How E-Business Affects Knowledge Capital

Oligopsonies in B2B exchanges are likely to inhibit corporate gains in knowledge.

KNOWLEDGE METRICS

By Paul A. Strassmann

This year a new topic has occupied magazines, business meetings and executive conferences. Business-to-business (B2B) electronic commerce is heralded as the next great opportunity for increasing profits, enhancing productivity and reaping "new economy" gains from the Internet. Desire for this bonanza has produced a flock of start-up companies and purchasing consortia, all professing to have discovered a way to create instant wealth.

Fulfillment of these promises depends on the ability to solicit real-time bids for goods and services on a global basis and pare suppliers' prices to the minimum. B2B schemes also promise enormous reductions in global administrative costs through automation of the steps in acquiring goods and services from otherwise difficult-to-reach sources. Now the time has come to examine how this hoopla anticipates changes that may influence knowledge management.

B2B trade has ancient origins. For centuries caravans on the Silk Road carried a steady supply of merchandise from China to Mediterranean merchants. Dozens of land-based intermediaries prospered by passing commerce from one trader to another. During each transfer of goods, their price increased; thus scarcity of supply and perilous logistics favored the creation of oligopolies, in which a few sellers controlled markets. For these reasons, much of commercial history can be understood best by studying competitive forces, such as when one monopolistic supplier assails the power of another. For instance, to cut off the Venetians and the Genovese from their mideastern sources, the Portuguese and the Dutch embarked on sea voyages around Africa that eliminated most of the land-based traffic.

What B2B is trying to accomplish today is not much different. It offers a new means of gaining direct access to sources of supply and of cutting out wholesalers, distributors, export agents, subassembly aggregators and component integrators. It reflects a shift of economic power over pricing from many business suppliers to relatively few business customers.

What's different is that the world has developed a surplus of manufactured supplies at the same time that market-limited commercial demand has become concentrated in a handful of U.S. corporations. Instead of supply oligopolies (of few sellers and many buyers), B2B is propelling commerce toward demand oligopsonies of few buyers and many sellers.

In the driver's seat

The economics of global automobile manufacturing illustrate the characteristics of an emerging oligopsony. The B2B purchasing consortium in this industry is Covisint, which was organized earlier this year and is operated jointly by Daimler/Chrysler, Ford, General Motors, Nissan and Renault (other car makers have declared their intentions to join it). The stated purpose of this exchange is "to create visibility within a company's supply chain [by] transforming the linear chain into an efficient networked model." Its Web site declares that Covisint "is not about incremental improvement [but] is a fundamental redesign of the enterprise." The upshot is that standardized Covisint processes would take over a large share of existing procurement processes, which usually account for about half of any automobile manufacturer's economic added value.

Automotive Industry Economics
(in billions of dollars)

	Cost of goods	Percentage of total	Profits	Percentage of total	Cost of information	Percentage of total
5 Covisint members	$379	29.1%	$20	54.5%	$65	26.0%
78 other auto manufacturers	$478	36.6%	$2	5.5%	$101	40.5%
393 primary auto suppliers	$448	34.3%	$14	40.0%	$83	33.4%

The table "Automotive Industry Economics" summarizes data from publicly listed global corporations classified as manufacturers of car bodies or vehicle components according to the Standard Industrial Classification. Examination of this data suggests three conclusions:

Firstly, the Covisint firms reap over half of all of the available industry profits while keeping their cost of information low relative to their cost of goods. According to my metric of knowledge capital accumulation efficiency (the ratio of cumulative gains in knowledge capital compared with the cumulative expenses for all information such as marketing, sales, administration, computers and software [see "Accumulating Knowledge Efficiency," February 2000 *KMM*]), this means increased purchasing power for Covisint. Such efficiency will enable it to impose terms emphatically on their suppliers, in a way that economically weaker competitors cannot. Covisint not only is efficient in its use of information resources (expressed in the ratio of profits to information costs) but also has the potential to keep enhancing this advantage by having more profits to expend in competing for sources of supply.

Secondly, although the other auto manufacturers spend more money than the Covisint Five on information (which

includes all spending on knowledge management), their ability to extract pricing concessions from their suppliers (who account for about half of their cost of goods) will diminish as Covisint's power grows. This will increase the pressure on them to join the exchange; as a consequence they will reduce their spending on knowledge management.

As shown in the table above, the profits of the auto manufacturers not participating in Covisint are already squeezed to very low levels, and the efficiencies of B2B procurement will lower the prices of automobiles for consumers. The only option available to those 78 auto manufacturers will be to keep cutting their information costs. The payoff for knowledge accumulation will appear in the transaction prices at which B2B supplies are purchased. Therefore, the auto manufacturers will have less incentive to spend money on knowledge management that concerns the production pipeline—which is where they spend most of their KM dollars now.

As the automobile manufacturers' oligopsony reduces their profits, the 393 primary auto suppliers will not be able to sustain high-level spending on information management. This will produce ripple effects on the secondary tier of suppliers (more than 2,000 major companies), who likewise will reduce their levels of information spending. (It seems certain that Covisint's imposing new database and communications protocols will force everyone to spend more on IT, but this is another matter.)

The implications of this B2B development for management are significant. I have examined the economic structures of large B2B purchasing consortia in other industries, including Exostar (made up of four aircraft manufacturers that account for 62 percent of that industry's global profits), ForestExpress (three dominant forest products companies) and Pantellos (17 U.S. energy utilities). So far, their profit and cost profiles suggest that the concentration of economic power in B2B offerings will follow similar patterns to those outlined in the case of Covisint.

However, over 900 entrants are rushing to participate in the alleged B2B boom. For instance, Elemica (the purchasing consortium of some dominant chemical manufacturers) is confronted with at least five B2B start-ups claiming to offer similar services. Obviously, this oversaturation cannot continue. Therefore, as knowledge managers become increasingly involved in decisions concerning which B2B alliances to pursue, they should carefully assess which candidate has the best prospect for accumulating knowledge capital that will help it to survive when most of the other B2B ventures disappear.

Paul A. Strassmann originated the trademarked concepts "information productivity," "return-on-management" and "knowledge capital."