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# KONSEP DASAR RANTAI NILAI (*VALUE CHAIN*) DALAM ECOMMERCE

Dosen H. Andri Budiwidodo, S.Si., M.I.Kom. (ID 7715)

Sumber penulisan modul:

Kenneth C. Laudon and Carol Guercio Traver. 2014. *e-Commerce Business Technology Society*. 10<sup>th</sup> Edition. New Jersey: Pearson. Halaman 744-802.

Catatan: Rantai nilai (*value chain*) adalah rangkaian kegiatan yang dilakukan suatu perusahaan untuk menghasilkan produk atau jasa ini dipopulerkan oleh Michael Porter pada buku Competitive Advantage: Creating and Sustaining Superior Performance (1985).

Menurut konsep ini, kegiatan perusahaan dibagi menjadi dua bagian besar, yaitu kegiatan utama (*primary activities*) dan kegiatan pendukung (*support activities*).

Kegiatan utama dibagi menjadi lima, yaitu (1) logistik masuk (inbound logistics); (2) manajemen operasi (operations); (3) logistik keluar (outbound logistics); (4) pemasaran dan penjualan (marketing and sales), serta (5) pelayanan (service).

Kegiatan pendukung dibagi empat, yaitu infrastruktur perusahaan (firm infrastructure), manajemen SDM (human resource management), teknologi (technology), serta pengadaan (procurement)

Nah, dalam pembahasan Value Chain dalam eCommerce ini akan menggunakan perspektif Supply Chain dan B2B eCommerce

# Supply Chain Management Systems: Mobile B2B in Your Gadget

Supply chain simplification, lean production, focusing on strategic partners in the production process, enterprise systems, and continuous inventory replenishment are the foundation for contemporary **supply chain management** (SCM) systems. **Supply chain management systems** continuously link the activities of buying, making, and moving products from suppliers to purchasing firms, as well as integrating the demand side of the business equation by including the order entry system in the process. With an SCM system and continuous replenishment, inventory is greatly reduced and production begins only when an order is received (see **Figure 1**).

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SCM systems coordinate the activities of suppliers, shippers, and order entry systems to automate order entry through production, payment, and shipping business processes. Increasingly customers, as well as employees working throughout the supply chain, are using smartphones and mobile apps to place and coordinate orders These systems enable just-in-time and lean-production methods. The growing use of smartphones has led software firms like SAP and Oracle to develop mobile apps for personal computers, smartphones, and other consumer devices to connect firms with their supply chain partners. Hewlett-Packard (HP) is one of the largest technology companies in the world, with sales of \$120 billion in 2012. With operations in 178 countries, sales in 43 currencies, and 15 languages, HP is truly a global firm with global supply chain issues that became even more complicated as HP expanded by making over 200 acquisitions in the last decade. To cope with one of the most complex supply chains in the world, HP turned to supply chain management software.

HP has a Web-based, order-driven supply chain management system that begins with either a customer placing an order online or the receipt of an order from a dealer. The order is forwarded from the order entry system to HP's production and delivery system. From there, the order is routed to one of several HP contractor supplier firms. One such firm is Synnex in Fremont, California. At Synnex, computers verify the order with HP and validate the ordered configuration to ensure the PC can be manufactured (e.g., will not have missing parts or fail a design specification set by HP). The order is then forwarded to a computer-based production control system that issues a bar-coded production ticket to factory assemblers. Simultaneously, a parts order is forwarded to Synnex's warehouse and inventory management system. A worker assembles the computer, and then the computer is boxed, tagged, and shipped to the customer. The delivery is monitored and tracked by HP's supply chain management system, which links directly to one of several overnight delivery systems operated by Airborne Express, Federal Express, and UPS. The elapsed time from order entry to shipping is 48 hours. With this system, Synnex and HP have eliminated the need to hold PCs in inventory, reduced cycle time from one week to 48 hours, and reduced errors. HP has extended this system to become a global B2B order tracking, reporting, and support system for large HP customers (Synnex Corporation, 2013; Hewlett-Packard, 2013). In 2010, HP began a simplification of B2B applications from over 300 applications down to 30. Many of these applications were inherited from acquired companies (Gardner, 2010).

