The tragedy of the commons

Although President Clinton has deferred any decision about an anti-missile system, the debate about the Non-Proliferation Treaty and Antballistic Missile Treaty has forced the issue of weapons of mass destruction back into the public arena. A generation ago, this was a frequently discussed subject.

In 1968, two authors, J.B. Wiesner and H.F. York, concluded that the nuclear arms race had resulted in a paradox, noting that "Both sides...are confronted by the dilemma of steadily increasing military power and steadily decreasing national security." Science and technology were helpless to solve — and, quite frankly, could worsen — the problem.

Addressing the challenge posed by this lack of a technical solution, Garrett Hardin outlined "the tragedy of the commons," which was based on the 1833 work of William Foster Lloyd, an amateur mathematician. The work presented the dilemma that cattle face when herded on a common pasture. As a rational economic being, each herdsman seeks to maximize his gain. For each additional animal, the herdsman has an economic gain. However, each herdsman reaches the same result -- ruin by overgrazing the "free" good.

I am reminded of Hardin's hypothesis as I watch the number of electronic business-to-business exchanges proliferate. A more modern example of the theory can be found with the development of ATMs, which came of age in the 1970s. Banks at that time were limited to the number of branches they could open, because of either legislative restriction or economics. The inability to attract and retain qualified bank tellers only fueled this trend.

Initially, banks provided ATM access for free. It was a cost reduction from the traditional branch bank alternative. Over time, they started imposing small fees, of usually less than a dollar. ATM networks used to be proprietary to specific banks, but bank consolidation and customer requirements led to the formation of national networks.

In 1996, the two largest networks, Cirrus and Plus, allowed their members to levy a second charge on customers of other banks who use a member’s machines. Most of this money went to the banks with the largest networks. Large banks insisted that imposing surcharges was necessary to correct a system that gave customers of other banks a "free ride."

A recent study found many Americans expressing displeasure about bank-imposed surcharges by avoiding use of their ATM cards. Perhaps more alarming for the banks, consumers overwhelmingly favor legislation requiring banks to provide customers with ATM surcharge information before each transaction — or outlawing the practice.

What happened? It would appear that the tragedy of the commons occurred. Banks charged that the cost of ATM networks went unrecovered due to heavy use of their machines by customers of other banks. The debate has only led to greater woes. For example, the Santa Monica city council banned additional ATM fees, leading the state's two largest banks to prevent non-customers from using their ATMs.

In a matter of years, electronic commerce may find itself in a similar situation. The proliferation of applications has led to a "land-grab" for business. The established thinking used to be that a first-mover could parlay initial market strength into eventual profitability. Today, this is a more formidable task than ever before.

Recent Internet startups that could not generate sufficient profitability are starting to fail, and venture capitalists are scrutinizing plans more diligently than ever.

The number of business-to-business transportation exchanges today exceeds 100, and the exchanges that actually deliver on their promises are few.

The most obvious problem is that technology doesn't always work. Additionally, the marketplace may be imbalanced between buyers and sellers. There is no benefit to having buyers of ocean transportation if the steamship lines don't offer capacity on the same exchange for the desired markets.

Integration of information between trading partners and the exchanges is flawed. When compared to traditional electronic data interchange, the Internet has reduced data transmission expense by up to 95%. But maintaining meaningful synchronization of information is a tricky task. Some exchanges have begun offering services for free to early customers.

Such action could help the exchange achieve critical mass, but it does nothing for a company's long-term economic health.

In an industry where the rumor mill runs "24-7," services will be hard to sell to customers who know their competitors may be receiving them for free. If the absence of compelling business models, exchanges will find profits elusive.

Many exchanges may be over-grazing and headed for economic ruin if they cannot find a way to become profitable. Otherwise, consolidation will continue until only a handful of exchanges dominate each industry.

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