

## PART TWO

# BIZTALK APPLICATIONS

This part provides a comprehensive overview of BizTalk applications in B2B e-commerce. Much of the discussion addresses potential applications, since Microsoft had not yet released the commercial BizTalk Server 2000 product at the time this book was written. We describe three B2B integration scenarios into which enterprise and service providers will deploy BizTalk Server 2000: hubbed marketplace integration, extranet supply-chain integration, and enterprise application integration.



# Hubbed Marketplace Integration

*Middlemen are driving this new world of B2B and B2C e-commerce, contrary to premature predictions of their demise through “disintermediation.”*

Buyers and sellers need middlemen to find each other and do business, a process that might otherwise require a painstaking search in an environment as vast as the Internet. At the core of each new e-marketplace is a central “marketmaker” whose primary roles are to match buyers and sellers, broker deals, and facilitate transactions. Today’s dominant “e-marketecture” is the hubbed marketplace, a central Web site at which buyers and sellers converge to transact business. Each “hubsite” revolves around a central catalog, directory, or other listing that aggregates items being offered by one or more sellers, and/or being sought by one or more buyers. The hubsite may be hosted and managed by a dominant seller or buyer, or by an independent commerce-brokering organization. Hubsites may be linked into a “federated” marketplace that supports transactions among buyers and sellers in different industries, regions, and nations.

Figure 6-1 shows a single hubbed e-marketplace. Figure 6-2 shows a federated group of linked e-marketplaces.

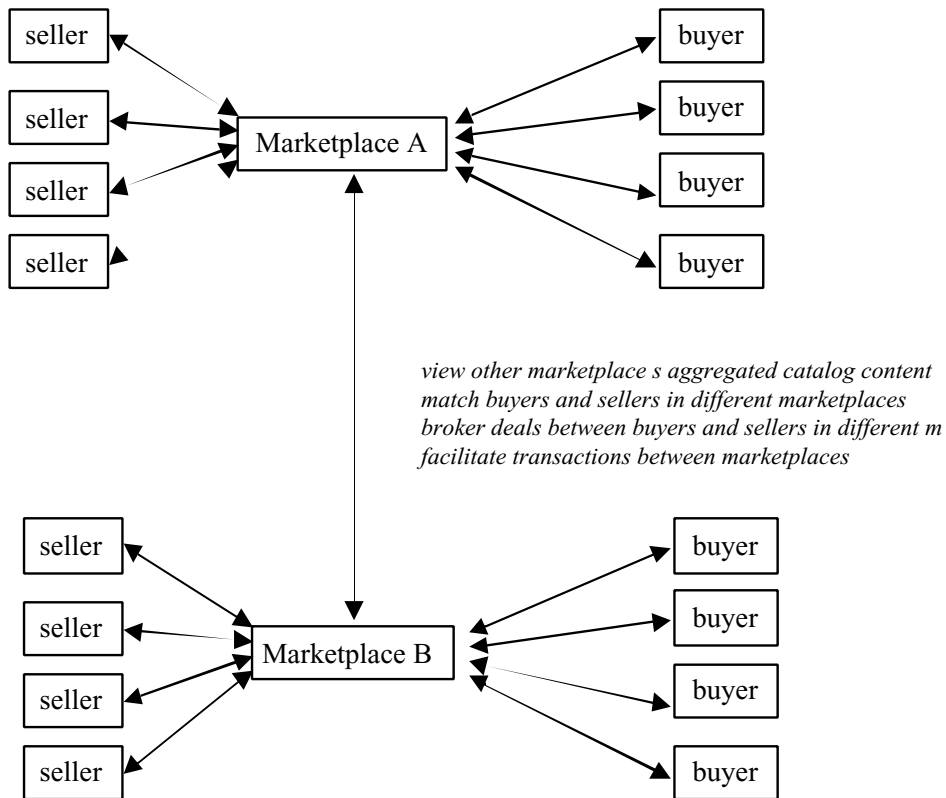
Hubbed e-marketectures go by many names, which often reflect the nuances of the business models developed by particular marketmakers. Some of the most common names for hubbed marketectures are as follows:

- Aggregator
- Auction
- Bot
- Broker



**Figure 6-1**

*A hubbed e-marketplace matches buyers and sellers, brokers deals, and facilitates transactions.*



**Figure 6-2**

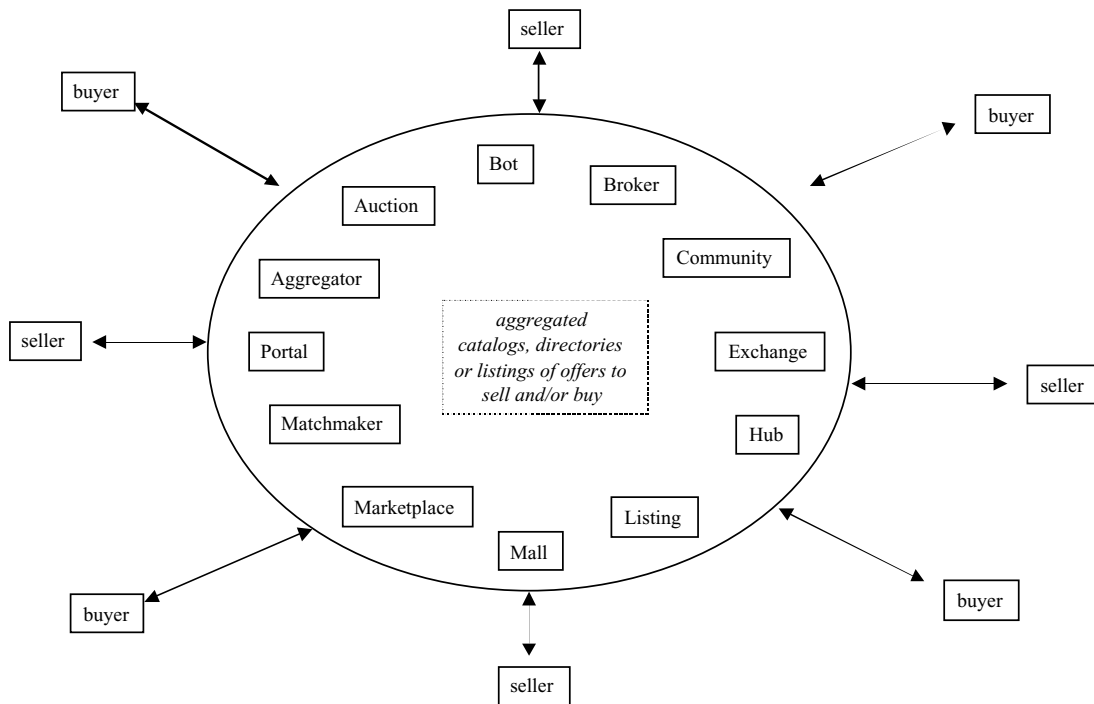
*A federated group of linked e-marketplaces supports transactions among buyers and sellers in different trading communities.*

- Community
- Exchange
- Hub
- Listing
- Mall
- Marketplace
- Matchmaker
- Portal

Figure 6-3 shows what they all have in common: reliance on an aggregated catalog, directory, or listing of offers to sell and/or buy.

There's nothing sacrosanct or precise about any of these labels, and many marketmakers use them interchangeably. Indeed, any given marketmaker may combine elements of several business models into its hub-based service. So don't expect the real world to shake down into clean marketplace models. Hubbed e-marketplaces are evolving too fast to put them into any but the most flexible of taxonomies.

In this chapter, we discuss the architectures of hubbed e-marketplaces, describing the functional subsystems necessary to integrate them into unified trading environments. We highlight the practical distinctions between these



**Figure 6-3**

All marketmakers aggregate seller and/or buyer offers in a catalog, directory, or listing.

various marketmaker models, using a broad “e-marketecture reference model” that defines the fundamental attributes of the various hubbed marketplaces.

## 6.1 Potential BizTalk Role in Hubbed E-Marketplaces

Before we launch into the e-marketecture reference model, we must address the potential role of BizTalk—the interoperability framework and/or the Microsoft server product—in the world of hubbed e-marketplaces. Where does BizTalk fit in? This question demands a multipart answer.

The first part of the answer is that BizTalk—the framework—is broadly applicable to all e-marketplaces, since it defines a message envelope that does not presume a particular type of business document, catalog, or workflow. As we noted in Part 1, BizTalk is a horizontal-market B2B interoperability specification, so in principle it can be applied to any marketecture.

The second part of the answer is that BizTalk—the server—could allow trading partners (TPs) to integrate their commerce sites with their internal applications, with the marketplace hub, and, via the hub, with trade facilitators and with each other. Consequently, BizTalk Servers could be the common, distributed platform that binds all participants into a common hubbed (or, indeed, nonhubbed) trading environment. Integration would be through exchange of BizTag-enclosed Business Documents over message-brokering backbones between loosely coupled applications. Figure 6-4 shows the potential roles of BizTalk Server in a hubbed e-marketplace: integrating applications within each companies and between separate companies through a trading hub.

That defines the potential applicability of the BizTalk framework and server in real-world hubbed e-marketplaces. However, the third part of the answer addresses those situations where there BizTalk framework and server may not be the best fit for an e-marketplace’s requirements.

Microsoft designed the BizTalk Server primarily as a “front end” for some TPs’ commerce sites and applications, especially those built with Microsoft’s Commerce Server, SQL Server, Windows 2000, and other Microsoft Server products. The company appears to be positioning BizTalk Server as a platform for TP integration into a hubbed e-marketplace or traditional EDI supply-chain scenario. Consequently, BizTalk Server’s feature set consists of core EDI functionality: reliable document interchange, mapping, translation, and routing. This feature set does not address the core e-commerce requirements of marketmakers, who must support complex relationships, transaction models, and workflows among buyers, sellers, and other marketplace participants.

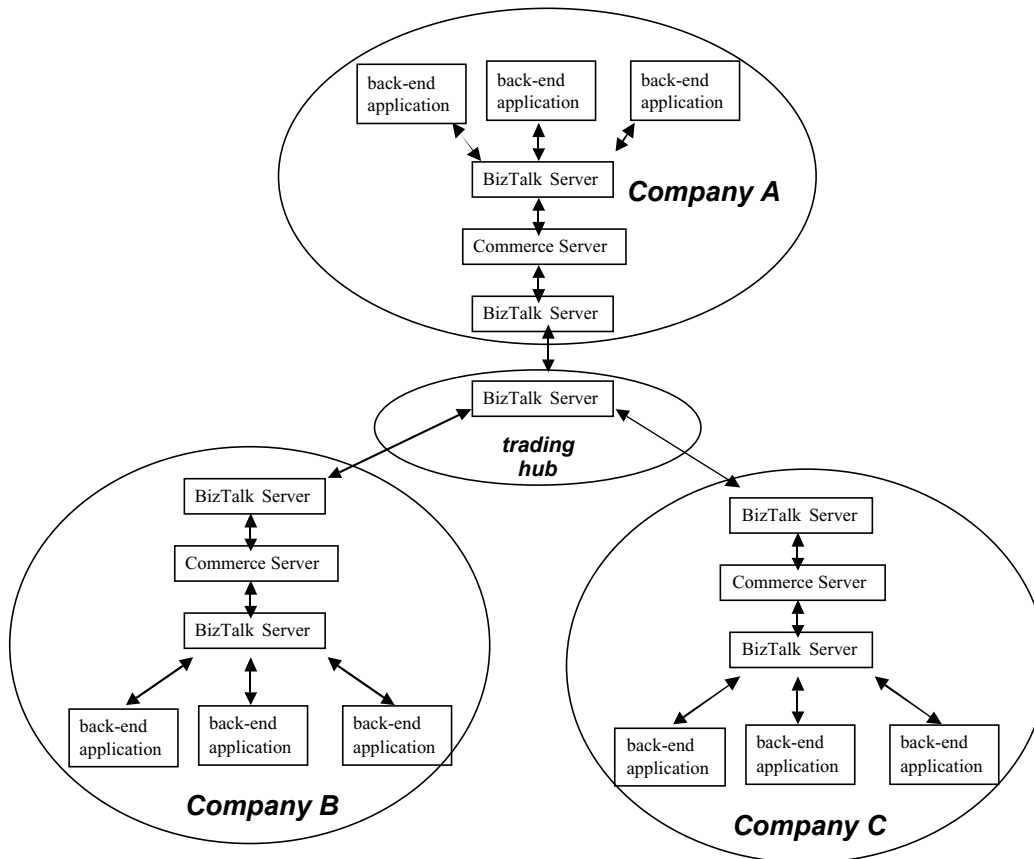


Figure 6-4

*BizTalk Server supports trading partner integration and enterprise application integration.*

Another BizTalk Server limitation is the implementation-specific features that constrain it to interoperating primarily with other BizTalk Servers within Windows 2000 environments. As a result, the BizTalk Framework might not be applicable to trading environments in which marketmakers and trading partners deploy competing operating systems, such as AS/400, AIX, Solaris, and Linux. If third parties were to develop BizTalk servers for other operating systems, BizTalk would then be able to play in truly multivendor trading environments.

Yet another reason why marketmakers might favor another framework is functional specialization. In some cases, however, marketmakers may find competing frameworks better suited to the type of transactions they plan to broker within their hubsites. For example, e-marketplaces that directly inte-

grate trading partners' enterprise resource planning (ERP) applications may find OAGIS a better choice, since these specifications are geared to interfacing the data and process models of multiple vendors' ERP applications.

## 6.2 E-Marketecture Reference Model

Now we present the e-marketecture reference model. Think of this as your roadmap through a fascinating new continent where the terrain is unfamiliar, the species are evolving rapidly, and fixed landmarks are hard to make out.

In this chapter, we describe how various real-world hubbed e-marketplaces fit into this reference model. For each type of e-marketplace, we discuss the potential applicability of the BizTalk Server and other Microsoft products, technologies, and tools. (However, we save our in-depth discussion of the BizTalk Server and other Microsoft offerings for Parts 3 and 4.) You should emerge from this chapter with a new appreciation for trading hubs as configurable, adaptable environments that address various economic and business models.

The basic features of any e-marketplace fall into the following functional categories in Table 6-1.

**Table 6-1**

*E-Marketecture Reference Model*

| Layer      | Definition   | Criteria   |
|------------|--|--|
| Hosting    | Structure of marketplace ownership, sponsorship, control, and management                     | <p>Who is the marketmaker—who owns, sponsors, controls, and manages the trading environment?</p> <p>Is the marketmaker a buyer, a seller, a consortium of buyers or sellers, or an independent brokering organization in the marketplace it hosts?</p> <p>How does the marketmaker generate the cash flow to sustain marketplace operations and further develop the trading environment?</p> |
| Membership | Policies determining eligibility, terms, and conditions for participating in the marketplace | <p>What range of buyers and sellers—trading partners—may participate in the marketplace?</p> <p>What criteria determine which TPs may participate in a marketplace?</p> <p>Are TPs required to do business with each other within that particular e-marketplace, or may they still engage in transactions with each other outside that environment?</p>                                      |

Table 6-1

*E-Marketecture Reference Model (cont.)*

| Layer       | Definition   | Criteria   |
|-------------|--|--|
| Aggregation | Approaches for organizing buy and sell offers in the marketplace   | <p>What types of offers—to sell, to buy, or both—are aggregated in the marketplace?</p> <p>Where and how are these offers aggregated?</p> <p>Which TPs may post offers to the marketplace?</p> <p>How are offers classified, categorized, sorted, searched, compared, and bundled within the marketplace?</p> <p>What other types of information and services are aggregated with offers in the marketplace?</p>   |
| Transaction | Procedures for establishing commercial contracts, bargaining, and processing transactions in the marketplace | <p>Which participants, stores, workflows, messages, and documents are involved in end-to-end marketplace transactions?</p> <p>What types of offers drive marketplace transactions?</p> <p>What types of contracts apply to marketplace transactions or may be negotiated in the marketplace?</p> <p>Are marketplace transactions constrained by the terms of preexisting, prenegotiated contracts between TPs?</p> <p>Are marketplace transactions bilateral, or may they also involve linked deals with other TPs and/or transaction facilitators?</p> <p>Are marketplace transactions one-off deals, or do they figure into long-term purchase commitments between specific TPs?</p> |
| Pricing     | Procedures for determining prices in the marketplace   | <p>Are pricing and other transaction terms determined by dynamic bargaining mechanisms in the marketplace?</p> <p>If transactions rely on dynamic pricing, which bargaining mechanisms are employed?</p> <p>If transactions rely on auction mechanisms, which type of auction?</p>   |

Table 6-1

*E-Marketecture Reference Model (cont.)*

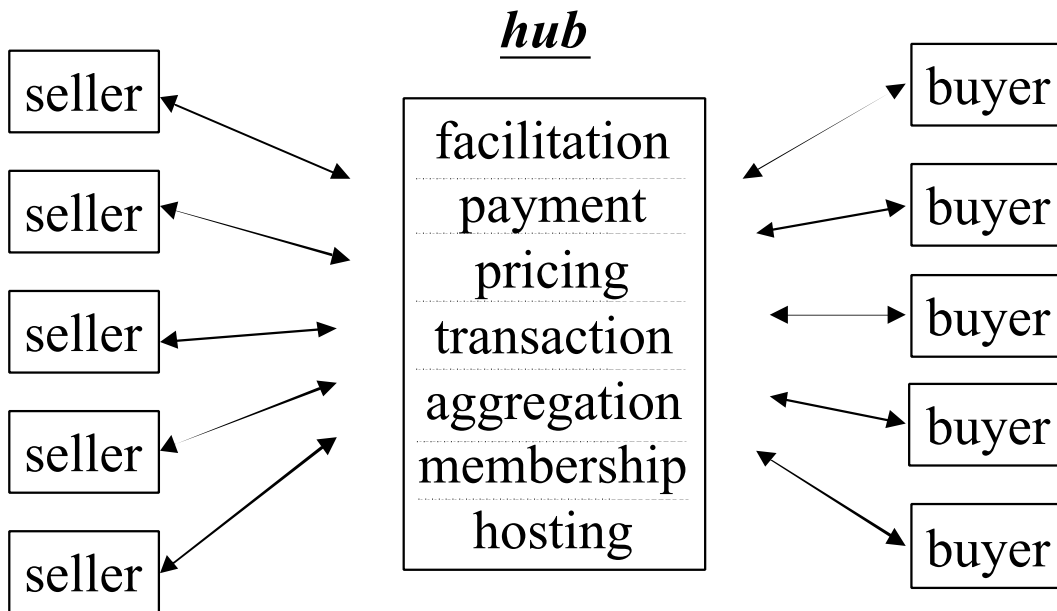
| Layer        | Definition  | Criteria   |
|--------------|---|--|
| Payment      | Procedures for submitting, processing, and settling payments in the marketplace   | How is payment tendered, accepted, and processed in the marketplace?<br>What intermediaries process, convert, and settle payments?   |
| Facilitation | Organization of third-party responsibilities for assisting buyers, sellers, and/or marketmakers in setting up, executing, and consummating transactions | What range of transaction facilitation services—such as financing, fulfillment, shipping, insurance, escrow, and logistics—are provided in the marketplace?<br>What intermediaries provide these services? |

The details of these functional categories are the primary substance of this chapter. In the following discussion, we refer to each of these functional layers as a “model” with respect to the architecture of a particular e-marketplace. As we will show, you can describe any e-marketplace as a “stack” of these seven functional models: hosting, membership, aggregation, transaction, pricing, payment, and facilitation. Figure 6-5 presents the hubbed e-marketplace’s layered architecture graphically.