It isn't just huge technology companies that use supply chain software. There's nothing quite so perishable as fashionable underwear given the rate of fashion change. Under Armour, which calls itself "the world's No. 1 performance athletic brand," uses software from SAP to predict sales, plan inventory, and coordinate suppliers (Booen, 2011). Prior to using these tools, Under Armour often missed sales because it did not produce enough of popular items, or overproduced items that were not selling.

Implementing an order-driven, Web-based supply chain management system is not always easy, however, as *Insight on* 

Technology: RFID AutoIdentification: Giving a Voice to Your Inventory illustrates.

## **Collaborative Commerce**

Collaborative commerce is a direct extension of supply chain management systems, as well as supply chain simplification. **Collaborative commerce** is defined as the use of digital technologies to permit organizations to collaboratively design, develop, build, and manage products through their life cycles. This is a much broader mission than EDI or simply managing the flow of information among organizations. Collaborative commerce involves a definitive move from a transaction focus to a relationship focus among the supply chain participants. Rather than having an arm's-length adversarial relationship with suppliers, collaborative commerce fosters sharing of sensitive internal information with suppliers and purchasers. Managing collaborative commerce requires knowing exactly what information to share with whom. Collaborative commerce extends beyond supply chain management activities to include the collaborative development of new products and services by multiple cooperating firms.

**Collaborative commerce** the use of digital technologies to permit organizations to collaboratively design, develop, build, and manage products through their life cycles

A good example of collaborative commerce is the long-term effort of P&G, the world's largest manufacturer of personal and health care products, from Crest toothpaste to Tide soap, to work with suppliers and even customers to develop 50% of its product line over time. In the past, for instance, P&G would design a bottle or product package in-house, and then turn to over 100 suppliers of packaging to find out what it would cost and try to bargain that down. Using Ariba's procurement network, P&G asks its suppliers to come up with innovative ideas for packaging and pricing. Taking it a step further, P&G's Web site, Pgconnectdevelop.com, solicits new product ideas from suppliers and customers. About 50% of P&G's new products originate with substantial input from its suppliers and customers (P&G, 2011; Vance, 2010). Other well-known companies using collaboration to develop and deliver products include Lego (DesignByMe), Harley Davidson, Starbucks, and GE's Ecomagination program (James, 2012; Esposito, 2012).

Although collaborative commerce can involve customers as well as suppliers in the development of products, for the most part, it is concerned with the development of a rich communications environment to enable inter-firm sharing of designs, production plans, inventory levels, delivery schedules, and the development of shared products (see **Figure 2**).

Collaborative commerce is very different from EDI, which is a technology for structured communications among firms. Collaborative commerce is more like an interactive teleconference among members of the supply chain. EDI and collaborative commerce share one characteristic: they are not open, competitive marketplaces, but instead are, technically, private industrial networks that connect strategic partners in a supply chain. Broadband video networks like Cisco's TelePresence Studios are beginning to play a role in enabling frequent, long-distance, collaboration among supply chain partners. TelePresence is one of several very high bandwidth video systems from different vendors that give users the impression they are sharing physical space with other participants who are in fact located remotely, sometimes on the other side of the globe. P&G has over forty TelePresence studios in its facilities around the world to encourage collaboration among its employees and suppliers (Cisco, 2013, 2011). Cisco's @CiscoLiveDesk's Twitter feed enhances the TelePresence experience by adding face-to-face support, scheduling assistance, and demos.



A collaborative commerce application includes a central data repository where employees at several different firms can store engineering drawings and other documents. A workflow engine determines who can see this data and what rules will apply for displaying the data on individual workstations. A viewer can be a browser operating on a workstation.

