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Trade Exchanges: Creating Competitive Advantages

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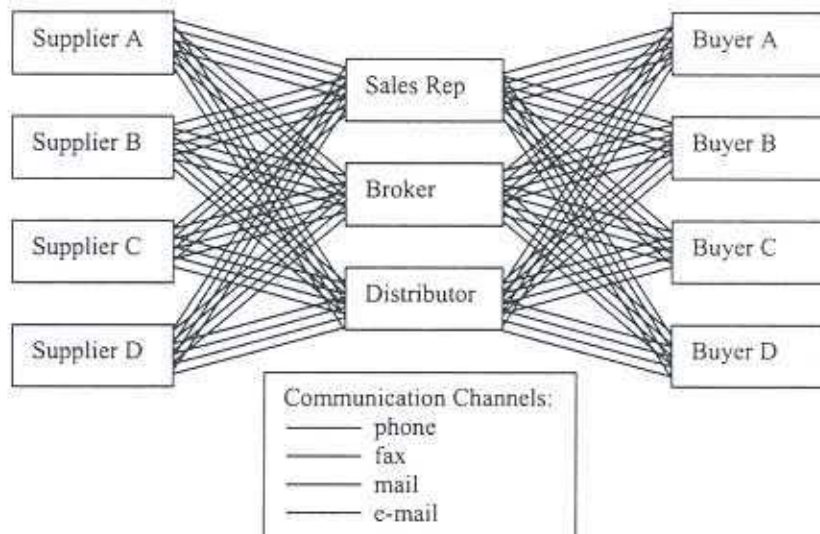
Abstract: Trade exchanges have had an enormous impact on supply chain activities and costs in recent years. In this study, we examine the types of trade exchanges, their modes of operation, the benefits they provide, factors that influence firms in their decision to participate in them, and potential pitfalls.

INTRODUCTION

Even though many high profile online ventures failed last year, the business-to-business (B2B) commerce is expanding robustly. Most of it is done through electronic marketplaces or trade exchanges (also called e-hubs, net markets, digital marketplaces, butterfly hub, etc.). They offer significant benefits and innovative approaches to procurement that cannot be overlooked. These trade exchanges operate in more than 750 vertical markets, and this number and the number of participating firms continues to grow. Forrester forecasts that by 2006, global online trade will be \$12.8 trillion (about 18% of trade), with the US contribution being \$7 trillion (Kirkpatrick).

The main advantage of a trade exchange is that it brings together a large number of buyers and sellers to interact through a convenient channel. Existing trade occurs over a multitude of channels (office visits, mail, telephone, fax, e-mail, EDI, etc.) through a number of agents (sales representatives, brokers, distributors, etc.) which is inefficient and ineffective when used in a many-to-many exchange (see Figure 1). Each transaction process may involve multiple means of communication (Girishankar). Consequently it is beneficial to use trade exchanges that operate over the internet using industry specific XML protocols offering an efficient, effective, scaleable, and secure environment for trade among a large number of buyers and sellers.

Figure 1. Current Trading Relationship Model (Adapted from Abraham, 2001)



CLASSIFICATION OF TRADE EXCHANGES

Based on the barriers to entry, one way to classify trade exchanges is to distinguish the public exchanges from the private ones. In a public exchange, any firm that qualifies may join. Private exchanges form an exclusive club that provides the infrastructure for members to carry out trade among themselves. Public exchanges are created for bringing large number of buyers and sellers together; some of the private exchanges are the ones that simply migrated their supply chain relationship online.

Then there are the vertical and horizontal exchanges. A vertical exchange follows the value chain in an industry – it enables the different members along the value chain to trade with each other (in industries such as aerospace, chemicals, food and food services, health care, and telecommunications). For example, in the automotive industry, a vertical exchange will bring together raw material suppliers, parts manufacturers, and the assembly plants. ChemConnect (for chemicals and plastics) and Covisint (in the automotive industry) are vertical exchanges. A horizontal exchange caters to all industries, mainly in commodities and services required commonly, such as office supplies, IT hardware, financial services, and MROs (maintenance, repair, and operating goods). Examples of this type of exchange are Liquidation.com and MarketSite.net (by Commerce One). Typically, the value of goods traded on vertical exchanges tend to be higher, with more emphasis on quality and delivery and long term relationships. Some exchanges provide support in both vertical and horizontal marketplaces, and are called meta-exchanges.

