

## **E-MARKETPLACES AND THEIR IMPORTANCE FOR LOGISTIC NETWORKS**

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### **Abstract**

*Since the use of information and knowledge in commercial transactions is becoming crucial, markets are confronted with significant change in structure and functionality. A growing number of companies are starting to take advantage of the benefits of buying goods or services online using e-marketplaces.*

*B2B e-commerce has the potential to globally promote commercial transactions, especially in the case of logistic networks, helping companies to gain access to new markets, find new business partners and increase their individual and collective (as a network) efficiency and productivity with minimum efforts and costs. The deployment of B2B e-marketplaces is enabling a more efficient and smoother flow of information, goods, services and payments between businesses within the network, as well as a more effective and balanced knowledge transfer.*

**Key words:** logistic network, e-marketplace, transactional costs, transactional mechanisms.

**JEL classification:** D85, L14

An e-marketplace can be described as a B2B Internet platform providing an Internet-based solution that aims at facilitating new trading relationships between companies, or supporting existing ones. E-marketplaces can represent a more efficient and less expensive way to sell products or provide services globally, without geographical barriers. It reshapes the buyer-seller relationships, improves business processes and helps reach new markets or segments through the electronic medium (McIvor et al., 2000).

The Internet technology has enabled companies (as individual or collective actors) to create a new marketplace that facilitates information exchanges and all sorts of electronic interactions among multiple buyers and sellers (Bakos, 1998). At a basic level, an e-marketplace is “an interorganizational information system which allows the participating buyers and suppliers to exchange information about prices and product offerings” (Bakos, 1998). In a whitepaper published by IBM, i2, and Ariba (2000), an e-marketplace is defined as a many-to-many, web-based trading

and collaboration solution that enables companies to buy, sell, and collaborate more efficiently on a global scale.

An e-marketplace brings market players together to perform real-time exchange transactions, such as price and product specifications, facilitating collaboration and network coordination. The main idea is to aggregate buyers and sellers in a single contact point, allowing participant organizations to enjoy greater economies of scale and liquidity; and to buy or sell anything easily, quickly and cost effectively. E-marketplaces also enable companies to eliminate geographical barriers, and expand globally to obtain profits in new markets that were once out of reach.

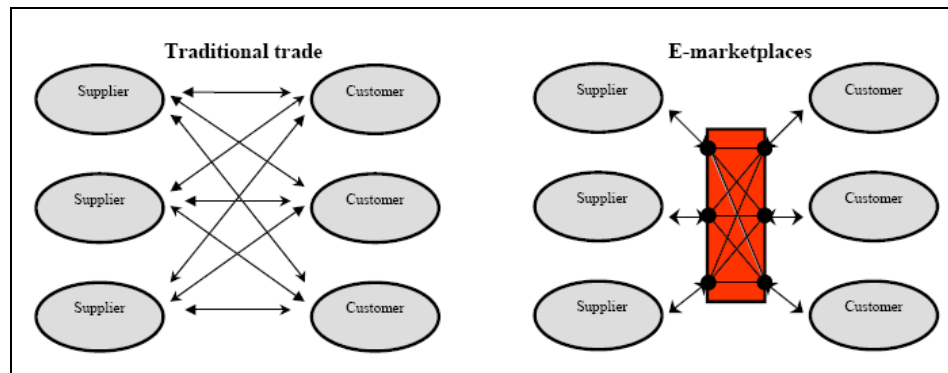
E-marketplaces perform the same functions as real world marketplaces, such as matching buyers and sellers, facilitation of transactions, and institutional infrastructure. The difference lies in the outcome of e-marketplaces, which can be presented as more efficient markets, with increased effectiveness and reduced transaction costs. Bailey and Bakos (1997) suggested evidence of emerging roles for e-marketplaces, including aggregating, matching suppliers and buyers, providing trust, and providing interorganizational market information.

An electronic market is considered an interorganizational information system through which multiple buyers and sellers interact to accomplish one or more of the following market-making activities:

1. Identifying potential trading partner,
2. Selecting a specific partner, and
3. Executing the transaction.

The core function of B2B e-marketplaces is to make information, knowledge and transactions flow more efficient. An e-marketplace can be described as an electronic intermediary between suppliers and customers that matches buyers and sellers together in a digital form in order to: conduct pre-sales activities, transact sales, and complete post-sales activities. Habitually, a buyer has to establish connections and relationships with many suppliers, who often use different information technologies, and vice versa. By using an e-marketplace as a tool for reaching the market, the buyer needs to establish only one connection with the e-marketplace which creates the connection with all the suppliers on the market and they all use one pre-set electronically standard.

