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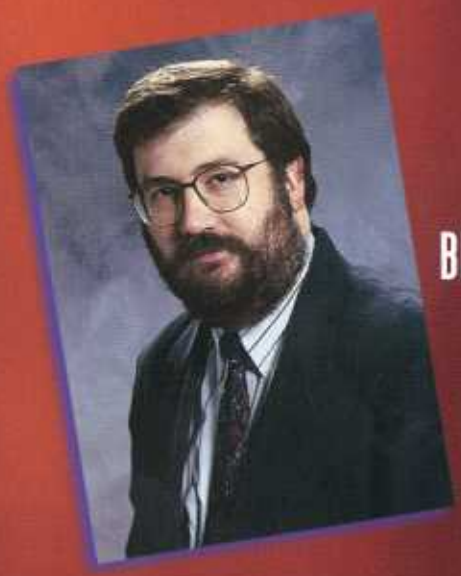
E-Business Explosion

The Rise of the i-Market



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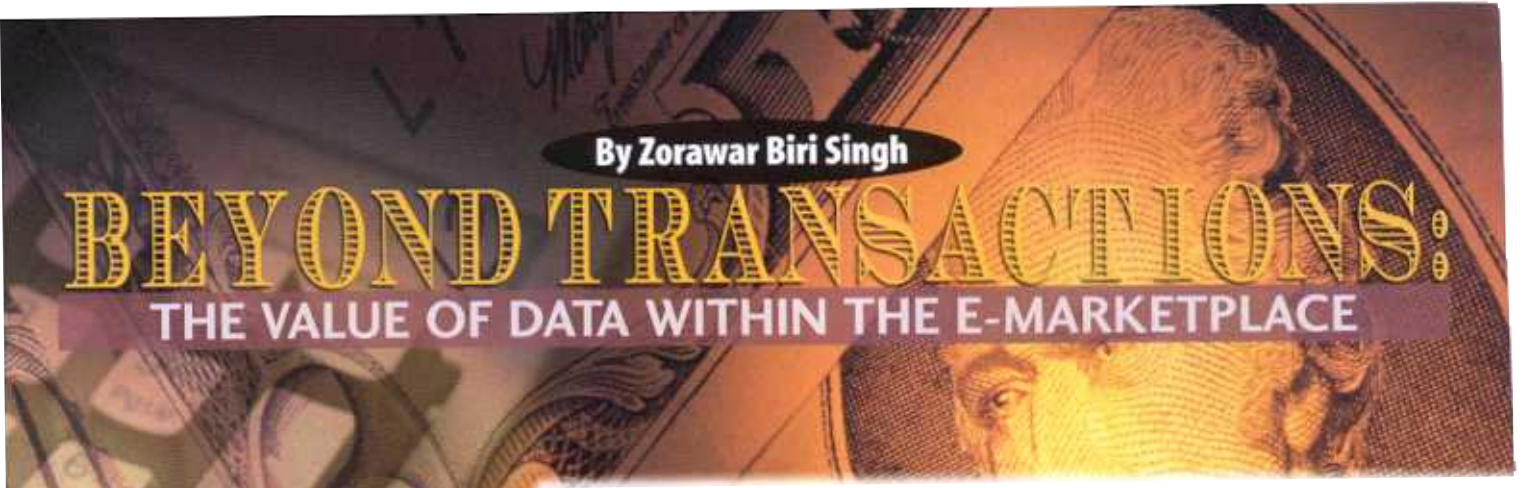

By Zorawar Biri Singh

BEYOND TRANSACTIONS:

THE VALUE OF DATA WITHIN THE E-MARKETPLACE

With first-generation business-to-business (B2B) online marketplaces (or e-marketplaces) up and running, the potential for long-term benefits to buyers, sellers and the e-market makers who operate these marketplaces remains promising. Enhanced market reach, streamlined transactional efficiencies and remarkable opportunities for gaining and leveraging market intelligence continue to spur the migration to online markets. In fact, GartnerGroup estimates that e-market makers will facilitate $2.71 trillion in e-commerce sales transactions by 2004, representing 37 percent of the overall B2B market.