#### Social Networks and B2B: The Extended Social Enterprise

It's a short step from collaboration with **vendors**, **suppliers**, and **customers**, to a more personal relationship based on conversations with participants in the supply chain using social networks—both private and public. Here, the conversations and sharing of ideas are more unstructured, situational, and personal. Procurement officers, managers of supply chains, and logistics managers are people too, and they participate in the same social network culture provided by Facebook, Twitter, Tumblr, Instagram, and a host of other public social networks as we all do. Being able to respond to fast moving developments that affect supply chains requires something more than a Website, e-mail, or telephone calls. **Social networks can provide the intimate connections among customers, suppliers, and logistics partners that are needed to keep the supply chain functioning, and to make decisions based on current conditions (Red Prairie, 2012).** 

Participants in the supply chain network are tapping into their tablet computers, smartphones, and social network sites for purchasing, scheduling, exception handling, and deciding with their B2B customers and suppliers. In many cases, supply chain social networks are private—owned by the largest firm in the supply chain network. In other cases, firms develop Facebook pages to organize conversations among supply chain network members.

Some examples of social B2B include TradeSpace, a UK-based business social network where business people can share experiences and ideas, and buy and sell products. Cisco is using its Web site and Facebook pages to run new product campaigns for its business customers using social networks exclusively. Dell, like many businesses, uses its YouTube channel to engage suppliers and customers in conversations about existing products, and ideas for new products (Hird, 2011). While social networks have not yet had a large influence on B2B e-commerce, public social network sites like Facebook and Twitter are good listening posts for businesses involved in B2B trade.

## Main Types of Internet-based B2B Commerce

There are **two generic types** of Internet-based B2B commerce systems: (1) **Net marketplaces** (which tend to be public) and (2) **private industrial networks** (see **Figure 3**). Within each of these general categories are many different subtypes that we discuss in the following sections (Yoo et al., 2011).

**Net marketplaces** (also referred to as exchanges) bring together potentially thousands of sellers and buyers into a single digital marketplace operated over the Internet. Net marketplaces are transactionbased, support many-to-many as well as one-to-many relationships, and bear some resemblance to financial markets such as the New York Stock Exchange. There are many different types of Net marketplaces, with different pricing mechanisms, biases, and value propositions (Kerrigan et al., 2001). Private industrial networks bring together a small number of strategic business partner firms that collaborate to develop highly efficient supply chains and satisfy customer demand for products. Private industrial networks are relationship-based, support many-to-one or many-to-few relationships, and bear some resemblance to internal collaborative work environments. There are many different types of private industrial networks. Private industrial networks are by far the largest form of B2B ecommerce and account for over 10 times as much revenue as Net marketplaces.



There are two main types of Internet-based B2B commerce: Net marketplaces and private industrial networks.

#### The Variety and Characteristics of Net Marketplaces

There is a confusing variety of Net marketplaces today, and several different ways to classify them. For instance, some writers classify Net marketplaces on the basis of their pricing mechanisms—auction, bid/ask, negotiated price, and fixed prices—while others classify markets based on characteristics of the markets they serve (vertical versus horizontal, or sell-side versus buy-side), or ownership (industry-owned consortia versus independent third-party intermediaries). **Table 1** describes some of the important characteristics of Net marketplaces.

Table 1	OTHER C A B2B VC	R CHARACTERISTICS OF NET MARKETPLACES: 3 VOCABULARY			
Characteristics		Meaning			
Bias		Sell-side vs. buy-side vs. neutral. Whose interests are advantaged: buyers, sellers, or no bias?			
Ownership		Industry vs. third party. Who owns the marketplace?			
Pricing mechanism		Fixed-price catalogs, auctions, bid/ask, and RFPs/RFQs.			
Scope/Focus		Horizontal vs. vertical markets.			
Value creation		What benefits do they offer customers or suppliers?			
Access to market		In public markets, any firm can enter, but in private markets, entry is by invitation only.			

