

The real value of “e-business models”

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New e-technologies such as mobile Internet phones and interactive television are widely predicted to generate a wealth of opportunities through the creation of new e-business models. At the same time, numerous high-profile Internet ventures have gone belly-up and millions of investors around the world have been caught out. A focus on the successes can give the impression that an ingenious business model is all that is needed to create a thriving e-firm. But do these models really matter? What can we learn by examining the Internet failures, or the problems inherent in each model? What are the real key factors determining the survival or failure of e-firms?

One of the factors most commonly cited when Internet firms succeed is the “business model.” Much of the success of such e-commerce pioneers as Dell, Amazon, and eBay has been attributed to their novel Internet business models. And one of the first questions in assessing any new e-commerce venture during the Internet boom was likely to be, “What’s the business model?” Conversely, when high-profile businesses like Boo.com have failed, this too has often been blamed on the model.

Post-crash, however, the sentiment has changed and the question increasingly being asked now is, “Hasn’t that model been tried and failed?” Many in the e-business investment community commonly assume that none of the following are profitable: e-tail, portals, and marketplace models; advertising-based models; B2C models; and pure Internet, or pure-play, models.

However, despite the frequency of these statements in the business press, little research has been done to examine their validity. In retrospect, it is easy to blame all e-business failures on a flawed model, but identifying what makes a good model is more difficult.

Although the term “e-business model” is widely used, there is little consensus on what it actually means. Many schemes have been suggested for classifying different types of e-businesses; see the previous article in this issue for an example. However, a workable definition is provided by Timmers (1998): “an architecture for the product, service and information flows, including the various business actors and their roles; a description of the potential benefits for the various business actors; and a description of the sources of revenues.” Depending on the classification scheme, as many as 29 Internet business models currently in use have been described by various authors. However, according to Mahadevan (2000) and Weill and Vitale (2001), there are four key distinctions: (1) the supply chain model; (2) the revenue model; (3) whether the model serves the business or consumer market; and (4) whether the firm is pure-play or clicks-and-mortar.

Supply chain model

At its most basic, an Internet supply chain business model can be classified as direct sales, an intermediary, a marketplace, or some mixture of the three. The simplest is direct sales, whereby the firm provides a product or service directly to the customer. Examples are Dell, Cisco, and AOL. In an intermediary, such as Amazon, the firm sells goods from a third party. A special case of the intermediary model is the portal, which does not directly sell a good or service but facilitates the process by introducing or locating a provider. This might include a general purpose portal such as Yahoo! or more of a specialist, such as e-steel for the steel industry. The third type is the electronic marketplace, which facilitates direct communication between buyers and sellers. Examples are the auction site eBay and the used car trading site Autobytel.

Revenue model

In general, two types of revenue model can be distinguished: (1) that in which income is generated directly from the customer transaction, and (2) so-called "free sites," which generate income through advertising or sponsorship. Though initially hailed as examples of how the Net would change the pattern of economic exchange in many industries, the failure of sites offering free services, such as The Globe, DrKoop, and Napster, have led many to question whether any such sites can ever be profitable. A website has even been set up to document the failure of so-called "free" business models that rely on advertising (www.theendoffree.com).

B2C vs. B2B model

Internet businesses can also be distinguished according to the markets they serve. As can be found in most marketing textbooks, consumer markets differ from industrial markets in several ways. For example, there is a greater element of impulse buying in consumer purchases. More important, perhaps, consumer purchases tend to be smaller in size and more frequent than those in industrial markets, so there is a greater need for mass advertising with consumer goods. During the height of the Internet boom, most investment interest was in the rapidly expanding B2C (business-to-consumer) market. However, the failure of many B2C e-firms has led many to suggest that B2B (business-to-business) sites are a safer investment.

Clicks-and-mortar vs. pure-play model

Finally, one of the key differences between e-businesses is whether or not the model is purely Net-based or relies on offline assets as well. The greatest public interest was initially in Internet startups such as Amazon and eBay—leaders in developing new markets using the Net. But, as in the case of B2C vs. B2B, with the failure of so many startups, investors have been turning their attention back to clicks-and-mortar businesses.