Note that most of the components of the B2B functional reference model, presented in Part 1, map into the “transaction” model of this more all-encompassing interpretive framework. This is because the BizTalk Framework and other B2B interoperability specifications primarily address the core EDI and workflow requirements of e-marketplaces, but not the broader business context of the e-marketplaces they support.

By contrast, the e-marketecture reference model places B2B interoperability frameworks in their full economic context: as nitty-gritty technical specifications that support online environments where buyers and sellers meet to do business. What distinguishes one e-marketplace from another is not so much that it uses is the BizTalk Framework, cXML, XML/EDI, or some other set of technical interfaces. What distinguishes it is the business rules—the process model—that drive the transactional workflows that these e-marketplaces were set up to host. As we pointed out in Chapter 3, B2B converges EDI and workflow, and you can host these applications on any number of network protocols and computing platforms.

From a technical standpoint, this new world of hubbed trading environments depends on the very “glue layer” that Microsoft disparaged in the BizTalk Philosophy document. The glue layer resides in the marketmaker and its hubsite (or, what will over time become the more scenario, in a con-

**Figure 6-5**

*Hubbed e-marketplaces consist of seven functional service layers: hosting, membership, aggregation, transaction, pricing, payment, and facilitation.*

stellation of federated, communicating hubsites). The glue resides in the marketplace's core workflow process model, which is at heart a set of rules for transforming one TP's outputs into another's inputs. A full-featured e-marketplace hubsite meets the criteria, outlined in Chapter 1, for an e-commerce glue layer:

- Implements an intermediate layer of software adapters between communicating TP applications
- Exposes the functionality of possibly incompatible TP applications to each other
- Translates data exchanged between TP applications
- Manages the transfer of data between TP applications over appropriate protocols (such as those defined in the BizTalk Framework)
- Enforces appropriate business rules in interactions between TP applications

So, in e-commerce, there's glue, but there's also "superglue." The BizTalk Server is basic glue for interoperable e-commerce, but so are a host of other new-generation B2B "interchange servers" or "message switches," such as Mercator Software's E-Business Broker Suite, which manages document mapping, translation, and message-based routing between dissimilar applications. As we noted above, the BizTalk Server fits in primarily at the TP

level but is not, in its first iteration, designed to support the complex development and operational requirements of trading hubs.

The superglue in the e-commerce equation is the trading hub. This is a niche where software products such as Ariba Technologies' TradingDynamics Market Suite are more appropriate solutions. Products such as these enable marketmakers to configure the hosting, membership, aggregation, transaction, pricing, payment, and facilitation options appropriate to their trading environments. So you can interpret the e-marketecture reference model as a framework for defining e-commerce superglue (Ironically, though, e-marketplaces are very fluid creations, which continually evolve their process models, so we should not interpret the "superglue" metaphor as implying any adhesive rigidity in the composition of a hubbed trading environment.)

The bottom line on all this is that glue is power in our new networked economy. Economists spend their lives contributing to the formulation of macro- and micro-economic policies, but marketmakers can effect policy changes with the click of a mouse. When marketmakers modify the business rules underlying hubbed trading environments, they change the ground rules for sectors of the economy: determining who can trade with whom, what they can trade, how they can bargain, and how they can come to terms. Change the business rules at the marketplace hub and you reengineer supply chains far and wide.

With all that as context, we now proceed to an in-depth discussion of functional models in the architecture of a hubbed e-marketplace.

### 6.3 Hosting Model

A marketplace is a business like any other, but unlike any other.

Throughout human history, stable marketplaces have sprung up in locations where people regularly crossed paths, each bearing something that others desire. Many of the urban settlements we inhabit got their starts as simple crossroads, places to set up stalls, pull out pocketbooks, and haggle.

Think of the city you live in. Its local economy is just a crossroads marketplace on a larger scale, seemingly running under its own power, automatically regulating itself through classical economist Adam Smith's "invisible hand," but we all know that's an illusion. As citizens, we assemble government institutions to tend to the needs of the local economy and the state, national, and international economies of which it's a component. We grant these institutions revenue-raising powers and assign them duties essential to any functioning economy, such as minting the currency, preserving the peace, enforcing contracts, maintaining roads, and transporting mail. We may disagree violently on the best way to organize, run, and fund these institu-

tions. We disagree on what mix of services various governments should provide. But we all know that stable governance is essential to a prosperous marketplace.

Hosting an economy is not a simple responsibility, and there's plenty of opportunity for governments to commit grievous errors. Managing an economy is like managing a business—a vast, unwieldy business, but a business nonetheless. Governments govern best when they recognize their core responsibility: hosting stable, prosperous, dynamic trading environments. They govern best when they create basic conditions for free markets to foster innovation, employment, and productivity. They govern worst when they micro-manage the economy, stifle private initiative with counterproductive regulations, and take more than their fair share of the fruits of commerce.

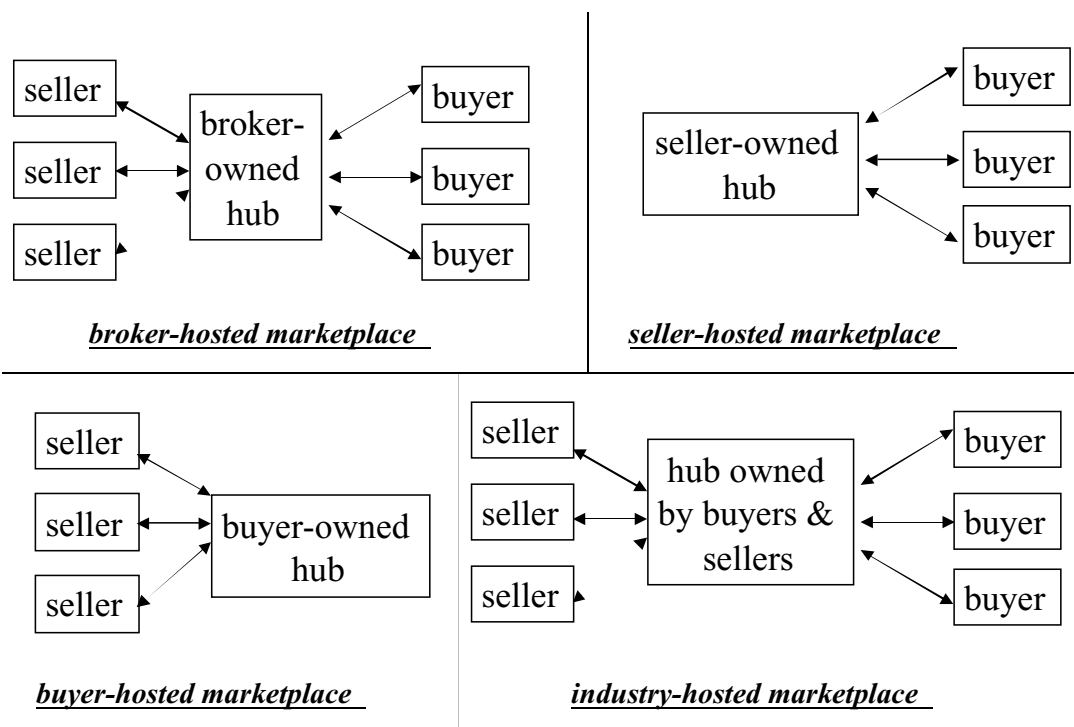
Hosting a privately managed marketplace is a bit like running an economy, but on a narrower scale. We're perhaps most familiar with private marketplaces in the financial industry, such as the New York Stock Exchange (NYSE) and Lloyd's of London. These are not government agencies—they're really just closed trading communities—but that hasn't stopped them from developing over the past few centuries into economic institutions of considerable clout. As private marketplaces, they have become central players in the very public global economy. They tread that fine line between being private concerns and public utilities.

Hosting an e-marketplace is something you or I could do this minute by paving our very own crossroads on the World Wide Web. After all, Lloyd's began inauspiciously, as an informal meeting of mercantile underwriters in a coffee shop, so there's no reason to think you need an official government license to set up your own private marketplace. To get things started, all you need are postings on your Web site by people who want to sell or buy something—anything, even something as ordinary as old, mint-condition Superman comic books. If people begin to trade on information they find at your site, and come back repeatedly for more of the same, you have yourself an e-marketplace. Charge them for the privilege of trading through your site, and you have yourself a business.

Of course, hosting a B2B hubbed e-marketplace is an altogether more complicated and costly undertaking. You probably need to have some preexisting occupation, recognition, or connections in the industry in which you're trying to set up a trading hub, whether that industry be aluminum siding or aerospace engineering. If you're a commodities broker, trade association, general contractor, or venture capitalist, you may already have amassed the business connections you need to set up yourself as a e-marketmaker. If you're a dominant buyer in the market, you can turn your existing supply chain into an e-marketplace. If you're a dominant seller, you can use your existing distribution channels as the launchpad for an e-marketplace. In other words, your existing business model may already place you at the crossroads of a substantial marketplace just itching to go online.

A marketplace's hosting model defines who owns, sponsors, controls, and manages the trading environment. We group B2B e-marketplaces into four basic hosting models (per Figure 6-6 and Table 6-2):

- Broker-hosted marketplaces: These are environments managed by an entity that is neither a buyer or seller of the traded good or service—instead, the marketmaker simply brokers deals between others who bear the associated financial risks and rewards.
- Seller-hosted marketplaces: These are environments managed by one of the sellers in the marketplace, often a dominant seller, or by a consortium of sellers.
- Buyer-hosted marketplaces: These are environments managed by one of the buyers in the marketplace, often a dominant buyer, or by a consortium of buyers.
- Industry-hosted marketplaces: These are environments managed by an organization owned and/or controlled by a broad range of buyers and sellers in an industry.



**Figure 6-6**

*E-marketplace hosting models include broker-hosted, seller-hosted, buyer-hosted, and industry-hosted.*

**Table 6-2** *Hosting Models*

| <b>E-Commerce Business Models</b> | <b>Management</b>  | <b>Tenants</b>  | <b>Postings</b>  | <b>Inventories</b>   |
|-----------------------------------|--|---|--|--|
| Broker-hosted e-marketplace       | Managed by entity that is neither buyer nor seller of traded good or service                                 | No buyer or seller need be permanent, long-term, or exclusive tenant in marketplace, or an established trading partner  | Buy offers and sell offers from multiple parties                       | Site owner brokers transactions between others who maintain the inventories being traded |
| Seller-hosted e-marketplace       | Managed by one or more entities that are sellers of the traded good or service                               | Site owner(s) are permanent, exclusive anchor tenants   | Sell offers from site owner(s)   | Site owner(s) maintain inventories being traded  |
| Buyer-hosted e-marketplace        | Managed by one or more entities that are buyers of the traded good or service                                | Site owner(s) are permanent, exclusive anchor tenants; also include owners' established trading partners, who may or may not be permanent or exclusive to marketplace | Buy and sell offers, with site owner(s) primarily extending buy offers | Site owner(s) and trading partners maintain inventories being traded                     |
| Industry-hosted e-marketplace     | Managed by entity that is owned by buyers, sellers, and independent brokers of the traded goods and services | Site owners are permanent, long-term tenants; trading partners may be established or ad hoc, long-term or short-term marketplace participants                         | Buy and sell offers from site owners and their trading partners        | Site owners and trading partners maintain inventories being traded                       |

We find ample evidence in recent news for development of e-marketplaces conforming to all four hosting models.

### 6.3.1 Broker-Hosted E-Marketplaces

Broker-hosted e-marketplaces are becoming so common that, before long, almost every industry will have not just one of them, but several competing hubs. These brokering hubs will either compete for the same postings—in other words, buy and sell offers for a common set of goods and services—or specialize by niche, region, service offerings, and other features.

In fact, we can already see this multi-hub-per-industry trend in full swing. We'll simply list some of the new broker-hosted e-marketplaces. This is certainly not an exhaustive list of all broker-hosted marketplaces in existence at the time this book was written (January-June 2000). We don't even pretend to enumerate all the hubs in each industry. The following list is simply for illustration purposes:

- Advertising: [www.adauction.com](http://www.adauction.com), [www.adoutlet.com](http://www.adoutlet.com), [www.buy-media.com](http://www.buy-media.com)
- Antiques: [www.circline.com](http://www.circline.com)
- Automobile aftermarket: [www.autopartsbin.com](http://www.autopartsbin.com), [www.autovia.com](http://www.autovia.com), [www.dega.com](http://www.dega.com)
- Automobile dealer-to-dealer exchanges: [www.motorplace.com](http://www.motorplace.com)
- Architecture, engineering, and construction: [www.bidcom.com](http://www.bidcom.com), [www.buzzsaw.com](http://www.buzzsaw.com)
- Building materials: [www.buyinsulation.com](http://www.buyinsulation.com), [www.buymaterial.com](http://www.buymaterial.com), [www.buydrywall.com](http://www.buydrywall.com), [www.buyceilings.com](http://www.buyceilings.com), [www.buywalls.com](http://www.buywalls.com), [www.buyplaster.com](http://www.buyplaster.com), [www.buyacoustical.com](http://www.buyacoustical.com), [www.buyfireproofing.com](http://www.buyfireproofing.com), [www.buyfirestopping.com](http://www.buyfirestopping.com)
- Chemicals: [www.chematch.com](http://www.chematch.com), [www.chemdex.com](http://www.chemdex.com), [www.chem-connect.com](http://www.chem-connect.com), [www.e-chemicals.com](http://www.e-chemicals.com)
- Contract programmers: [www.itsquare.com](http://www.itsquare.com)
- Electronic components: [www.necx.com](http://www.necx.com), [www.electronicsbin.com](http://www.electronicsbin.com), [www.netbuy.com](http://www.netbuy.com), [www.partminer.com](http://www.partminer.com), [www.questlink.com](http://www.questlink.com), [www.ecnet.com](http://www.ecnet.com), [www.chipcenter.com](http://www.chipcenter.com)
- Energy: [www.altranet.com](http://www.altranet.com)
- Expertise: [www.infomarco.com](http://www.infomarco.com), [www.hellobrain.com](http://www.hellobrain.com), [www.hightechmatrix.com](http://www.hightechmatrix.com)
- Freelance services: [www.elance.com](http://www.elance.com)
- Internet domain names: [www.afternic.com](http://www.afternic.com), [www.greatdomains.com](http://www.greatdomains.com)
- Life sciences laboratory equipment and supplies: [www.sciquest.com](http://www.sciquest.com)
- Maintenance, repair, and operations supplies: [www.fastxchange.com](http://www.fastxchange.com)
- Medical products, supplies, and equipment: [www.neoforma.com](http://www.neoforma.com), [www.promedix.com](http://www.promedix.com)
- Metals: [www.metalsite.com](http://www.metalsite.com), [www.e-steel.com](http://www.e-steel.com)
- Mortgages: [www.realestate.com](http://www.realestate.com)
- Paper: [www.paperexchange.com](http://www.paperexchange.com)
- Pharmaceuticals: [www.pharmabid.com](http://www.pharmabid.com)

- Plastics: [www.plasticsnet.com](http://www.plasticsnet.com), [www.plasticsbin.com](http://www.plasticsbin.com)
- Pleasure boats, gears, and accessories: [www.boatscape.com](http://www.boatscape.com)
- R&D intellectual capital: [www.yet2.com](http://www.yet2.com)
- Surplus business assets: [www.tradeout.com](http://www.tradeout.com), [www.imark.com](http://www.imark.com)
- Veterinarian equipment and supplies: [www.vetmall.com](http://www.vetmall.com)
- Wholesale used automobiles: [www.autodaq.com](http://www.autodaq.com)

In a few years' time, many of these early broker-hosted hubs will seem almost quaint, much the way a corporate Web-site design from 1995 looks painfully amateurish by year 2000 standards. Before long, the "superbrokers" will dominate the B2B e-commerce marketscape. In fact, many of them have already arrived and have established themselves as operators of several, in some cases dozens of, vertical e-marketplaces. Some B2B e-commerce superbrokers come from the traditional EDI world—for example, Harbinger and Sterling Commerce. Some, such as EDS, come from systems integration and facilities management backgrounds. Still others are primarily ERP software vendors, such as SAP, Oracle, and i2. In addition, telecommunications companies around the world have launched themselves into the world of broker-hosted e-commerce, including such well-known carriers as British Telecom, Swisscom, Cable and Wireless, and NTT. There's even a global financial services firm—American Express—in the B2B e-commerce superbroker arena.

And then we have what Wall Street refers to as the "pure plays" in the superbroker space: B2B e-marketplace service providers such as Ariba Technologies, Commerce One, Vertical Net, Purchase Pro, and Freemarkets. They are making their mark not only as operators of multiple vertical e-marketplaces, but as development, integration, and equity partners with large companies—including many of those listed above—that are trying to set up their own private e-marketplaces.

Broker-hosted e-marketplaces will be one of the chief magnets for venture capital, initial public offerings (IPOs), mergers, and acquisitions throughout the next several years. These online marketplaces will rapidly become ubiquitous. And as they do, they will blend into the background of a Web already populated by such similar creatures as online malls and portals.

It's easy to confuse broker-hosted e-marketplaces with these other e-commerce business models, but you'll know a broker hub when you see one. Generally, broker-hosted e-marketplaces fit the following criteria:

- Managed by an entity that is neither a buyer or seller of the traded good or service
- Feature two types of commercial postings: buy offers and sell offers
- Present offers posted by multiple sellers and multiple buyers, none of which need be permanent, long-term, or exclusive "tenants" in the marketplace, and none of which need be established trading partners with each other
- Broker deals between others who maintain the inventories being traded

The broker-hosted e-marketplace is a dynamic trading environment, hosting an ever-changing mix of buyers and sellers who may never fall into routine trading-partner patterns. An online mall, by contrast, generally hosts a stable set of sellers. The online mall fits the following criteria:

- Managed by an entity that is neither a buyer or seller of the traded good or service
- Features one type of commercial posting: sell offers
- Presents offers posted by multiple sellers, many or most of which are long-term or permanent, but not necessarily exclusive, “tenants” of the site
- Refers or forwards transactions to long-term site tenants, who maintain the inventories on the items being traded

A portal is similar to an online mall but usually counts e-commerce as just one of its many services, not its sole reason for being. Portals generally fit the following criteria:

- Managed by an entity that is neither a buyer or seller of the traded good or service
- Features one type of commercial posting—sell offers—but also presents a broad array of noncommerce content and services, such as search engines, news services, and collaboration services
- Presents offers posted by multiple sellers, many or most of which are long-term or permanent, but usually not exclusive, “tenants” of the site
- Captures, refers, or forwards transactions for long-term site tenants, who maintain the inventories on the items being traded

To round off the discussion, we should note that the typical online e-commerce storefront is neither a marketplace, mall, or portal. It is an open order point maintained by a single merchant. Online storefronts generally fit the following criteria:

- Managed by an entity that is primarily a seller of the traded good or service
- Features one type of commercial posting: sell offers
- Presents offers posted primarily by one seller—the site’s owner—who is the permanent and exclusive “anchor tenant”
- Processes transactions in which the site’s owner maintains the inventories being traded

All of these e-commerce business models will undoubtedly thrive in the early years of the 21st century. However, broker-hosted e-marketplaces will come to predominate, since they host the freewheeling trading paradigm favored by the most dynamic sectors of the economy.