Among e-market makers who are driving this rush to market, there is one common goal: to become the marketplace of choice within a specific industry. Although each industry is marked by unique inefficiencies and pain points, there are common characteristics that define and support the need for an e-marketplace:

- **Commodity-Type Products.** Typically, industries built around well-defined or commodity-type products are well suited for e-markets because buyers and sellers understand the underlying product and its characteristics. Therefore, buyers and sellers require minimal direct interaction to transact business, which facilitates liquidity.
- **Large Market with a Fragmented Supply Chain.** An industry that generates a large volume of transactions and whose large number of buyers and sellers endure high search costs to find one another will benefit significantly from an e-market that aggregates buyers and sellers within a single marketplace.
- **Supply and Demand Fluctuations.** Industries which are particularly susceptible to external factors, such as the environment, unstable national economies and economic policies, global economic shifts, etc., are marked by dramatic supply and demand fluctuations. An e-market that provides a centralized marketplace enables buyers and sellers to quickly correct and adjust to market fluctuations either through rapid liquidation of excess goods (sellers) or through immediate access to a robust and vast supply of goods (buyers).
- **High Workflow Costs.** Internal procurement processes and value-added services such as credit verification and logistics tracking often significantly increase the overall cost of a single purchase. An e-market that can replicate, automate and streamline the transaction process can dramatically lower workflow costs for buyers and sellers.

New Achievements, New Challenges

As many e-market makers are now mastering new and better ways to aggregate buyers and sellers, retain customers on their sites and drive transaction volume, the next biggest challenge for them is finding a way to capture and leverage the valuable data and market intelligence that is streaming into and out of the marketplace at an astounding rate.

The ability to mine marketplace data and gain market intelligence now – within these relatively immature e-markets – will enable e-market makers to

achieve a sustainable competitive advantage and facilitate growth as market conditions and customer preferences morph over time. Data reflecting customer behavior, market history and future trends can provide valuable business intelligence for all marketplace participants – buyers, sellers, visitors and, of course, e-market makers themselves.

The Value of Data

Regardless of which vertical market they serve, all e-market makers can benefit from an enhanced ability to capture, mine, analyze and effectively utilize information that is captured within the marketplace. Access to behavioral, transactional and historical data offers something for all participants within the e-marketplace:

Sellers. Leveraging marketplace data can help sellers improve product offerings and positioning, thereby increasing profitability and customer loyalty. Applying sophisticated analytics to large volumes of data enables sellers to:

- Increase sales channels based on real-world buyer behavior,
- Diversify product offerings to increase revenues,
- Streamline and optimize their supply chain to improve profitability,
- Effectively plan their production cycles,
- Minimize and manage risk, and
- Leverage channel relationships to increase performance and to cut costs.

Buyers. Critical data mined from e-marketplaces enables buyers to make well-informed, timely, mission-critical purchasing decisions by helping them forecast demand, manage inventory, and respond promptly and accurately to external events.

Traders. In truly liquid marketplaces where buyers can be sellers and sellers can be buyers, access to real-time and historical information is critical for a dynamic trading environment.

Third-Party Visitors. In increasing numbers, third-party visitors are arriving at the e-marketplace. Although the face of these participants will change over time, they are currently looking to pull information from the marketplace that they can leverage in their own businesses or disciplines. Marketplace data enables third-party participants to monitor industry trends and supply and demand fluctuations, drive offline buying/selling decisions based on e-marketplace statistics and pricing, and market offline product offerings based on customer behavior online.

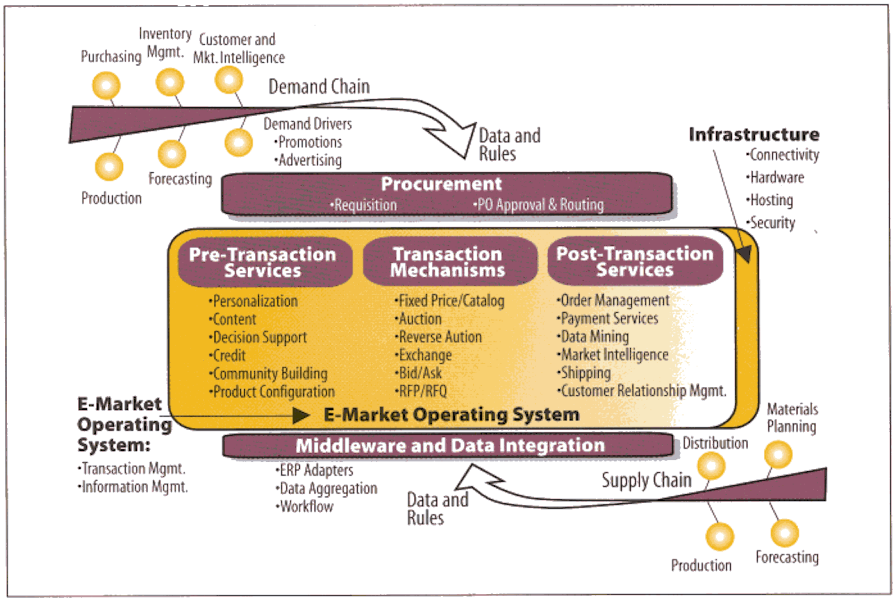

Figure 1: The E-Market Architecture

E-Market Makers. As with all other marketplace participants, e-market makers themselves stand to reap the benefits of marketplace data, which enables them to customize their offerings and services based on behaviors and actions of marketplace participants, and bundle and sell the data back to participants creating an additional revenue stream.

