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e-Business: Its Power and Challenges
The Case of Automotive Industry in Asia

A. Albadvi, PhD
Tarbiat Modarres University, Tehran, Iran, Tel/Fax: +9821 2070381, albadvi@ikco.com

ABSTRACT

E-business is changing the shape of competition, the speed of action and the nature of leadership. It has already revolutionized the traditional way of doing business and has implied the redesign of core processes, e.g. in purchasing and marketing, and introduced important transformation and reaction of external relationships with partners and customers. Based on the new information and communication technologies, e-business can successfully be used to redefine a company's competitive position and to take advantages of new oppurtunities.

This paper focuses on the power and challenges of e-business in enhancing competitive advantage in developing countries' industries and reports some results of a survey in the Asian auto-industry. The study confirms that as many web-based businesses are learning, the real value of e-business comes not in the form of sales but in removing inefficiencies in traditional business models. E-business enables seamless communication and collaboration between constitutes across vast distances. Along with horizontal integration, e-business facilitates vertical integration along the supply chain. Costs are lowered and market response time is reduced. Companies are able to find customers outside of a company's regular footprint. Forecasting the demand specifications are enhanced and industry standards are lifted and disparate channels and markets are integrated. The study shows that currently, most auto manufacturers in Asia use e-business only for internal administration and despite all the talk of e-business, the development in Asia is slow, with less than 15% of IT budgets devoted to e-business in the auto-manufacturing companies. The current infrastructure in the industry is largely internally focused, incongruent with the customer-orientation of e-business.

According to the study it is concluded that due to the uncertain nature of e-business, few people understand how to integrate e-business into their corporate strategy in Asian developing countries. Expectations are difficult to quantify, and are often too impatient. Seeking immediate benefits, companies adopt e-business in areas outside of core competencies, hoping either to boost revenues or to sell off the successful entity for millions of dollars. E-business is not a silver bullet; it takes time to realise the benefits, just like any new business practice. Companies need a clearly planned vision, starting with basic solutions. From there, the strategy will evolve to solutions in wider marketplaces.

INTRODUCTION

E-business is defined as a variety of market transactions that are enabled by information technology and reprsents the entire collection of actions that support commercial activities on a network (Zwass, 1999; Applegate et al., 1996). E-business is taking root in the competitive landscape. Suddenly, the issue of *whether* and *how* to participate is high on the corporate agenda. E-marketplaces are already allowing companies to cut their procurement costs dramatically. Despite the plunge in business-to-business internet stocks, many corporate leaders cling to the hope that their stakes in big e-marketplaces will give a boost to their companies' market capitalization. Low procurement costs and potential windfalls are not the reason why the emergence of business-to-business e-marketplaces matters. Procurement savings are important, but a large proportion of them will ultimately be passed on to the end customer. The big returns on that e-marketplace stock will probably never materialize. What does matter, is competitive advantages. E-business will have a tremendous impact on the competitive landscape. Online business-to-business marketplaces are growing very quickly, but realizing benefits will take more work and time than many companies recognize. Online collaboration services, the most promising area for e-marketplaces, are only beginning to come to the surface and just the most basic services are being offered today. Realizing the promised benefits of more sophisticated collaboration services will require companies to implement changes in systems, processes, culture, and behavior - a formidable task.

E-marketplaces will create value, but participants - not the e-marketplaces themselves - will capture the lion's share of that value. This economic reality will affect how e-marketplaces evolve and which ones will survive. The surviving e-marketplaces will be either major, broad-based players or niche competitors that provide specific products or functions (Lowy, Ticoll &Tapscott, 1998). The most cited reason why one might expect electronic markets to be more efficient than conventional markets is a reduction in information asymmetrics that arise from lower search costs. Economic theory predicts that high consumer search costs will lead to prices above marginal cost in equilibrium (Hotelling, 1929; Salop, 1979 for example). If electronic markets allow consumers to more easily determine retailers' prices and product offerings, these lower search costs will lead to lower prices for both homogeneous and differentiated goods (Bakos, 1997; Bakos & Brynjolfsson, 1999).

Electronic linkages to support in global chains are typically implemented in auto-industry using Electronic Data Interchange (EDI), which provides a standardized format and structure for business documents in electronic form. While this standardization of the electronic documents provides some independence and generality among the auto-industry trading partners, the actual implementations, nonetheless, tend to involve a high amount of relationship specific investment (Lee, 2000). For auto-industry where change is more dynamic, such relationship specific investments can become a hindrance to change. One of the most complex challenges for global auto-industry is in the area of global supply chains. In these cases, trading relationships are not only with other companies, who have similar competitive pressures, but also with a variety of governmental agencies involved in the regulation of import and export. The other challenges in this industry are customer-centric interactions. The Web offers unparalleled opportunities for customer-centric interaction in auto-industry, from data-mining behavioral information to using 'infomediaries', incentives, and loyalty programs to provide and support mass customization (Raisinghani, 2000). According to a recent study of 250 Fortune 500 web sites by Palmer and Griffith (1998), marketing activities and strategies of corporations have been greatly affected by the internet. The internet has created a new marketing environment and a new distribution channel that enable organisations to establish a closer relationship with their customers. Global auto-industry is no exception.