The e-marketplace provides a virtual space where buyers and suppliers come together to explore new business opportunities. The goal of the e-marketplace is to attract the biggest possible number of buyers and suppliers, which will become members of that e-marketplace. Buyers bring purchase needs while suppliers bring selling offers. The e-marketplace will then match purchase needs against selling offers, encouraging its members to undertake new trading exchanges.



**Figure 1:** The e-marketplace as an electronic intermediary between suppliers and customers

Source: Bygdeson, Gunnarsson and Onyango, 2000).

In the figure above, the arrows are illustrating the electronically trading interconnections between suppliers and buyers. By connecting to the e-marketplace, each participant is connected to all other participants in order to support transactions, share information and documents as well as enable cooperation. There is competition between suppliers and between buyers, but the e-marketplace provides a space which also facilitates cooperation. This is important especially for logistic networks, where *coopetition* is essential for binding members together and for creating value.

In short, e-marketplaces create value in three major ways (Blanchard and Roussière, 2000):

1. Bringing communities of buyers and sellers together;
2. Providing relevant content and market information;
3. Improving liquidity and lowering transaction costs.

Usually, organizations decide to adapt their trading processes to e-marketplaces in order to profit from the various benefits like lowering transaction costs and improving information flows. By doing this they are facilitating improved planning and more coordinated actions to reduce uncertainty and its effects (such as the whip effect).

In order to describe an e-marketplace, there are six dimensions that help differentiate it from the traditional markets and need to be taken into account: business model, order processing mechanism, revenue model, market characteristics and product specifics and e-marketplace services. These diverse dimensions are partially related to each other, but they are important for an integrated marketplace characterization.

### **A. Trading Mechanisms**

B2B e-marketplaces (the ones created within organizational networks) may offer two fundamental ways of setting prices: fixed or dynamic pricing. According to these two ways of setting prices, four different trading mechanisms can be outlined: catalogue, auction, reverse auction and exchange. Catalogues are typically a fixed price mechanism and the remaining ones involve dynamic pricing. Through electronic B2B, each of these mechanisms enhances the price transparency of the marketplace.

#### **1. Catalogue**

B2B e-marketplaces use catalogue trading mechanism in order to streamline purchasing by aggregating the product catalogues of many suppliers in one place and in one format, so that buyers can easily compare it (Morgan, 2000). With the help of Internet tools, these catalogues can present extensive product information, including multimedia content. The product prices posted in a catalogue are normally fixed list prices.

#### **2. Auction**

Auctions are a revolutionary new pricing model for many markets, in which multiple buyers and sellers bid competitively on a contract (Sculley & Woods 1999). E-auctions allow companies to take literally hundreds of bids from all over the world, which would not be possible in the convenient way of purchasing.

In a *seller driven auction* (or forward auction), prices are set dynamically through buyers bids submitted for products from individual suppliers. The prices are moving up as a result of bidding among buyers. Sellers benefit from broader customer access, lower transaction costs and better understanding of market pricing.

#### **3. Reverse Auction**

In a *buyer driven auction* (or reverse auction) multiple suppliers bid competitively to provide product to individual buyers. As a result, prices tend to fall over time. Preparation for a reverse auction usually takes the form of a buyer issuing a "request for quotation" or a "request for proposal" in which product specifications and commercial terms are presented. The buyer identifies the sellers which will participate in the auction. As a result, the sellers prepare their bids and submit them during the auction itself, with the option to move their prices down as bidding proceeds. A reverse auction may be organized such that the lowest bid does not automatically win. A buyer has the authority to award the contract to a bidder quoting a higher price if the difference in price is worth it because of quality, location, or other such considerations. As a result, buyers benefit from broader supply base, lower search and transaction costs and more dynamic pricing.

#### 4. Exchange

The exchange mechanism enables buyers and seller to negotiate prices in a bid and ask system, similar to Stock Exchange systems. An exchange is a two-sided marketplace where buyers and suppliers negotiate prices, usually with a bid and ask system. A successful exchange format requires a critical mass to provide liquidity, allowing buyers' access to numerous suppliers.