#### **Types of Net Marketplaces**

Although each of these distinctions helps describe the phenomenon of Net marketplaces, they do not focus on the central business functionality provided, nor are they capable by themselves of describing the variety of Net marketplaces.

In Figure 4, we present a classification of Net marketplaces that focuses on their business functionality; that is, what these Net marketplaces provide for businesses seeking solutions. We use two dimensions of Net marketplaces to create a four-cell classification table. We differentiate Net marketplaces as providing either indirect goods (goods used to support production) or direct goods (goods used in production), and we distinguish markets as providing either contractual purchasing (where purchases take place over many years according to a contract between the firm and its vendor) or spot purchasing (where purchases are episodic and anonymous- vendors and buyers do not have an ongoing relationship and may not know one another). The intersection of these dimensions produces four main types of Net marketplaces that are relatively straightforward: e-distributors, eprocurement networks, exchanges, and industry consortia. Note, however, that in the real world, some Net marketplaces can be found in multiple parts of this figure as business models change and opportunities appear and disappear. Nevertheless, the discussion of "pure types" of Net marketplaces is a useful starting point.

Each of these Net marketplaces seeks to provide value to customers in different ways. We discuss each type of Net marketplace in more detail in the following sections.



#### **E-distributors**

E-distributors are the most common and most easily understood type of Net marketplace. An **e-distributor** provides an electronic catalog that represents the products of thousands of direct manufacturers (see **Figure 5**). An e-distributor is the equivalent of Amazon for industry. Edistributors are independently owned intermediaries that offer industrial customers a single source from which to order indirect goods (often referred to as MRO) on a spot, as-needed basis. A significant percentage of corporate purchases cannot be satisfied under a company's existing contracts, and must be purchased on a spot basis. E-distributors make money by charging a markup on products they distribute.

**e-distributor** provides electronic catalog that represents the products of thousands of direct manufacturers.

Organizations and firms in all industries require MRO supplies. The MRO function maintains, repairs, and operates commercial buildings and maintains all the machinery of these buildings from heating, ventilating, and air conditioning systems to lighting fixtures.



*E*-distributors are firms that bring the products of thousands of suppliers into a single online electronic catalog for sale to thousands of buyer firms. *E*-distributors are sometimes referred to as one-to-many markets, one seller serving many firms.

E-distributors operate in horizontal markets because they serve many different industries with products from many different suppliers. E distributors usually operate "public" markets in the sense that any firm can order from the catalog, as opposed to "private" markets, where membership is restricted to selected firms.

E-distributor prices are usually fixed, but large customers receive discounts and other incentives to purchase, such as credit, reporting on account activity, and limited forms of business purchasing rules (for instance, no purchases greater than \$500 for a single item without a purchase order). The primary benefits offered to industrial customers are lower search costs, lower transaction costs, wide selection, rapid delivery, and low prices.

The most frequently cited example of a public e-distribution market is W.W. Grainger. Grainger is involved in long-term systematic sourcing as well as spot sourcing, but its emphasis is on spot sourcing. Grainger's business model is to become the world's leading source of MRO suppliers, and its revenue model is that of a typical retailer: it owns the products, and takes a markup on the products it sells to customers. At Grainger.com, users get an electronic online version of Grainger's famous seven-pound catalog, plus other parts not available in the catalog (adding up to around 900,000 parts), and complete electronic ordering and payment (W.W. Grainger Inc., 2013). Another example is McMaster-Carr.com, a New Jersey-based industrial parts mecca for manufacturers around the world.

### **E-procurement**

An **e-procurement Net marketplace** is an independently owned intermediary that connects hundreds of online suppliers offering millions of maintenance and repair parts to business firms who pay fees to join the market (see **Figure 6**). E-procurement Net marketplaces are typically used for long-term contractual purchasing of indirect goods (MRO); they create online horizontal markets, but they also provide for members' spot sourcing of MRO supplies. E-procurement companies make money by charging a percentage of each transaction, licensing consulting services and software, and assessing network use fees (Trkman and McCormack, 2010).