The Role of the Data Warehouse in the E-Marketplace

One of the best technologies available for enabling the capture and mining of valuable e-market data within online marketplaces is the data warehouse. No other tool can as effectively transform data from multiple sources into business intelligence and channel it back into the marketplace to improve decision making and customer response for buyers, sellers and e-market makers.

The data warehouse can contribute to e-marketplaces in several ways and may be deployed at several points within the marketplace: in the demand chain (buy side), the supply chain (sell side) and within the actual marketplace (transactive environment).

Powering E-Market Transactions

For e-market makers, the data warehouse is instrumental in helping to better target the marketplace environment to its users. Armed with market data, such as most frequently traded products or product types, the spread that exists between bid and ask prices and/or key variables that drive both buying decisions and selling decisions, marketplace participants can better negotiate and trade for products or services. In addition, the data warehouse at the e-market level can help enable transactions by better bringing together buyers and sellers along specific preferences and transactive variables. For example, identifying preferences of a specific buyer or buyer set allows a seller to better target offerings to more rapidly achieve a transaction.

Transactive support is not the only role of the data warehouse in e-markets, however. A great part of an e-market's activities utilize pre-transaction and post-transaction functionality without a transaction having necessarily occurred. By providing

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pre-transaction services (such as personalization; rich, robust content; decision support; product planning; inventory management; document exchange; etc.) and post-transaction services (including customer relationship management, settlement, order management, logistics tracking, market intelligence, etc.), an e-market maker not only creates more revenue channels, but further embeds itself into an industry's (and its buyers and sellers) value chain.

Here a data warehouse can help power the supply and demand chains in several ways. Within the demand chain, buyers can use marketplace data to forecast and procure goods. Within the supply chain, sellers might use the data warehouse to schedule production and materials planning. By tapping the data in supply and demand chains, decisions related to procurement, planning and customer care can be made with an increased level of confidence.

Building an Architecture that Works

When building the e-market data warehouse, it is critical the proper foundation be in place. The marketplace must be built on an extensible e-market architecture – one that supports the business's e-commerce infrastructure. E-market architectures must be designed to support the aggregation of buyers and sellers, ranging from Global 1000 enterprises to individual traders, into the online marketplace.

Fully integrated access to an e-market optimizes key demand chain activities:

- **Purchasing** – buying the necessary goods or services to fulfill customer demand.
- **Production** – taking procured goods through value-added processing to produce a finished good.
- **Inventory management** – managing the quantity, location and placement of finished or in-process goods.
- **Forecasting** – quantifying future demand.
- **Customer and market intelligence** – understand what customers want and what the market demands.
- **Demand drivers (promotions and advertising)** – events or activities conducted to directly stimulate demand.

Fully integrated access to an e-market also optimizes key supply chain activities:

- **Distribution** – delivering goods or services in the most efficient manner possible.
- **Production** – creating the products or services that the market demands.
- **Materials planning** – identifying and quantifying the components necessary to produce goods or services.
- **Forecasting** – quantifying future demand.

Middleware and data integration components provide the necessary bridge to an e-market from a seller's supply chain.

Middleware and data integration components provide the necessary bridge to an e-market from a seller's supply chain. With prebuilt ERP adapters and the ability to access legacy data sources and complete the necessary workflow events, these companies pull and present the data into the marketplace and optimize key supply chain activities.

E-Procurement

E-procurement provides a buyer with access to the online marketplace. Taking advantage of standard IP protocols, procurement creates efficiencies in the demand chain and facilitates the following:

- **Requisitioning** – the event that drives the creation of a purchasing event, either electronic or paper-based.
- **Purchase order approval and routing** – the creation of a purchasing request within a financial system that may require multiple levels of approval based on dollar amount.

E-Market Operating System

A sustainable marketplace is built with an operating system. This command and control platform provides the interoperability, scale and management features required for a successful e-market. Core operating system pieces include:

- **Information management** – A common set of terms to manage the interactions of disparate applications and services. This standard term set or meta data is activated and deployed through defined logical relationships and constraints.
- **Transaction management** – The unique events surrounding a transaction in an e-market. Managing the full transaction life cycle as buyers and sellers enter a marketplace, utilize its components and exit.

This operating system must be supported by a solid infrastructure providing connectivity, hardware, hosting and security. Connectivity provides the Internet access for small- and medium-size market participants, as well as larger more established companies. Hardware and hosting provide the backbone and physical infrastructure for an e-market, while security provides the necessary secure collaboration environment.

