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E-MARKETPLACES – TAXONOMY OF MODELS

Summary:

The deployment of B2B eMarketplaces, is enabling a more efficient and frictionless flow of information, goods, services and payments between businesses. By building liquidity and addressing inefficiencies in B2B supply chains, facilitating transactions and improving business processes, these virtual markets provide a compelling value proposition to business customers. However the decision whether company should participate in e-market should be based on advanced knowledge about e-markets models and functionality they provide. This paper offers an analysis of existing e-marketplaces' business models to provide better understanding of this new phenomenon of e-economy.

Keywords: e-marketplace, model, taxonomy

1. E-MARKETPLACE. BASIC CHARACTERISTIC AND DEFINITION.

The concept of B2B e-marketplaces has undergone fundamental transformations during recent years. The B2B e-commerce expectations have changed from euphoria to scepticism or even pessimism¹. However electronic transactions on virtual markets still exist and in some industry sectors even becoming the norm for buying and selling. According to Deloitte research 1.400 Internet trading platforms have been launched or announced by the end of 2000. Whereas some analysts predict that the number of e-marketplaces will grow to 10.000 level, others consider that the current number is already too high².

CommerceNet defines online markets, or B2B (business to business) marketplaces as “*public Internet sites that allow large numbers of buyers and sellers to “meet” and trade*”³. These completely new kind of “middleman” go by different names: “B2B”, “vertical hub”, “online exchange”, “e-market”, “infomediary”, “metamediary”, “electronic market”, “Internet market”, “I-market”, “digital marketplace”, “digital exchange”, “net hub”, “virtual store front”, “virtual marketplace”, “vertical hub”, “e-hubs”, “butterfly market”, “vortex businesses”, “online exchanges”, “private exchange”, “fat butterfly”, “net market maker”, “vortal”, “private exchange”, “vertical exchange”, and “horizontal exchange”⁴.

Internet-based electronic marketplaces use Internet technologies and standards to distribute product data and to facilitate online transactions. They are often initiated by either the buying or the selling side. Prices in B2Bs can be established in various ways: by auction, catalog, a bid-ask

¹ Commission of the European Communities: *B2B Internet trading platforms: Opportunities and barriers for SMEs – A first assessment*, SEC(2002) 1217, Brussels, 2002.

² Deloitte Research: *B2B Darwinism, How e-Marketplaces survive and succeed*, 2000.

³ CommerceNet: *B2B Marketplaces in the New Economy*, 2000.

⁴ Community B2B: *B2B Fundamentals*, <http://www.communityb2b.com/library/fundamentals.cfm>

system or negotiation. The reason enterprises participate in B2B e-marketplaces is to save costs of business processes, create a competitive advantage and to get closer to their customers and business partners.

These many-to-many⁵ platforms are the latest and most advanced e-business models that started with the use of one-to-one EDI (Electronic Data Interchange, the computer-to-computer exchange of standardized electronic transaction documents) almost 20 years ago. They create online communities of buyers and sellers, matching them with increased effectiveness and lower transaction costs through increased market transparency. Accordingly, conducting electronic transactions on specialized electronic marketplaces seems to be more efficient and cost effective form of trading goods and services.

B2B e-marketplaces earn revenue from multiple sources, including transaction fees (in the second half of 2000 trading fees were in the range of 0.25% to 5%⁶), membership fees, service fees, advertising and marketing fees, and sales of data and information. However advertisement, which was the revenue model of some of the early e-markets, is declining visibly⁷. Another source of revenue originates from value added services such as logistics, transportation, fulfillment, settlement and credit.

2. CLASSIFICATION OF E-MARKETPLACE'S MODELS

Electronic marketplaces, an e-commerce latest phenomenon, are linked to significant economic and business effects. Consequently, classifying e-marketplaces and identifying the characteristics of existing models seems to be fundamental for the better understanding of their nature. Researchers and analysts have identified different types of B2B markets according to different impacts.

One of the earliest categorization attempts concentrated on the market structure. Lee and Clark differentiated virtual platforms that supported decentralized market structures with direct interactions among buyers and sellers, from those supporting centralized market structures like broker, dealer, or auction platforms⁸. Bakos focused on traded product types and ownership structure⁹ while Wise and Morrison focused on product attributes (complexity versus standardization of product description), product cost, and fragmentation of buyer or supplier

⁵ The complete characteristic of communication forms can be found in Hoffman D. L., Novak T. P.: *Marketing in Hypermedia Computer-Mediated Environments: Conceptual foundations*, <http://elab.vanderbilt.edu>, 1995.