**e-procurement Net marketplace** independently owned intermediary that connects hundreds of online suppliers offering millions of maintenance and repair parts to business firms who pay fees to join the market



E-procurement Net marketplaces aggregate hundreds of catalogs in a single marketplace and make them available to firms, often on a custom basis that reflects only the suppliers desired by the participating firms.

E-procurement companies expand on the business model of simpler e-distributors by including the online catalogs of hundreds of

suppliers and offering value chain management services to both buyers and sellers. **Value chain management (VCM) services** provided by e procurement companies include automation of a firm's entire procurement process on the buyer side and automation of the selling business processes on the seller side. For purchasers, e-procurement companies automate purchase orders, requisitions, sourcing, business rules enforcement, invoicing, and payment. For suppliers, e-procurement companies provide catalog creation and content management, order management, fulfillment, invoicing, shipment, and settlement.

value chain management (VCM) services include automation of a firm's entire procurement process on the buyer side and automation of the selling business processes on the seller side.

E-procurement Net marketplaces are sometimes referred to as many-to-many markets. They are mediated by an independent third party that purports to represent both buyers and sellers, and hence claim to be neutral. On the other hand, because they may include the catalogs of both competing suppliers and competing e-distributors, they likely have a bias in favor of the buyers. Nevertheless, by aggregating huge buyer firms into their networks, they provide distinct marketing benefits for suppliers and reduce customer acquisition costs.

Ariba stands out as one of the poster children of the B2B age, a firm born before its time. Promising to revolutionize inter-firm trade, Ariba started out in 1996 hoping to build a global business network linking buyers and sellers—sort of an eBay for business. With little revenue, the stock shot past \$1,000 a share by March 2000. But sellers and buyers did not join the network in large part because they did not understand the opportunity, were too wedded to their traditional procurement processes, and did not trust outsiders to control their purchasing and vendor relationship. In September 2001, Ariba's share price tanked to \$2.20. Ariba survived largely by selling software that helped large firms understand their procurement processes and costs. Finally, by 2008, large and small firms had become more sophisticated in their purchasing and supply change management practices, and Ariba's original idea of a global network of suppliers and purchasers of a wide variety of industrial goods came back to life. Today, Ariba is a leading provider of collaborative business commerce solutions (Ariba, 2013; Levy, 2010; Vance, 2010). Players in this market segment include Perfect Commerce, BravoSolution, A.T. Kearney Procurement & Analytic Solutions, and Emptoris. The very large enterprise software firms—Oracle, SAP, and JDA Software Group now also offer procurement solutions to their customers and compete directly against the early entrants in this market.

## Exchanges

An **exchange** is an independently owned online marketplace that connects hundreds to potentially thousands of suppliers and buyers in a dynamic, real-time environment (see **Figure 7**). Although there are exceptions, exchanges generally create vertical markets that focus on the spot-purchasing requirements of large firms in a single industry, such as computers and telecommunications, electronics, food, and industrial equipment. Exchanges were the prototype Internet-based marketplace in the early days of e-commerce; as noted previously, over 1,500 were created in this period, but most have failed.

**Exchange** independently owned online marketplace that connects hundreds to potentially thousands of suppliers and buyers in a dynamic, real-time environment.



Independent exchanges bring potentially thousands of suppliers to a vertical (industry-specific) marketplace to sell their goods to potentially thousands of buyer firms. Exchanges are sometimes referred to as many to many markets because they have many suppliers serving many buyer firms.

Exchanges make money by charging a commission on the transaction. The pricing model can be through an online negotiation, auction, RFQ, or fixed buy-and-sell prices. The benefits offered to customers of exchanges include reduced search cost for parts and spare

capacity. Other benefits include lower prices created by a global marketplace driven by competition among suppliers who would, presumably, sell goods at very low profit margins at one world-market price. The benefits offered suppliers are access to a global purchasing environment and the opportunity to unload production overruns (although at very competitive prices and low profit margins). Even though they are private intermediaries, exchanges are public in the sense of permitting any bonafide buyer or seller to participate.