Many authors (Cunningham and Tynan, 1993; Dearing, 1990; Johnston, 1998; Rochester, 1989) recognize that the significance

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of business-to-business electronic commerce in the supply chain is not just its ability to reduce direct operational costs (Colberg, 1990; Dearing, 1990), but also as an enabling technology for business process simplification (Johnston, 2000). At present, the main value of e-business in global auto industry comes from removing inefficiencies along the entire value chain and increasing direct customer communication. It facilitates:

- Improved forcasting of demand and market trends
- Fully integrated enterprise resource planning
- Possibility to integrate downstream industries
- Reduced inventory, cost and time
- Integrated customer relationship management

Many business analysts estimate substantial savings through e-business application in automotive industry. Savings per car derived from e-business applications in the US can add up to more than 10 percent of an average vehicle retail price. The savings mainly come from back end supply chain and direct online sales. Another 5 percent lies ahead in the built-to-order production which through flexible production planning offers a compromise between the differing needs of the sales and production functions. Built-to-order production is expected to cut excess production costs as well as lionising customer demand by delivering timely, cost-effective products.

In North America and Europe, there are already many examples of e-activities in key business areas of automotive industry; e.g. collaborative engineering, electronic marketplaces, improved supply chain and distribution. In this regard, e-business is going to reshape the competitive landscape of auto industry in these areas, the companies that transform their businesses most aggressively to use e-business and influence their evolution stand to gain the most. Sellers can use the new markets to change competitive dynamics more than they realize. And as buyers are beginning to recognize, e-marketplaces represent more than a means of exacting lower prices from suppliers. Over time, many of the benefits gathered by e-business will flow to the end customer. This means that early movers that can overcome the implementation challenges will have the greatest opportunity to capture and retain most of the benefits.

E-business in the Asian automotive industry is also emerging in many places, but on a smaller scale. This research underpins some challenges in this trend. It focuses on the power and challenges of e-business in auto industry of Asian developing countries (including Japan) and reports some results of a survey in this area. The study confirms that as many web-based businesses are learning, the real value of e-business in Asian auto industry comes not in the form of sales and benefits of e-marketplaces but in removing inefficiencies in traditional business models.

THE SURVEY

In order to study the power and challenges of e-business in enhancing competitive advantage for global industries, an electronic survey has been conducted in the automotive companies in Asia. The survey developed through the web which had the advantage of reduced cost and reduced response time compared with mail-out surveys or interview (Benjamin, 1995). At the first stage research objectives and research scope were clearly defined. The conceptual framework for the survey was built around four stages of e-business illustrated by Arthur D. Little's Michael Taylor as follows (Varney and McCarthy, 1996):

Stage 1: Companies digitize internal data. It is a publishing model without a significant impact on business processes.

Stage 2: Companies start thinking about re-engineering a part of the business process. Integration with back-end systems begins.

Stage 3: Companies move into original content, which may be highly interactive. With the goal of one-to-one marketing, a company seeks to develop profiles of users accessing its sites so they can be treated uniquely.

Stage 4: Companies that are fully enabled, seek to achieve dynamic segmentation, in addition to developing basic user profiles. Specifically, segmentation of site visitors is done in real time, based on user activity. The internet's ability to function as a micromarketing channel is also questioned during the survey (Raisinghani, 2000).

The survey covered 10 countries across Asia Pacific and was conducted in four different languages, English, Japanese, Korean and Chinese over a 16-week period. In total, 112 responses were received from major OEMs, component suppliers, dealers and portals. Designing the research questions and their measurement scales were the next step. Key questions on automotive e-business development survey in Asia were as follows:

- What are the key drivers of Asian automotive e-business strategies?
- How far along is e-business infrastucture in Asian automotive companies?
- How much e-business investment is being planned in the next 5 years?
- What are the e-business challenges foreseen for implementation in Asia?
- Will e-business scale in Asia reach Western levels in the next 5 years?
- How will the e-business roles change in the auto B2B/B2C space in Asia?