Another classification scheme is based on who leads the exchange – buyers or sellers. Buyers seek to lower their procurement costs while sellers strive to increase their markets. Thus we have buyer-centric exchanges (with emphasis on procurement, fulfillment, and reverse auctions; for example, FreeMarkets and eBreviate provide software platforms to accomplish this) and seller-centric exchanges (with emphasis on auctions, catalog management, and content management; some examples are Grainger, DoveBid, GlobalFoodExchange, and E2Open). In seller-centric exchanges the supply is being 'pushed', so they are also called forward biased, and likewise, buyer-centric exchanges are also called reverse-biased. There are also exchanges set up by third parties, which remain neutral towards all clients in the exchange. These emphasize collaborative commerce and support services such as e-payment; some of the examples are PaperExchange and Arbinet.

In addition to the vertical versus horizontal classification, Kaplan and Sawhney (2000) also differentiates exchanges set up primarily for spot sourcing and those for systematic sourcing. Based on that, they identify four types of exchanges:

1. MRO hubs which are horizontal exchanges that enable systematic sourcing.
2. Yield managers, which are horizontal exchanges that enable spot sourcing.
3. Exchanges, which are vertical exchanges that enable spot sourcing, and
4. Catalog hubs, which are vertical exchanges that enable systematic sourcing.

OPERATIONS OF THE TRADE EXCHANGE

Trading Activities

At a basic level, trade exchanges provide each supplier with the ability to publish their catalog online so that potential buyers can search through them. In addition to product description, other information such as pricing, volume discounts, availability, and means of delivery may be included.

An important trade mechanism offered by trade exchanges is the auction process. Here we may have the traditional auction, where suppliers list their products and seek bids from buyers, or reverse auctions where buyers specify their requirements and sellers bid. The bidding process may be open or secret.

Catalogs and auctions work well for commodities and well established products. For more customized requirements, mechanisms for negotiation and collaboration between firms are provided. The outcome from this may be short term (spot purchases) or even long term (strategic sourcing).

Other support provided by the trade exchanges are infrastructure for financing, logistics, and security of operations. Some exchanges take an active part in this, while others enable the trading parties to set this up between themselves. Additionally, exchanges may actively help the members reduce cost and increase efficiency by aggregating product demands, or by matching the buyers and sellers so they can negotiate directly with each other.

Pre and Post Trading Activities

Adequate training must be given to all members of the trade exchange. Since this is a newer channel, the personnel will have a steep learning curve; but proper training can overcome the fear of change as well as potential problems.

To enhance security and to ensure the long-term viability of operations, most exchanges screen its potential clients for credit worthiness and meeting ethical standards. Each exchange will have its own policies and requirements. Even though no one can guarantee that a member firm will meet its obligations, the screening will prevent a large-scale breakdown, and provide a modest level of trust among the trading partners that will be enhanced through long term participation. The regulations must address the issues of non-compliance, and remedies available to members when others don't fulfill their obligations. In addition, the exchange should guarantee the security and reliability of information transferred through the exchange.

BENEFITS OF TRADE EXCHANGES

For buyers, the exchanges provide a wider, often global, market for obtaining products. All information about the product, including its specification, price, availability, and delivery can be obtained very quickly. Exchanges provide the ability to search through the vendors' information using sophisticated data base methods. For example, it can be used to accommodate minority procurement policy goals. There is also a higher likelihood of finding a substitute product.

The sellers are able to extend their reach to a wider market. The exchange creates a new channel for sales. They can also gain market information that will enable them to enhance their product line. Pricing and delivery information available on the exchange will enable them to benchmark their operations against their competitors.

The screening process carried out while admitting members to the trade exchange gives an element of trust and security among the trading partners. They could be at the opposite ends of the globe, and yet be able to transact business on the basis of this trust. It reduces the need for an individual firm to carry out the screening process themselves on the potentially large number of trading partners. Exchanges can also provide profiles of buyers or sellers, and an individual firm may define a list of preferred buyers or sellers with whom it wants to trade.

Through automated processes, the cost, time, and inaccuracies of trading are minimized. The cost of processing information drops from tens of dollars per order (in typical situations) to a few cents. Cycle times and lead times needed for supplier search, requests for information, bids, negotiation, credit checking, financing, order fulfillment, and subsequent customer support are all reduced. The turnaround time in communication is reduced tremendously so that auctions with bids that took months can be done in a matter of hours (Anonymous, 2000). The elimination of data re-entry reduces potential errors as well as decreases the time per transaction. Built in error detection procedures can block potential problems efficiently. Reduced use of paper adds to the cost savings, increased speed, and accuracy of transactions. According to some estimates, organizations can save 15 percent or more by purchasing parts and materials through online auctions (Harbour, 2000).

For more customized trading situations, the ability to negotiate and collaborate with trading partners offers substantial benefits to firms. Information such as blueprints, RFQs, bids, orders, design specifications, quality standards, status reports, shipping documents, invoices, warranty information, contingencies, and other contractual terms can be exchanged quickly. In a long-term relationship, sharing of forecasts and capacity plans may also be carried out through the exchange (Sostrom, 2001).