A study of failures

At first glance, an analysis of failed businesses by type of model does seem to support the anecdotal reports from many e-commerce analysts and venture capitalists. **Table 1** shows the failure rates in a sample of 453 US Internet firms considered among the "best in their class" in 1999 (see the sidebar on the next page for details on this study), indicating that failures are indeed more likely among B2C firms, e-tailers, portals, marketplace sites, free sites, and pure-plays than among B2B firms, direct sales, pay sites, and clicks-and-mortar firms.

Table 1
Failure rates by model

B2C	13.6%
B2B	6.3%
Direct sales	6.8%
E-tail	16.3%
Portal	20.0%
Marketplace	25.0%
Free site	15.0%
Pay site	8.5%
Pure Internet	22.8%
Clicks-and-mortar	2.6%

Unfortunately, this analysis makes it difficult to distinguish the importance of the different factors and ignores the possible joint effects of two or more factors. For example, the direct sales model is more common in B2B sites than in B2C sites. So how much of the increased survival rate among B2B sites is due to the higher use of the direct sales model and how much to the fact that it operates in a B2B market? A statistical technique that allows the relative contributions of all the factors to be determined is binary logistic regression. When this is used, a slightly different picture emerges.

Comparing the odds of survival of various business models to each other, **Table 2** shows that, after controlling for other factors, e-tail and portal sites are slightly less likely to survive than direct sales sites, while marketplace models are more likely to survive than direct sales sites. (It should be noted that the failure rates

Table 2
Odds of survival of different business models compared

E-tail vs. direct sales	0.93 : 1
Portal vs. direct sales	0.97 : 1
Marketplace vs. direct sales	1.30 : 1
Pay vs. free	0.80 : 1
Clicks/mortar vs. pure Net	11.00 : 1*

*Significant at <0.001 level

shown here may be higher than for current startups, since the sample was drawn in 1999, when e-business models were still in their early experimental stages.)

Likewise, free sites are a little more likely to survive than pay sites. However, these differences were not statistically significant. In contrast, the effect of offline revenues was highly significant. Clicks-and-mortar sites are nearly 11

The study

The approach adopted was to examine both successful and failed businesses in order to get a more balanced view, and to assess the success factors using a data set that would be large enough to allow the statistical significance to be determined. First, a base sample of leading Internet businesses in various sectors was compiled from three lists of award-winning sites in 1999: *PC Magazine's* Top 100 websites, *Forbes's* Best of the Web, and *Net Marketing's* 200 Best B-to-B Web Sites. The listed categories included travel, financial information, books and music, and so on. Sites owned by governmental and other nonprofit organizations were excluded, as were duplicate sites. Because most startup firms make or break within their first three years, the base year 1999 was chosen to allow time for a stable failure rate to be assessed. The final list consisted of 453 websites that were in existence in 1999 and considered the best of their class by these leading magazines.

Descriptions of each site were provided by the magazines, and additional data on the history and current status of each company on the list were obtained from Hoover's database of companies, annual reports, analyst reports, and the trade press, as well as the sites themselves.

These data were used to complete answers to a structured questionnaire: ownership of the site; products or services provided; supply and distribution; markets served; revenue sources; status in 2002; and type of business model used.

The breakdown of the sites in the sample according to the classifications in the text is shown here in the table. (Where a site used a mixture of models, the one contributing most to revenues was used.)

Binary logistic regression was then used to identify the factors contributing most significantly to success or failure. This assesses how each factor affects the odds of a binary event occurring—in this case, survival or failure—using a logistic equation:

$$\ln(\text{Odds}) = a + B_1x_1 + B_2x_2 + \dots + B_ix_i$$

(Failure here was taken to mean either complete closure of the website or sale to another firm.)