⁶ Ca'Zorzi A.: *B2B Marketplaces in Wood Products, A Brief Review*, Inter-American Development Bank, 2002.

⁷ Dai Q., Kauffman R. J.: *To be or not to B2B? An Evaluative model for e-procurement channel adoption*, 2001.

⁸ Lee H. G., Clark T.H.: *Impacts of the Electronic Marketplace on Transaction Cost and Market Structure*, International Journal of Electronic Commerce, 1996, No. 1.

⁹ Bakos Y.: *Reducing buyer search costs: implications for Electronic Marketplaces*, Management Science, 1997, Vol. 43, No 12.

base¹⁰. Lennstrand besides the ownership structure, highlighted also value-added contribution (competition versus cooperation; disintermediation versus integration), trading mechanisms (catalogs, auctions, reverse auctions, exchange) and sources of revenues (transaction fees, membership fees, etc.).

Alan R. Simon and Steven L. Shaffer introduced two primary categories of B2B e-commerce¹¹:

- (1) Supply-chain-oriented B2B and
- (2) Marketplace-centric B2B.

The first model started in the middle 1980s with the quasi-opened EDI interfaces. Presently Supply-chain-oriented B2B models employ Internet technology to establish private networks between partners in order to automate business processes in enterprises supply chains. This model founds on three kinds of operations: e-procurement, e-fulfillment and e-payments. Procurement activities include marketplaces, auctions, catalogs, and other supporting processes that incline buyers to place an order for goods. According to the Meta Group research one of the top benefits of e-procurement system cited by 73% of survey respondents was excess inventory reduction. 72% of companies mentioned the order accuracy improvement and purchasing cost reduction (58%)¹². Procurement refers to the product information management and presentation in order to create demand on the buyer side, whereas fulfillment primarily focuses on managing information about goods as they move through the supply chain to the end consumer. E-payments represent all the activities connected with the fund transfer.

Participants and prices (settled generally on official announcements about changes in production costs) of Supply-Chain Model are relatively stable. The flow of materials and funds takes place mostly within the same group of firms. Contrary to Supply-Chain Model, Marketplace-centric B2B refers to changing environment with a high level of buyers and supplies rotation and dynamic prices (i.e. auction services, supply and demand aggregators).

The most popular approach classifies virtual markets by a market structure. Depending on the key inefficiencies e-marketplaces are seeking to address, they can adopt a horizontal or vertical strategy.

Vertical approach is focused on a single industrial or service sector, while horizontal one offers products and services which are common to most industries such as office supplies and

¹⁰ Soh Ch., Markus M.L.: *B2B E-Marketplaces— A Strategic Archetypes Approach*, ICIS, Barcelona, 2002.

¹¹ Simon A. R., Shaffer S. L.: *Hurtownie danych i systemy informacji gospodarczej*, Oficyna ekonomiczna, Kraków 2002.

¹² EMarketer: *eCommerce: B2B Report*, July 2001.

MROs (Maintenance, Repairs and Operations Supplies)¹³. Vertical markets focus on inefficiencies that exist across a supply chain within a specific industry sector e.g. chemical, automotive or steel, and generally involve streamlining the trade of direct goods.

Examples: Autodaq (automotive industry), ChemConnect (chemicals), Altra Energy (energy).

Horizontal markets address inefficiencies within multiple supply chains and involve the trade of indirect goods. The distinction between vertical and horizontal markets is sometimes blurred. Vertical industries are often able to offer a service across a number of industry supply chains whilst horizontal intermediaries may specialise their offering for specific verticals.

Examples: Barter.com (diversified), PurchasePro (MRO), Point2.com (machinery/equipment).

According to the barriers of entry e-marketplaces are also classified as public, opened for all participants; private, assigned only to trading partners and industry-sponsored marketplaces where entrance is by invitation only.

Public e-marketplaces are independently owned and developed on-line marketplaces, neutral in their nature and primarily focused on price discovery¹⁴. At its most fundamental level, public marketplaces are a B2B business brokers offering services such as auctions, reverse auctions, aggregated catalogs and exchange functionality through the Internet¹⁵. This many-to-many exchange creates much of its value by offering greater market transparency through an aggregation of supply and demand data. They also help reduce the cost of gathering purchasing information through efficiently identifying prospective trading partners and market pricing¹⁶. Public e-marketplaces are gathering interest from potential participants, however converting this interest into transaction appears to be extremely difficult. The median number of registered participants reported by Accenture's survey respondents is 1,800, the number of participants trading one or more times is 350, and the number of participants trading two or more times is 120¹⁷.

