trade online is still very small, both groups have announced plans to provide members with services that

include collaborative planning, supply chain, and logistics services. Similarly, giants such as Georgia Pacific, International Paper, and Weyerhaeuser have allied to form an exchange that is focused on the paper industry.

There are also any number of cross-industry alliances developing. DuPont, Cargill and Cenex Harvest are putting together Rooster.com as a vertical exchange to provide seed and equipment to farmers and to help them sell their crops online. Even professional services companies such as PriceWaterhouseCoopers have launched a B2B marketplace consortium that provides an exchange for purchase of ORM goods and services.

These enormously powerful industry coalitions—and there are already more than 60—have essentially overwhelmed the online marketplace industry, driving smaller sites out of business and making viable exchanges pause in their development, waiting to see where the intervention of these large market creators will take their particular industries.

In many ways, these vertical industry e-markets have an advantage over the horizontal or cross-industry trading exchanges, in that the sponsors, as both buyers and (if manufacturers) sellers themselves, will tend to reap a huge benefit from the efficient provision of supplies to their industry. Many industry watchers contend that vertical industry online exchanges, based on their combination of industry knowledge and collaborative organization, don't even need to make a profit in order for all participants to benefit.

In fact, the threat of future antitrust legislation still looms over these large consortium electronic markets. The idea of long-time competitors sharing not only part-ownership in an enterprise, but also sharing pricing and supply information, to many sounds off alarm bells in terms of price fixing bias and antitrust dangers.

HORIZONTAL E-MARKETS

Horizontal trading communities, on the other hand, cut across the boundaries of industries and focus on broad categories of goods—office supplies, furniture, travel services, janitorial help—that are common to large numbers of cross-industry organizations. Horizontal e-markets are often sponsored by e-procurement software groups or leaders in specific areas of these types of indirect goods and service provision. Horizontal exchanges have, at least in the past,

been driven primarily by indirect materials and tend to develop in highly fragmented markets.

W.W. Grainger, the powerful MRO supplies group, provides a perfect example of the horizontal trading community. Their exchange, OrderZone.com, went online in May 1999, and provides a single Web portal that gives customers access to six industry-leading MRO suppliers. The service includes online ordering and invoicing and provides customers with a single point of contact for access to a wide variety of indirect products. Only one registration on this single Web site is necessary to gain access to not only Grainger.com and its MRO catalogs, but to catalogs of other leading indirect suppliers for items such as office and computer supplies, laboratory equipment, and uniforms.

Some would also contend that companies such as Ariba and Commerce One are in fact not only software providers, but horizontal exchanges as well, in that they provide a trading community for a broad spectrum of suppliers of ORM and MRO materials, regardless of vertical industry. For example, Office Depot has aligned with Commerce One's MarketSite to provide an online trading community for their ORM goods in the U.S., the U.K., and Japan. Ariba has purchased SupplierMarket.com, which is an online marketplace for manufacturing materials. The fact that various vertical industry exchanges have begun to use their software and exchange networks means that the lines between vertical and horizontal markets are blurred even farther.

There are a number of variations on this central theme, but basically all of these groups—whether known as trading hubs, exchanges, or e-markets—are focused on creating a global electronic hub based upon their single, industry-focused portal, which will provide seamless integration through the entire supply chain, allowing buyers and suppliers of every size and type, and from any country, to transact all their business through a single electronic marketplace. Supported by a broad mix of hardware, software, communications, and industry specialist companies, they differ significantly—in focus, size, level of service, and market—and range from enormously powerful collaborations between automakers to tiny e-marketplace hubs for buying specialty products, such as motorboat equipment or wine.

W.W. GRAINGER AND BFGOODRICH

In business since 1927, W.W. Grainger, Inc. has a number of Web properties, but Grainger.com is the granddaddy of them all (in terms of sales as well as time on the Net). In 1999, Grainger had \$4.5 billion in sales, with more than \$100 million over the Web, the majority of which was placed through Grainger.com.