Before we develop this topic further, we should point out that the term *hosting*—as we use it in this book—does not refer to the computer operating

system, application software, or data-processing facility on which the online marketplace runs. Physical hosting is obviously a critical issue, but we use the term to describe the manner in which a central marketmaker organizes a trading environment structurally.

Where physical hosting is concerned, every marketmaker must decide whether they will operate the technical infrastructure for their trading environment themselves or rely on a contractor, application service provider (ASP), or Web-site hosting company to keep it all plugged in and turned on. We expect that, within the next few years, most e-marketmakers will contract with third parties for physical hosting services. Broker-hosted e-marketplaces should be at the forefront of this trend, since they are geared to facilitate business deals in a dynamic environment and tend to avoid the “mortar” side of the “click and mortar” dichotomy.

The economic movers and shakers who create trading hubs will, more often than not, be oblivious to the advantages of implementing their environments on BizTalk-based products versus those of Microsoft’s competitors. They’ll delegate such details.

### 6.3.2 Seller-Hosted E-Marketplaces

Seller-hosted e-marketplaces will be the distribution channels of the future for today’s business titans, or so their sponsors fondly hope.

As we noted above, these hubs are managed either by one of the sellers in a particular marketplace or by a consortium of sellers. We may characterize seller-hosted marketplaces as follows:

- Managed by one or more entities that are sellers of the traded good or service
- Feature one type of commercial posting: sell offers
- Present offers posted primarily by the site’s sponsors, who are permanent, perhaps exclusive, anchor tenants
- Process transactions in which the site’s owners and sponsors maintain the inventories being traded

At the time this book was written, only a few seller-hosted e-marketplaces of any magnitude had been announced, and all were in the planning and implementation stage. Nevertheless, the sponsors have released some tantalizing details that give us a glimpse of what they have in mind.

One noteworthy initiative is an international airline-industry e-marketplace planned by 27 large carriers, including American Airlines, United Airlines, Northwest Airlines, Continental Airlines, Delta Airlines, KLM Royal Dutch Airlines, Singapore Airlines, Air Canada, Alitalia, Varig, Singapore Airlines, and US Airways. Announced in late 1999, this initiative brings the airlines together to form a travel Web-site offering discounted bookings on fares, hotel rooms, car rentals, cruises, and vacation packages. The as yet

unnamed site will compete with independent travel agents and such online travel-related sites as Travelocity and Expedia.

What motivates the sponsoring airlines is obviously the possibility of saving anywhere between \$5 and \$10 per passenger in commission fees they pay to independent online brokers, as well as in fees paid to online database companies that link airlines to travel agencies and other hospitality-related businesses. This project is the airlines' effort to control the end-to-end travel process, from booking tickets to assigning seats, managing customer profiles and frequent-flier miles, and conducting flight operations.

This is clearly one industry's attempt to "disintermediate" the middleman by creating its own pet middleman. There will undoubtedly be more. The leading sellers in each industry will increasingly come together to create shared hubs aimed at preserving their control over pricing and distribution of their goods and services. Industries will either reengineer their distribution channels around the hubbed marketplace model or cede control—and increasingly lucrative online transaction fees—to the upstart broker-hosted hubs.

### 6.3.3 Buyer-Hosted E-Marketplaces

Buyer-hosted e-marketplaces are the supply chains of the future, replacing today's extranet architectures with Web-based trading environments.

As we noted above, these hubs are managed either by one of the buyers in a particular marketplace or by a consortium of buyers. We may characterize buyer-hosted e-marketplaces as follows:

- Managed by one or more entities that are buyers of the traded good or service
- Feature both buy and sell offers, with the dominant partners primarily extending buy offers
- Present offers posted by the site's sponsors, who are permanent, perhaps exclusive, anchor tenants, and their established trading partners, who may or may not be permanent participants and who may or may not participate exclusively in this particular trading hub
- Process transactions in which the site's sponsors and established trading partners maintain the inventories being traded

Sponsoring companies design their buyer-hosted e-marketplaces to foster competition down in their supply chains. That's because competition's benefits will, in principle, flow back up the supply chain in the form of lower prices, greater choice, and better quality for the dominant buyers who set the marketplace in motion.

At the time this book was written, just a few high-profile buyer-hosted e-marketplaces had been announced and were preparing to come online in early 2000. The most noteworthy are sponsored by the two leading U.S. automakers: General Motors and Ford. In February 2000, both automakers

announced that they will merge their respective e-marketplaces into a larger auto industry supply-chain portal—covisint— in which Daimler-Chrysler will also participate. This hub, when implemented, will create an even larger buyer-hosted e-marketplace in the worldwide auto industry.

We now profile GM and Ford's separate initiatives, which provide a glimpse at both the potential and pitfalls of buyer-hosted e-marketplaces.

In November 1999, GM teamed up with Commerce One to establish the TradeXchange B2B e-marketplace and Supply Power B2B portal. TradeXchange is a hubbed e-marketplace for GM's supply chain, operating on Commerce One's MarketSite e-commerce hub software. A high-level profile of TradeExchange is as follows:

- Managed jointly by GM, the world's largest industrial company and vehicle manufacturer, and Commerce One
- Features both types of commercial postings—buy and sell offers—for automotive products, raw materials, parts, and services
- Presents offers posted by GM, which is the permanent, exclusive anchor tenant, and by GM's 30,000 established suppliers (direct, indirect, and aftermarket) and dealers
- Processes transactions in which GM and its established trading partners maintain the inventories being traded, supporting purchase authorization, execution, tracking, accounting, and contractual procedures.

GM does not dictate prices of goods traded on TradeXchange, which supports three transaction models:

- Catalog-based order point
- Bid-ask trading
- Online auctions

GM will move its entire \$80 billion annual purchasing budget online to TradeXchange and will use the exchange to auction off surplus and used equipment. GM will primarily buy, but not resell, products and services through the exchange. GM suppliers must use the exchange to sell to the manufacturer. GM dealers may optionally use the exchange to purchase parts from GM and suppliers.

GM charges suppliers transaction fees on sales to the industrial giant through TradeXchange, as well as fees on transactions between trading partners to which GM is not a party. Options include GM charging a flat transaction fee or a small percentage fee on each transaction through the site. GM also stands to make money providing buyers with financing services through General Motors Acceptance Corporation (GMAC). These fees could prove quite lucrative to the manufacturer, since its supply chain has the potential of conducting as much as \$500 billion in purchasing annually over TradeXchange.

TradeXchange will interoperate with GM's SupplyPower B2B portal, which will support a broad range of supply-chain collaboration applications in conjunction with e-commerce. GM SupplyPower will allow suppliers to engage in self-service transactions and real-time interaction over the Web with multiple GM organizations, including the following:

- **Purchasing:** Suppliers will be able to receive bid packages, submit quotes, receive purchase contracts, share quality and warranty information, share supplier performance metrics, and participate in a suggestion program.
- **Finance:** Suppliers will be able to query invoice payment status and share information on new vehicle sales and trade discounts programs.
- **Engineering:** Suppliers will be able to collaborate on vehicle designs by sharing math-based design data. They will also be able to collaborate on vehicle testing and receive vehicle program management information.
- **Production control and logistics:** Suppliers will be able to collaborate on production capacity planning and production schedules and share inventory and production information.

GM SupplyPower will be GM departments' primary means to communicate with suppliers, using such online services as e-mail, bulletin boards, suggestion boxes, and real-time news feeds. Suppliers will be able to define individual profiles to personalize their interface to GM SupplyPower services.

It's significant that GM has established both a seller-hosted marketplace and an online B2B portal. The former hub is for commerce and the latter primarily for collaboration, and the two will form an integrated web of services for GM's supply chain and dealers. The two online business models are complementary.

Around the same time that GM announced these initiatives, Ford teamed up with Oracle to announce AutoExchange, its seller-hosted supply-chain e-marketplace. AutoExchange, is similar in functional scope to GM TradeXchange, in the following ways:

- Managed jointly by Ford, the second-largest automaker, and Oracle, which will also physical host and manage the site
- Features both types of commercial postings—buy and sell offers—for automotive products, raw materials, parts, and services.
- Presents offers posted by Ford, which is the permanent, exclusive, anchor tenant, and by Ford's 30,000 established suppliers (direct, indirect, and aftermarket) and dealers
- Processes transactions in which Ford and its established trading partners maintain the inventories being traded; supports purchase authorization, accounting and contractual procedures

AutoExchange has the potential of hosting as much as \$300 billion in annual transactions in Ford's supply chain. Ford and Oracle could recoup as much perhaps \$1 billion annually in transaction fees and other charges in AutoExchange's first year, rising to \$5 billion annually by the fifth year.

It's not clear yet whether auto industry suppliers will choose to run their online procurement operations exclusively over the GM or Ford e-marketplace, or over the merged e-marketplace that also includes Daimler-Chrysler. More likely, suppliers will build layers of mapping/translation software to link their internal procurement systems to the separate, proprietary interfaces exposed by TradeXchange and AutoExchange, respectively, as well as to separate interfaces associated with other auto manufacturers. We expect that suppliers will increasingly demand that all auto-industry exchanges implement a common set of interfaces—EDI, workflow, transactions, auctions, catalogs, and the like—so that the auto industry can operate as one large, open, online trading environment, rather than as separate, noninteroperable, supply-chain hubs managed by leading manufacturers.

The chief problem with buyer-hosted e-marketplaces is that they aim to lock suppliers into a sponsoring company's procurement system, as if the sponsor were the sole buyer of all goods and services in the industry (or at least the sole buyer of goods and services from each supplier). That is clearly not the case in the global auto manufacturing business. Many suppliers sell to GM, Ford, and Daimler-Chrysler, as well as to Toyota, Nissan, Mazda, Fiat, and other manufacturers, which, no doubt, are also considering establishing their own online purchasing hubs.

In one respect, these buyer-hosted e-marketplaces are a step backward for the auto industry. The industry has long had a common, standardized, interoperable EDI environment—managed under the Automotive Network Exchange (ANX) program—that supports a baseline level of B2B document and data interchange. Over the next several years, we expect to see the automakers' hubbed e-marketplaces evolve into a common, next-generation, loosely coupled EDI infrastructure. However, it's too early to say whether the auto industry will base this infrastructure on BizTalk, cXML, or XML/EDI, or on some yet to be defined set of e-commerce standards.

The GM/Ford/Daimler-Chrysler e-marketplace—Covisint— may not turn out to be the fat cash cows that its sponsors expect. The manufacturers are basing their e-marketplace revenue forecasts on the prospect of supporting not just their own online procurement processes, but also those of their suppliers, and their suppliers' suppliers. However, the big automakers cannot mandate that suppliers sell to one another over the converged e-marketplace. Consequently, if transaction fees in these e-marketplaces prove too high, nothing's stopping suppliers from trading with one another in rival e-marketplaces hosted by brokering organizations.

This is no idle threat to GM, Ford, and Daimler-Chrysler's e-marketplace strategies. As we showed previously, there are already a few brokered e-mar-

marketplaces that focus on automotive-related products. We will certainly see more of these in the next few years, many of them basing their business models on hosting deals that would have been inconvenient or unprofitable to transact on the automakers' hubs.

### 6.3.4 Industry-Hosted E-Marketplaces

Industry-hosted e-marketplaces provide trading environments that are not controlled by any one buyer or seller in a vertical market. One or more buyers or sellers may take the initiative to set them up, but a broad-based industry consortium or coalition defines the policies that govern the marketplace and monitors its operations.

One early example of an industry-hosted e-marketplace is the Petrocosm Marketplace, announced in January 2000 by Chevron and Ariba. These firms are organizing an independent marketplace that (they hope) will be owned by a broad range of buyers and sellers in the oil and gas industry.

The Petrocosm Marketplace will allow companies of all sizes to buy and sell drilling, electrical, and other equipment required throughout the oil and gas industry supply chain. The marketplace will also support acquisition of professional, engineering, and construction services for the energy industry. Organizers anticipate that the Petrocosm Marketplace will help energy companies save billions of dollars annually through aggregated purchasing, lower transaction costs, and access to larger global markets.

Petrocosm is a venture-backed company in which Ariba, Chevron, and Crosspoint Venture Partners each hold minority stakes. The sponsors expect that majority equity ownership in Petrocosm will be held by energy industry participants of all sizes. The equity stake for each participant is expected to be based on the amount of business that each firm commits to conducting through the Petrocosm hub.

Using the framework we introduced earlier, the Petrocosm Marketplace may be described thusly:

- Managed by an entity that is owned by buyers, sellers, and independent brokers of the traded goods and services
- Features two types of commercial postings—buy offers and sell offers—for energy-related products and services
- Presents offers posted by multiple sellers and multiple buyers, some of which are stakeholders—hence, permanent or long-term tenants—in the marketplace, as well as offers posted by established trading partners of stakeholders, but no such restrictions will exclude participation by others in the marketplace
- Processes transactions in which stakeholders, their established trading partners, and other sellers maintain the inventories being traded,

but also brokers deals between others—not necessarily marketplace stakeholders or tenants—who maintain the inventories being traded

Chevron will target a substantial portion of its annual \$10 billion procurement budget for the Petrocosm Marketplace to give the hub a necessary shot of upfront transaction liquidity.

Ariba, one of the leading B2B “superbrokers,” will physically host and manage Petrocosm and receive revenues based on a percentage of transaction-based network revenue streams. The marketplace will run on top of Ariba’s B2B hosting, transaction, and supply-chain automation products and services.

Petrocosm will host a broad range of energy industry-specific catalogs containing millions of items. It will integrate with buyer and seller organizations’ existing procurement and ERP systems. It will support electronic payments and provide logistical services for buyers and sellers. It will support several transactions and pricing models, including auctions, reverse auctions, bid/ask trading, strategic sourcing, spot buying, and customer-specific pricing. And it will host online community forums for buyers and sellers in the marketplace.

However, just as in the auto industry, there will be a rival energy-industry trading hub, this one a buyer-hosted marketplace run by the Royal Dutch/Shell Group and Commerce One. This marketplace, which did not have a name at the time this book was written, was also scheduled to go online in the second quarter of 2000. So far, there’s no indication which if either initiative—Chevron’s or Shell’s—is gaining the necessary support from rivals, suppliers, distributors, and others in the global energy industry. Chevron is using the ostensible “neutrality” of its approach in marketing pitches, but it’s not at all certain that hard-boiled commodities traders will care about anything other than dollars and cents. The bottom-line concern for the average trader is always: Where can we execute an order at the most advantageous price and with the lowest transaction charges?

All of which goes to show that anybody who expects one trading hub to someday dominate the entire world economy, or even one substantial sector of one regional economy, will probably be disappointed. We will see marketplaces proliferate and compete amongst themselves at all levels of the global economy. We’re likely to see “hub wars” become a dominant theme of the international economic and political system in this new century.

It’s important to note that the NYSE—the vaunted “Big Board”—has not pushed other stock exchanges into oblivion. Indeed, the NYSE has had to come to terms with thriving stock exchanges in other countries and other North American cities. And, of course, the NYSE has had the fight of its life recently against the original equities e-marketplace: the National Association of Securities Dealers Automated Quotation (NASDAQ) system. From its inception more than 30 years ago, NASDAQ has always been a broker-hosted e-marketplace par excellence.

Will one e-marketplace hosting model—broker, seller, buyer, or industry—someday drive all others into extinction? Maybe, but it's not likely. Different marketplaces will adopt different hosting models, depending on the structure and competitive dynamics of each industry—or perhaps based on the “first mover” advantage of an early marketplace that succeeded simply because it worked well, thereby enshrining the host's initial business model in the long-term structure of that market.

We're likely to see increasingly hybridization of these e-marketplace hosting models. Marketmakers will experiment with models that help them assemble marketplaces with greater visibility, more participants, deeper catalogs, higher trading volumes, and higher transactions fees.

On this latter point, marketmakers will find ever more creative approaches to extracting additional fees and other revenues from their trading environments. No marketplace can survive for long if the marketmaker is going broke, just as no economy can prosper for long if the hosting government has trouble collecting taxes. E-marketmakers will rely on the following revenue-raising approaches to sustain their business models:

- Fees, such as those associated with marketmaker-provided membership, registration, listing, transaction, finder, referral, and advertising services
- Sales or license revenues, if the marketmaker is also a seller or reseller in the marketplace
- Contract revenues, if the marketmaker provides consulting, systems integration, physical hosting, operations, administration, and other services in the marketplace

Marketmakers who attempt to extract more than their fair share of the liquidity passing through their hubs will see a sort of “tax revolt.” Traders will vote with their orders, taking their business to the next hub down the pike, which, after all, is just an URL away.

## 6.4 Membership Model

Membership has its privileges, and in B2B trading communities it can mean the difference between prosperity and bankruptcy.

Cynics might claim that the almighty dollar—especially piles of it—will secure your membership in any community you might wish to join. But that's not always true. You can't, for example, just bribe your way into a seat on the NYSE: The number of seats is fixed and eligibility criteria are rigorous. Lacking such a seat, you're at a distinct competitive disadvantage in buying and selling stocks listed on the exchange. You'll have to establish a business relationship with an NYSE member firm, which, unlike you, is authorized to

place a specialist or broker on the trading floor. Add the trader's transaction fees to those you charge your customers, and you'll realize the competitive burden you're under. You're essentially and inherently a high-cost reseller of the item being traded.

Many e-marketplaces have nontrivial membership criteria, and quite often you have to be an active, registered industry player in order to qualify. At the very least, you will have to fill out an online registration form and accept a membership agreement, user agreement, and/or terms and conditions posted on the site. Even then, you're not usually a member until you receive a formal acceptance by the marketmaker—via e-mail, fax, or phone call—perhaps within 24 hours if everything checks out all right. Once you're in, you can begin to transact business, but always according to the terms and conditions of membership, which marketmakers can usually change as they see fit.