Exchanges tend to be biased toward the buyer even though they are independently owned and presumably neutral. Suppliers are disadvantaged by the fact that exchanges put them in direct price competition with other similar suppliers around the globe, driving profit margins down. Exchanges have failed primarily because suppliers have refused to join them, and hence, the existing markets have very low liquidity, defeating the very purpose and benefits of an exchange. **Liquidity** is typically measured by the number of buyers and sellers in a market, the volume of transactions, and the size of transactions. You know a market is liquid when you can buy or sell just about any size order at just about any time you want. On all of these measures, many exchanges failed, resulting in a very small number of participants, few trades, and small trade value per transaction. The most common reason for not using exchanges is the absence of traditional, trusted suppliers.

**Liquidity** typically measured by the number of buyers and sellers in a market, the volume of transactions, and the size of transactions

While most exchanges tend to be vertical marketplaces offering direct supplies, some exchanges offer indirect inputs as well, such as electricity and power, transportation services (usually to the transportation industry), and professional services. **Table 2** lists a few examples of some current independent exchanges.

Table 2 EXAMP	LEs of INDEPENDENT EXCHANGES
Exchange	Focus
PowerSource Online	Computer parts exchange
Converge	Semiconductors and computer peripherals
Smarterwork	Professional services from Web design to legal advice
Active International	Trading in underutilized manufacturing capacity
IntercontinentalExchang	e International online marketplace for over 600 commodities

The following capsule descriptions of two exchanges provide insight into their origins and current functions.

Global Wine & Spirits (GWS) (Globalwinespirits.com) is somewhat unique among independent exchanges, not only as a start-up that has managed to survive, but also as a latecomer to the B2B e-commerce community. GWS opened in 1999, but did not begin to trade products online until May 2001. Based in Montreal, Quebec, GWS is operated by Mediagrif Interactive Technologies Inc., a Canadian company that operates a number of independent exchanges in a variety of industries. GWS offers a spot marketplace for wines, where wine and spirit producers offer wines for sale (recently, for instance, an Italian winery was offering 500 cases of Tuscan Chianti wine for \$30 a case, with 20 days left on the offer); a "call for tenders" market, where members make offers to purchase wines and spirits; a trade database with listings of thousands of industry professionals; and a wine and spirits catalog with over 35,000 products and 6,700 companies (Globalwinespirits.com, 2013).

Inventory Locator Service (ILS) has its roots as an offline intermediary, serving as a listing service for aftermarket parts in the aerospace industry. Upon opening in 1979, ILS initially provided a telephone and fax-based directory of aftermarket parts to airplane owners and mechanics, along with government procurement professionals. As early as 1984, ILS incorporated e-mail capabilities as part of its RFQ services, and by 1998, it had begun to conduct online auctions for hard-to-find parts. In 2013, ILS maintains an Internet-accessible database of over 80 million aerospace and marine industry parts, and has also developed an eRFQ feature that helps users streamline their sourcing processes. The network's 23,000 subscribers in 93 different countries access the site over 65,000 times a day (Inventory Locator Service, 2013).

#### **Industry Consortia**

An **industry consortium** is an industry-owned vertical market that enables buyers to purchase direct inputs (both goods and services) from a limited set of invited participants (see **Figure 8**). Industry consortia emphasize long-term contractual purchasing, the development of stable relationships (as opposed to merely an anonymous transaction emphasis), and the creation of industry-wide data standards and synchronization efforts. Industry consortia are more focused on optimizing long-term supply relationships than independent exchanges, which tend to focus more on short-term transactions. The ultimate objective of industry consortia is the unification of supply chains within entire industries, across many tiers, through common data definitions, network standards, and computing platforms. In addition, industry consortia, unlike independent exchanges described previously, take their marching orders from the industry and not from venture capitalists or investment bankers. This means any profits from operating industry consortia are returned to industry business firms.

