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“How quaint the ways of Paradox! At common sense she gaily mocks.”

(From Gilbert and Sullivan’s *Pirates of Penzance*, December 31, 1879)

The capitalization of Paradox in the above quotation implies that Gilbert and Sullivan deified the paradox or at least represented it in the form of a deity. In their topsyturvy world of operetta (they coauthored 14 in all) they thrived on paradoxes, which they often used as a device to explain the unexplainable and to confer a happy ending on a hopelessly tangled plot. Paradox, after all, is defined as, “A seemingly contradictory statement that may nonetheless be true: the paradox that standing is more tiring than walking.”* In this month’s engaging column, Peter Ping Li demonstrates that the world of ecommerce is full of paradoxes. After identifying eight of them, he explains that paradoxes share a central theme. This theme is the network paradigm. Read on and hopefully you will be persuaded that the paradoxes in ecommerce will indeed share a happy ending.

The Paradoxes of e-Business and the Network Paradigm

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Four remarkable economic developments occurred in the past decade that are proving to be the antecedents and consequences of ebusiness. *First*, after improving in speed, power, and convenience, the Internet has burst onto the economic scene. *Second*, the advanced economy has become so efficient at producing physical goods that most of the workforce has been freed up to offer services or to produce intellectual properties that become increasingly important to the economy, especially for information-intensive customized product/service. *Third*, consumers have been gaining market power and they are in the driver’s seat for the direction and pace of economic growth. Customized mass production has become the new mode of production. Besides customization, consumers are placing more emphasis on reduced cycle time. *Fourth*, the global economy has been enjoying a remarkable resurgence, particularly produc-

tivity growth. These phenomena are closely interrelated. The first three phenomena can be viewed as the antecedents of ebusiness, while the last one can be viewed as the consequence of ebusiness.

The Nature of ebusiness

The concept of ebusiness refers to a business phenomenon in which digital technology and intellectual property are seamlessly integrated with business activities, which alters, and often replaces, the conventional business paradigm at both industrial and corporate levels. Put differently, ebusiness is about the commitment and capability of companies in various industries to utilize digital technology (particularly the Internet) and emphasize intellectual property, in the business functions, thus changing the way of doing business from a traditional company-centric stand-alone paradigm to a new network-

*Excerpted from *The American Heritage Dictionary of the English Language* (3rd ed.), 1992, Houghton Mifflin.

leveraged synchronized paradigm. Consequently, the Internet-enabled and Internet-transformed companies and industries become e-companies and e-industries. An ebusiness company or industry is able to exchange values (e.g., money, goods, services, information, and ideas) via the Internet-enabled network in an efficient, transparent, real-time, interactive, and interdependent process.

The Paradoxical Features of ebusiness

If ebusiness is a true revolution that will rewrite the rules of competition for the new economy, why is the harsh correction in the stock market for those companies that are closely related to the ebusiness revolution? The answer to this question lies in the paradoxical nature of ebusiness. Paradox refers to a situation in which two contradictory elements have to co-exist to constitute a holistic entity. For ebusiness, there are at least eight basic paradoxes.

Paradox of success-failure

The wings of the Internet players seemed perfect. Sure, they were slapped together with a heady concoction of high hopes, hubris, venture capital, post-it notes, and breathless company press releases, but this was the new economy and revolutionary ideas were going to fly! Then the flock of Internet Icaruses launched themselves and made the age-old mistake—they flew too high, too fast, and too close to the sun. And gravity has a nasty way of asserting itself. From business basics to legal precepts, the Internet players are discovering—the hard way—that they can't defy the fundamental rules of marketplace physics. Most dot-comers have become dot-goners. The paradoxical lesson is that success will breed failure.

Paradox of new-old

Having an Internet connection does not exempt the new Internet start-ups from adopting an old rule of making profit. It also doesn't mean that the old copyright, antitrust and fraud laws have conveniently gone away. The Internet players have plummeted back to reality after trying to soar above business and legal boundaries that have governed old economy players

for generations. While the Internet may be driving a new economy, the rules and disciplines of the old economy still apply if the new economy is to ultimately flourish. Many pure players are discovering that such rules of the old economy are fashionable again: make money on things you sell, good service improves customer loyalty, and old shopping habits die hard.

Paradox of growth-profit

For years, most dot-com CEOs blithely argued that profitability and sometime even revenues were irrelevant as compared with building traffic and growing their users' numbers. In the same breath, these new world czars downplayed quaint old economy notions such as service quality. In the race to a near-mythic liquidity event, concerns about customer satisfaction and loyalty fell by the wayside. Now the Internet players are being haunted by the single-minded pursuit of growth at the expense of everything else.

Paradox of flexibility-continuity

Ebusiness dictates fast and flexible response to increasingly dynamic market changes, but it also requires stable and enduring relationships between companies and employees as well as between companies and partners. For instance, while the trend is that more freelance workers jump from job to job like hired guns, companies still want to have a core of careerists to provide continuity, so as to preserve the corporate culture and institutional expertise. The paradox is that ebusiness requires that companies have more enduring relationships with their employees at the time when more and more employees want to be freelance professionals. Similarly, companies have to retain some key business functions in-house, even though the trend is to outsource almost everything to strategic partners. Further, when ebusiness requires companies to cultivate closer relationships with their partners and customers, it also requires them to remain flexible in changing these relationships so as to respond freely to market changes.