A marketplace's membership model defines who can participate in the marketplace and under what general terms and conditions. A marketmaker would usually maintain membership profiles under a directory service. In the BizTalk Server environment, the likely directory service would be Active Directory, a core component of Windows 2000. Members would normally be required to authenticate themselves by inputting a login ID and password at an opening screen, such as a Web e-form presented by Microsoft Internet Information Server. Members might be required to present strong authentication at login, such as an X.509 public-key certificate issued by Microsoft Certificate Server.

In terms of their membership models, we group e-marketplaces into three broad categories: private, vertical, and horizontal. Figure 6-7 shows these membership models.

### 6.4.1 Private Marketplaces

This is the membership model behind what we have traditionally referred to as EDI trading communities or extranets. In addition, seller- and buyer-hosted e-marketplaces usually adopt this model.

Under the private marketplace model, you must have some preexisting business relationship with the marketmaker or another market member in order to participate. Essentially, you qualify for membership if you already belong to an existing member's distribution channel, supply chain, or both.

When you participate in a private marketplace, you often enter into a complex "trading partner agreement (TPA)" with the marketmaker and/or other TPs. We discussed TPAs in detail in Chapter 3. TPAs are legal documents that specify the rights and responsibilities of TPs with respect to one another. TPAs often figure into a broader business relationship that may, for example, stipulate exclusivity arrangements that require one TP to acquire a particular good or service from the other TP for a particular period of time.

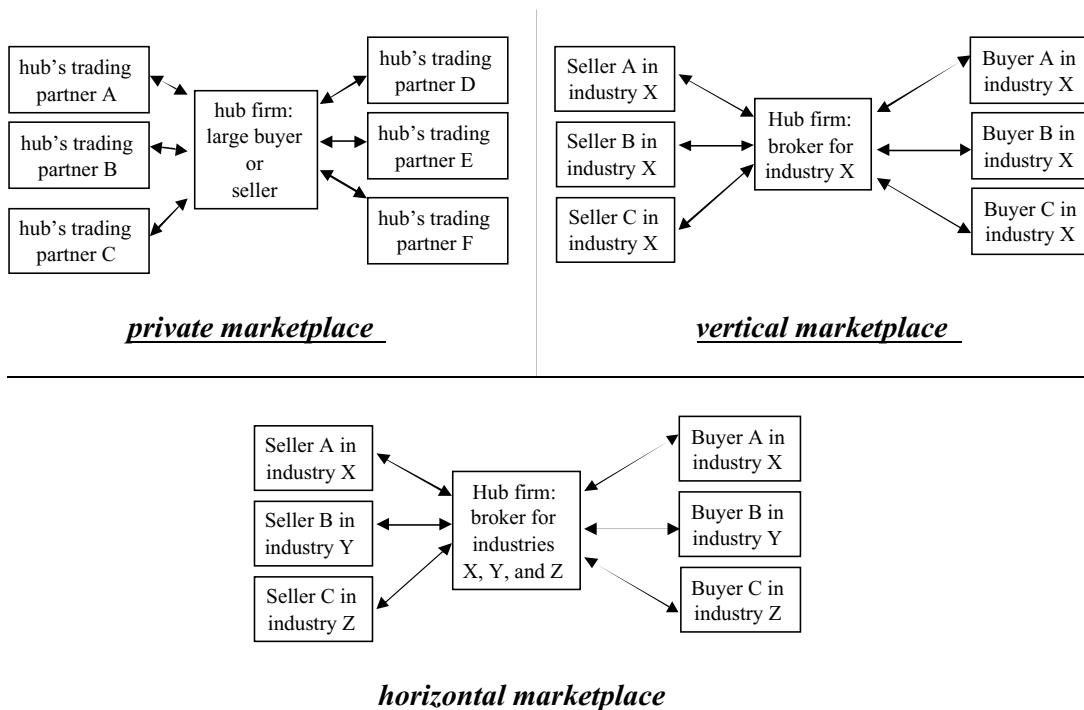


Figure 6-7

*E-marketplace membership models include private, vertical, and horizontal trading communities.*

In other words, the overall business relationship often sets the bounds for the types of items traded within a private marketplace.

Once TPAs are established, TPs mutually register one another in their respective networking and information systems as authorized recipients or senders of EDI messages and documents. TPs also must configure their respective network and data-processing systems to interoperate. Among other things, TPs usually enter each into their respective directory services, assign one another user IDs and passwords, define access controls and other privileges specific to each TP, and perhaps also issue TPs public-key certificates for strong authentication into one another's applications and databases. In many cases, TPs grant one another several accounts on one another's applications, supporting the coordination requirements of various functional groups.

One interesting twist on the private marketplace model is the "invitation" mechanism built into the Ariba Network service. If you're a supplier, a buyer who uses Ariba's ORMS e-procurement software can send you an e-

mail invitation to join the service and post your catalog online. You receive the e-mail and follow an URL hyperlink contained within it to an Ariba Network registration screen. At this screen, you enter the personal identification number (PIN) contained in the invitation message, as well as your company's Data Universal Numbering System (DUNS) number and profile information. Once you click the "submit" button, you are registered and receive an Ariba Network account name and password. However, your account is inactive until the buyer who "sponsored" you responds to an automated e-mail that requests confirmation of your registration. Once you are confirmed, you can begin to trade on Ariba Network. If you attempt to register without a prior invitation, Ariba itself—the marketmaker—will review your application, which will probably take longer than if you had a buyer-sponsor in the first place.

Increasingly, Web-based B2B e-marketplaces are supporting extranet-like integration between established TPs. Some trading-hub software products allow particular TPs to set up customized workflows, transactions, and other services among themselves within the shared e-marketplace, in accordance with TPAs, policies, and procedures. As B2B trading hubs mature and absorb more traditional extranet and EDI functions, we can expect to see further development of "virtual private marketplaces." These are environments that apply private membership models, with appropriate policies and access controls, to public trading environments.

### 6.4.2 Vertical Marketplaces

This is the membership model behind many broker-hosted e-marketplaces, and, we expect, industry-hosted marketplaces as well.

Under the vertical marketplace model, you need not have a preexisting business relationship with the marketmaker, but you must meet the criteria specific to a particular segment of industry, business, or commerce. For example, if you're involved in the buying or selling of industrial-grade paper products, you can join PaperExchange.com. If you're a qualified buyer or seller of biological and chemical reagents, you can join Chemdex.com. The marketmakers may not have a preset list of organizations they'll admit, but they'll probably do a quick background check before they approve your application.

Depending on the vertical marketmaker, TP eligibility criteria will range between stringent and laughable. They may ask you for upfront registration fees, detailed corporate background information, and credit and customer references—and then make you wait for weeks while they check you out. Or they may simply take your name and e-mail address and open wide the virtual door to online trading. Much of this depends on how desperate the marketmaker is for your business, and on the dollar value of the items traded on their exchange.

Name an industry, product, component, service, or professional category, and you can expect to see at least one vertical e-marketplace—perhaps several—emerge to service it over the next few years. Employment agencies, commodities brokers, trade associations, consultants, technical publishers—the list of organizations and individuals who might organize vertical marketplaces is almost endless. All you need is a vertical market concept, a site, a registration screen, and the commercial postings to set it all in motion. If others begin to accept you as a legitimate registration authority and your site as a worthwhile trading environment, you've jumped the first and most important hurdle.

Membership models will rest on growing repositories of background and transactional profiles of buyers and sellers. As vertical marketplaces evolve, we expect to see ever greater subdivision and specialization within each trading environment. Marketmakers will reorganize online catalogs and offers into more specialized categories so as to target opportunities at more narrowly focused market niches. Any given product segment will split into national, regional, and local marketplaces. Any given marketplace will spawn different bargaining and pricing models, such as various auction and haggling rules, to facilitate bidding under time-sensitive and exceptional circumstances. Any given bidding mechanism will spawn competed and noncompeted variants, which would allow any offer to be presented either to a group of rival buyers or sellers, or to a single party who perceives it as a “for my eyes only” offer.

The final frontier, of course, will be vertical e-marketplaces targeted at precisely one member, presenting customized offers in perfect sync with its requirements. Membership in a powerful e-marketplace means you may never have to search for the best deals. Instead, deals will seek you out, connecting you to the right TPs at the right time and terms.

### 6.4.3 Horizontal Marketplaces

This is the membership model underlying most portals and online malls, which are principally B2C-oriented trading environments. It is also the model for B2C auction sites such as eBay.

Under the horizontal marketplace model, membership is essentially open to anyone who registers online, fills out a quick form, and (optionally) provides a credit card number. The owner of the portal, mall, or auction site collects personal profile information on the customer and uses this to target commercial offers at individuals (or what amounts to the same thing, target banner ads, which are “monetizable” content that may contribute more to the site owner's bottom line than offers for items that no one wants to buy).

As the number and variety of B2B vertical e-marketplaces grow, we will see verticals begin to amalgamate into increasingly horizontal trading environments, addressing a broad range of markets and serving a broad range of

members. When each of us belongs to many vertical e-marketplaces, including several in the same industry, the importance of affiliation with any one specialized trading environment will decline. When online identity-management services such as X.509 public-key certificates and MSN Passport progress to the point where they support authenticated single sign-on to a broad range of B2B and B2C sites, we won't have to fill out separate online registration forms and enter duplicate profile and payment information just to

Microsoft Commerce Server and SQL Server, or under third-party hub, commerce, or merchant server software and databases.

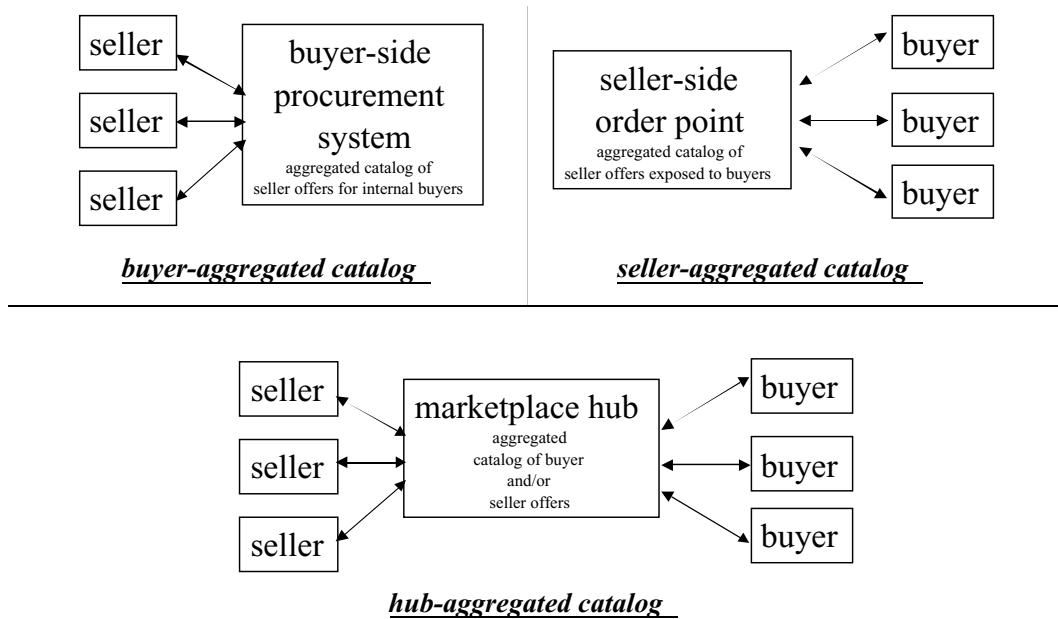
One way to categorize e-commerce environments is by the node at which they aggregate catalog content (shown in Figure 6-8):

- Buyer-aggregated catalogs: Most e-procurement software packages require buyers to aggregate catalog content from one or more merchants. The e-procurement application makes this catalog content available to internal purchase requisitioners. The application uses workflow functionality to manage the internal requisitioning and ordering process. Typically, these applications generate purchase orders in document formats that suppliers accept, such as ANSI X12, and wrap them in message formats such as OBI for online submission.
- Seller-aggregated catalogs: Seller-aggregated catalogs are the focus of many merchants' e-commerce implementations. Merchants aggregate catalogs for their own wares only and make this available to buyers over the Internet. It's usually up to buyers to figure out how to integrate each vendor's proprietary interface with their internal e-procurement applications.
- Hub-aggregated catalogs: This is the e-marketmaker's approach. The marketmaker assumes the burden of integrating seller catalogs and/or buyer offers. This is the core business model for online portals and malls as well. Sellers and buyers who are members of hubbed e-marketplaces are usually responsible for feeding or posting new content to the hub continually.

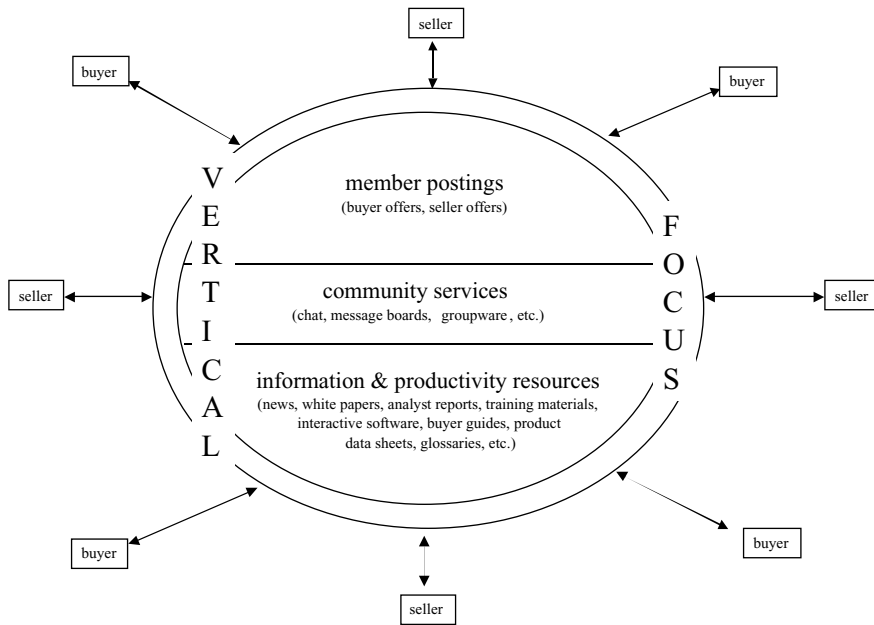
As a sell-side server, Microsoft's Commerce Server 2000 will support seller-aggregated and hub-aggregated catalog content. On a per-server basis, its predecessor, Site Server Commerce Edition, already supports millions of catalog entries, hundreds of thousands of shoppers per day, and tens of thousands of user accounts. We expect Commerce Server to scale even higher, in keeping with the requirements of the trading hubs where it will be deployed. It will aggregate catalog entries, advertisements, and other content in scalable data warehouses integrated with SQL Server and Windows 2000.

At the hub level, we see marketmakers adopting a vertical focus and aggregating the following content types: member postings, community services, and information and productivity resources, as illustrated in Figure 6-9.

**VERTICAL FOCUS** • Usually, your aggregation model is implicit in the concept for your vertical or private e-marketplace. If buyers and sellers refer to your site as, for example, the "used bulldozer market," this indicates they have clear expectations of what to find and not find there. Similarly, if they know it as, for example, the "propane industry's online distribution hub," they won't come there to order non-propane-related products and accessories.



**Figure 6-8** E-marketplace content may be aggregated at the buyer, seller, and/or hub site.



**Figure 6-9** E-marketplace content consists of member posting, community services, and information and productivity resources addressing the vertical market focus of the trading community.

Nothing beats this sort of conceptual clarity when you're trying to target your service to potential buyers and sellers. If you go off focus, you may dilute the market's conceptual grasp and cause glazed-over eyeballs to shun your site. Likewise, if you define a new vertical niche that takes more than 25 words to explain to a total stranger in an elevator, you should seriously reconsider your business strategy.

**MEMBER POSTINGS** • An e-marketplace's aggregation model is also implicit in its membership model. In other words, an e-marketplace's members are also its prime content providers. Generally, the more members your marketplace has, the more content—buy and sell offers—you have as well. You expect a preponderance of offers to buy in a buyer-hosted e-marketplace, offers to sell in a seller-run marketplace, and offers of both types in a broker- or industry-hosted marketplace.

You can tell a strong local economy by looking at the thickness of the Sunday newspaper's classified section. In the same way, you can tell a vibrant e-marketplace by the sheer volume of postings it attracts. Consider the number and variety of postings, the range of buyers and sellers posting them, and the speed at which postings lead to trades.

**COMMUNITY SERVICES** • Your aggregation model should also include services for allowing members to bond into a community, as well as a marketplace. Community services allow marketplace members to locate one another, exchange e-mails, engage in online chats, post to topic-oriented message boards and newsgroups, maintain customized Web pages, and publish events calendars.

Essentially, these are Web-based collaboration tools that supplement the buy and sell activity that is the core function of e-marketplaces. Many vertical e-marketplaces provide access to community services through links from their homepages. For example, a vertical market may offer all its members free Web mail services and Web homepages. Or it may charge for these services, figuring that most established companies already maintain their own e-mail and Web operations. In either case, marketmakers are likely to outsource these services to such vendors as Critical Path and USA.Net, which provide low-cost, scalable collaboration services to many dotcom firms.

As we noted previously, GM will provide B2B collaboration services through a Web site and namespace ([www.supplypower.com](http://www.supplypower.com)) that is separate from its B2B trading environments ([www.gmtradexchange.com](http://www.gmtradexchange.com)). Each e-marketmaker must decide which collaboration services are best provided on a community basis, and which are the responsibility of each member to provide on its own. For message boards and newsgroups, the marketmaker may want to assign a staff member to moderate discussions, prevent posting of objectionable materials, and monitor issues surfaced by members. Moderated discussions are also a good mechanism for identifying operational issues that should be brought to the attention of the hub's help desk.

**INFORMATION AND PRODUCTIVITY RESOURCES** • Markets run on fresh news, and that should be a major component of any e-marketplace's content-aggregation model. Many marketmakers post fresh editorial content to their hubs daily, much of it syndicated material sourced from general and business news sites. Many e-marketplaces also post interactive software, buyer guides, product data sheets, industry directories, analyst reports, white papers, training materials, job listings, industry links, and glossaries. As with community services, this is another type of content that makes trading hubs resemble portals.

## 6.5.2 Content-Disaggregation Paradigms

Hub user interfaces are sometimes too cluttered and impersonal for their own good.

Efficient markets should allow buyers to filter out irrelevant options and allow sellers to target the most promising prospects. Consequently, we also see marketmakers, buyers, and sellers use various techniques to disaggregate and target hub-based commercial content. These techniques include partitioned namespaces, hierarchical categories, classified ads, personalization, localization, search engines, comparison shopping bots, affiliate placements, banner ads, and targeted e-mail.