Example: GetThere.com (horizontal/MRO), SciQuest (vertical/chemicals).

Private exchanges (PTXs) are one-to-many platforms, established by private entities with an interest as a buyer or seller, used to manage, monitor, and optimize value chain processes, e.g. sales planning and forecasting, design and manufacturing, contract management, distribution, order management, accounting and inventory management with key trading partners including

¹³ Steinfield Ch.: *Conceptualizing the Role of Collaborative E-Commerce in Geographically Defined Business Clusters*, Vrije Universiteit Amsterdam, 2002.

¹⁴ MarketScience: *Integration is the Key to Marketplace Success*, 2000.

¹⁵ McKinsey&Company, CAPS Research: *E-Commerce Exchanges, Making informed decisions. Applying best practices*, 2000.

¹⁶ Frick J., Hyrne Ch.: *Net Markets: Beyond the basics. Strategies for the enterprise*, www.b2b.ebizq.net, 2003.

¹⁷ Devenport T., Brooks J., Cantrell S.: *B2B eMarket Survey, Summary of Findings*, Accenture Institute for Strategic Change, 2001.

resellers, distributors and logistics providers¹⁸. Private marketplaces create value for participants by making existing processes and data coordination more efficient through automation and integration. To participate, partners have to integrate with the owner's technical applications and data management standards¹⁹.

Examples: Boeing, DaimlerChrysler.

Industry-sponsored marketplaces (consortia) are owned by two or more industry incumbents and address many-to-many relationships with a possibility to establish confidential one-to-many relationships. They are primarily focused on value-chain processes, e.g. supply chain forecasting and replenishment for most purchases.

Examples: Covisint (automotive industry), Exostar (airplane industry).

Another approach is based on purchase situation and refers to what businesses buy and how businesses buy. Kaplan and Sawhney classified e-markets (e-hubs) according to two key dimensions²⁰:

1. value creation mechanism (aggregation vs. matching);
2. purchase situation (systematic vs. spot purchasing);

Based on value creation mechanism and a purchase situation Kaplan and Sawhney distinguished between four categories of B2B marketplace: **(1)** MRO hubs, **(2)** Yield managers, **(3)** Catalog hubs and **(4)** Exchanges.

Picture 1. B2B marketplace's models.

	OPERATING INPUTS indirect materials and services	MANUFACTURING INPUTS Raw materials and components
SYSTEMATIC SOURCING relationships oriented long-term in nature	MRO hubs horizontal	Catalog hubs vertical
SPOT SOURCING transaction oriented short-term in nature	Yield managers horizontal	Exchanges vertical

¹⁸ Booz Allen & Hamilton and Giga Information Group: *B2B Exchanges: Future Hopes, Current Doubts*, 2001.

¹⁹ Kaplan S., Garicano L.: *The effects of business-to-business e-commerce on transaction costs*, National Bureau of Economic Research, Cambridge, <http://www.nber.org/papers/w8017>, 2000.

²⁰ Kaplan S., Sawhney M.: *B2B E-Commerce Hubs: Towards a Taxonomy of Business Models*, 1999.

The similar approach we can find in Durlacher Research Agency classification²¹:

1. **Vertical Distributor** that puts online industry specific catalogs in order to automate the systematic sourcing process and create value for buyers by lowering transaction costs. They usually supplement basic transactions with appropriate content and communities that provide advice on who and where products can be best sourced.
2. **Horizontal Distributor** focuses on improving the efficiencies in the purchase of operations goods and services. It offers network-based catalogs of MRO suppliers goods and services. These hubs tend to focus on functionality rather than content services and therefore partner with horizontal third party service providers to extend value.
3. **Vertical Exchange** addresses spot buying of manufacturing inputs and are focused on providing exchange and auction functionality that enables the trade of commodities or near commodities. Organization that runs this kind of exchange should have a great knowledge about the key players in a given industry. After reaching critical mass of trading partners they also provide value-added services such as content on supply, demand and pricing trends.
4. **Functional Exchanges** focus on allowing buyers and sellers to scale their operating resources at short notice using auction functionality. To support buying decision they usually offer information on products and companies. These hubs tend to be more vertical than transactional MRO hubs and mostly operate as service hubs behind vertical communities.