In the second stage, each of the failed companies was examined in more detail. In order to identify the critical points where failure might occur in implementing each model, each company was compared with one or more companies that had adopted a similar model but succeeded. Data on each company since founding were collected from several sources, including company websites, company reports, news reports, books, and other publications. These were used to identify the key strategic decisions and actions such as products, markets, suppliers, and customer relationships, from founding to current date or the date the company ceased business, as well as the firm's financial profile and performance.

Breakdown of websites in sample

	Frequency	Percent
B2C	264	58.3
B2B	189	41.7
Direct sales	311	68.7
E-tail	86	19.0
Portal	20	4.4
Marketplace	36	7.9
Free site	147	32.5
Pay site	306	67.5
Pure-play	180	39.7
Clicks-and-mortar	273	60.3
TOTAL	453	100.0

times more likely to survive than pure Internet sites. Although the size of the effect may be surprising, this result should not come as a surprise to managers in other industries. As other research has shown, firms that are part of a group often have a strategic advantage over independent firms because the parent company can provide support through the use of common resources, such as brands, customer and supplier relationships, and cash.

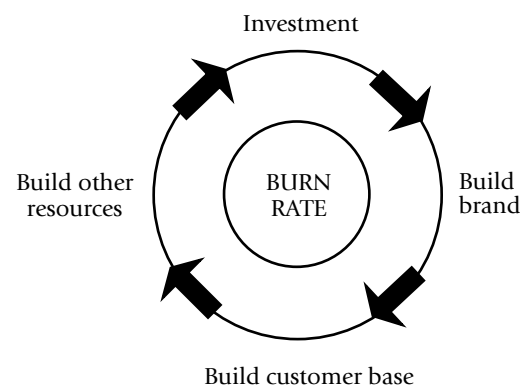
This is especially noteworthy given e-firms' high "burn rate," the rate at which they use up their startup capital. Under severe pressure to grow quickly, particularly at the height of the Internet boom, e-business models not only need to be flexible, they also need to enable rapid growth. A common route adopted by many has been to invest heavily in building a brand and customer base in order to generate more cash through an IPO (**Figure 1**).

Successful businesses, by definition, are those that have managed to match the stages of growth while working with limited capital. If all goes well, the company can make sufficient progress and access additional capital by the time it has used up its initial funds. However, if the timing is wrong, the burn rate may be too high and the company fails to generate additional funds in time.

This has been the fatal error of many e-businesses, especially following the crash in technology stocks, when obtaining further investment proved difficult, or even

impossible. Consider Bizbuyer, previously held up as an example of a successful B2B model. Bizbuyer focused on a market that many consider quite attractive—the millions of small businesses that use the Web to save money or find new suppliers—and raised more than \$60 million from such notable investors as eBay's Meg Whitman, Intel, and Morgan Stanley Dean Witter. However, as BizBuyer discovered, reaching small firms takes considerable time and money, and once they are reached it still

Figure 1
A common e-business route



takes time to generate enough orders to be profitable. The cost of developing this market proved too much and in December 2000, after failing to find additional investors or partners, the company announced its closure.