**PARTITIONED NAMESPACES** • You may not manage just one e-marketplace but several that offer different goods and cater to different groups of buyers and sellers. You might want to host these trading environments on separate Web sites but at the same time give them URLs that suggest they are all part of a larger group of affiliated marketplaces under common management. One approach to this is to assign them different URLs that share a common template structure but differ in that each URL specifies a particular product.

For example, Comput-Ability Inc. brokers various types of building materials through a set of affiliated sites bearing URLs that are both plain-spoken and easy to remember: [www.buyinsulation.com](http://www.buyinsulation.com), [www.buymaterial.com](http://www.buymaterial.com), [www.buydrywall.com](http://www.buydrywall.com), [www.buyceilings.com](http://www.buyceilings.com), [www.buywalls.com](http://www.buywalls.com), [www.buyplaster.com](http://www.buyplaster.com), [www.buyacoustical.com](http://www.buyacoustical.com), [www.buyfireproofing.com](http://www.buyfireproofing.com), and [www.buyfirestopping.com](http://www.buyfirestopping.com). Another example is "superbroker" VerticalNet.com, which, organizes trading communities with such URLs as [www.poweronline.com](http://www.poweronline.com), [www.publicworksonline.com](http://www.publicworksonline.com), [www.solidwaste.com](http://www.solidwaste.com), and [www.wateronline.com](http://www.wateronline.com)—all of which are accessible through navigation links within the marketmaker's [www.verticalnet.com](http://www.verticalnet.com) homepage.

**HIERARCHICAL CATEGORIES** • Within each e-marketplace, you will want to classify and organize items in ways that make sense to your target buyers and sellers. Wherever feasible, you want them to find the right listings right away by navigating through logical categories, though if they have to slog through endless subcategories you'll probably lose them. A good site design places

the information and services in greatest demand on the homepage or, at most, one or two clicks away.

Hierarchical categorization is the hallmark of the portal model of e-marketplaces, as exemplified in the B2C space by Yahoo, Excite, and the like, but it is widely implemented in B2B markets as well. As you subdivide your marketplace, you may want to partition your namespace internally, so that buyers and sellers can return quickly to a page by specifying the unique, mnemonic URL associated with it. A familiar example from the B2C world drives this point home. You might start your Yahoo shopping session at “shopping.yahoo.com/,” and then drill deeper into “shopping.yahoo.com/Arts\_and\_Collectibles/.”

In this particular example, you could navigate even more deeply by inputting long, complex, mnemonic search strings from the keyboard. However, you’d have to be a glutton for punishment to want to do this. Scripts at Yahoo’s Web site automatically enter the appropriate, non-mnemonic URL when you click on the associated hyperlink. That’s a good design feature. You want to conceal as much complexity as possible from browsers.

As a rule of thumb, e-marketmakers should want to minimize the number of clicks and keystrokes that stand between buyers, sellers, and successful trades.

**CLASSIFIED ADS** • Classified ads are flat, nonhierarchical aggregations of buy and sell offers. Think of the classified ads in your local newspaper, or even the yellow pages distributed by your local phone company. The organizing principle is usually not some “semantic map” or some “attribute-based taxonomy” of wares in the marketplace. Rather, it’s usually an alphabetical listing of entries by name or, at the most, alphabetical listings within categories that are themselves listed alphabetically. In many classified ads the categories are usually static. A good example of classified ads are job listings such as those maintained at [www.monster.com](http://www.monster.com).

**PERSONALIZATION** • Personalization is a core feature of many e-marketplaces and merchant sites. It allows users to define a default view of the marketplace that suits their personal needs. Users can go right to the marketplace pages they care about, either when they navigate to the hub’s URL (through the magic of cookies) or when they enter their member username and password at the hub homepage.

Generally, personalized start-up pages allow market participants to view the status of their accounts, including all trades they’ve executed, outstanding offers they’ve posted, and bids they’ve placed. These pages also allow participants to track “watch lists” of companies, products, and other participants in which they are most interested.

**LOCALIZATION** • Localization allows e-marketmakers to segment their catalogs into subsets appropriate for various local, regional, and national markets. Locality can be one of the personalization attributes that marketplace members define for themselves.

A good example of localization in the B2C space is CitiQuest's recent agreement with eBay that provides CitiQuest's city-specific portal users with direct access to eBay listings in specific geographic locations. CitiQuest.com users will have direct access via an eBay icon to any one of eBay's dozens of regional homepages or to the eBay homepage. eBay's local sites allow community members to find items located near them and browse through items of local interest. The sites also provide a more convenient venue for trading items that are difficult to ship long distances, such as cars and furniture.

**SEARCH ENGINES** • Search engines are a critical component of e-marketplaces. Search engines are absolutely necessary when hubs have added more content than can easily fit into a single Web page or human mind. Search features can help users cut through e-marketplace clutter to find items by categories, attributes, keywords, and full-text indexes. However, search engines can also be a Web merchant's tacit admission of failure to aggregate content in an intuitive way.

One important search feature is the ability to save predefined queries as "agents" that execute continuously in the background and notify their "owners" when new content meeting specified criteria hits the e-marketplace. Another important feature is the ability to expose e-marketplace content, such as merchant catalogs, to one or more external search engines, such as Yahoo and Alta Vista, and thereby drive new traffic and membership into the marketplace.

**COMPARISON SHOPPING BOTS** • Comparison shopping bots are critical components in improving the global efficiency of both B2B and B2C e-marketplaces, highlighting and thereby eliminating price discrepancies between separate marketplaces. It's for this very reason that some e-marketmakers and merchants fear broker-hosted shopping bots.

Bots present targeted sets of offers to sell on the fly, usually in response to buyer inquiries that specify such criteria as manufacturer, model, features, and price. Bots allow you to compare different items feature by feature prior to purchasing. Once you select the product you wish to buy, the bot forwards you to the appropriate merchant.

Bots are essentially broker-hosted e-marketplaces in their own right, since they put potential buyers in touch with potential sellers. Bot site operators typically collect finders and referral fees from merchants. The following bots were in the B2C marketplace at the time this book was written, and it was too early to tell which would succeed in that space and possibly branch into the B2B space:

- [www.mysimon.com](http://www.mysimon.com)
- [www.dealpilot.com](http://www.dealpilot.com)
- [www.netsage.com](http://www.netsage.com)
- [www.bottomdollar.com](http://www.bottomdollar.com)
- [www.bizrate.com](http://www.bizrate.com)
- [www.shopnow.com](http://www.shopnow.com)
- [www.ichoose.com](http://www.ichoose.com)
- [www.quotesmith.com](http://www.quotesmith.com)
- [www.nextag.com](http://www.nextag.com)
- [www.respond.com](http://www.respond.com)
- [www.mygeek.com](http://www.mygeek.com)
- [www.rusure.com](http://www.rusure.com)
- [www.frictionless.com](http://www.frictionless.com)
- [www.brandwise.com](http://www.brandwise.com)
- [www.pricegrabber.com](http://www.pricegrabber.com)

We expect that many of today's broker-hosted B2B hubs will develop, license, or acquire bot technology outright over the next several years, since it is so obviously complementary to their core business models. Bot technology is already in evidence in B2B hubs such as [www.necx.com](http://www.necx.com), an electronic components marketplace that allows you, for example, to compare several bar-code printers feature by feature prior to purchasing.

**AFFILIATE PLACEMENTS** • Affiliate placements are hyperlinks on related sites that promote offers and drive traffic to an e-marketplace or merchant site. For example, a healthcare industry e-marketplace might pay the proprietors of health, medicine, and pharmaceutical-related Web sites to place “buy button” icons on their pages. These buttons would send the user to the marketplace to purchase products mentioned in articles on affiliate sites. Typically, the affiliates, like shopping bots, receive referrals fees for directing “clickthrough” traffic to the marketplace.

Another logical group of e-marketplace affiliates includes its member buyers and sellers. One benefit of membership in a marketplace could be affiliate revenues based on hyperlink clickthroughs to the hub.

**BANNER ADS** • Banner ads on external sites are another means of promoting offers and driving traffic to an e-marketplace or merchant site. Unlike affiliate placements, which are usually static hyperlinks, banner ads usually rotate on the hosting Web sites, such as mass-market portals. Rotation means that ads might, for example, be seen once every five minutes or in response to users' entering a particular keyword in a search box. External banner ad placements usually rely on ad-brokering services such as DoubleClick. The banner-hosting Web site usually receives payments from advertisers based on page impressions and clickthroughs.

Internal banner ad placements can be even more powerful than external banners. Internal banner ads highlight special sales, deals, or time-limited

offers in the e-marketplace. One great advantage of internal banner ads is that they eliminate the need to pay referral fees to others. Another advantage is that internal banners can be displayed to the users most likely to be interested in the goods they're promoting, based on transactional data at the marketmaker's disposal.

**TARGETED E-MAILS** • Many e-marketplaces, merchant sites, and online publishers allow visitors to sign up for free e-mailed newsletters and commercial promotions. This is the "opt-in" or "permission-based" approach to broadcasting commercial messages to users' inboxes. It is the Internet community's preferred direct-mail technique. Users ostensibly accept it as an integral part of their existing relationship with an online merchant.

Merchants are often quick to distinguish permission-based e-mail marketing from what many regard as its evil, illegitimate step-cousin: spam. Also known as unsolicited bulk mail, spam trickles into the inbox of anyone on the Internet, sort of like cosmic background radiation. Spam is the most disaggregated, impersonal, and pushy of all commercial content. It comes out of nowhere, laden with deals screaming for your attention, but it knows nothing of you or your interests. It attempts to direct you to URLs swarming with naked bodies, easy cash, and swampy real estate. But you have to figure that someone somewhere must be making some money from spam, or there wouldn't be so much of it.

After all, spam too is an offer hosted somewhere in the global e-marketplace. Like online catalog entries and banner ads, it too is a piece of monetizable content awaiting consummation. It seeks buyers and won't rest till it has them.

## 6.6 Transaction Model

Every marketplace is an arena that depends on a particular structured way of doing business.

Transactions in e-marketplaces are virtual, instantaneous, and configured in almost any way the human mind can conceive and program into existence. In an e-marketplace, you do business by exchanging bits with other human beings sitting at their computers somewhere in the world, by letting your information systems talk to their information systems while you all go about your lives, or by you interacting directly with their information systems as the need arises or by them interacting with yours.

In spite of their superhuman power and speed, e-marketplaces are fundamentally no different from their offline counterparts. Just as in the traditional commercial world, every online transaction begins with an order, offer, quote, request, or inquiry of some sort. If conditions are right, orders get executed, offers accepted, quotes presented, requests fulfilled, and inquiries

satisfied. Currency gets transferred between the appropriate accounts. Goods and services get delivered. All of these activities follow structured procedures laid down by marketmakers, buyers, sellers, and the other organizations that facilitate transactions.

What binds transactions together is documentation, in both the online and offline worlds. Within almost any business relationship, there is documentation flowing both ways, creating an information chain that some call “red tape,” and others defend as a necessary audit trail. In the offline world, you often fill out forms to buy and sell things, and you do the same in e-marketplaces. When you want to do business, you usually have to fill out an electronic form of some sort. If you’re a buyer, the e-form is usually a purchase order, request for quotation (RFQ), request for proposal (RFP), bid, or something similar. If you’re a seller, it’s a quote, proposal, or sales offer.

Whether you’re a buyer or seller, once you’ve completed and submitted the e-form, it starts up a transactional workflow. The form’s contents may be processed entirely by automated systems, as is the case with POs submitted to open order points on an e-marketplace or merchant site. Or the data may be seen by other marketplace participants, who respond by submitting forms of their own, as is the case with bid/counterbid procedures in online auctions.

Every trading community is a culture with its own specific formats, rules, and procedures for doing business. An e-marketplace’s transaction model defines how traders are introduced, offers floated, contracts negotiated, orders submitted, and deals executed in that community. We can describe e-marketplaces’ transaction models in terms of their commercial contracts, bargaining mechanisms, and transactional workflows.

### 6.6.1 Commercial Contracts

Contracts are commercial relationships codified in documentation.

Contracts come in many varieties because commercial relationships differ greatly. Relationships of all sorts drive transactions in the average marketplace—e or otherwise. Some relationships are shallow and transient, lasting for a single transaction between complete strangers. Others endure for years, serving as the basis for a broad range of transactions between TPs that interact on so many levels that they begin to behave like a single, integrated business enterprise.

There are two basic types of e-marketplace relationships: the contract between an e-marketmaker and a marketplace member, and the contract between one participant and another, such as between a buyer and seller. We show these in Figure 6-10.

**MEMBERSHIP AGREEMENTS** • The first contract type—the membership agreement—signifies that a company intends to be a steady participant in an e-marketplace, doing business with one or more members of that marketplace on an ongoing basis. A membership agreement structures all activities in the

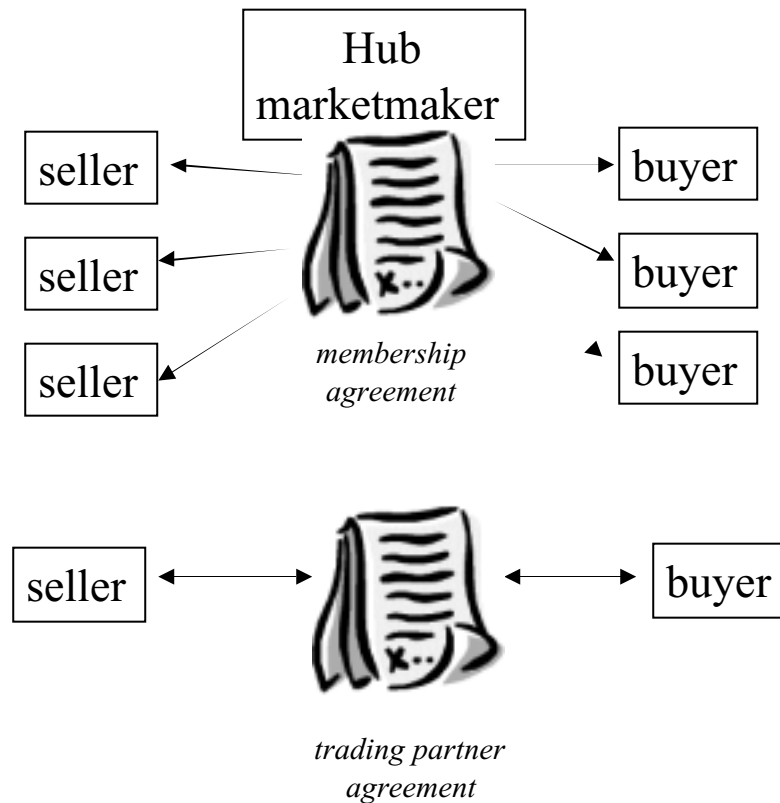


Figure 6-10

*E-marketplace commercial contracts include membership agreements and trading partner agreements.*

e-marketplace. Membership agreements are a standard feature of participating in any capacity in an e-marketplace. They typically address the following basic points:

- Define the scope of transactions supported and services provided in the marketplace
- Define formats, procedures, policies, and workflows associated with transactions
- Describe participant responsibilities, risks, liabilities, and fees associated with transactions
- Declare that the marketmaker is not a party to those transactions
- Limit the marketmaker's legal liability from consequences of those transactions
- List acceptable and unacceptable forms of conduct for marketplace members

- State that the marketmaker alone formulates membership eligibility criteria and decides who may participate in the marketplace and access various features of the service
- Make it known that the marketmaker may at any time change the terms of the membership agreement and discontinue, suspend, or modify marketplace services

**TRADING PARTNER AGREEMENTS** • The second type of e-marketplace contract—the trading partner agreement—signifies that you intend to conduct a high volume and frequency of business online with one particular company. The two types of contracts are not mutually exclusive: You can enter into a membership agreement in a vertical e-marketplace and one or more TPAs with regular TPs you do business with in that environment. The TPA is much broader than a particular sales or service contract between two companies. The TPA addresses legal and technical issues that apply to ongoing supply-chain relationships.

The TPA usually specifies the parameters that shape EDI transactions between TPs, such as:

- Scope of the relationship
- Roles, responsibilities, risks, and liabilities of the TPs
- Sequence of messages, documents, data types, and acknowledgments to be exchanged between TPs
- Processing performed on messages, documents, and data by each TP
- Networks, addressing, encoding, transaction sets, file-naming, digital signatures, encryption, key exchange, compression, passwords, and other procedures pertaining to B2B document interchanges
- Financial terms, conditions, and obligations applying to TPs within the relationship

BizTalk Server provides tools for tracking TPAs, keeping tabs on the documents and messages interchanged with each TP. TPAs are most appropriate for B2B relationships that involve open-ended, multiyear contracts, such as indefinite delivery/indefinite quantity (ID/IQ) contracts, purchase order agreements, and requirements-type service contracts. When companies engage in transient, short-term, one-off transactions, the typical sales or service contract is more appropriate.

## 6.6.2 Bargaining Mechanisms

Bargaining is what converges buyers and sellers on mutually agreeable terms of trade.

The structure of a marketplace's bargaining mechanisms may give buyers an advantage in negotiating terms of trade, or sellers may have the advantage. Think of heavy manufacturing before the rise of labor unions,

and you'll realize that the sellers of skilled and semiskilled labor-power benefited greatly from the development of organized bargaining blocs.

More often, though, the bargaining advantage is not clear-cut, and may in fact swing back and forth in the development of economic institutions. One generation's underdog is the next generation's fat cat waiting for its comeuppance. How you fare in the marketplace usually depends on how wisely you play the hand you were dealt.

We won't focus here on the balance of bargaining power in e-marketplaces. That could (and probably will) be the subject of many a 21st-century doctoral dissertation. Instead, we identify two broad bargaining paradigms, based on whether buyers or sellers drive the transactions. We show these two bargaining paradigms—buyer-driven and seller driven—in Figure 6-11.

**BUYER-DRIVEN TRANSACTIONS** • Buyer-driven transactions kick into action when a potential buyer posts an offer to buy, which comes in many varieties and goes by many names, the most common being bid, order, PO, RFQ, and RFP. These documents may express a definite intent to buy from a particular seller at a particular price, or simply indicate a tentative foray into the market.

