

# E-Marketplaces: The Shape of the New Economy

<http://hajibashi.ascet.com>

**Mohammed Hajibashi**  
Accenture

**Leveraging the B2B opportunity requires an approach similar to any other type of initiative: strategize, analyze, design, build, implement, and then operate.**

E-commerce revolutionized the way we buy and sell goods and services. E-business transformed the way we interact with our customers, partners, and employees. e-marketplaces are now changing the very notion of business itself. Corporate partnerships are giving way to virtual enterprises. Vertical markets are becoming a web of supply-demand relationships, and collaborative commerce is blurring the line between competition and cooperation.

One could question whether it is the technology that is changing the business or whether it is the business that is requiring the new technology. Either way, the technological transformation is key to providing the business transformation.

True e-marketplaces should provide both market-makers and market participants with an open, flexible, reliable, highly available, and scalable environment. Its functionality should span an array of capabilities that cross business processes delivering the greatest value to the customer, industry, or groups of customers and industries.

Today, there are still many open questions on what it means to run a marketplace or what it means to be part of a marketplace. At the same time, the technology is still in its infancy trying to determine exactly what it will be once it grows up. These two traits alone cause quite a bit of confusion and frustration in the marketplace. The good news is that these are all growing pains that must be experienced prior to obtaining the huge value potential in this new world.

## The State of E-Marketplaces

It is clear that e-marketplaces or business-to-

business (B2B) exchanges are challenging some of the most common standards of business execution.

For starters, more and more corporate partnerships are giving way to virtual enterprises and industry consortia. Consortia are bringing industry competitors together for the simple goal of sharing key pieces of information that help the bottom line and increase business value. Second, vertical markets are becoming more focused on supply-demand relationships. Industry consortia are just one version of these relationships. Last, collaborative commerce is blurring the lines between cooperation and competition. Competitors within an industry are no longer working within their own silos. Instead, competitors are developing relationships with other competitors across the supply chain network, working together to determine market demand, and sharing information to increase the efficiency across the entire supply chain.

As business changes at a fundamental level, the existing information technology (IT) infrastructure is becoming inadequate for supporting the new way we transact business.

As one would expect, a new IT infrastructure is slowly evolving. New processes and technologies are spawning along with evolving legacy technology, such as Enterprise Resource Planning (ERP). In the near term, any new e-commerce capability that exists will have to integrate seamlessly and work with the old "legacy" ERP envi-

ronments to create the fully-integrated supply chain model. Perhaps sometime in the future, these new technologies will become so robust that they will slowly replace even existing legacy ERP capabilities. These new technologies will become the true "next-generation" ERP, but we are just now at the initial stages of this evolution and much must be proven for this to occur.

## B2B Evolution

Forrester Research estimates that e-commerce will account for 8.6% of the worldwide sales of goods and services in 2004. On the customer side, Forrester reports that purchasing executives plan to buy almost 50% of their direct materials online by 2002, and 52% of manufacturers expect to use trading exchanges to optimize production schedules with suppliers. Gartner Group predicts that online trading will hit \$7 trillion by 2004, with approximately 40% of the transactions occurring through eMarketplaces. Even though these numbers differ by some percentage, the message is clear: the potential for B2B growth is huge and at some point, this type of electronic commerce will be the center of our business transactions.

So let's start with the basics. The evolution of B2B exchanges falls into three major phases. Back in 1999, dot-com exchanges emerged. These "stand-alone" entities provided a basic portal for consumers to view information (such as product and marketing) and perform basic ordering activities, namely business-to-consumer (B2C) commerce. That functionality soon grew into the basic "browse & buy" procurement model, including buyer-seller matching, and was the birth of B2B capability focusing on indirect procurement in maintenance repair operations.

*Mohammed Hajibashi is a senior manager in the Accenture Supply Chain Management practice and B2B Center of Excellence. He specializes in B2B capabilities across multiple platforms and industries.*

In Phase Two, essentially beginning in the year 2000, B2B exchange technologies began to address additional process capabilities and services in order management, procurement, logistics, financial services, planning, reporting, and collaboration, and tried to address the mission-critical direct material exchange requirement.

At the same time, industry consortia and different types of exchange trading hubs began to arise. These hubs were trying to utilize the latest technology to provide the wide array of business services to their businesses, supply chain partners, and customers focusing on the direct material aspects of the business. This has introduced another huge layer of complexity called "integration." Not only are we dealing with the integration of catalog data, but we are also now focusing more on the integration of buyer and supplier legacy environments to provide true integrated capabilities. In addition, because of the extremely fast growth of the technologies providing these business services and "land grab" mentality of the players, we have created an environment made up of almost as many data and communication standards as capabilities and technology providers themselves. The result of this is a huge integration investment to provide a set of these business services in a "single" environment.