The benefits of clicks-and-mortar

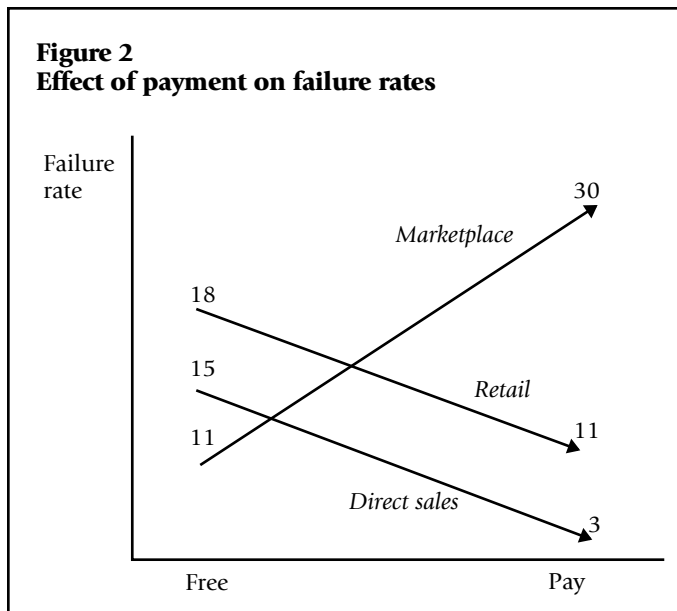
Especially in the current economic climate, clicks-and-mortar businesses that can rely on the support of income from a parent company clearly have an edge over pure-plays that rely solely on external investors and income generated from Internet operations. Where physical goods are involved, clicks-and-mortars with a working logistics system in place have an additional advantage, which in many cases can be the key success factor. One of the chief reasons eVineyards survived while its much larger and better known rival Wine.com failed can be attributed to their different logistics strategies. Wine.com decided to outsource by relying on retail partners in various locations. In contrast, eVineyards took the route of setting up its own retail stores in each location. Although this entailed more cost, eVineyards was able to provide a quicker and more reliable service, while Wine.com suffered from longer delivery times and out-of-stock problems, which proved to be its downfall. The latter firm was acquired by its rival in April 2001, which is now using the Wine.com brand and domain name.

This is not to say that clicks-and-mortar stores do not have problems. A major one is channel conflict. Although an existing channel can provide an advantage in delivery, note Chen and Leteny (2000), it can also prove to be a hindrance if it conflicts with the use of the Net as an alternative channel. At one point or another, Levi Strauss, Starbucks, and Reebok have all had to cease trading via the Net owing to conflicts with existing channel partners.

Free vs. pay websites

Some of the most controversial business models have been those that offer a “free” service by relying on revenues from such sources as advertisements, sponsorships, or commission from other parties. Their main problem has been increasing competition and a reduction in these sources of revenue. A notable example is The Globe, a website that offered free message boards and homepages. Instead of charging for these services, as AOL did, The Globe counted on revenue to be generated by ads. On the first day of trading in November 1998, the firm achieved a stock price gain from \$9 to \$97, which at the time was the largest first-day gain ever from an IPO. But in 2002, the company ceased trading, citing a decline in ad revenues.

In some business models, not only is the service free, but the user is paid to use the site. Examples are Cybergold and Beenz.com, sites that paid users (in exchangeable tokens) for visiting affiliate sites, and Alladvantage, a site that paid users to surf the Web using a special browser in



return for viewing ads on the site. Such pay-to-surf or pay-to-view sites are particularly sensitive to a reduction in revenues, and as advertising expenditures and viewing decreased, Cybergold, Beenz, and Alladvantage all found it impossible to survive.

However, the logistic regression in the study cited here showed that, overall, the effect of payment was not significant. If anything, the odds of survival were slightly better for free sites than for pay sites. How can this be explained? As **Figure 2** shows, it is important to consider the effect of payment in conjunction with other dimensions of the e-business model. Comparing the effect in different supply models shows that the risk of failure decreases with payment in the case of retail and direct sales sites, but increases in the case of portals and marketplaces. One reason may be that in the case of the latter, it may be difficult to attract a critical mass of users unless the service is offered free, at least initially. The importance of scale in the success of virtual communities has been shown in other studies, such as Bughin and Zeisser (2001). The point is that the decision on whether or not to charge for the service varies with the business model.

Supply chain model

The fact that the type of supply chain does not have a significant effect on failure rates does not mean it has no significance in other respects. A more detailed analysis shows that while failure rates may be similar, the causes of failure do vary by type of supply chain. The key problems in the direct sales model are similar to those in offline businesses—matching price to demand and costs to revenues in order to generate a profit. Musicmaker, a site that offered customized CDs, initially attracted much interest and raised over \$117 million in its IPO. However, despite

having EMI as a major shareholder, the company was not able to generate enough customer interest, particularly when companies such as MP3 and Napster began offering free music downloads.