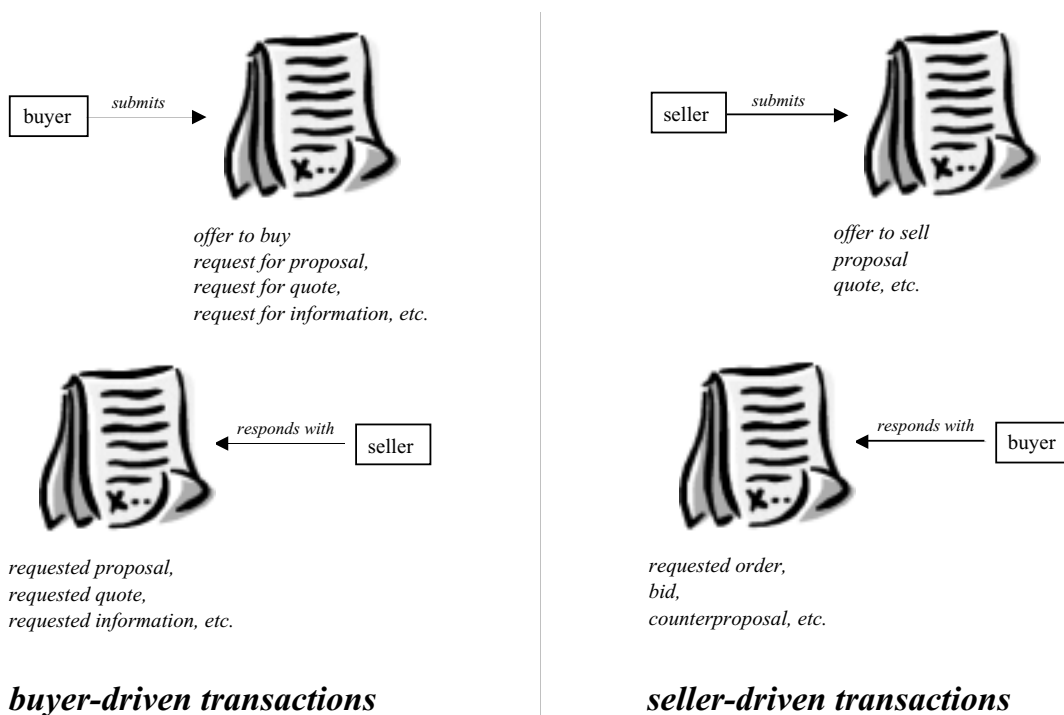


Figure 6-11

E-marketplace bargaining paradigms include buyer-driven and seller-driven transactions.

In daily commerce, buyer-driven transactions are perhaps the most common and familiar. Most of the time we navigate the commercial world with either a definite “shopping list” in hand or a “just browsing” expression on our face. Merchants arrange their wares in attractive packages, floor displays, and shopping environments and wait for our orders. This is in fact the way most online merchants conduct business as well, configuring their online catalogs as open order points exposed to a passing parade of potential browsers. The workflows for these transactions usually conform to a simple back-and-forth model: an order followed by an order confirmation or receipt. Bargaining is often a “take it or leave it” proposition, though some merchants—most notably, automobile dealers—encourage customers to haggle over terms.

Several new buyer-driven transaction models have arisen on the Web, and we increasingly find them in B2B vertical e-marketplaces. We see more e-commerce sites implementing such buyer-driven transaction environments as shopping bots, name-your-terms inquiries, wait-for-best-offer postings, reverse auctions, and haggling. These tools provide more efficient media for what economists refer to as “preference revelation,” often through structured e-forms that guide buyers through a set of options until they assemble a profile of their requirements, often in excruciating detail.

The principal differences between these buyer-driven transaction environments are as follows:

- Shopping bots: Buyers post their specific requirements in a query that gets sent concurrently to many sellers’ sites, with query processing and results compilation under the control of a specialized search engine. Buyers evaluate different sellers’ standing offers against documented requirements and perhaps make a purchase decision immediately, though sellers may not be aware that the user is evaluating them. Sellers do not have an opportunity to compete overtly in improving their chances of winning the buyer’s business through shopping bots, though sellers may in fact monitor the bots and adjust their pricing and other terms behind the scenes to give themselves an advantage. As we noted previously, shopping bots abound in the B2C space and are coming on strong in the B2B space as well.
- Name-your-terms transactions: Buyers post their specific, detailed requirements as bids in messages that are transmitted automatically to many sellers. Sellers are aware that they are being evaluated. Sellers’ information systems generate immediate responses to the buyer’s bid and requirements profile, addressing the buyer’s specific requirements with a custom offer, proposal, or quote. The best-known example of a name-your-terms transaction site in the B2C world is [www.priceline.com](http://www.priceline.com).

- Wait-for-best offer transactions: Buyers post their general or specific requirements as RFPs either in messages to candidate sellers or in postings to a shared board. Sellers need not respond immediately, though the first acceptable offer will probably win the sale. B2C sites that specialize in wait-for-best-offer transactions include [www.imandi.com](http://www.imandi.com), [www.respond.com](http://www.respond.com), [www.iwant.com](http://www.iwant.com), and [www.ewanted.com](http://www.ewanted.com).
- Reverse auctions: Buyers post their specific requirements as bids to a shared board. Sellers may respond, either automatically or manually, with custom offers that address the buyer's requirements, which usually focus on achieving the lowest purchase price for a particular product or service. Sellers may also compete among themselves, underbidding one another until the buyer selects one of them or the auction deadline arrives. Examples of reverse auctions in the B2C world include [www.bidtheworld.com](http://www.bidtheworld.com), [www.nextag.com](http://www.nextag.com), [www.liquidprice.com](http://www.liquidprice.com), and [www.buyersedge.com](http://www.buyersedge.com).
- Haggle sites: Buyers post their specific requirements as bids in messages to one or more candidate sellers. The candidate sellers respond with counteroffers. Buyers can respond to these counteroffers with their own counteroffers, and this back-and-forth process can last for an indefinite number of rounds. Buyers can accept an offer at any time, or withdraw from haggling. Examples of haggle sites include [www.hagglezone.com](http://www.hagglezone.com) and [www.makeusanoffer.com](http://www.makeusanoffer.com).

**SELLER-DRIVEN TRANSACTIONS** • Seller-driven transactions are what we normally associate with “hard-sell” tactics, public relations, telemarketing, direct mail, and spam. However, they are a legitimate and important type of transaction in a healthy marketplace. For example, we would have nowhere near as vibrant a high-tech sector if vendors were shy about proposing new concepts to a puzzled, reluctant marketplace.

Seller-driven transactions start with someone posting an offer to sell, which can take such forms as advertisements, promotions, proposals, and quotes. Indeed, aggregating merchandise descriptions into a catalog and publishing the catalog are often the most powerful offer to sell. After posting the offer, the seller often follows up to make sure the target customer has seen it. During follow-up, sellers often elaborate on their sales pitches, field inquiries, overcome objections, qualify prospects further, and, if all goes well, perhaps even take the order.

The dominant paradigm in today's seller-driven e-marketplaces is the forward auction, otherwise known simply as the “auction.” A seller offers an item for buyers to bid on. Buyers compete against each other in rounds, raising the price until the prespecified time limit, at which point the high bidder wins and gets the item. There are many models of forward and reverse auctions, which we will discuss later in this chapter.

### 6.6.3 Transactional Workflows

Commercial transactions cut a swath within and between two or more organizations, involving a broad range of participants, processing steps, business documents, databases, and coordination and decision points.

When a business process crosses corporate boundaries, the corresponding workflow does as well. A B2B workflow usually involves transmission of several standard business documents in a predetermined sequence between various functional groups within participating companies. Focusing on the immediate players in a sales transaction grossly underestimates the range of companies that will need to swing into action to ensure successful completion of the end-to-end transaction.

As we've noted, the core workflow of many buy-sell transactions is often, on the surface, a simple one: an order followed by a confirmation. However, marketplace transactional workflows can become exceedingly complex (if we're not careful). The surfeit of connectivity, computing power, and reusable software code in e-marketplaces can tempt us to make online workflows more complex than they need be. Before long, the simple point-to-point workflows of traditional EDI applications will seem quaint by comparison with the cast of thousands that might facilitate a complex e-marketplace transaction.

We'll discuss this issue further under "Facilitation Model." However, we'll just call attention to a few of the facilitators that often play roles in complex business transactions in the offline world (if such a world can still be said to exist). There are the buyer and seller organizations, of course, and the various groups within the buyer and seller organizations that played a part in the deal, such as sales, marketing, purchasing, finance, legal, and accounting. The buyers and sellers may have also depended on assent and assistance from their external consultants, banks, appraisers, and insurance companies. The buyer and seller come to terms, the order is placed, and ultimately the deal is closed and settled. Then the order must go to a fulfillment house for processing and handling. An escrow service may get involved to make sure that the buyer renders payment before the item is released for shipping. Once released, the item goes to a shipping company, which may deliver it to the buyer's receiving department or to a temporary warehousing facility. All the while, banks effect the transfer of funds between buyer and seller accounts. Depending on the nature of the transaction, the buyer and seller may also need submit forms and documentation to various government agencies at the local, state, and federal levels. The taxman, for example, is an indirect party to many if not most commercial transactions.

These B2B workflow participants need standards for interfacing their different systems, and the BizTalk Framework provides just such a standards framework. However, as we've noted elsewhere in this book, BizTalk is just one of several candidate frameworks, and it remains tied, in practical terms,

to one operating environment: Windows 2000. No robust standards have yet emerged to support interoperable, cross-platform e-business. The industry is nowhere near delivering anything resembling plug-and-play technical integration at the B2B level. For that to happen, you need an interoperability framework that seamlessly integrates EDI and workflow. The various proposed frameworks—most notably, BizTalk and the XML/EDI Group's initiative—show promise in this regard. They encapsulate EDI transaction sets in message envelopes that specify some, but not all, workflow parameters and transaction state variables. It remains to be seen which of them, if any, will gain the necessary multivendor support. It might be 5 to 10 years before a dominant, universally implemented B2B interoperability framework emerges from today's frantic activity.

All of which shows how devilishly complex a B2B transaction workflow can become, from a business or technical standpoint. As e-marketplaces gear up to support a broader range of online transactions, you'll see transactional workflows become more convoluted. Everybody who has a piece of the transaction will be online and connected to one another through the e-marketmaker. You'll need a graphical flowchart with circles, arrows, and flashing icons to tell the players apart.

## 6.7 Pricing Model

Pricing is the golden thread that runs through most commercial transactions.

Price is often the primary factor that clinches deals and sustains ongoing business relationships. Marketplaces are essentially machines that calculate, recalculate, and calibrate prices, based on transactions that involve many buyers and sellers. Economists teach that the market price is the intersection of the supply and demand curves, but these high-level models almost never drill down to the transaction level, where the asking and bid prices may be miles apart. Bargaining is what brings a seller's asking price and a customer's bid price together, or shows that a hoped-for transaction was never meant to be.

E-marketplaces are pricing machines par excellence, blending "static" and "dynamic" pricing models in creative ways. We increasingly hear this distinction between static and dynamic pricing, but, down deep, it is a misleading dichotomy. From an economic standpoint, most prices are fundamentally dynamic. They vary with general market conditions, with the time of the season or month, and with the intensity of a buyer's demand or a seller's eagerness to unload surplus inventory. Indeed, many shopping bots allow you to track how a particular merchant's price for a particular good has varied on a daily, weekly, or monthly basis.

E-marketplace transactions, like their offline counterparts, rely primarily on fixed asking prices, as quoted in online catalogs. This is a “take it or leave it” bargaining model. In the context of a particular transaction, the seller won’t budge on its initial asking price and the buyer either accepts it or passes on the deal. And the buyer often does not even consider the possibility of haggling over price, knowing that the seller would not welcome it.

The take-it-or-leave-it approach is the primary bargaining model for many mundane consumer and business transactions in the industrialized world. In fact, it’s so common that we rarely recognize it as a type of bargaining, preferring the illusion that this is how business is transacted everywhere. However, back-and-forth negotiation is the standard operating procedure for many upper-echelon, high-value corporate transactions. And many developing countries still rely on haggling for everyday marketplace transactions. Indeed, many people in other societies enjoy the give and take of street bargaining, which is as much a social as an economic activity.

When we speak of dynamic pricing, what we mean is that the final price on a transaction is not known in advance by the seller or buyer. Dynamic pricing depends on the seller and buyer being willing to consider prices other than those they initially had in mind. It’s typically a game of offer and counteroffer, going on until one party accepts the other’s offer and the deal is done.

The e-commerce world has eagerly adopted dynamic pricing models for both business and consumer transactions, as exemplified by the rapid rise of eBay and its imitators. The auction is the main dynamic pricing paradigm in the B2B and B2C spheres. The range of e-marketplace auction models is truly astounding (though they generally lack the fast-talking auctioneers and throat-clearing fat cats that make auctions so entertaining on the silver screen).

An auction is a structured competitive bidding process. There are many auction models. It’s easy to get confused by the diversity of auction models and the complexity of their rules. However, we can distinguish the principal models by several factors:

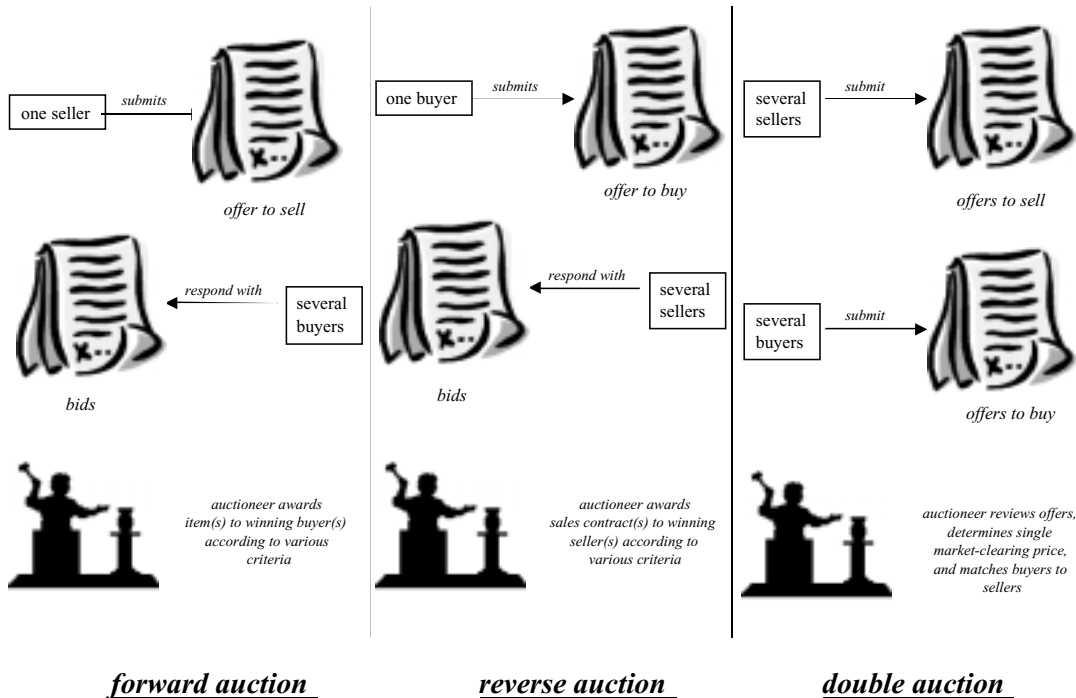
- Who conducts the auction?
- Who may extend and bid on offers?
- What’s the duration of the bidding process?
- What’s included in a bid?
- What items are being bid?
- What information is published to and/or concealed from bidders?
- How often and in what order can participants bid?
- What event starts the bidding?
- What’s the starting price, if any?
- What’s the direction in which prices move during bidding?
- What’s the minimum price increment during bidding?

- What's the maximum amount of time a bidder may take to post a bid?
- What's the bidder's maximum or minimum price limit?
- What determines the winning bid?
- What determines the price charged to the winning bidder?
- What factors break a tie and win the auction?
- How many participants can win?

We now proceed to briefly explain the differences between the leading auction models—forward, reverse, and double auctions—as well as the nuances among variants in these categories. Figure 6-12 provides a high-level overview of these three competitive-bidding models.

### 6.7.1 Forward Auctions

A forward auction is what most people think of when you say the word *au-*  
*ction*. What defines the forward auction is simply this: A seller extends an  
offer to sell, and buyers bid on it. It is a seller-driven transaction.



**Figure 6-12**

*E-marketplace auction models include forward, reverse, and double auctions.*

Beyond those simple criteria, forward auctions allow many options:

- An auctioneer may conduct the auction on behalf of the seller, or the seller may conduct the auction on its own behalf.
- The seller may select the specific buyers who may bid, may define bidder eligibility criteria, or may allow anyone to bid.
- The seller may offer multiple items for bid, or just one item.
- The seller may have a minimum acceptable sales price—a “reserve price”—that it keeps secret, or may accept any price.
- The seller may post the offer at a particular asking price, minimum or maximum, or may allow bidders to start at any price.
- Bidding may rise from a low initial asking price, or fall from a high initial asking price.
- Bidding may rise or fall in fixed increments, or in any increments that buyers wish.
- Bidding may start when the seller posts the offer, or at a different start time specified by the auctioneer or seller.
- Bidding may last for a fixed amount of time, or may end at any time the seller or auctioneer wishes.
- Buyer bids may include just a requested price, or may include both a requested price and quantity.
- Buyers may bid just once each, or as often as they like in a counter-bidding sequence.
- Buyers may take as long as they wish to prepare bids, up to the maximum duration of the auction, or may be required to bid within a maximum time interval.
- Bidders may be aware of one another’s identities, dollar amounts, and quantities during bidding, or they may not.
- Winning bidders’ identities, dollar amounts, and quantities may be revealed after the auction, or they may not.
- The winning price may be the highest bid, the second highest bid, the lowest bid equal to or greater than the reserve price, the highest losing bid plus the bid increment, or the first bid.
- There may be a single winner who “takes all,” or multiple winners among whom the offered items are allocated.
- Multiple winners may pay the different dollar amounts they bid respectively, or they may pay the same dollar amount (usually the lowest winning bid).
- Tie-breaking criteria may be one of the following: highest bid price, highest quantity requested, or date/time of the earliest bid posted.

Well-known forward-auction sites in B2C space include eBay, Yahoo! Auctions, Ubid.com, Auction Universe, HomeAuctioneer, AuctionWatch.com, FairMarket, FreeMarkets, CommerceBid, OutletZoo, FirstAuction, and AuctionRover. A selected sample of B2B auction sites include Afternic

(Internet domain names), Autodaq (auto dealer used car inventories), Band-X (long distance telecommunications bandwidth), IronMall (pre-owned construction equipment), TradeOut (surplus inventories), and Yahoo! Merchant Auctions (many product and service categories). These sites support various forward-auction models. Essentially, each forward-auction model specifies a particular bargaining protocol that buyers and sellers follow to arrive at a winning bid. We can tell one model from another by how each combines the features just discussed into unique configurations.

One way to classify forward auctions is by degrees of openness, in terms of who may bid and whether bidders' identities and bids may be concealed. We arrange forward auctions along a spectrum from private to public. A private auction is one that follows any or all of the following approaches:

- Limits participation to seller-specified bidders
- Conceals bidders' identities and bids from one another and from the general public
- Conceals winners' identities and bids from everyone except the winner, seller, and auctioneer

The most familiar form of private auction is the sealed-bid auction. Typically, there is no seller-specified minimum price. Bidders are not aware of one another's bids or identities. They may have won the privilege to bid by meeting various eligibility criteria. However, sealed-bid auctions are not entirely private, since they often reveal the winner's bid amounts after the auction closes.