More than 560,000 brand name maintenance, repair, and operating (MRO) supplies are offered at Grainger.com, with a growing number of Grainger's 1.5 million customers actively ordering online. The Web site continues the same kind of customer service and wide range of industrial products provided in the traditional business, with the additional convenience of 24/7 ordering.

This convenience is what first hooked Isaac Pendarvis, assistant buyer for BFGoodrich Aerospace in Pueblo, Colorado. As Pendarvis says, "I'd known about Grainger since I was a kid, so one day I was on the Internet and tried out their site and was hooked. It's one of the most convenient and easy sites to use."

Pendarvis makes purchases for the entire BFGoodrich plant of approximately 250 employees. He used to call in orders to suppliers, give the salesperson a part number, and wait until the price could be pulled up. There was also the chance that numbers could be transposed. Now he can place orders online in a matter of minutes, and his display has BFGoodrich's

pricing built in. Pendarvis claims he can get just about anything he needs from Grainger.com. "They interface with other suppliers," he says, "so if I need something specific that they don't normally carry, they'll research and find the items through their FindMRO.com site, and with their buying power, they can get better prices than I can, so I save money as well as time."

BFGoodrich has achieved additional savings from the tremendous decrease in paperwork. Individuals in each department now have access to purchasing cards (P-cards), which allow them to do some of their own ordering. "Before, we had to issue purchase orders for every little thing," says Pendarvis, "but now employees with P-cards and passwords can place orders according to the spending limits that have been set up for their positions."

Last year, the BFGoodrich Pueblo operation made \$100,000 in purchases from Grainger.com, which reflects a 10 to 15 percent savings. BFGoodrich has now signed a companywide enterprise agreement that allows every BFGoodrich facility in the country to order through Grainger.com, with an expected savings of at least 10 percent....

Source: "E-Procurement: Unleashing Corporate Purchasing Power," ©2001 Time Inc., all rights reserved. www.fortune.com/sections/eprocurement2000, retrieved July 19, 2000.

In fact, a good deal of criticism has been leveled already at some of these exchanges—both large and small—because it is alleged that they are simply industry leaders who, although experts in the provision of goods and services to their own markets, understand little about technology or the complex interaction of software and new business processes over the Internet. Accordingly, almost every trading hub and exchange is moving toward becoming a consortium of various ASPs, software vendors, and other third-party support organizations. Many e-marketplaces are in fact now run by ASPs.

All of these types of trading hubs typically make their money by charging a 1% to 15% fee for each transaction, depending on volume and materials being sold. Even then, the buyer usually comes out well ahead—often saving up to 40% on the price they would have paid through their traditional distribution channels.³

AUCTIONS

A subset of these online trading communities is the online auction, which provides an online, real-time exchange for commodities in a particular vertical or horizontal industry—office supplies, auto parts, chemicals—with prospective buyers and sellers logging on and making some type of low-price offer against a request. The buyer then makes an online purchase from the vendor who provides an offer that best meets his or her needs. Some sites provide essentially a commodity market, with sellers posting their goods and prices and buyers logging on looking for bargains. Others are initiated by buyers making their needs known, with suppliers responding—bidding against other suppliers in real-time—to make a best offer. These sites can involve participants from all over the world, and most auctions are completed within an allotted amount of time—say an hour—giving suppliers time to move toward a natural floor-level price, and as in all markets, with a flurry of activity to get in before the bell. The result is actually most often a “reverse auction,” where the price goes down, not up, as the bidding progresses.

Many of these e-market auction sites provide the software to generate the purchase order and exchange invoicing information, and provide at least some level of order tracking and delivery coordination. Others have gone even farther, providing tendering services—usually in the form of a Request For Tender (RFT)—rather than simple commodity auctions. In fact, the better online auction e-markets offer several important services beyond just providing the

electronic, real-time negotiations between buyer and seller. These include easy-to-understand classification of RFTs, proactive electronic notification of upcoming auctions by category, calendars and scheduled times for important auctions, and even prequalification of likely suppliers on behalf of the buyer.