The ability to turn to these exchanges to fill orders reduces the need for many firms to carry huge inventories on their own. The entire supply chain inventory structure can be optimized to reduce costs while maintaining or improving service levels. The sellers, buyers, and the ultimate customers of the product stand to benefit from this.

Firms can also take advantage of the support provided by the trade exchanges in logistics, including shipping, order management, and returns. This gives more visibility of the supply chain, providing information such as supplier backlogs and ability to ship (Sostrom, 2001). Firms can track orders, and when needed, consolidate, reschedule, expedite, or divert shipments on a real time basis. Transportation can be arranged by the firms themselves or outsourced to logistic firms who may also be members of the trade exchange.

Trade exchanges can also offer help in the area of credit, financing, e-payment, escrow accounts, documentation, reconciliation, and transaction processing for its members (Banham, 2000).

In addition to these direct benefits, exchanges can also provide community services, such as chat rooms, virtual conferences, advice, historical information, benchmarks and best practices, polls, discussion rooms, training, and support.

Figure 2. Top Cited Value Propositions of Private Exchanges

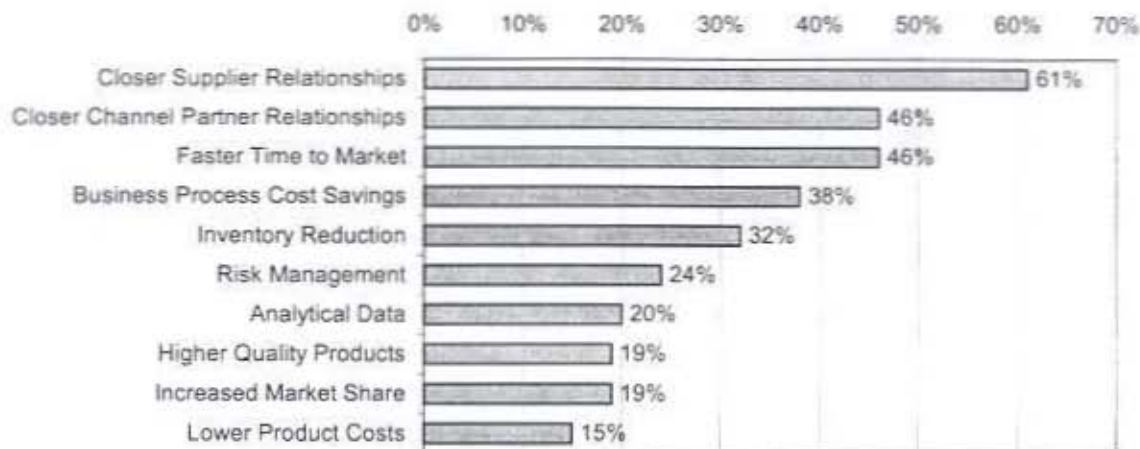


Figure 2 shows the percentage of companies that cited these benefits as the top value propositions of private exchanges. These statistics are based on a Jupiter Media Metrix/ERI Executive survey conducted earlier in 2001 and was based on interviews with 406 purchasing managers at 382 U.S. companies with revenue exceeding \$500 million (Pfenning, 2001). Multiple responses were allowed.

COSTS AND LIMITATIONS

Membership in the trade exchanges will incur several costs – such as cost of application, screening, and admittance, cost of membership, and fees for transactions. Most of the support provided by exchanges such as the ability to store and disseminate information, and the ability to conduct auctions and negotiate and collaborate with others, will have to be paid for by the members of the exchange; some revenue is raised by the exchanges through advertising and services. However the cost and fee structure vary widely among the exchanges. For example, FreeMarkets charges buyers based on volume, while eBreviate charges buyers on a per-use basis or through licensing agreements (Anonymous, 2000).

Most firms have existing channels for procurement and sales. A major worry in joining a trade exchange would be the impact of the new channel on existing relationships. Current trading partners may react negatively to a firm's decision to join a trade exchange, creating increases in costs to the firm. An added concern is the impersonal nature of the online exchanges, where cultivating relationships can be a challenge.

However, it is possible to transfer existing trading relationships to online exchanges to obtain the efficiency and convenience they offer. In fact, one survey conducted by Jupiter Media Metrix suggests that 85 percent of B2B transactions will be made between existing buyers and sellers online, compared to 95 percent offline (Alexander, 2001).

In addition, joining an exchange reduces the control a firm has over its buying and selling processes. The increased number of players reduces the influence of an individual firm, and increases its exposure to risk. At an operational level the firm has to accept the platform and standards of the trade exchange, and train their personnel in its use. At a strategic level, the firm is committed to following the practices and contractual obligations set forth by the exchange. Failure to conform may result in being removed from the exchange.