The second major issue with the direct sales model has often been the cost of setting up operations, particularly on a large scale. For example, Excite@Home announced its closing in August 2001 despite its more than 3 million users. The company had been formed in January 1999 from the merger of search engine Excite with the ISP @Home. At the time of the merger, Excite was profitable, had no debt, and was cash rich from its successful IPO. @Home was not profitable, but it too had no debt and plenty of cash. The whole point of the merger was to create a broadband online service offering everything from connectivity to content—a high-speed network that would displace AOL. However, investment in the network drained corporate resources and resulted in the failure of the whole company.

The problems differ with e-tailers, whose main advantage over traditional bricks-and-mortar firms is a wide choice of products and convenient ordering. Successful e-tailers such as Amazon.com have exploited the Net to offer significant customer benefits over traditional retailers. But one of the most common reasons they fail is a lack of customer benefits that can overcome the switching costs. For example, Boo.com aimed to be the world's "first truly online retailer of sportswear and fashion," with the goal of developing the most advanced retailing website. The site it developed was state-of-the-art, able to handle six different currencies, multiple shipping methods, and product search by color, brand, sport, price, or style. However, use of the site required high-speed access, a Flash plug-in, and the latest Web browsers. Macintosh users could not access the site at all. Moreover, there was little advantage to be gained by buying the high-end fashion items from Boo.com rather than from a traditional store.

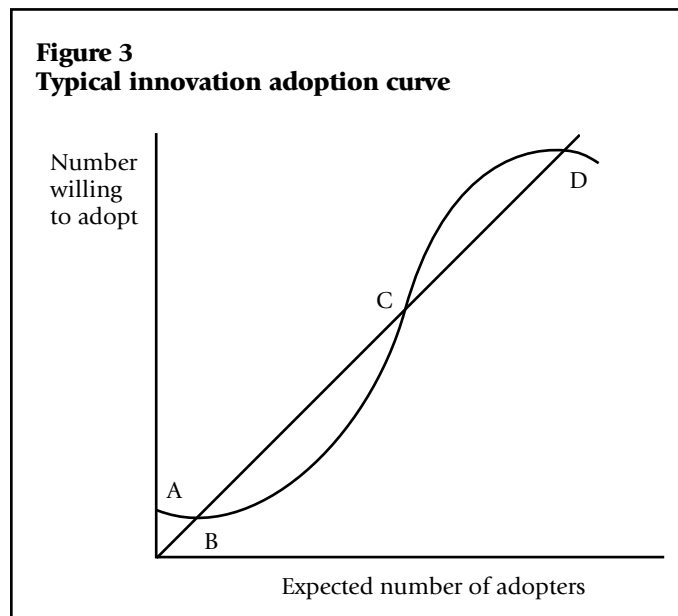
For electronic marketplaces, the chief benefit lies in creating a new market or significantly expanding the number of customers and buyers. For example, eBay allows buyers and sellers to trade items in a worldwide market that would not otherwise exist in many cases. A key factor that underpins many e-business models, particularly marketplaces, is the presence of network externalities, which arise when an individual's production or consumption decision directly affects others' production or consumption other than through market prices. The success of sites like eBay depends on reeling in a large enough user base to make it attractive for other users to join. However, a mistake many Internet startups (and their investors) make is to forget two essential things in building a business on network externalities. First, such externalities are of little value without "lock-in." If users can easily switch to competitors' offerings, any value created through network

externalities will be quickly dissipated. An example is Quepasa, a Spanish language portal that quickly folded after a few months when its owners realized it was unable to gain a sufficient market share to be profitable. Second, it is important to remember that users vary in their need and willingness to join a network.