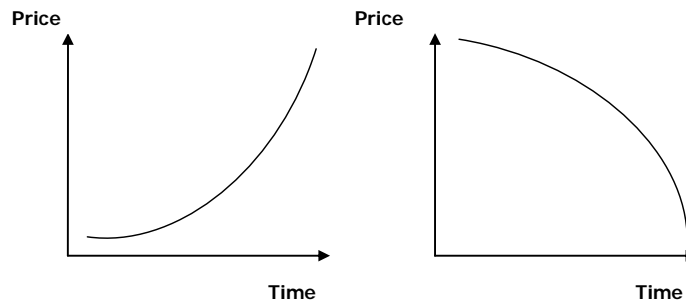


Figure 2: Seller-driven and buyer driven auctions

(Source: Sculley & Woods 1999, pp 81)

#### B. Horizontal And Vertical E-Marketplaces

B2B e-marketplaces can be divided in two different types: horizontal and vertical (Blodget and McCabe, 2000).

**Horizontal e-marketplaces** offer a product or a service across industries and increase their scale by attracting new users. Horizontal markets are functional in nature and facilitate the purchase and sale of goods and services used by many industries. To a great extent the goods and services bought and sold via horizontal e-marketplaces are standardized in nature.

**Vertical e-marketplaces** are industry-specific (ex. e-marketplaces designed for beer industry, chemical industry etc.) and extend their scope step-by-step along the value chain. They aggregate supply or demand in vertical industries. They require a good deal of industry knowledge and their purpose is to optimise buyer-seller relationships.

#### C. Ownership Control Models

Another dimension that is important in describing an electronic marketplace is ownership control or bias. According to this dimension there can be three types of e-marketplaces: focusing on sellers, focusing on buyers and neutral marketplaces, which do not favour either sellers nor buyers but attract both (Kaplan & Sawhney 2000, Rosson 2000).

**The seller-driven e-marketplace** is an e-marketplace promoted by a consortium of suppliers who place offers within the same industry to many buyers.

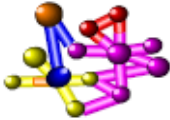
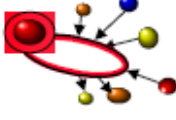
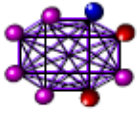
A seller driven e-marketplace adds value to the suppliers through offering electronic integrated systems for order, payments and logistics.

*The buyer-driven e-marketplace* is maintained by a few large buying companies that aim at attracting many suppliers in order to buy products, beneficiate of lower prices and make more efficient the procurement process. Buyer-controlled marketplaces are set up with the aim of shifting power to the buyer's side (Berryman et al. 1998, Roberts et al. 1998).

*Neutral e-marketplaces* are opened for all suppliers and buyers in order to explore business opportunities. They are administrated by a third party who is not a participant buyer or seller in the marketplace and does not favour either buyers or sellers. The main advantage can be achieved through transaction cost reduction due to network effects of bringing together many market participants (Hartman, 2001). Moreover, the marketplace enables a real-time connection of the network participants.

#### D. Public And Private E-Marketplaces

Another dimension of e-marketplaces closely related to the above is the public or private dimension.

	<p><b>Public B2B E-Marketplace:</b></p> <ul style="list-style-type: none"> <li>• Open trading environment (many-to-many);</li> <li>• An entity that brings together buyers and sellers (industry, geographic region or affinity group) where they can interact and transact.</li> <li>• Buyers' main value: increased transparency and the aggregation of products and potential suppliers.</li> <li>• Suppliers' main benefit: their products are exposed to all buyers gaining access to new business opportunities.</li> <li>• The increased transparency encourages open sourcing and enhances competition among suppliers.</li> </ul>
	<p><b>Private B2B E-Marketplace:</b></p> <ul style="list-style-type: none"> <li>• An entity connected to its own group of business partners (one-to-many);</li> <li>• The participants are normally the suppliers and customers of that particular entity (buyer).</li> <li>• Buyers' objective: to streamline and optimise various business processes (buying and selling) with existing partners.</li> <li>• Facilitates cooperation.</li> </ul>
	<p><b>Consortia E-Marketplace:</b></p> <ul style="list-style-type: none"> <li>• Is typically jointly owned by several large enterprises (often competitors);</li> <li>• It facilitates collaboration and the performing of business transactions among trading partners;</li> <li>• It addresses many-to-many relationships.</li> <li>• Objective: optimisation of value-chain processes.</li> </ul>

(Source: Gartner Research, 2001).