This type of real-time bidding is most appropriate for high-volume, generic, commodity-type goods, where small differences in price on large volumes add up quickly. As you might expect, online auctions are usually focused on indirect goods, although they too are beginning to be seen as providing an instant online spot market for direct materials—particularly if supplies of those materials are known and predictable. Some sites, like Free Trade Zone, are a combination of ASPs and e-marketplace, providing not only an online auction service, but also helping bring vendors that can supply difficult-to-find components to manufacturers. This is the type of service that will help e-markets move from indirect goods to MRO and direct materials in the future.

The cost of these auctions to participants varies widely. Most charge a straightforward fee based upon either transactions or on a percentage of the dollar value of the trade. SupplierMarket.com, for example, an auction that matches buyers and suppliers for build-to-order manufacturing contracts, charges a transaction fee averaging 2% of the total bid.⁴ SciQuest, an online exchange for scientific supplies, takes a different approach. They began by offering premium placement for suppliers on a first come, first served basis. As they became more viable, they were then able to charge new suppliers an additional fee—some 400 vendors have paid from \$2,000 to \$15,000 for advantageous positioning on the site. This is on top of a standard supplier fee of some 8% to 10% commission per order.⁵

There are two key advantages to the online auction: speed and cost reduction.

1. **Speed.** For anyone who has ever had to go through the cumbersome process of sending out or responding to RFPs, the value of the online approach is obvious. Instead of taking several months to receive and evaluate supplier responses, the entire process can be completed in little more than an hour. Today when companies send out RFPs, it can take weeks and sometimes months to evaluate all the bids and negotiate the final deal. Because the bidders do the negotiating, real-time, online auctions can reduce that time to 90 minutes.

AUCTIONS

Bruce Platzman was intrigued but wary when he first heard about SupplierMarket.com's Internet marketplace for buyers and sellers of manufactured direct materials. Platzman, CEO of Affordable Interior Systems (QIS), Inc., of Hudson, Massachusetts, a major manufacturer of office systems and workstations, liked the idea of going online to procure direct materials. "It sounded cutting-edge and exciting," he says, "but I also was skeptical. I always try to balance upside potential against risk."

No matter how he analyzed it, however, Platzman couldn't find any risk. The Burlington, Massachusetts-based marketplace provider charged no up-front fees for software installation or consulting services, and using the service required no technology beyond an Internet connection and a standard browser.

Platzman's procurement team pulled together a request for quotes (RFQ) for a year's supply of three-millimeter banding, the protective plastic molding that fits around the edges of office furniture. They did that using SupplierMarket.com's forms-based RFQ Builder facility, which guides purchasers step by step through the creation of an RFQ, complete with drawings. At that point, behind the scenes, SupplierMarket.com's SmartMatch technology automatically matched registered qualified suppliers with the RFQ, based on their technical and commercial capabilities. Those suppliers were then invited to participate in a live online auction.

A couple of weeks later, Platzman was working in his office and keeping one eye on his computer screen, watching companies place bids for his order. Suddenly the online action had his full attention. Six more suppliers had jumped into the bidding and the price had already dropped below his expectations. He called in other members of the company's management team and they all watched in amazement as the price continued to fall. By the time the bidding was over, a little more than two hours after it had started, Affordable Interiors was looking at a low bid of \$102,000 for an item that typically cost around \$170,000.

Euphoria quickly gave way to doubt. "When you look at a number like that, you have to ask yourself, 'Who the heck bid this thing? Is it some guy working out of his garage?'" says Platzman. As it turned out, the bidder was no garage operation. It was the premier manufacturer of the required type of plastic edging, a company that regularly supplied Affordable Interior's largest competitors. "We landed with what we believe is not only the largest, but the highest-quality manufacturer of this product," says Platzman, who was so happy with that outcome that he has since posted 12 more RFQs.

Source: "E-Procurement: Unleashing Corporate Purchasing Power," ©2001 Time Inc., all rights reserved. www.fortune.com/sections/eprocurement2000, retrieved July 19, 2000.