Figure 3 shows a typical S-shaped adoption curve observed in many new products. Some users are willing to sign up to join a network even if there are relatively few other users, either because they have a great need that is satisfied by the network or because they enjoy being the first to try a new product or service (AB). Other users have less need and require a large number of users to make it worthwhile for them to use the service (BC). In other words, say Saloner et al. (2001), it becomes more and more difficult to attract an increasing number of users as the product or service reaches wider segments of the market. To achieve a high target market penetration, it may be necessary to offer increasing levels of utility or value-added. Many e-firms have failed because they underestimated the difficulty of growing beyond the initial user base. The pioneer of reverse auctions, Priceline, is struggling to survive, while its Webhouse subsidiary selling gasoline has closed. Mercata, the groupbuying B2B site, has shut down, as has Letsbuyit, the Swedish consumer group buying site. Although these e-firms attracted many users initially because of the novelty they offered, the savings obtained were not substantial enough to ensure continued use.

Business versus consumer market

Specific problems can also arise from the type of market in which the business operates. Group buying sites Mercata and Zoho used similar business models apart from



the market. Mercata targeted consumers and thus suffered in not being able to generate enough savings per transaction to attract and retain customers. Zoho targeted businesses, which should have given it an advantage in larger transaction volumes. However, the downside is that the potential number of buyers is smaller and institutional buyers demand a higher level of service and facilities such as the ability to integrate with their ERP systems. With growing competition, the business is unable to survive. A similar result occurred with PlanetRx and Rx, which both offered pharmaceutical goods online but to different markets—consumer and business, respectively. The advice in marketing textbooks about understanding the different market needs of consumer and business markets, then, remains as essential as ever.

So, do business models really matter? Insofar as different problems are associated with different types of sites (**Table 3**), they do. Just as important as knowing how the problems vary by business model is knowing how significant the problems or factors are. By far, the most important factor statistically is the corporate structure. The chances of succeeding are considerably

lower for new startups that seek to go it alone. Or to put it another way, the chances are much higher when the firm is part of a larger group.

However, this should not be taken to mean that success simply comes down to resources. As the examples here have shown, companies have often succeeded where others with similar business models have failed. As in any other business, success in e-commerce cannot be reduced to a simple set of parts drawn from a box, like building with Lego® blocks. Each model raises particular issues. The problems of an Internet startup with limited resources in a new and highly competitive B2C market and a high burn rate are different from those of an Internet subsidiary of a large and resource-rich parent company with competitive advantages in a well-established B2B market. By definition, the companies that have succeeded have been those that understood and managed to overcome the particular problems inherent in their model. At the same time, much has changed in the industry since the first e-business models were tried out, so the models themselves have changed and the issues facing e-firms in the coming years may well be different from those that faced the pioneers in the past.

Table 3
Causes of failure

	<i>Business model</i>	<i>Key problem areas</i>	<i>Examples</i>
Corporate structure	Pure Internet	Creating brand awareness; copycats	Wine.com
	Clicks-and-mortar	Channel conflict	Levi Strauss, Starbucks, Reebok
Revenue model	Free	Generating sufficient revenues elsewhere	The Globe, Cybergold, Alladvantage, Freeride
	Pay	Product/price trade-offs	Iam, Arzoo
Supply model	Direct sales	Product/service quality Cost of operations	Musicmaker, First-e
	E-tail	Shipping costs, speediness and reliability of delivery	Pets.com, Webvan, Kozmo, Furniture.com, eToys
	Portal	Attracting enough eyeballs; copycats	Go, Quepasa
	Marketplace	Gaining critical mass of buyers and sellers; copycats	Bizbuyer, Letsbuyit, Bid.com, Metalsite, Chemdex
Market type	B2C	Increasing consumer awareness, interest, and access	PlanetRx, Mercata
	B2B	Integrating with ERP systems of buyers	Rx, Zoho

Although this article has focused on e-businesses, it should also be noted that many of the same issues apply equally to traditional companies. How many managers really understand the questions “What are the key drivers of success in my particular business model?” and “How will these change in the future?” In the end, answering these questions may be the real value of having a “business model.” ○

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The initial draft of this article was written during the author's stay as a Visiting Associate Professor at the Anderson School of Management, UCLA, and he is grateful to his colleagues there for their hospitality and advice.