Paradox of small-big

The most popular myth is that the Internet enables and empowers the little guys. The Internet has the ability to democratize the

access to information beyond the old constraint of size. However, there is another myth to the contrary. The monopolist myth suggests that already giant firms are merging at a surprising pace. The later myth is rooted in the importance of being "first-mover" in the "winner-take-all" world. The most likely scenario is that both the populist and monopolist myths are overly deterministic. Size may still matter, but it will matter to different extents in different aspects at different times. The medium-sized companies may benefit the most from ebusiness.

Paradox of competition-cooperation

One of the most interesting and perplexing effects of ebusiness is that ebusiness will increase the level of competition, but it will also increase the level of cooperation. Competition is both the cause (e.g., as a means to obtain new advantages) and effect (e.g., as the result of transparency of information) of ebusiness, while cooperation is also both the cause (e.g., as a means to exchange information) and effect (e.g., as the result of network structure) of ebusiness. For example, many pure players have learned that they must seek partnerships with legacy players that can offer presence, validation, credibility, and availability.

Paradox of brick-click

While we have to credit the dot-com startups with pioneering new approaches and new business models, the established firms have some inherent advantages in customer relationships, brand recognition, distribution, and financial capital, and these competitive edges outweigh such disadvantages as legacy systems and channel conflict. The legacy players that move online seem to ultimately have an advantage over online-only startups. Despite the thorny issue of whether legacy players should spin off or integrate their online units, it is predicted that about 80% of the new economy will be dominated by the old economy companies that learn new tricks fast. Pure players need to team up with legacy partners. The new brick-and-click model of e-commerce is increasingly recognized as the winning formula.

Paradox of opportunity-threat

Ebusiness has been a boon for consumers and for productivity, but it is also a great challenge to businesses' bottom lines. Any technology that results in more transparency and more competition will lead to higher productivity and inevitably compress profit margins as well. Just as ebusiness intensifies competition and undermines traditional sources of advantage, it also makes new ways of competing possible. In particular, the Internet's two-way flow of information from, and to, the customer provides companies with a powerful tool to expand the richness of their offerings. Distribution and sales channels have always conveyed a certain amount of information back to suppliers. The bandwidth, precision, ease, real-time speed, and manageability of information flow in both directions are greatly enhanced by the Internet, leading to an unprecedented level of customization. The paradoxical implication here is that opportunity will breed threat while threat will also breed opportunity.

The Network Paradigm of ebusiness

The central theme shared by the above paradoxes is a network. Network technology is at the core of digital technology that is the key enabler of ebusiness. Social networks of intellectual contributors are critical for the creation and exchange of ideas, information and other intellectual properties, which constitute the content of ebusiness. Business networks of suppliers, customers and even competitors are shaping the new eco-system of the new economy, which is the result of ebusiness. All these factors converge to the notion of network, so we can define the emerging theme as the network paradigm. *Paradigm* is defined as a holistic, dynamic, and paradoxical integration of business model and organizational structure. *Business model* is the scope of business functionalities in a company, and *organizational structure* is the style of business relationships both within and outside a company. The network paradigm is best to address the paradoxical issues of ebusiness, as illustrated by the following discussion.

Distinction and link between e-marketplace and e-supply chain

E-marketplace is an Internet-enabled virtual market where goods and services can be bought by a wide range of buyers from a wide range of suppliers. E-marketplace is best for standardized products and services. *E-supply chain management* (e-SCM) is an Internet-enabled process of planning and implementing end-to-end process from supplier to customer, including design, logistics, marketing, and after-sale service of customized products. At the heart of e-SCM is *customer relationship management*. According to the network paradigm, the distinction and link between e-marketplace and e-SCM is that the former is community-based network best for non-core business, while the latter is company-centric network best for core business. Both are needed for every firm for its ebusiness.

Distinction and link between ebusiness integration and separation

Most legacy players initially choose not to re-engineer their whole business processes, but rather to spin off a new division to experiment. Each approach has its pros and cons. For example, the advantages of spin-off include: (1) it can speed up the decision-making process; (2) it can maintain a high degree of flexibility and create an entrepreneurial culture; (3) it can attract high quality management; and (4) it can tap into the vast pool of capital available to Internet start-ups. One trouble with spin-offs is that if a big firm spins off its most innovative units, it may lose the chance to reinvent its existing business. Another difficulty is to leverage the core competencies or the assets of the remainder of the company. Very few know how to balance the above issues. According to the network paradigm, a loosely coupled internal network will resolve the problem (Li, 2001).

Distinction and link between click and brick

As for the question of which one—pure-player or legacy player—will be the future winners of ebusiness, the answer from the network paradigm is that both will be win-

ners, but only if both are present, because both are needed for the success of ebusiness revolution. Pure players and legacy players have both advantages and disadvantages. They have to team up as partners in external alliances. Legacy players should focus on the physical (or brick) elements, while pure players should focus on the virtual (or click) elements. These two groups should exist as two independent units but work together as an integrated team.

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