Based on the same factors, Laudon and Traver differentiated four types of Internet-based B2B marketplaces²². **(1)** e-distributors supporting spot purchasing for horizontal inputs; **(2)** e-procurement services focused on systematic purchasing, offering catalogs of thousand of suppliers; **(3)** exchanges focused on bringing together buyers and sellers within a particular industry and concentrated on the spot purchasing of manufacturing inputs and **(4)** industry consortia established and owned by large buying firms seeking to rely on electronic networks to support long term relationships with their suppliers.

3. CONCLUSION

Virtual Marketplaces are still in its formative stage. In a crowded field of virtual B2B markets with a poor defining characteristic, the decision about which marketplace best fits company's needs, seems to be extremely difficult. The business decisions of participating in e-marketplaces have to be made with full understanding and based on rational choice and complex information. Consequently, classifying e-marketplaces and identifying the characteristics of existing models seems to be fundamental for the better understanding of their nature. The taxonomy of virtual

²¹ Durlacher Research: *Business to business e-commerce, investment perspective*, www.durlacher.com.

²² Laudon K., Traver C.: *E-commerce: Business, technology, society*, Boston, Addison-Wesley, 2001, in: Steinfield Ch.: *Conceptualizing the Role of Collaborative E-Commerce in Geographically Defined Business Clusters*, 2002.

markets' models presented above offers opportunity to analyze functionality of this new e-economy phenomenon and its right adoption to meet companies' business processes inefficiencies.

Bibliography:

1. Commission of the European Communities: *B2B Internet trading platforms: Opportunities and barriers for SMEs – A first assessment*, SEC(2002) 1217, Brussels, 2002.
2. Deloitte Research: *B2B Darwinism, How e-Marketplaces survive and succeed*, 2000.
3. CommerceNet: *B2B Marketplaces in the New Economy*, 2000.
4. Community B2B: *B2B Fundamentals*, <http://www.communityb2b.com/library/fundamentals.cfm>
5. The complete characteristic of communication' forms can be found in Hoffman D. L., Novak T. P.: *Marketing in Hypermedia Computer-Mediated Environments: Conceptual foundations*, <http://elab.vanderbilt.edu>, 1995.
6. Ca'Zorzi A.: *B2B Marketplaces in Wood Products, A Brief Review*, Inter-American Development Bank, 2002.
7. Dai Q., Kauffman R. J.: *To be or not to B2B? An Evaluative model for e-procurement channel adoption*, 2001.
8. Lee H. G., Clark T.H.: *Impacts of the Electronic Marketplace on Transaction Cost and Market Structure*, International Journal of Electronic Commerce, 1996, No. 1.
9. Bakos Y.: *Reducing buyer search costs: implications for Electronic Marketplaces*, Management Science, 1997, Vol. 43, No 12.
10. Soh Ch., Markus M.L.: *B2B E-Marketplaces— A Strategic Archetypes Approach*, ICIS, Barcelona, 2002.
11. Simon A. R., Shaffer S. L.: *Hurtownie danych i systemy informacji gospodarczej*, Oficyna ekonomiczna, Kraków 2002.
12. EMarketer: *eCommerce: B2B Report*, July 2001.
13. Steinfield Ch.: *Conceptualizing the Role of Collaborative E-Commerce in Geographically Defined Business Clusters*, Vrije Universiteit Amsterdam, 2002.
14. MarketScience: *Integration is the Key to Marketplace Success*, 2000.
15. McKinsey&Company, CAPS Research: *E-Commerce Exchanges, Making informed decisions. Applying best practices*, 2000.
16. Frick J., Hyrne Ch.: *Net Markets: Beyond the basics. Strategies for the enterprise*, www.b2b.ebizq.net, 2003.
17. Devenport T., Brooks J., Cantrell S.: *B2B eMarket Survey, Summary of Findings*, Accenture Institute for Strategic Change, 2001.
18. Booz Allen & Hamilton and Giga Information Group: *B2B Exchanges: Future Hopes, Current Doubts*, 2001.
19. Kaplan S., Garicano L.: *The effects of business-to-business e-commerce on transaction costs*, National Bureau of Economic Research, Cambridge, <http://www.nber.org/papers/w8017>, 2000.
20. Kaplan S., Sawhney M.: *B2B E-Commerce Hubs: Towards a Taxonomy of Business Models*, 1999.
21. Durlacher Research: *Business to business e-commerce, investment perspective*, www.durlacher.com.
22. Laudon K., Traver C.: *E-commerce: Business, technology, society*, Boston, Addison-Wesley, 2001, in: Steinfield Ch.: *Conceptualizing the Role of Collaborative E-Commerce in Geographically Defined Business Clusters*, 2002.

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