In addition, sealed-bid auctions often limit each bidder to a single bid each, with no opportunity for counterbidding. There may be a time limit for bidders to prepare and post bids. Bids are opened and published at a certain point in time. In most cases, the highest bidder wins. If there are multiple bids at the highest price, the bid that was submitted first wins. The winning bidder pays a purchase price equal to his bid.

Public auctions, by contrast, open participation to everyone and reveal bidder and winner identities and bids throughout the whole process. The most familiar form of public auction is the open-cry auction. In an open-cry environment, bidders are aware of one another's identities and bids. Typically, bidding begins at a seller-specified minimum price. Bidders may counterbid one another repeatedly, raising the price ever upward until the auction's fixed end time. The highest bid wins and purchases the item.

Another way to classify forward auctions, apart from openness, is according to the method by which they determine the winning bid and the purchase prices they charge winners. In this regard, the chief alternative models are English, Vickrey, Japanese, reserve price, clear price, winning bid, second price, and Dutch. We now describe each winner-determination model in turn.

English auctions are the most traditional and common auction type. They assume a “winner-take-all” scenario and use an open-cry bidding technique. The highest bid wins, and the high bidder pays that purchase price. Bidders may counterbid and successively raise bids for the item until a single bidder remains and no other bidders opt to post higher bids.

Vickrey auctions are also won by the high bidder. However, the winner of a Vickrey auction pays a purchase price equal to the second-highest bid (or, another way of putting it, the highest losing bid). Vickrey auctions also assume a winner-take-all scenario. They are a species of private auction with a definite deadline. Each bidder submits a single sealed bid before deadline.

Japanese auctions are also winner-take-all contests won by the high bidder, which pays a purchase price equal to the high bid. Like English auctions, counterbidding is allowed and takes place in an open-cry setting. Unlike English auctions, Japanese auctions have time limits. However, the time limits are not fixed, as they are in Vickrey auctions. Instead, the auctioneer may accelerate deadlines and declare bidding over if he receives the specific bid he is seeking or does not think a current bid will be exceeded.

Reserve-price auctions are won by the buyer who submits the highest bid that equals or exceeds the seller’s reserve price (in other words, the seller’s minimum acceptable sales price). The high bidder pays a price equal to the high bid, which can never be lower than the seller’s reserve price. The seller sets a reserve price if he absolutely refuses to sell below a certain price. Bidders know there’s a reserve price, but they don’t know what it is. If no bidders meet the reserve price, neither the seller nor the high bidder is under any obligation. Reserve-price auctions are winner-take-all, open-cry bargaining environments.

Clear-price auctions put multiple items up for bid. There may be several winning bidders. The winning bids are the highest bids that, taken altogether, collectively clear out the seller’s inventory. Each winning bidder pays the amount of the lowest winning bid and receives one of the items being auctioned. Consequently, these are not winner-take-all contests. Rather, they allocate the inventory equally among all winning bidders, and charge all winners the same amount.

Winning-bid auctions are like clear-price auctions in several respects. Both auction models put multiple items up for bid, award items to the bidders who collectively clear the seller’s inventory, and may allocate inventory among several winning bidders. However, unlike clear-price auctions, winning-bid auctions charge winners the prices they individually bid and allocate them the number of items they individually requested. One caveat is that winning buyers who bid higher prices are assured of receiving the quantities they requested. Winners who bid lower prices may receive fewer than they requested, depending on the quantity left after the higher bidders receive their allocations.

Second-price auctions combine aspects of clear-price and reserve-price auctions. If multiple items are being auctioned, second-price auctions resemble clear-price auctions in two respects: awarding items to the bidders who collectively clear the seller's inventory and allocating inventory among several winning bidders. As with reserve-price auctions, the seller sets a minimum acceptable sales price (reserve price), which is kept secret from bidders. However, second-price auctions introduce the concept of a bidder's maximum acceptable purchase price, which the bidder keeps secret from the seller and other bidders. At any point during the bidding process, a buyer may submit a bid equal to the latest market bid plus a fixed bid increment. A buyer will withdraw from further bidding if the current market bid exceeds his maximum acceptable purchase price. However, if the buyer's last bid is one of the top outstanding bids, the buyer will be one of the winners. In that case, he and all other winners will pay a purchase price equal to the lowest of the following: the second-highest bid (plus the bid increment), the lowest winning bid, or the reserve price.

Dutch auctions have "descending price" bidding processes, as opposed to the "ascending price" bidding of other forward auctions. In Dutch auctions, the seller starts with a high asking price, which falls progressively lower as the auction continues. If only one item is up for bid, the winner is the first buyer to call out a bid at the current asking price. The winner pays a purchase price equal to his bid. If multiple items are up for bid, bidders specify their desired prices and quantities, and the winners are the earliest bidders who collectively cleared the seller's inventory. All winning bidders pay the same purchase price, which is equal to the lowest successful bid. As with other multi-item auctions, higher-price bidders are more likely to receive the quantities they've requested. Lower bidders, if they're among the winning group, can refuse quantities that are less than they requested.

### 6.7.2 Reverse Auctions

Reverse auctions are buyer-driven transactions. A buyer extends an offer to buy, and sellers bid on it. The buyer defines a high price to start the bidding. Prices usually fall during bidding. Prices may drop in fixed increments, or according to the intensity of competition. Counterbidding among rival sellers may or may not take place. Sellers may or may not be aware of one another or their respective bids. The low bidder usually wins and sells at the price.

Like forward auctions, reverse auctions can be private or public, sealed bid or open cry, deadline bound or open ended, single item or multi-item, single winner or multiwinner. Buyers often come into reverse auctions with maximum acceptable purchase prices in mind, and sellers likewise have their minimum acceptable sales prices.

Well-known examples of reverse auctions in the B2C space include BidTheWorld, NexTag, LiquidPrice, and BuyersEdge. Quite naturally, we are

finding reverse auctions popping up in e-commerce hubs that revolve around shopping bots. It's a short step from comparing multiple merchant offers to getting those same merchants to compete against one another online for your business.

Many of today's e-commerce business models are essential reverse auctions with various degrees of support for competition and counterbidding among sellers.

For example, "name-your-terms" sites such as Priceline.com generally support a single round of online bidding among multiple merchants in response to a buyer-defined RFQ for a specific type of good or service. Seller bids come immediately in response to a buyer RFQ, usually through Priceline connections with remote merchant commerce applications. The buyer is not obligated to purchase at quoted prices.

Haggling sites such as HagggleZone.com and MakeUsAnOffer.com start with a buyer-submitted RFQ and may involve multiple rounds of counterbidding involving one or more online merchants. As with Priceline, merchant offers come immediately in response to buyer requests and the buyer is not obligated to purchase at quoted prices.

Wait-for-best-offer sites such as Imandi.com, Respond.com, Iwant.com, and eWanted.com let buyers submit RFPs to one or more online merchants. Due to the complexity of the requirements, sellers may not be able to produce immediate, automated sales offers. Instead, sellers may take the time necessary to develop proposals and quotes that directly address the buyer's requirements. These services do not involve intensive counterbidding among buyers and sellers. Buyers are not obligated to buy at quoted prices.

### 6.7.3 Double Auctions

Double auctions combine concurrent seller- and buyer-driven transactions. Sellers make offers to sell and buyers make offers to buy. Each party, seller or buyer, posts a single offer to an auctioneer. The auctioneer reviews all sell and buy offers, determines a single market-clearing price, and matches sellers to buyers.

The double auction is essentially the marketplace bargaining model that Adam Smith assumed in his classic 1776 publication *The Wealth of Nations*. Instead of an auctioneer, Smith posited a metaphorical "invisible hand" that matched supply to demand and determined a market-clearing price.

Double-auction mechanisms have not yet penetrated the new B2B e-marketplaces in great number. However, it's important to note that the nerve centers of the world economy—stock and commodity exchanges—implement double auctions in their core operations. And most of these exchanges have placed their operations online or are preparing to over the next several years.

It's only a matter of time before we see double auctions alongside forward and reverse auctions in B2B hubbed e-marketplaces. As online trading environments become more important to the macro-economy, online auctioneers will increasingly take on responsibility for maintaining orderly markets, just as stock exchanges are expected to do. Maintaining equilibrium in chaotic markets sometimes requires speedy intervention by a central market-maker to rebalance supply and demand around a market-clearing price. That's a role for which double-auction mechanisms are well suited.

Before we leave this discussion on pricing models, we need to discuss an increasingly common dynamic pricing mechanism that is not, technically, a type of auction. Purchase aggregation, also known as group buying or buyer pooling, is the business model for B2C sites such as Mercata.com, VolumeBuy.com, Accompany.com, actBIG.com, and Zwirl.com. What these hubs do is progressively reduce the price for a given product as the number of orders for that item grows, up to a prespecified deadline, at which time a price is locked in and buyers are obligated to buy. This is not an auction, because it does not involve competitive bidding or counterbidding among sellers or buyers. The net result of these aggregated-purchasing blocs is usually that a merchant has moved a substantial portion of its inventory at a price that may be lower than the initial asking price but is comfortably above its minimum acceptable sales price.

In other words, purchase aggregation allows customers to buy at wholesale prices, while merchants compensate for low margins with high sales volumes. This is a win-win scenario for both the buyer and seller. All of which shows that the most important feature of prices is not whether they are static or dynamic within the context of a particular transaction. What matters is not how vigorously trading partners haggle over terms. What matters is whether buyer and seller have settled on the right price at the right time to clinch the deal.

## 6.8 Payment Model

Payments keep commercial relationships in good working order, especially when the buyer renders payment promptly, fully, and with minimum fuss.

Liquidity is the key to efficient markets. Trading environments can be only as strong as the velocity of payments that circulate within them. The more quickly currency recirculates into new spending and investment, the more vigorous the marketplace. Buy and sell offers come more quickly, and in greater volume, when all parties have the funds and credit to support ongoing transactions. By contrast, economies stall when liquidity dries up, currencies grow unstable, and payments are slow in coming. One danger

sign is when the process of transferring monies between buyer and seller accounts becomes more risky and time-consuming than the purchase transactions that set it all in motion. Chronic inflation and foreign-exchange fluctuations are particularly damaging for commerce, since they increase risks for buyers and sellers alike and also undermine confidence in the value of the common medium of exchange.

Electronic payment and funds transfer technologies are linchpins of modern marketplaces. In fact, these technologies have achieved such ubiquity that most of us—even the technologically unsavvy—use them regularly. We do our banking through automated teller machines (ATMs), have our paychecks deposited electronically in our bank accounts, have our mortgage and insurance payments deducted automatically every month, and may even pay other bills online. We use our PCs to transfer funds between our bank and brokerage accounts via the Internet. We hand our credit cards to store clerks who use them to authorize our purchases through connections to financial networks. So you don't need to look to purely electronic marketplaces for evidence of electronic payment and funds transfer. It's everywhere.

E-marketplaces are almost inconceivable without electronic payments and funds transfer. Electronic transaction and payment models sync up very well, providing the speed and liquidity needed by free-wheeling modern businesses. Electronic payment technologies enable frictionless liquidity, in which monies transfer instantaneously and automatically upon deal confirmation or product delivery. It's no surprise that e-marketplaces rely heavily on the preexisting global infrastructure of credit cards, online funds transfer, and automated clearinghouses. Only an electronic payment infrastructure can keep pace with an e-marketplace's instantaneous buy-sell transactions. And electronic payment technologies have been around long enough to inspire the universal confidence that spurs merchants and consumers to rely on them extensively.

In the past five years, we have seen plenty of innovation in the electronic payment world. Much of this innovation stems from and supports the growth of global e-marketplaces. The most noteworthy trends are the development of Internet-based account consolidation services, Internet-based payment-processing services, Internet-based financial institutions, and Inter  
6.8.1 insti, anB InteAer

credit card information, and delivery address yet again. It's getting to the point where you need to be a memory artist—or a conscientious note-taker—to keep track of all the accounts that you've personally created.

Anybody who's ever surfed the Web recognizes this as a sorry state of affairs. We could eliminate it if online buyers were somehow able to present to every new site, transparently and automatically, a set of digital credentials that speed them through the registration, login, and purchasing process. After all, it's in online merchants' best interest to cut straight to the purchase transaction.

Some Internet-based payment processors—such as CyberCash, eCharge, iPIN, and TransPoint—provide account consolidation and management services for online buyers. Essentially, buyers create secure, personal, online “wallets” that contain one or more credit card numbers to be used in purchasing from online merchants that agree to use a particular company's credit card capture, authorization, and processing services. Typically, the buyer clicks on a “buy” button on a merchant site that is affiliated with the payment processor in order to purchase an item posted on that site. Usually, buyers can review participating merchants' bills online and authorize payment—electronically or via drafted paper check—to merchants from linked bank accounts. In most cases, payment processors safeguard the privacy user account, profile, and transaction information.

Some companies provide Internet account consolidation services that do not support online bill review and payment, but do automate registering, logging in, and purchasing from affiliated merchant sites. Examples of such services include Ezlogin, Gator, Jotter, Lumeria, MSN Passport, Novell digitalme, PassLogix, VerticalOne, and Yodlee. Increasingly, these services use the Electronic Commerce Markup Language (ECML), a dialect of XML, as a standard syntax for exchanging user profile information with merchant sites.

## 6.8.2 Internet-Based Payment-Processing Services

Most B2C and B2B e-commerce transactions rely on buyers providing credit card information to sellers over encrypted Secure Sockets Layer (SSL) sessions. To make this possible, most online merchants—like their offline counterparts—rely on existing payment-processing industry services.

Before we discuss the emerging market for Internet-based payment-processing services, we will briefly review the standard procedures for credit card authorization, processing, and settlement. Payment-processing services include authorization, capture, conveyance, and settlement of payments submitted through any of the following means: bank credit cards, private-label merchant credit cards, travel and entertainment cards, corporate cards, bank debit cards, electronic checks, recurring debits, and prepayments. It's a complex online B2B workflow in its own right, involving many companies and processes.

In the click or mortar worlds, the typical credit card payment cycle involves authorizing card transactions at the point of sale, capturing data related to transactions, settling transactions with card associations on behalf of the merchant, and producing transaction reports for the merchant. In the course of processing a credit card transaction, various organizations interoperate to capture and authorize the transaction, usually within 8 to 15 seconds. The authorization process involves obtaining approval from the card-issuing bank for the cardholder's purchase at the merchant site. Authorization procedures confirm that the cardholder has the available credit to cover the purchase and verify that the card has not been reported lost or stolen. During transaction authorization, transaction data, such as dollar amount and card number, are captured in the payment-processing network. Payment processors use this data to settle the transaction and prepare reports for the merchant. Payment processors also provide services to help merchants control the risks associated with credit card fraud and bad credit risks.

Payment settlement involves managing a record of each merchant's transactions and transferring funds from the card issuer to the merchant. The payment processor transmits transaction information to the card-issuing bank through the card associations, such as Visa and MasterCard. The payment processor arranges for funds to be transferred to the merchant's bank account via automated clearinghouse or Fedwire transfer (for transactions between U.S.-based buyers and sellers). The card-issuing bank then bills the cardholder directly. Settlement payments made to merchant accounts often reflect a discount from the full transaction price, which generally includes the payment processor's fee and any card association interchange fees. Settlement procedures usually result in the merchant's account being credited within 24 to 72 hours from the time of closing a batch of transactions.

In the United States, the dominant payment-processing and settlement service providers are Citibank, First Data, and Paymentech. In addition, there are many companies that specialize in capturing and authorizing card transactions for merchants and in conveying transactions to the large settlement service organizations.

Among the niche payment processors are a new breed of firms that specialize in capturing, authorizing, and processing transactions for Internet-based merchants (and for individuals who sell things over the Internet). Some Internet-based specialist payment processors include BillPoint, CyberCash, CyberSource, eCharge, iPIN, PayPal, TransPoint, and WorldPay. As with traditional payment processors, all of these specialist processors make money from a combination of transaction fees on merchants and/or the float between buyer payment and transfer to merchant accounts. We will briefly discuss each of their offerings.

BillPoint, a wholly owned eBay subsidiary, facilitates secure person-to-person (rather than person-to-merchant) credit card payments over the Internet (you might even label BillPoint, like its corporate parent a pioneer in

“C2C” e-commerce). BillPoint addresses the payment needs of online auction sites where the “merchants” are in fact ordinary individuals who have posted sales offers. BillPoint eliminates the trouble, delays, and risks associated with postal mailing checks and money orders (which is how most auction customers currently arrange payment).

CyberCash provides secure B2C and B2B transaction services for Internet-based merchants. CyberSource provides online merchants with credit card, electronic check, and “micropayment” processing services. Micropayments refer to charges, as low as one cent, that are normally too small for cost-effective processing by Visa or MasterCard. Buyers can subscribe to CyberCash’s InstaBuy service, which creates a secure, personal, online wallet containing one or more credit card numbers to be used in purchasing from InstaBuy-affiliated online merchants.

CyberSource provides a wide range of secure B2C and B2B transaction services for Internet-based merchants. CyberSource provides online merchants with credit card and electronic check processing, tax calculation, fraud screening, export compliance, distribution control, delivery address verification, fulfillment messaging, digital product registration, digital delivery, digital warehousing, and gift certificate services.

eCharge positions its service as an alternative to Visa and MasterCard for online, credit-based B2C and B2B purchases. An eCharge account provides customers with revolving credit and prepayments for use in purchasing from participating online merchants. Customers can sign up for their eCharge accounts online, get real-time account approvals, and buy immediately. Businesses and families with eCharge accounts can set up subaccounts with individual spending limits and restrictions on merchant sites from which they can purchase. eCharge account holders need to enter their personal and shipping information only once, when they establish the account. Purchases involve clicking on an eCharge logo on a participating merchant’s Web site. eCharge does not divulge customers’ personal information to participating merchants. The service adds charges to a customer’s ISP or telco bill and allows customers to review their eCharge statements and pay for purchases online. eCharge is attempting to recruit merchants by offering them the opportunity to save up to 100 basis points on transaction fees over traditional credit card fees. Like CyberSource, eCharge provides merchants with online settlement and accounting services. eCharge can also process micropayments for purchases as small as one cent, which could not be processed cost-effectively with traditional credit cards. Merchants using eCharge’s services include Microsoft, AT&T, ReleaseNow, and Intershop Communications.

iPin’s service is similar to eCharge in many respects. iPIN is an alternative to traditional credit cards for B2C transactions. It tallies micropayment purchases that customers make throughout the month at iPIN-affiliated online merchants and adds the charges to the customer’s ISP bill (if the ISP has an agreement with iPIN). The customer does not need to prepay or pre-

fund her iPIN account with a credit card before making a purchase. There is no charge to the customer for using the service and no client-side installation requirements.