### **E. Revenue Sources**

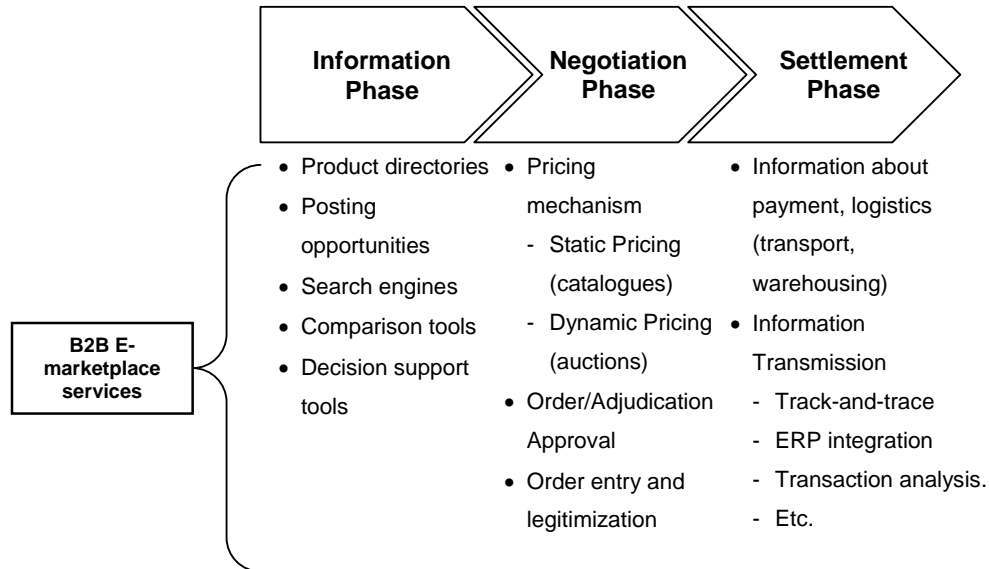
According to the literature there have been identified five major sources of revenue: transaction fees, membership/license fees, advertising, professional service fees, value-added service fees (Reilly 2000, Trepp, 2000). Many marketplaces are not committed to just one revenue model and employ multiple strategies at the same time.

- **Transaction fees:** The e-marketplace charges a fee that is based on the value of the transactions conducted on the market. In order for the e-marketplace to earn substantial revenues from transaction fees, the amount of transactions has to be relatively high, which makes it a good motivation for expanding the marketplace.
- **Membership or license fees:** The most established form is a one-time joining fee and an annual maintenance fee for preserving the membership. The membership model is widely used. The price for membership must reflect the benefits and cost savings for the members, otherwise the e-marketplace will not be able to create a critical mass of members.
- **Advertising:** Several e-marketplaces generate revenues based on advertising. The advertising can be in the form of banners, hyperlinks to companies' web sites, links to companies' presentations or commercial e-mail to targeted members.
- **Professional service fees:** Some e-marketplaces provide consulting services in the form of implementation and training services for their customers, usually on a time basis. The companies are billed in accordance to the number of consultants and the time spent in order to provide the consulting services.
- **Value-added service fees:** This revenue comes from third parties whose services add convenience and value to e-marketplace transactions: inspection services, logistics, trading partner authentication, credit information services and financing services

The transaction fee model and the membership/license fee model are usually the main sources of revenue for e-marketplaces.

### **F. E-Marketplace Services**

Another dimension that differentiates the B2B e-marketplaces is related to the services they offer to their users, during all three phases of a transaction: information phase, negotiation phase and settlement phase (Schmid, 1998). During the information phase a buyer looks for suppliers and products to evaluate. In the negotiation phase, demand and supply are being matched and the best offer in terms of price, quality, etc. wins. The settlement phase consists of delivery and payment. This frame will be used in order to group the services offered by B2B e-marketplaces according to the transaction phases.



**Figure 3:** Services provided by Electronic B2B marketplaces  
(Adapted from Opperl et al., 2001 – IMP Group Paper)

In reality, e-marketplaces are a combination of the above transaction functionalities, resulting in different business models that have changed over time in search of profitability.

### E-Marketplace Benefits

The motivation of suppliers as well as buyers for e-marketplace participation is closely related to the perceived outcome of their participation. This is not only in terms of the benefits of joining an e-marketplace, but also in terms of the possible consequences of not joining (Rask and Kragh, 2004).

An e-marketplace does more than establish an electronic place for buyers and sellers to meet, but also streamlines workflows, enhances flexibility and drives transparency in the buyer-seller relationship. In the same time, it improves the accuracy and availability of information on the supply and demand side, facilitating collaboration as well as control.