**Industry consortium** industry-owned vertical market that enables buyers to purchase direct inputs (both goods and services) from a limited set of invited participants.



Industry consortia sprang up in 1999 and 2000 in part as a reaction to the earlier development of independently owned exchanges, which were viewed by large industries (such as the automotive and chemical industries) as market interlopers that would not directly serve the interests of large buyers, but would instead line their own pockets and those of their venture capital investors. Rather than "pay-to-play," large firms decided to "pay-to-own" their markets. Another concern of large firms was that Net marketplaces would work only if large suppliers and buyers participated, and only if there was liquidity. Independent exchanges were not attracting enough players to achieve liquidity. In addition, exchanges often failed to provide additional value-added services that would transform the value chain for the entire industry, including linking the new marketplaces to firms' ERP systems. A number of industry consortia now exist, with many industries having more than one (see **Table 3**).

Table 3	INDUSTRY CONSORTIA BY INDUSTRY (September 2012)			
Industry		Name of Industry Consortia		
Aerospace		Exostar		
Automotive		SupplyOn		
Chemical		Elemica		
Food		Dairy.com		
Hospitality		Avendra		
Medical Services, Supplies		GHX (Global Healthcare Exchange)		
Paper and Forest Products		PaperFiber		
Shipping		OceanConnect		
Textiles		The Seam (Cotton Consortium)		
Transportation		Transplace		

The industries with the most consortia are food, metals, and chemicals, although these are not necessarily the largest consortia in terms of revenue. Many very large Fortune 500 and private firms are investors in several industry consortia. For instance, Cargill—the world's largest private corporation—invested in six consortia that exist at various points in Cargill's and the food industry's tangled value chain.

Industry consortia make money in a number of ways. Industry members usually pay for the creation of the consortia's capabilities and contribute initial operating capital. Then industry consortia charge buyer and seller firms transaction and subscription fees. Industry members both buyers and sellers—are expected to reap benefits far greater than their contributions through the rationalization of the procurement process, competition among vendors, and closer relationships with vendors.

Industry consortia offer many different pricing mechanisms, ranging from auctions to fixed prices to RFQs, depending on the products and the situation. Prices can also be negotiated, and the environment, while competitive, is nevertheless restricted to a smaller number of buyers—selected, reliable, and long-term suppliers who are often viewed as "strategic industry" partners. The bias of industry consortia is clearly toward the large buyers who control access to this lucrative market channel and can benefit from competitive pricing offered by alternative

suppliers. Benefits to suppliers come from access to large buyer firm procurement systems, long-term stable relationships, and large order sizes.

Industry consortia can and often do force suppliers to use the consortia's networks and proprietary software as a condition of selling to the industry's members. Although exchanges failed for a lack of suppliers and liquidity, the market power of consortia members ensures suppliers will participate, so consortia may be able to avoid the fate of voluntary exchanges. Clearly, industry consortia are at an advantage when compared to independent exchanges because, unlike the venture-capital-backed exchanges, they have deep-pocket financial backing from the very start and guaranteed liquidity based on a steady flow of large firm orders. Yet industry consortia, especially when several consortia exist for a single industry, has yet to be demonstrated.

Exostar is one example of an industry consortium. Its founding partners include BAE Systems, Boeing, Lockheed Martin, Raytheon, and Rolls-Royce, all companies in the aerospace industry. Exostar has taken a slow but steady approach to building its technology platform. It has kept its focus on the direct procurement and supply chain needs of its largest members, and taken its time developing a portfolio of technology solutions that meet its needs. Its current products include Supply Pass, an integrated suite of tools that enables suppliers to handle buyer transactions via the Internet; SourcePass, which provides a dynamic bidding environment for buyers and sellers; and ProcurePass, which enables buyers to handle supplier transactions online, among others. As of September 2013, Exostar served a community of more than 70,000 trading partners (Exostar, 2012).