REVERSE AUCTIONS

Reverse auctions—where suppliers bid prices down to win contracts—are hot in B2B e-commerce. And Web sites where buying organizations can hold such auctions are springing up rapidly.

Since 1997, Quaker Oats has saved \$8.5 million by purchasing via reverse online auctions, according to Carl Curry, vice president of integrated purchasing and logistics. And SmithKline Beecham, a pharmaceutical and consumer health-care company, recently announced \$3 million in savings through online auctions.

Both companies chose to conduct auctions at FreeMarkets Inc. (freemarkets.com). Other Web sites where buyers can hold reverse auctions include SupplierMarket.com, BidtheWorld.com, frpMarket.com, and eBreviate.com.

Curry says Quaker Oats first heard about online reverse auctions about three years ago when a senior member of his department encountered a FreeMarkets representative at the Center for Advanced Purchasing Studies in Arizona.

“At that point FreeMarkets was talking about the concept in terms of what they intended to deliver and how their system was going to work,” says Curry. “[Our person] came back excited, saying ‘Boy if this becomes functional we ought to be an early player.’”

From there, Curry and the rest of his department started looking for commodity contracts that were coming up for renewal, which the company could put out for bid on the FreeMarkets Web site. Glycerin was the first product they put out to

bid. Since then the company has held regular auctions on the site, reaping large savings. Curry says the \$8.5 million represents the amount of savings the company achieved versus prices it had in place before going to FreeMarkets.

The process for conducting a reverse auction on the FreeMarkets site begins with choosing which contracts will be put out for bid, Curry says. After that, a supplier evaluation process begins where the buying company looks at its list of suppliers to decide which ones will be offered a chance to bid for the contract. At that point, FreeMarkets also searches its own list for qualified suppliers.

“FreeMarkets typically brings back their list, which may differ somewhat from our own. They may have experience with suppliers with whom we haven’t worked or they may be more global,” says Curry. “We canvas the list of suppliers to determine if they can meet our initial needs from a quality and response perspective.”

The next step, Curry says, is to write the RFQ and send it out via email to all qualified suppliers along with information as to when the bidding will take place.

After that, the buying company uses its Web browser to click into the Web site and watch the bidding. “The auctions generally take place in about 20 to 30 minutes,” Curry says. “Then we determine who won the bid and award the contract from there.”

Source: “e-Procurement Strategies: Big Buyers Jump on the Net,” *Purchasing Online*, March 23, 2000, pp. 8–9.

2. **Cost reduction.** Obviously, for buyers, this type of online approach helps to cut the administrative costs of dealing with thousands of small companies. Auctions also tend to drive the price of goods down significantly, partly because the nature of real-time spot-buying itself quickly pushes prices downward, and partly because the certainty of immediate sale and contract acceptance means that the normal mark-up that the seller includes in their prices for covering risk can be eliminated. For sellers, the online auction greatly expands their potential customer base, allowing vendors an opportunity to quickly and dynamically price and move materials.

There are already many converts. United Technologies, for example, began an online, in-house auction that it has used since 1997 for commodity products—electronic components, motors, wire and plastic parts—which account for nearly 25% of the \$14 billion that the company spends each year on these types of indirect and MRO goods.⁶ Quaker Oats claims to have saved some \$8.5 million using its own email-based auction system.

SmithKline Beecham, a pharmaceutical and consumer health-care group, recently announced \$3 million in savings through online auctions. The company has been using the FreeMarkets.com auction site since 1999 and has purchased more than \$38.2 million worth of goods and services online. SmithKline Beecham reports it has cut overall price of goods by nearly 10%. The FreeMarkets auction site says it has facilitated more than \$575 million worth of bids for indirect goods and services, saving an average of 13% for its Global 1000 clients. FreeMarkets deals with some 46 different types of indirect goods and services, from MRO items to tax preparation services and car rentals.⁷

Although the benefits are obvious, auctions have their drawbacks too. For one thing, at this time at least, they remain primarily focused on spot market buying of indirect goods. Although there is no doubt that the process drives prices down and greatly reduces administrative time and costs, the entire focus also works against some of the key principles of procurement. It is difficult to predict prices, for example, as each day may bring a completely different set of bid responses.