According to Baker (2000) and Hartman (2001), the major benefits of electronic marketplaces can be included in three groups:

- process improvements
- cost reductions
- new business generation.



### **A. Process Improvements**

Process improvements can be described as simpler and faster ordering procedures, reduced paper work, easy online comparison and less human errors (Kajüter & Ruland 2000). The result of these improvements is a streamlining of the workflows. These benefits lead to significant time savings through the streamlining and automation of logistic processes, and an increase in the performance of interorganizational information channels, such as reducing the time spent on evaluating alternatives, selecting, contacting and communicating with suppliers. Another important opportunity is the possibility to reduce the cost of integration with existing partners.

Both buyers and sellers can benefit from the marketing instruments available online in order to better promote their company, products and services. By using catalogues, curriculums, banners, etc., companies can achieve a better visibility level. In the same time, belonging to a successful e-marketplace is like belonging to a business community which turns out to be an important asset for the image of the company.

B2B marketplaces can also free up procurement personnel by eliminating routinized tasks like transaction processing (Baker, 2000) and increase the qualification level, so that they can do more strategic work such as negotiation preparations.

### **B. Cost Reduction**

E-marketplaces bring significant cost reduction by favouring aspects like: increased price transparency, efficient market and pricing mechanisms, comparability of products, prices, suppliers and buyers (Hartman, 2001).

For buyers, increased price transparency is generally recognized as leading to increased competition among suppliers which leads to a decrease in prices in general. In the same time, an e-marketplace reduces the search costs of obtaining information about prices and suppliers. Since all transactions and processes are made using the same electronic platform, all players have access to the same type of information. This contributes to reducing the asymmetry of information.

The general reduction in transaction and interaction costs benefits suppliers by reducing contact, communication and negotiation costs as a result of the time savings realized when, for instance, suppliers do not have to pay repeated visits to customers, or prospective customers, to obtain orders from them. The communication process becomes therefore more effective and efficient: reducing the number of interlocutors and in the same time the number of errors made with human intervention.

Another advantage is the easy access to purchases and sales history by means of a rapid consultation of the database which can help the buyer or the supplier to better evaluate its business partners.

### C. New Business Opportunities

E-marketplaces can provide their users with more strategic options, by generating new business opportunities due to access to new customers and suppliers, strategic industry information, higher customer satisfaction and development of completely new markets (Baker, 2000).

Geographically dispersed buyers and sellers find it easier to interact because of the low costs of getting connected. E-marketplaces enable fragmented buyers and seller to find each other through B2B marketplaces without incurring search expenses, travel expenses or high commissions for using intermediaries. E-marketplaces eliminate geographical barriers as well as time zone differences, allowing companies fast and easy access to centralized information 24h per day. These benefits significantly improve the reach to new business opportunities.

E-marketplaces allow buyers access to a larger and more diversified pool of suppliers than non-electronic markets, enable buyers to obtain relatively lower prices, wider product assortments and better quality (Eng 2004; Kaplan and Sawhney, 2000). They contribute also to better purchasing decisions by enabling buyers to assess competent suppliers which might otherwise not have been considered (Christiaanse et al., 2003; Emiliani, 2002).

Suppliers may join e-marketplaces with the explicit intention of improving their competitive position through, for instance, a wider market reach. The immediate access to a larger customer base may be used to increase sales without increasing selling costs.

Aggregation of buyers and sellers and collaboration between businesses partners are two other value propositions provided by e-marketplaces (Le, 2002). The aggregation of demand and supply overcomes market fragmentation, providing suppliers with wider market access and buyers with greater choice. Interorganizational collaboration enables market participants to build and deepen their business relationships for the purpose of streamlining overall network processes.

Besides all these benefits mentioned above, the passing towards the Internet economy causes also *disadvantages* (Bacheldor, 2000). The disadvantages may appear when the investments made in process reorganization and automation do not take into consideration the final users. If the company's procurement personnel or its suppliers aren't prepared to take advantage of the Internet benefits, the effect will be not an improvement of the efficiency but greater confusion. If the focus of the e-marketplace is only to optimise the transaction and its related costs, interpersonal interactions are reduced and with them, the social bonds created between companies.

All the advantages presented above, show that the adoption of e-tools opens the possibility to increase both efficiency and effectiveness especially when it comes to building functional logistic networks. By thoroughly considering all these

factors, both organization and networks are able to identify the appropriate strategy to gain sustainable and tangible success.

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