Full Transaction Services

Within the actual marketplace, activities fall around the transaction – the anchor point for any e-market. The things that take place before, during and after the transaction are of paramount importance.

Pre-transaction services include activities and events that occur in advance of a transaction or that are not directly related to the transaction. Components include:

- **Personalization** – delivering a user experience targeted specifically to a user or set of users in the marketplace.
- **Content** – the information delivered to a marketplace, which

includes custom developed information to generally available news clipping, special interest feeds, etc.
- **Decision Support** – information critical to making decisions based on buyer/seller preferences, historical market behavior or real-time market performance
- **Credit** – the granting of lines of credit, trade finance or gaining underwriter approval for a user, transaction or sequence of transactions.
- **Community Building** – the tools and services that attract and retain users to a marketplace including discussion threads, chat, etc.
- **Product Configuration** – complex purchasing and manufacturing requires automated tools to facilitate the process for industries such as computers and electronic components.

Transaction services include:
- **Fixed Price/Catalog** – A seller's offerings have no negotiable parameters. Buyers choose the quantity and execute a transaction.
- **Auction** – One seller with many buyers bidding based on a set time limit for a set lot size of goods. Price is the dynamic variable.
- **Reverse Auction** – One buyer with many sellers bidding based on a set time limit for a unique buyer request. Price is the dynamic variable.
- **Exchange** – Many buyers and many sellers coming together in real time to negotiate and trade across multiple variables.
- **Bid/Ask** – A static negotiating environment where bids (offer to buy) and asks (offer to sell) are exchanged in a real-time format.
- **RFP/RFQ** – A buyer sends a detailed request or bill of materials to the market or to a set of sellers and awaits responses/completion.

Post-transaction services include:
- **Order Management** – Tracking goods or services from shipping to delivery at their final destination, includes order inquiry, reverse logistics and fulfillment.
- **Payment Services** – The closing of the transaction through financial means, includes global currency clearing, electronic invoicing and automated bank drafting.
- **Data mining** – Capturing, organizing and storing marketplace data.
- **Market Intelligence** – Packaging marketplace information for bundling and resale/distribution, which includes buyer/seller behavior data, marketplace trends and historical analysis.
- **Shipping** – Securing the transportation capacity to deliver goods or services to their destination.
- **Customer Relationship Management** – Gain customer loyalty through customer specific interactions and by providing self-service capabilities.

Within the overall architecture, the data warehouse is best suited to the post-transaction environment, where data mining activities can deliver e-market intelligence that enables the e-market maker to identify key marketplace metrics and build specific information to be delivered to marketplace participants.

E-market veterans and pioneers alike face mounting challenges in an increasingly competitive market space. Building an e-marketplace that leverages and contributes key data to e-market participants is a way to help e-market makers keep pace with the ever-changing requirements of the B2B landscape. The role of the data warehouse in helping e-market makers continuously learn from and adapt to their industries and the changing nature and needs of e-market participants is an important one. While issues around e-market data ownership, sharing and security are currently under debate, the value of marketplace data is unquestioned. The wealth of information currently being captured in and around e-markets provides an additional level of value to participants that will encourage ongoing participation in a specific marketplace and further strengthen the relationship between a marketplace and its participants.

Biri Singh is an accomplished author, speaker and thought leader in the B2B e-commerce space and has lectured on topics including the growth of e-markets and the future of B2B trading exchanges. Singh is president and CEO of Idapta, Inc., formerly known as Intelligent/Digital, a leading provider of enterprise-level solutions for B2B e-commerce. Singh can be contacted via e-mail at biri@idapta.com.

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are being defined as necessary to support decision making. For the designers and builders of management information systems, the emerging principles for effective measurement are:

- Focus on the identification and reporting of leading indicators that are predictive of future events/financial results.
- Incorporate external measures of customer, competitor and market behavior into routine management reporting.
- Leverage the digitization of data that relates to upstream and downstream activities beyond the boundaries of the enterprise.
- Move from calendar-driven/informational reporting to event-triggered/decision-driver reporting (i.e., changes in customer behavior, competitor action and process failure).
- Leverage the low-cost ubiquity of the Internet and related communication technologies, such as wireless, to deliver meaningful information directly to all affected parties and not just managers.

One of the liberating effects of the speed required to be competitive in the e-business world is the devolution of decision-making power to the front line, challenging the whole concept of "management information." In a point-and-click world, time-consuming processes – such as ten-step loan approvals and multitier customer problem resolution – cannot survive for very long, putting the very concept of managers making decisions that employees implement under attack. The Internet is empowering front-line employees. And personally, I think the change is overdue.

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