PayPal seems to regard itself as the Western Union of the Internet: a service for wiring (or, in PayPal's term, "beaming") money electronically to friends and family members. However, unlike Western Union, PayPal is a C2C funds transfer service that is free of charge to senders (PayPal's provider, Confinity, Inc., proposes to make money off the float on subscribers' deposited funds). And unlike the C2C-oriented BillPoint, PayPal does not associate these funds transfers with auction buy-sell transactions, though senders and receivers may in fact be using the service for this very purpose. Instead, users prepay their PayPal accounts with charges on their traditional credit card accounts or direct deposits from their bank accounts. A PayPal account holder then accesses the PayPal application software on his computer (or PalmPilot or cell phone) to send an e-mail to the payee announcing that there's money waiting for him or her. Mail recipients can receive funds only if they have a PayPal account; fortunately, the funds-waiting message provides an URL that the payee can follow to sign up (for free) to PayPal and see their new funds in their own PayPal account. PayPal account holders can withdraw funds by requesting a paper check or direct deposit to their bank account.

TransPoint—a joint venture of First Data, Microsoft, and Citibank—is an online billing and payment service for B2C, B2B, and C2C applications. TransPoint users link their TransPoint accounts to their bank accounts. They access their TransPoint accounts securely from the TransPoint Web site or the site of any participating portal, hub, or financial institution. Within the TransPoint environment, users maintain personal lists of companies and individuals to pay and can transmit payments to any business or individual, either electronically or through requests to draft paper checks. Customers may review bills online for merchants that post bills electronically. They can also schedule payments online and receive confirmation that payments were made. Financial portals and online billers can cobrand and customize TransPoint services alongside those third parties' related services, such as providing account balances and financial advice.

WorldPay provides a wide range of B2C and B2B transaction services for Internet-based merchants in many countries. As with the other online payment specialists, WorldPay allows online merchants to place buy buttons on their Websites that connect transparently to these payment services. WorldPay securely processes credit card, debit card, travel-entertainment card, electronic check, and micropayment transactions in over 160 currencies. The company processes multicurrency transactions, and allows customers to avoid currency fluctuations. Merchants that use WorldPay services can track their transactions via their own personalized online account management system.

WorldPay, CyberCash, CyberSource, eCharge, and iPIN provide international payment-gateway services. Other payment-gateway providers include Anacom, Authorize.net, Cardservice International, Coral Capital, DataCash, Digital Courier Technologies, First Atlantic Commerce, iMall, NetBanx, Planet Group, Signio, and Trintech. These firms specialize in conveying, converting, and settling multicurrency credit card transactions that involve buyers and sellers in the United States and other countries. Buyers present payment in one currency and the gateway takes care of converting and settling it in the merchant's preferred currency.

International commerce introduces additional processing delays, processing and interchange fees, taxes, duties, freight-insurance premiums, shipping and handling charges, customs clearance fees, import/export regulations, and currency exchange risks into the equation. Merchants who export often use software that computes the "delivered cost" or "landed price" of goods in the currency of the buyer, taking into consideration a wide variety of fees as well as exchange-rate fluctuations. Increasingly, we see online merchants and trading hubs integrating their services with third-party translation services, enabling prices to be translated in real-time, via the appropriate exchange rate, into the customer's currency. Many international payment processors are also providing services that facilitate the full range of "delivered cost" calculations, manage export/import restrictions and logistics, and help identify the most cost-effective transport carrier.

### 6.8.3 Internet-Based Financial Institutions

If we buy and pay online, it makes sense that our checking, savings, credit, brokerage, and other accounts—and the institutions that maintain them—should also migrate to this new environment. That is happening all around us. Millions of us have online brokerage accounts with Schwab, E\*Trade, and other institutions. And, increasingly, we are seeing online banks, such as WingspanBank.com, Telebank, B2Bank.com, and USABancShares.com. In these banks, the only teller window is the browser and banker's hours are 24x7x365. And of course, they, like their offline counterparts in the United States, are insured by the Federal Deposit Insurance Corporation.

WingspanBank, for example, provides most of the services of traditional brick-and-mortar banks: checking accounts (with printed checks), credit cards, certificates of deposit, consumer loans, mortgage loans, home equity loans, and participation in nationwide ATM networks. You can also use WingspanBank to pay bills online, research investments, plan your finances, and receive quotes from third parties on stocks, mutual funds, and auto, life, homeowners, and other types of insurance.

The range of Internet-based banks is still small, but we expect that most brick-and-mortar banks will begin hosting their own online doppel-

gangers within the next 5–10 years. The banking industry, which has reengineered its stodgy business model around ATMs over the past generation, will have no choice but to migrate to this new environment. They will have to follow our money to where it now lives: the Internet.

### 6.8.4 Internet-Based Proxy Currencies

Perhaps the most striking development in the online economy is the development of Internet-based proxy currencies. Fundamentally, proxy currencies are scrips that e-marketmakers issue for either of two purposes:

- Denominate exchange values on barter transactions that are conducted within their e-marketplaces
- Serve as promotional tokens—similar to gift certificates or frequent-flier miles—to encourage continued patronage of sellers in their e-marketplaces

Proxy currencies may or may not be transferrable to other parties. By contrast “real” currencies, such as the U.S. dollar and the Euro, are usually transferable to others (or, in international transactions, “convertible”). We should note that the Euro is starting out as a proxy, with a defined exchange rate, for the “real” currencies that it is legislated to replace.

The primary circulators of Internet-based proxy currencies fall into two categories: B2B and B2C e-marketmakers.

First, there are the online B2B barter hubs: BarterTrust.com, Ubarter.com, and BigVine.com. Each of them issues a noncash electronic currency, with a specified exchange rate to the U.S. dollar, that members of their barter marketplaces use to buy and sell products and services from one another. Typically, businesses enter into these barter exchanges when they wish to offload surplus inventory, decrease cash expenditures, and preserve their cash balances. Exchange members post buy and sell orders, just as they would in any hubbed e-marketplace, but they quote prices in the marketmaker’s own proxy currency, not in the U.S. dollar. The marketmaker charges a fee (in U.S. dollars) for all transactions. Obviously, one limitation of these environments is that the proxy currency does not have anything approaching the liquidity of “real” currencies, since it can be used only on items posted in the exchange run by the currency’s issuer.

Second, we are also seeing Internet-based proxy currencies in the B2C sphere. Examples include Flooz.com and Beenz.com. They are both interesting alternative business models.

You pay for “flooz” currency with “real” currency (as opposed to in-kind transfers or barter exchanges). However, flooz is transferable and you can send it, like a gift certificate, to anyone with an e-mail account. The recipient can then use the flooz to purchase items from any participating online merchant. Flooz.com makes money on the float between the time that

a user deposits “real” currency in his or her flooz account and the time when a flooz-accepting merchant requests payment in “real” currency for a flooz-denominated purchase.

You pay for “beenz” currency simply by being active on the Internet (no in-kind or real-currency transfers are necessary). You accrue beenz by doing any of the following: surfing to the Web site of any Beenz-affiliated merchant, filling out merchants’ online surveys, and/or purchasing items (with “real” currency) from those merchants. You can then use your beenz to buy more merchandise from online merchants.

It’s still too early to tell which if any of these proxy currency schemes will succeed. It’s also not clear whether this form of payment is better suited to vertical B2B or horizontal B2C marketplaces. For any of them to stand a chance, their issuers need to build large, stable, and attractive e-marketplaces of buyers and sellers that transact business with one another regularly. These marketplaces need to be very attractive trading environments in order for buyers to overlook the inevitable loss of liquidity that comes with using scrip in place of “real” currency.

E-marketmakers also need to build widespread recognition of and trust in their role as issuers of what the less charitable might regard as “funny money.” The concept of proxy currencies doesn’t seem so strange when you take a historical perspective on it. Every new payment instrument has had its fervent, indeed hysterical, detractors. Throughout the course of history, we have seen such innovations as paper currency, personal checks, credit cards, and electronic funds transfer enter the world under a cloud of suspicion and eventually emerge triumphant in daily commerce. Until just recently in historical time, only gold and silver were regarded as “real,” legitimate legal tender. Die-hard bullion fetishists still pine for the good old days when everyone accepted the dubious notion that Fort Knox, Spanish doubloons, and the like held all the world’s exchange value.

Maybe all of today’s national currencies will someday merge into a supranational proxy currency that gets its start in a successful hubbed e-marketplace. That scenario represents the fondest dream of some people, and the direst nightmare of others. Will the inconvenience, costs, and delays associated with multicurrency international commerce make a global proxy currency the path of least resistance? Will the need to maximize global liquidity drive the current government-hubbed international monetary system into extinction? What happens to national political sovereignty when the market-makers-in-chief—central governments—cannot control their internal medium of exchange to favor domestic buyers and sellers?

Whether today’s monetary system survives in its current form depends partly on whether we design e-marketplaces to shield buyers and sellers from the sordid details of currency exchanges and cross-border logistics. We don’t need to converge all national currencies on a common scrip if we can translate effortlessly and transparently among them. Under that optimistic

scenario, we would be able to submerge today's awkward international payments model—as if it were a piece of convoluted, legacy programming code—under the user-friendly graphical interfaces of online marketplaces.

## 6.9 Facilitation Model

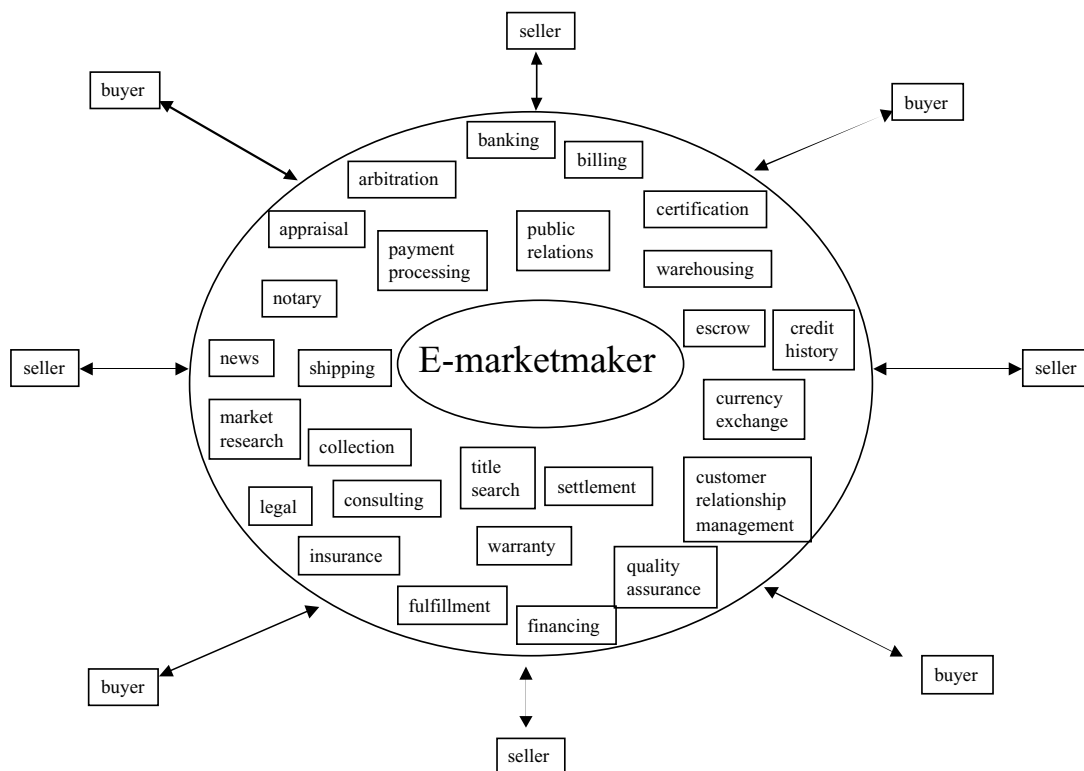
Facilitators are the icons that rim an e-marketplace's homepage, or that clamor for your attention when you get to the point of buying something, or that led you to that marketplace in the first place.

More to the point, a facilitator provides services to buyers, sellers, and/or marketmakers to assist in setting up, executing, and consummating transactions. Almost any economic transaction—apart from the simple, street-level “cash and carry” purchases—relies on a suite of facilitators that pocket many of the more lucrative fees. No doubt you're familiar with the following types of facilitators, which play important roles in both online and offline transactions:

- Advertising services
- Affiliate led-referral services
- Appraisal services
- Arbitration services
- Banking services
- Billing and collection services
- Certification and registration services
- Complaint-reporting and investigation services
- Consulting services
- Credit-check services
- Currency-exchange services
- Customer relationship management services
- Customs brokerage services
- Escrow services
- Financing and leasing services
- Fulfillment services
- Insurance services
- Legal services
- Market research services
- News and information services
- Notary services
- Payment processing services
- Product analysis and review services
- Public relations services
- Quality assurance and testing services
- Relocation services

- Settlement and clearing services
- Shipping and handling services
- Title search services
- Warehousing services
- Warranty and extended-support services

Figure 6-13 shows how these and other facilitators form part of the core service model of many an e-marketplace. All of these types of facilitators have taken up residence on the Internet, and many are seeking out long-term relationships with portals, online merchants, and e-marketmakers. We have just reviewed a very important class of transaction facilitators: payment processing firms. In the remainder of this chapter, we discuss some of the new breed of facilitators that run their operations primarily online and serve e-marketplaces.



**Figure 6-13**

*E-marketplace facilitation models include sundry third parties that provide services to buyers, sellers, and/or marketmakers to assist in setting up, executing, and consummating transactions.*

Third-party facilitators are integral components of e-marketplaces. For example, let's examine some facilitators that have established relationships with one real-world e-marketplace: [www.chemicalonline.com](http://www.chemicalonline.com). All of the following companies provide their services, at a fee, to buyers and sellers in the ChemicalOnline vertical marketplace, which is one of dozens hosted by VerticalNet.

If you're interested in getting a loan to pay for chemicals you purchase online, the site's homepage includes an icon that links you to a page that promotes one financing firm: SierraCities.com (<http://www.chemicalonline.com/content/firstsierra/home.asp>). From there, you can click on buttons to take you to more information on business loans and equipment leases, to a tool that helps you calculate your payments, and to a profile of SierraCities.com. Of course, there is a prominent button that lets you "Apply Now!"

If you'd rather finance a buy through revolving credit, you can click on an icon in the upper-right corner of that page, which takes you to Bank One's Web site to apply for a Business Visa credit card.

If you want to research a prospective buyer or seller further, you can click on the link for Powerize.com and download reports, journal articles, and other background pieces.

If you are selling something and want to know whether a potential buyer is a good credit risk, you can click on an icon for CreditFYI, a service that does an immediate online credit check on the prospect. For a fee, you can get a credit report and a rating of the buyer's likelihood of paying its bills on time.

If buyers and sellers are not sure of each others' trustworthiness, they can click on the Tradesafe icon to use that online escrow service. Another online escrow service, not integrated with ChemicalOnline, is iEscrow, which provides escrow services for such leading B2C marketplaces as eBay, Amazon, Go Networks, Looksmart, and Fairmarket.

Escrow services give buyers that assurance that they are getting the product they purchased and give sellers confidence that they will receive payments, no matter where in the world these parties are located. In this example, the way it works is that either party, buyer or seller, can start a transaction on ChemicalOnline. Tradesafe then invites the other party to participate. When both parties agree to the transaction, the buyer pays Tradesafe. When Tradesafe secures the payment, Tradesafe instructs the seller to ship the items. Once the seller ships, it immediately notifies Tradesafe of shipping details and a tracking number. When the buyer receives the items, the buyer has an inspection period (mutually agreed upon by the buyer and the seller) to approve the item. The buyer accepts the items by visiting Tradesafe's Website or by allowing the inspection period to expire. Tradesafe then mails a check to the seller and the transaction is complete. If

the buyer rejects the merchandise, she can return it to the seller in its original condition and receives a refund from Tradesafe.

These are just a handful of the services that an e-marketmaker might conceivably host in its environment. As e-marketplaces develop, marketmakers will integrate a broader range of third-party facilitators into their services. This is in fact one more important component of an e-marketmaker's aggregation model: the ability to congregate a range of facilitation services that support the end-to-end transaction cycle. The average buyer increasingly uses third-party services—integrated into merchant sites and e-marketplaces—to obtain financing, research merchants, evaluate competing solutions, review industry news, request appraisals, submit escrow payments, specify a shipping carrier, obtain title insurance, sign up for an extended service plan, and locate temporary storage for an item she is purchasing through an e-marketplace. Sellers access third parties online to check customer creditworthiness, detect credit fraud, calculate delivered costs, prepare documentation for export compliance, and request order-fulfillment services.

Brick-and-mortar companies are actively evolving their services into the Internet economy, so you can, for example, request Fedex, UPS, or Airborne Express shipping on your next online purchase. In this example, existing transportation companies are competing with a new crop of Internet-based shipping services, such as Iconomy.com and Iship.com.

Likewise, the traditional fulfillment services industry finds itself competing with Internet-based upstarts such as SubmitOrder.com. Consumer Reports and the Better Business Bureau face competition from product review and complaint sites such as Epinions.com, Ugripe.com, Productopia.com, and Deja.com.

E-marketmakers have every incentive to outsource every function other than their core services: service development, membership management, and content aggregation. The e-marketmaker's core responsibility is defining the scope and policies of the online trading community, providing an orderly, stable, and efficient environment for transacting business, and maintaining the appropriate mix of facilitation partners. Physical hosting, transaction processing, and payment services will be best outsourced to others who have the network and computing infrastructure to provide these services more cheaply and reliably. Rapid scalability of online trading communities will require an aggressive program of outsourcing as many functions as possible to the right business partners.

Over time, we will see trading hubs evolve into distributed transactions environments that depend on interoperability among multiple facilitators (many of whom derive their revenues primarily from transaction fees):

- **Hosting partners:** These firms will host the network and computing resources needed to ensure scalable, reliable, round-the-clock operations for the e-marketplace.

- Point-of-sale partners: These firms will recruit affiliated Web sites and help them integrate buy buttons on their sites that plug into the e-marketplace supporting remote catalog lookup and order placement.
- Merchant partners: These firms will maintain catalogs, capture orders, and link to transaction processors to validate and transmit orders.
- Transaction-processing partners: These firms will process transactions and submit them to payment networks and fulfillment partners.
- Fulfillment partners: These firms will maintain inventories, receive orders, and ship requested items to buyers.
- Customer relationship management partners: These firms will run the customer service, help desk, message board, collaboration services, and online training operations.

Over time, it will become difficult to tell the e-marketmaker from the suite of facilitators that it has enlisted to run its trading community. That will be a natural progression in the development of hubbed e-marketplaces. Ultimately, the entire world economy will become a constellation of interconnected e-marketplaces that connect buyers and sellers without regard for the particular trading community that hosted their offer. Confederated e-marketmakers and their legions of facilitators will divvy up shares of transaction and interchange fees.

As long as the trade goes through as expected, buyer and seller will not care who the middlemen were or how they work together across the big, broad Internet.