More important, and something that has been increasingly annoying to suppliers, the focus on real-time pricing undermines the added-value nature that differentiates one supplier from

another. *Many economists argue that the transparent nature of auctions, and the myopic focus on price, essentially eliminates any concept of competitive advantage.* In fact, because the emphasis of an auction is on price alone, it makes it difficult for suppliers to maintain any close relationship with the buyer, and yet issues concerning collaborative part design, quality assurance levels, and delivery dependability, are often much more important in procurement of MRO or direct goods, particularly, than price alone.

APPLICATION SERVICE PROVIDERS

ASPs are third-party service organizations that provide hosted applications that service either a one-to-many buyer model or a many-to-many industry trading community. With the advantage of maintaining all the software, catalogs, and store files on their own servers, they provide an opportunity for companies—both buyers and sellers—to participate in electronic trading communities without having to buy, install, or maintain their own software. They provide essential e-procurement services, such as catalog content aggregation and maintenance, electronic requisitioning, contract development, order and delivery management, and electronic payment, and can process transactions using various forms of EDI, XML, and other communications protocols. All of this is provided for a license fee, a subscription, or for various forms of usage charges.

ASPs came about in the past few years because, as we have seen, the early e-procurement solutions based on the buyer-managed model required significant time, effort, and resources by both buyers and sellers in order to maintain catalogs, systems, and multiple forms of communications protocols. There was a ready market for third-parties that could provide those services as core competency and remove that burden from the buyers and sellers, who were more interested in the business transaction itself than in maintaining catalogs or systems support.

Although they have had some success with the largest companies, their appeal, at least in these first formative years, has been particularly to small and mid-sized companies, which had neither the internal content management and IT resources nor the cash to buy, implement, and maintain complex and expensive e-procurement applications internally. ASPs provide companies with a cost-effective method for buying into a scalable solution that they might not normally be able to afford.

However, when it became obvious that there was a significant market for this type of service (see Figure 6.6), others began to move into the third-party hosting arena, differentiating themselves by offering an increasing number of valuable business services to accompany the basic service of the buyer-seller portal site. Sometimes known as Enterprise Asset Management (EAM), not only did these service providers offer catalog maintenance and basic order and payment transactions services, but they also now provide various types of supply chain management, inventory replenishment, directory services and routing, transportation, CRM, order tracking services, and even fulfillment insurance. Some even provide integration with travel services and 401(k) processing.

A good example of software platforms themselves providing these services can be seen with Intelisys Electronic Commerce (now Metiom) and its support of the Autolink.com e-market. Because many of the smaller auto suppliers that want to participate have little IT or content management experience, Intelisys built, and as Metiom, now manages the site, maintaining both the database and server, and providing catalogs, management tools, and links to other industry suppliers. A similar service is provided by Essential Markets.com, which offers a hosted service that helps small suppliers to convert their product information into XML formats, and then places those supplier details on the Internet, including links to e-marketplaces.

Similarly, M2MEport.com, which is targeted to small and medium-sized manufacturers, provides not only an e-market portal, but also a consultative “Collaboration Center,” where their specialists work with subscribers in the design of customized products. They have even gone so far as to provide a variety of education offerings—

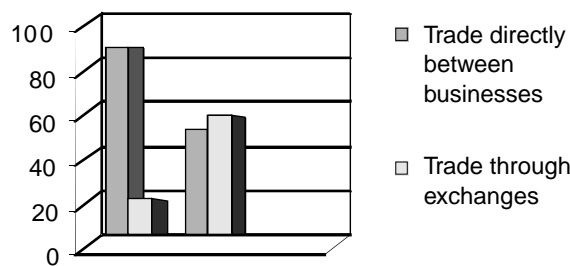


Figure 6.6 Intermediation: B2B e-commerce, percent of total. (Source: Forrester Research as printed in “Seller Beware,” *The Economist*, March 4, 2000.)

including a distance learning program—designed to help manufacturers with procurement-related issues. Others, like Grainger.com, provide access to important technical support information and material safety data sheets for products sold through their Order-Zone.com site.