In 2001 and beyond, we expect stand-alone exchanges to morph into interconnected exchanges featuring a broad spectrum of robust ERP-type capabilities (such as single-data models, order management, procurement, financial services, logistics, and planning). That is, these exchanges will provide ERP-like business services across business organizations, different industries, and different marketplaces. These exchanges will evolve with different priorities. Some will focus on supporting certain business processes; others will focus on certain industry verticals. Eventually, exchanges will leverage capabilities from other exchanges. This will be the start of marketplace-to-marketplace integration – what we consider the next wave in trading exchanges.

At this point, true back-end marketplace integration will be transparent and true mar-

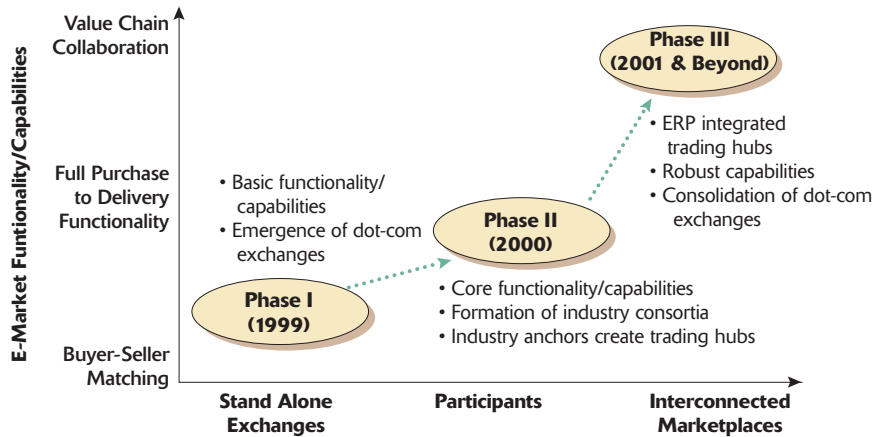


Figure 1 – E-Marketplaces that survive will be characterized by increasing capabilities and functionality. (Source: Accenture)

ketplace-to-marketplace interactions will be possible, each focusing on either a set of business services or a specific industry vertical. However, all will be able to use each other's capabilities and information seamlessly. For example, one marketplace might focus on auctioning capabilities, another on procurement. The procurement marketplace will receive its "trigger" for purchase order creation with the completion of an auction.

### Trading Exchange Types

Six types of e-marketplaces exist, though still evolving. These run the gamut of covering one-to-many to many-to-many trading relationships.

- **One-to-Many Marketplaces** are typically private exchanges involving one buyer and several sellers. Companies running these marketplaces are strong enough to force their suppliers to do business a certain way – and in this exchange environment.
- **Aggregator Hubs** combine the content of several suppliers' catalogs for display to potential buyers. Some aggregator hubs provide contracts, authorizations, and other content.
- **Broker Hubs** involve many buyers and many sellers, plus a broker. These hubs provide a matchmaking service, helping to match buyers and sellers based mostly on product pricing. Buyers send their product and buying

requirements to this hub, which in turn consolidates these requirements into aggregated demand that is more amenable to volume buying and discounting. Sellers respond to these aggregated requests. Transactions between buyers and sellers (requests for quotes and proposals, contracts, and so on) are typically handled by email versus through an automated bidding process, though real-time dynamic transactions are becoming more prevalent.

- **Collaboration Hubs** provide tools and environments where many buyers and many sellers can share information and actually correspond and collaborate around certain key pieces of functionality. For example, buyers can show their product designs to suppliers, or they can share forecast information so suppliers have a better understanding of what they need to respond to in terms of goods, time, and service.
- **Translator Hubs** provide similar buying, selling, and collaboration capabilities as Collaboration Hubs, but they add enterprise application integration (EAI) capabilities that provide true system/data integration to the different and incompatible legacy environments at the various partner sites. Translator Hubs respond to the reality that multiple technology standards exist, therefore some type of data translation is necessary for legacy systems to communicate.