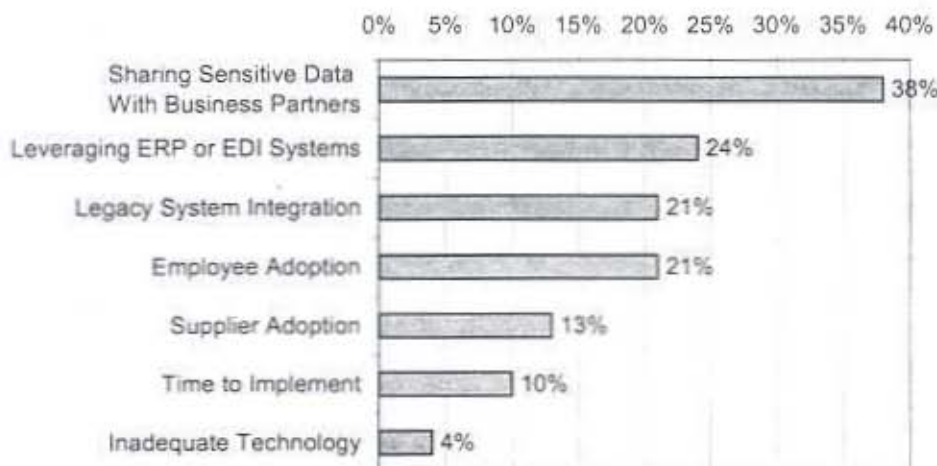
The loss of control can be a serious issue to the seller – the moment bidding starts, price becomes the order winner. Buyers should realize that some of the lower prices may be too good to be true, and the cost savings may not materialize in the end. This is partly because the seller may have inadequate resources or poor quality processes. If the purchased items feed into a just in time process, the buyer has to take extra care about possible disturbances in delivery. Thus buyers should look beyond the price to evaluate criteria such as quality, delivery, maintenance and operating costs, reliability, risk, compatibility, support, and long-term prospects of the vendor. Sellers, since they may be bidding on several contracts simultaneously, will have to be extremely careful not to over extend themselves.

The increased speed of transfer of information may result in hasty decisions and faulty negotiations, and companies must guard against it with their own checks and balances. As the number of transactions and thus the amount of learning increases, these problems ought to diminish.

There may be legal obstacles in creating or joining a trade exchange. The ability to collaborate allows firms to fix prices and create unfair practices detrimental to those who are not part of the trade exchange. Thus antitrust issues arise in the creation of some vertical exchanges. The main objective of antitrust is to prevent collusion between competitors and exclusion of targeted competitors. (Harbor, 2000). The antitrust web site has information on recent cases, and some relevant guidelines such as "Do not join forces with some of your competitors to the disadvantage of a few others" (antitrust.org).

Figure 3 shows the percentage of companies that cited these hurdles to joining private exchanges (Pfenning, 2001). Multiple responses were allowed.

Figure 3. Top Cited Barriers to in Joining a Private Trade Exchanges



FACTORS THAT INFLUENCE A FIRM'S DECISION TO JOIN AN EXCHANGE

As noted under the section on the benefits from trade exchanges, a number of factors can motivate a firm to join a trade exchange – increased speed of operations, lower cost, wider markets, automated processes, etc. But before joining an exchange, the firm must evaluate its current situation thoroughly, because it is a strategic move that must fit the goal of the organization.

An important consideration would be the nature of existing relationships with the firm's suppliers and customers. It must gauge how these would be affected, and what the potential new market would offer. It must also research the various costs it would incur in joining the exchange.

Many of the benefits are derived from automated processes for buying and selling. If the internal processes (such as inventory, accounting, shipping and receiving, production planning, payments, etc.) of the firm are not equally

capable and integrated, many of the benefits may not be realized, and the system would not be scalable. For example, if the internal systems are not capable of handling bids and purchase orders automatically, then they have to be manually processed, resulting in longer turnaround time and perhaps added inaccuracies. Such a situation can easily get out of control and overwhelm the organization. Thus the capability of internal systems such as an ERP system that can be interfaced with the online system of the trade exchange is of importance. Having such systems in place will also imply that the employees are experienced in computerized transactions, and will better adapt to the online systems.

The type of industry, the nature of the product, and the structure of the trade exchange are also important factors. In particular, exchanges that make the learning and transition easier, and allow open communication instead of proprietary modes, are more attractive. Where speed of transactions and efficiencies are critical, as in the automotive industry, firms are forced into joining trade exchanges – indeed, most of their competitors will be there too. One of the telling observations is that in the near future, joining a trade exchange will not be a competitive advantage, but a step to survival – making it all the more imperative. And some consider wireless logistics and mobile commerce, where all partners are always online and available, to be the next step.

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