Recognizing the potential for ASP outsourcing, and as a further twist to this convoluted marketplace, Clarus, Microsoft, and Cisco Systems have agreed to collaborate with a selected group of ASPs to provide them with hosted services that are designed for use by ASPs, and that incorporate ASP-specific tools that will make it easier for these ASPs to deliver e-procurement services on an outsourced basis to their customers. This reflects the high level of competition in this marketplace, and the fact that in order to survive, ASPs have been forced to seek out multiple revenue streams, including leasing applications and even building portals themselves.

THE FUTURE OF E-MARKETS

In fact, so popular and lucrative has the entire market become that there has arisen a number of third-party vendors that specialize in building and operating e-markets, boasting that a basic trading hub can be set up in three to six weeks for a few hundred thousand dollars. This has meant that many people with an entrepreneurial flair and a good working knowledge of a vertical industry supply chain have been tempted to plunge into the market with their own trading hub. Venture capitalists, understanding the popularity and the potential “winner-take-all” scenario for those entering these e-marketplaces, have been only too keen to provide the funding.

There are drawbacks, of course. As with any independent many-to-many portal at this time, both suppliers and buyers still have to update their internal systems manually with each transaction. Although obviously the trend is toward full integration, there are currently any number of differences—in buying parameters, payment systems, shipping and delivery techniques—that mean that purchasing through an e-market is still not much different (at least in terms of process efficiencies) from negotiating price over the telephone. This leaves the “e-market revolution” much less revolutionary than its proponents claim, in that neither the buyer nor the seller are fundamentally changing anything about their businesses.

However, many industry watchers and software vendors would counter that it is only a matter of time before that higher level of

integration is provided by the e-market portal owners. In fact, this need has already been partly addressed by a whole new platform of third-party integration software known as *connectors* (see “Translation and Connectivity” in Chapter 5).

Many of the early exchanges and auctions that focused on spot markets found that they were soon overtaken by larger, better-funded trading communities sponsored by alliances between market creators and the large software companies. Moreover, many of the smaller auction sites have found that contractual details and performance guarantees, necessary to ensure that buyers won't get burned badly by participating, require software and processes that incorporate a sophisticated and detailed approach to automated bidding—levels of expertise that they do not have and software that very few of them can either build themselves or afford to buy.

But of all the controversial issues that this revolutionary shift toward trading hubs raises, one of the most important is that it runs completely counter to the prevailing wisdom—that has been gaining momentum over the past decade—of the value of strategic sourcing. The idea behind strategic sourcing is that a few, preselected, tested, and trusted vendor partnerships are far more cost-effective—because of familiarity with processes and expectations, negotiated discounts, and ability to be trusted with secure information—than many partnerships with unknown or untested vendors, even if they are offering one-off low prices for their goods. Dedication to this premise is, according to many, the very reason why companies want and need to digitize their procurement systems, in that once their procurement specialists are no longer laboring with low-cost, high-volume indirect goods, they can spend their time much more valuably in developing closer, tightly-negotiated arrangements with a few highly-trusted partners.

Over the past several years, for example, IBM has significantly reduced the number of vendors from which they purchase ORM materials. In Europe, only 10 suppliers provide the company with some three-quarters of all of its purchases. But this vendor rationalization is not as straightforward as it might appear. The ultimate number of suppliers may well be what it was before consolidation. It is simply that IBM has, because of its considerable market leverage, been able to force the costly and cumbersome responsibility for negotiating and buying from thousands of suppliers down one level to its selected and trusted “clearinghouse”-type partners. It is a form

of strategic sourcing, but not one that is easily adopted by smaller, less influential buyers.