## Trend Outlook

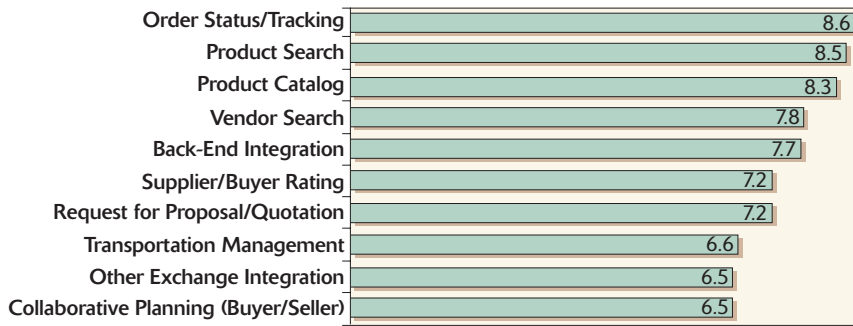


Figure 2 – Successful e-marketplaces must be ready to offer a progressive range of capabilities and functionality. (Source: AMR Research)

Core Business Services	Value-Added Services	Enabling Infrastructure
<ul style="list-style-type: none"> <li>Market making mechanism (catalog, exchange, auction)</li> <li>Product content management</li> <li>Community building</li> </ul>	<ul style="list-style-type: none"> <li>Liquidity/Sourcing</li> <li>Collaborative supply chain planning</li> <li>Collaborative design</li> <li>Fulfillment</li> <li>Billing and settlement</li> <li>Finance</li> <li>Member activity reporting</li> <li>Marketplace activity and data analysis info</li> <li>Industry and market research</li> <li>Reputation management</li> </ul>	<ul style="list-style-type: none"> <li>Member services</li> <li>Transaction processing</li> <li>Workflow</li> <li>Messaging</li> <li>Security</li> <li>Integration services</li> </ul>

Figure 3 – For many companies interested in operating or even participating in an eMarketplace, the complexity of building leading capabilities is not cost effective nor a core competency. (Source: Accenture)

These translation technologies include electronic data interchange (EDI), email, eXtensible Markup Language (XML), and fax.

- **True e-marketplaces** provide unfettered many-to-many e-commerce between buyers and sellers. For these marketplaces to operate, trading partners must adopt technology standards within and across industries.

The reality is that each one of these types of trading exchanges will exist in the future, each focusing on certain capabilities. In fact, so many different types of exchanges will exist, based on so many different standards, that they're going to need to work together to provide full "end-to-end" capabilities.

As we look down this list, the set of capabilities of these trading exchanges begin to include more "core" functional ERP-type solutions and services. As the exchanges get more sophisticated, they will trend toward providing more end-to-end capabilities. At some point, these exchanges will integrate among each other, each utilizing key functionality from the other to provide the true next-generation ERP model.

### Next-Generation Capabilities

E-marketplace technology is currently in an early stage of evolution between the initiation of buy-side (procurement) functionality and full-fledged, collaborative business services

tied into an ERP-type system. Before the latter can fully exist, e-marketplaces must satisfy two primary goals: meet individual user company requirements, and provide true connectivity across the supply chain.

Such development does not happen in a vacuum. Increasingly, user requirements are driving future e-marketplace business models and go-to-market strategies, effectively defining the goals and the very development of individual e-marketplaces. AMR Research has listed a number of these user requirements (see Figure 2). Ease of data transmission and integration among trading communities is often the primary goal of e-marketplaces.

Improving both customer and supplier-facing processes is another top priority, particularly with those processes involving procurement and management. By the same token, users want to streamline buying and selling operations to the point where a trading partner's buying functionality, processes, and systems are connected to selling organizations and suppliers. The value of that connectivity is even more apparent when buying/selling processes become automated. At this point, many of the daily management issues are minimized, leaving the more important issues of seeking new trading relationships, re-engineering processes, and creating business value.

As new visions of process and technology emerge, it is important to minimize disrupting existing business capabilities, while maximizing business growth. Properly executed, this continuous capability building process helps businesses move from current to next-generation business practices and IT support structures.

And then there are all the other conventional business user requirements, including improving customer satisfaction, increasing market share and revenue, lowering operating and selling costs, and reducing procurement costs and inventory.