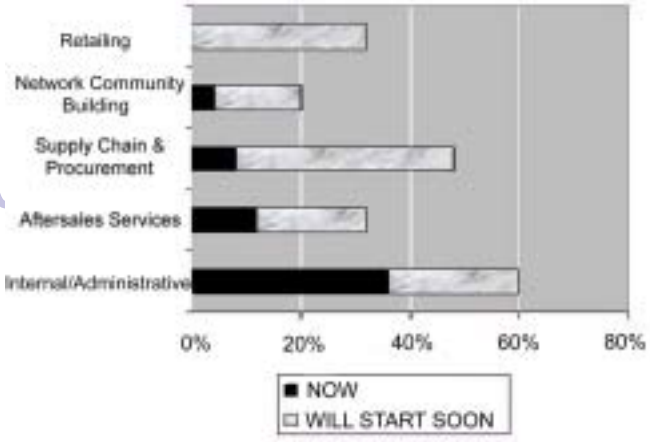
After pre-testing the questionnaire to confirm that the questions and their measurements are appropriate, correct and understandable, a web form was designed to contain the research questions. A web server was developed to collect and process the research data electronically. As an extention to the web server, server scripts were also programmed in order to process and analyse the research data. The result of the survey shed some important insights to the above key questions.

SURVEY RESULTS

The survey confirms that increased customer interaction is the top resaon driving internet strategy for Asian auto companies. For the OEMs and suppliers, closer customer contact and supply chain and e-procurement cost savings are the main drivers. For the dealers, getting closer to existing customers and providing greater reach are the focal points for e-strategy. However, given the disparity among Asian auto markets, e-business value savings will differ from market to market. For example in Japan, supply chains are generally more effective than in the US, marginalising e-business gains. The savings in Japan would come in its expensive distribution channel, where the many layers of middlemen could be bypassed using e-business. Throughout Asia, e-business is predicted to lower costs by one third in procurement, supply chain and average transaction costs.

The surveys revealed a questionable commitment to e-business in the Asian auto industry. Currently, most auto manufacturers use e-

Figure 1: Current share of OEM's indicating level of e-enablement and its future



business only for internal administration (see figure 1), and devote less than 0.5% of their total revenues to e-business infrastructure and processes. For suppliers in the industry, this figure is even lower. Despite all the talks of e-business, the development has been slow, with only 5-15% of IT budgets devoted to e-business. The current infrastructure in the industry is largely internally focused, incongruent to customer-orientation of e-business.

The survey shows that the e-business market in Asia is different. In Asia the propotion of car sales influenced by the internet is much lower than those of the US and the EU (15% vs 40%). There is a large gap in affordability, with the number of months' salary to buy a car in Asia often ten times higher than the same figure in the West. While the US market has been purchasing goods on the internet for a couple of years, Asian web users have yet to perform many consumer and business transactions on the web. Culturally, Asians prefer to base consumer and business decisions on personal relationships. The region suffers from a shortage of skilled human resources, as well as a lack of economic scale. Middleman remain dominant in Asian commerce, and hinder the development of e-business in the region. All of these factors have led to an internet immaturity in the region, and demand for multinationals to develop a proprietary business model for the region.

According to the survey results, Internal conflict of interest was cited as a key obstacle to implementing e-business strategy . At the regional level, challenges to the expansion of e-business in Asia can be summarised as follows:

- There is shortage of human resouces especially in non-Japanese markets.
- Connectivity is still low due to the high proportion of poverty in the region.
- There are obstacles crossing the many cultural boundaries in the region to achieve a sufficient level of transparency.
- There is little standardisation across markets.
- Intellectual property protection measures are still lacking in most of the countries in the region.

At the industry level, there are also major e-business implemenation bottlenecks across Asia:

- Manufacturers risk alienating dealers as they replace elements of their function with portal sites.
- How to pass savings on to customers?
- E-procurement is not easy for engineered materials.
- Organisational maturity of many suppliers is lacking.
- The integration of several differing legacy systems is a difficult and expensive process.
- There is conflict of interest with existing infrastructure.
- Organising sales around infrastructure threatens to up-end the current system.
- The internet only provides the means to communicate; some companies are not necessarily willing to share information.

CONCLUSION

Not all companies are ready to board the e-train. While the technology is changing every six months, and with the future of that technology still uncertain, some companies find it futile to try and grasp the mercurial of e-business. They propose to wait for a few years to see what actually works, rather than start the IT projects that require constant capital investments to maintain. These companies are now starting to feel the crunch from their lack of judgment. An internet year is equivalent to around two weeks, such that waiting for an extended period to join the trend can be fatal. The internet wave is moving into its second phase after the first euphoric explosion. The new e-business companies come armed with solid business plans, proven industry professionals, and pose a real threat to the industry's established companies. As these new competitors develop their e-business processes, customers are being trained away from traditional business practices, essentially phasing laggards out of their markets. While many of these companies fail, they are pushing technological thresholds, antiquating traditional companies' business models in the process.

Benefits of e-business are rarely in the form of additional revenues. The capacity for originality on the internet should be exercised. without developing something new, companies risk copying existing material, thereby limiting the appeal of their effort.

The reality is that there are many challenges and obstacles for e-business in the Asian auto industy and many losers in this trend are still to come. The biggest winner in the Asian auto industry's eventual transition to e-business practices will be the customer, who will enjoy greater convenience, less sales presurre, more choices, increased visibility, more information and lower prices.

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