On the other hand, many procurement specialists—both buyers and sellers—assert that spot markets, auctions, and many-to-many exchanges completely undermine the trusted one-to-one relationship that is at the heart of the strategic sourcing movement. On the contrary, at least until these e-market portals can be closely and securely integrated with a buying company's ERP and back-end systems, item price becomes the single most important criteria for trading with a particular vendor, which may be one of thousands of suppliers, each one selling on multiple horizontal and vertical industry e-markets. It is an unexpected strategic paradox that promises to divide the procurement community.

In the end, of course, it is the very fears expressed by industry watchers that a single e-marketplace will become dominant (winner take all) that are part of the motivation for venture capitalists to risk money backing a myriad of these e-marketplace startups. So volatile is this portion of the economy that there is some merit in spreading your risk. *But there can be little doubt that the vast majority of startup exchanges will rapidly collapse as they are tested in the rough-and-tumble of the day-to-day procurement market.* Customers will increasingly demand higher levels of service and integrated functionality from trading hubs, forcing a form of natural selection to take place in each industry vertical.

Much in the same way, there is also little doubt that customer demand, legal barriers permitting, will soon force these multiple and competing groups—e-procurement software vendors, ERP firms, market creators, auctions, exchanges, ASPs—toward consolidation. Customers are already demonstrating that they don't want to have to deal with a myriad of different vertical and horizontal suppliers. They want one or two organizations that can provide centralized sourcing for them. Many research groups contend that the need for a single, integrated solution for the full e-procurement process—for both indirect and direct materials and with an acceptable balance of systems integration capability and security—will quickly force a consolidation of the now fragmented e-procurement marketplace.

No longer able to focus on simply providing buyers with purchasing leverage and sellers with a broader market, those that survive, claim analysts, are being forced to add value by offering supply chain management expertise, back-end systems integration, inte-

grated banking, and data security protection, all in a single, cost-effective offering. This will mean that when market forces take their course, according to the Gartner Group, there will only be room for about three vertical portals in each industry. The others will go the way of the e-commerce dotcom startups of the past several years.

There is already evidence that that vertical industry shakeout has begun. One good example is EFDEX, the e-market that had hoped to become the dominant exchange in the catering industry, bringing together online restaurants and hotels with catering suppliers for food and drink. At one point, their staff had jumped from 20 to 200, but in the end, investor concerns about cost and the site's ability to attract the number of users necessary meant that EFDEX failed to secure the necessary funding to even go live.

Similarly, IndustrialVortex, the industrial automation product e-exchange, collapsed after only six months of trading, despite more than \$20 million in RFQs processed in a single month in the summer of 2000. Neoforma, a highly praised health care exchange, was forced to lay off 25% of its workforce, its stock price dropping from \$60 to \$3.50.⁸

Most spectacularly, Ventro, which operates many different marketplaces, was forced to close two of its once most promising vertical exchanges. Chemdex, a market site for medical products, and Pro-medix, which provided an exchange for specialty medical products, were both at one time cited as sterling examples of the promise of vertical markets, but ultimately failed to attract enough participants or make enough money to survive.

It may well be that if only as a matter of survival, as some argue, e-markets will move quickly to build in the third-party delivery and quality assurance services necessary to reassure buyers. The larger and more progressive trading communities—and this is where things become potentially revolutionary—are already providing a marketplace for direct materials, creating a much closer integration of supply chain systems than could have been contemplated only two years ago. There are many reasons for this, not least that the potential earnings are so good that the e-procurement and ERP software groups are scrambling to reshape themselves as partners in these hubs and exchanges, and are bringing valuable procurement expertise to add on to the features of the industry focus.

The reason that these types of Internet-based markets are so important, then, is that they may well be the catalyst that will push

e-procurement away from the limited one-to-many extranet model, focused on a single buyer and several preferred vendors, toward a many-to-many arrangement where, even for many direct materials, buyers will go to a single online portal in order to bid on materials being sold on a real-time market.

ENDNOTES

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