### B2B Architecture Based on Reality

As user requirements push B2B capabilities forward, the reality is that e-commerce is evolving into a best-of-breed model. Different business services or process capabilities are

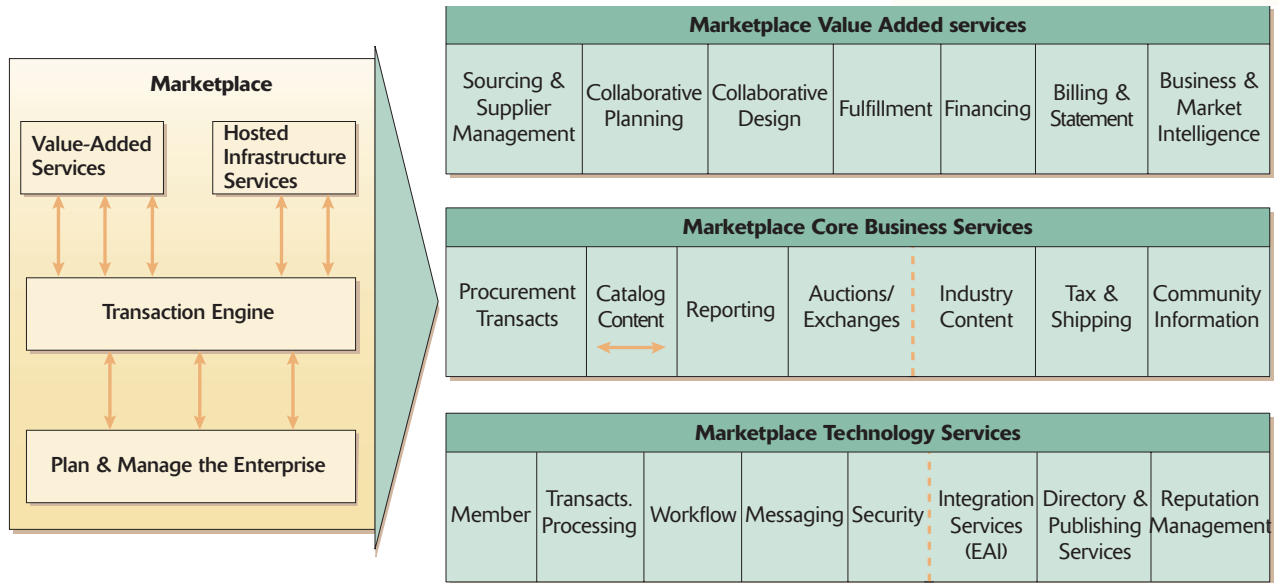


Figure 4 – Top 10 capabilities required of online trading exchanges

currently provided by different technology providers – each with their own standard. Not one technology provider today has all of the business service capability required for a true end-to-end e-marketplace – even though the tools may already exist in some form or fashion. Creating this end-to-end e-marketplace environment today requires a massive integration effort across e-commerce applications themselves, legacy information systems, and supporting multiple standards, varying “best practices,” etc.

In time, as you would expect, these technology providers are slowly expanding their capabilities to become a “one-stop shop” for all functionality. However, when this occurs (if ever), many different marketplaces (both public and private) will already have been created on different platforms. Once again, linking these environments together will be another level of integration. However, as the technology progresses, several key aspects will be consistent:

- **Richness of data model.** Data models must strike a balance between all the types of data needed

#### more on the web

David and Edith Simchi-Levi offer their take on B2B supply chain strategies in their white paper at the ASCET site, <http://simchi-levi.ascet.com>

for executing the various business processes within the context of the trading community. Currently, different data structures exist even among the applications from a single software supplier; integrating these is technologically a lot less efficient than having a single data model.

- **Integration and collaboration orientation; data versus process.** Integration and collaboration approaches can typically be characterized by their focus on either data access and transformation, or on business processes. A true e-marketplace needs to focus on both.
- **Transaction processing versus process optimization.** While processing transactions is an important function of the true e-marketplace, the emphasis should be on decision-making before the actual transaction has occurred.
- **Scalability/availability.** A true e-marketplace must handle the large volumes of data, transactions, and communications associated with Web access. An IT infrastructure equipped to perform load-balancing across multiple servers ensures adequate performance and high availability of the applications that run on top.
- **Security.** Security encompasses such functionality as authentication, author-

ization, encryption, and validation keys. Security can be a make-or-break issue; many organizations do not want any part of a consortium simply because they do not want to share their data.

- **Content/catalog management.** Content and catalog management are supported by vendors’ products that have the capability to create and manage website elements, such as text, graphics, embedded files, applets, and catalogs.
- **Personalization and customization.** Heuristics that analyze a user’s browsing behavior and preferences, and then customize a site accordingly, leads to personalizing the user experience, increasing both customer satisfaction and the sales effectiveness of the trading exchange.
- **Hub-and-spoke architecture.** Providing an open architecture where an e-marketplace can easily plug-and-play – add, grow, and remove – capabilities as the e-marketplace evolves, without having to re-engineer the architectural underpinnings of the site, is critical to the success of that e-marketplace. A hub-and-spoke architecture features fewer integration points between applications – a decided advantage.

### Market-Maker or Participant?

Before deciding whether to play in the e-marketplace space, one must answer some fundamental questions that will help determine future success. The most basic question is simply whether you want to create an exchange, be a participant of an exchange, or both. The answer to this question leads directly to determining how you will operate your environment, what processes/services you will support, and what technology you should implement.

For example, exchange operators must be ready to offer a progressive range of capabilities and functionality delivering “real” value in order to attract participants. According to AMR Research, the top 10 capabilities required of online trading exchanges are: order status/tracking, product search, product catalog, vendor search, back-end integration, supplier/buyer rating, request for proposal/quotation, transportation management, integration to other exchanges, and collaborative planning (buyer/seller).

Given this list, a company considering the creation of an exchange must assess the skills it needs to run such an exchange and how best to structure itself for that operation. It must determine which processes are to be performed within the exchange – and by which participants. Some of the processes and services might be better delivered by an application service provider, in which case one must determine which are the best applications available and which are the best service providers to use. While the cost and time to implement an exchange is important, a more overriding issue may be whether the exchange will create or destroy competitive advantage.

In any case, you must act fast but wisely to ensure that your company can leverage the changing B2B landscape. Seizing the B2B opportunity requires an approach similar to any other type of initiative: strategize, analyze, design, build, implementation, and then operate.

Start by clearly understanding and articulating your company’s vision and core competencies (such as operating model and industry focus). Decide how your company can

most effectively relate to your trading partners and competitors, or both. Benchmark your company’s vision against best practices to help you refine your strategy clearly.

Once you have decided which model best supports your initiatives, assess and define your business processes. It is not enough to simply automate existing manual processes; you must find the most efficient way to streamline, optimize, integrate, and redesign key business processes from start to finish delivering the highest value to each operation. Once the processes are defined, determine which is the best set of technologies that will support your requirements. As described earlier, this task can be a difficult one.

Once you have your processes, technology, and business model, implement your plan. The plan should protect your investments in legacy business systems (such as ERP) while also integrating some of the newest technologies that will elevate your business to this new e-business world.

### Key Challenges

Bullish as the forecasts are for e-marketplaces, lack of functionality and integration, slow participant acceptance, the realities of competition, and the lack of standards are conspiring to make the development, adoption, and lifecycle of e-marketplaces difficult.

From a functionality standpoint, the major technology providers have been premature in promising the functionality required for an effective, broadly functional, highly scalable trading exchange solution. Their claims of providing the capabilities for a “one-stop shop” are not completely accurate. The reality is that many of these capabilities are being built today. As a consequence, potential users are faced with long delays in delivering a completely integrated e-business/marketplace solution.

While all of this is happening, the competition among best-of-breed technology providers as they continue to grow, broaden their capabilities, develop consensus, and overlap one another is a stumbling block to effective e-marketplace development. Until one player actually dominates this market-

place, like SAP in the ERP world, there will be huge battles within each e-marketplace deal regarding who will develop and integrate capabilities, define the standard, and so on. Understanding the limited possibility of having a single dominant player in this space, the obvious end result will be a set of many standards across many environments. This consequently will support the continuing importance of integration capabilities.

Even industry consortia are not immune to the infighting. Large-scale companies within those consortia have their own ideas about best practices, data structures, suppliers, and what gives them a competitive advantage. Ironically, these very same companies are moving into an environment where they have to collaborate and work together.

Integration is obviously critical in both the B2B and the application-to-application aspects of an e-marketplace. However, the cost of systems integration is not cheap and the complexity associated with that effort is not getting any easier – at least not until developing EAI tools become more mature and have more pre-built options available.

Besides the technical issues, getting participants to play in an exchange is typically a major hurdle. Founding members and subscribers first want to see the value of the exchange before being charged for certain transactions. Unfortunately, the very advantage of many-to-many operations makes tying dollar savings to a particular participant a challenge.

Our advice? Buyer beware and tread carefully. Understand what capabilities are being sold. Understand and lay out which business processes you need within your B2B environment. Then analyze the different suppliers of this technology to drive out your vision.

The good news is that while many complex issues have yet to be worked out, with the correct methodology in place to drive your decisions, you can easily determine your path on this new electronic highway. It is simply a matter of time before business transactions will be flowing between trading partners using “true” next-generation IT systems within an e-marketplace environment. ■