

thinking THE Networked Economy



*By Stan
Liebowitz*

The ideas of economists and political philosophers, both when they are right and when they are wrong, are more powerful than is commonly understood. Indeed, the world is ruled by little else. Practical men, who believe themselves to be quite exempt from any intellectual influence, are usually the slaves of some defunct economist.

– John Maynard Keynes

It is often asserted that being first is of paramount importance in the Internet age, far more important than it was (or is) for bricks-and-mortar industries.

For example, Mary Meeker, the famous – now infamous – Morgan Stanley stock-market analyst closely associated with the dot-com stock run-ups, said in a 1997 report:

Our Internet team thinks first-mover advantage for Web retailers may be important. The retail group, by contrast, doesn't think being first matters much, since barriers to entry will likely remain low on the Web.

What caused the Internet group to believe that first-mover-wins was an apt description of Internet retailing? What led them astray? Stock-market analysts usually do not create their own theories. They typically take ideas, right or wrong, from some academic thinker. And, indeed, the idea of first-mover-wins fits in neatly with a strain of economic thought that arose in the late 1980s and was proselytized to business audiences by academics with theories that may soon be defunct.

FROM WINNER-TAKE-ALL TO FIRST-MOVER-WINS

If the market is going to become dominated by a small number of companies – perhaps as few as one – how does a company get to be that top dog? The typical answer has been: “Get established first. At any cost.”

The idea that being first is essential is a

truly pernicious bit of faux wisdom; it has helped companies throw themselves madly off cliffs like lemmings, thinking they were bound for glory. I do not wish to split hairs over the first-mover advantage versus, say, the virtues of being second a week later, for that is a distinction without a difference. It is really the idea that early movers have a large lead over later movers that deserves a good part of the blame for giving credibility to the misguided business plans of the e-commerce companies.

Finding examples of this view is easy. Indeed, the ubiquitous nature of this claim is nicely illustrated in a column in *eCompany Now*:

“We have the first-mover advantage,” Women.com CEO Marleen McDaniel told CNBC in June 1999. “They have the first-mover advantage,” a Zona Research analyst told a reporter, explaining why eToys's stock was a steal. “Eve.com is an outstanding e-commerce opportunity with a first-mover advantage,” Idealab founder Bill Gross bragged in a press release. As Draper Fisher Jurvetson partner Tim Draper told *USA Today* in October 1999, the first-mover is “usually the (company) that's going to win it.”

Each of these companies, it's worth mentioning, soon went belly-up.

Or consider this advice from University of California economists Carl Shapiro and Hal Varian's *Information Rules*, one of the more

reasonable books of advice on getting ahead in the information economy:

First-mover advantages can be powerful and long-lasting in lock-in markets, especially those in information industries where scale economies are substantial. If you can establish an installed base before the competition arrives on the scene, you may make it difficult for later entrants to achieve the scale economies necessary to compete.

Of course, as proper academics, Professors Shapiro and Varian are somewhat circumspect about claiming the advantages of being first. They do not say that being first does ensure an advantage, only that it might. Still, for a business audience that finds sufficiently deep meaning in *Who Moved My Cheese?* to keep it on top of the best-seller list for years, these nuances are unlikely to be noticed.

In any event, in the “Lessons” section of *Information Rules*’ Chapter 6 – which, I suspect, is where busy readers are likely to gain their insights – we find less circumspect sentences:

Be prepared to invest to build an installed base through promotions and by offering up-front discounts. You can’t succeed in competitive lock-in markets without making these investments.

Kevin Kelly is yet more exuberant in his popular book, *New Rules for a New Economy*. Discounting to get market share, Kelly explains, isn’t enough – you need to give it away. He offers 10 “rules,” the fourth of which is “Follow the Free.” Here is the gist:

As crackpot as it sounds, in the distant future nearly everything we make will (at least for a short while) be given away free – refrigerators, skis, laser projectors, clothes, you name it. Talk of generosity, of information that wants to be free and of virtual communities is often dismissed by businesspeople as youthful new-age idealism. It may be

idealistic but it is also the only sane way to launch a commercial economy in the emerging space.

At least Kelly understood that giving away nearly everything sounded like a crackpot idea. The problem was that he didn’t seem to understand that it didn’t just sound like a crackpot idea – it was a crackpot idea.

This is not to deny that giving a product away may sometimes make sense. Free samples have been around forever. But the talk of information wanting to be free is nonsense. And the idea that refrigerators, laser projectors and clothing will be given away indicates a serious misunderstanding of the importance of network effects – the idea that the more people who use a product, the more valuable it is to each – in e-commerce. Kelly’s advice is grossly overstated at best and, more often than not, has been shown to produce astronomical losses with no chance of making enough profit down the road to provide a normal return.

Last, but not least, we have W. Brian Arthur, the pied piper of lock-in. Arthur has received near-universal adoration from the media for his articulation of the lock-in effect and his claims of reinventing the idea of increasing returns to scale. In a 1998 *Harvard Business Review* article, Arthur tells business strategists, “Two maxims are widely accepted in knowledge-based markets: it pays to hit the market first, and it pays to have superb technology.”

Yet that same year he discarded even the importance of having good technology:

You have to allow that you are playing games where the winner can walk off with a great deal of the market and the losers are left with practically nothing, even if their products are technically brilliant, and the cost is right. So basically the strategies are very much the strategies you would apply in pres-

idential primaries. You want to build up market share, you want to build up user base. If you do, you can lock in that market.

So much for the world beating a path to your door because you have built a better mousetrap. The winner might have mundane products, so-so quality and high prices. But the second-rate company wins because it got to the starting line first and locked in its customers – at least as Arthur tells it.

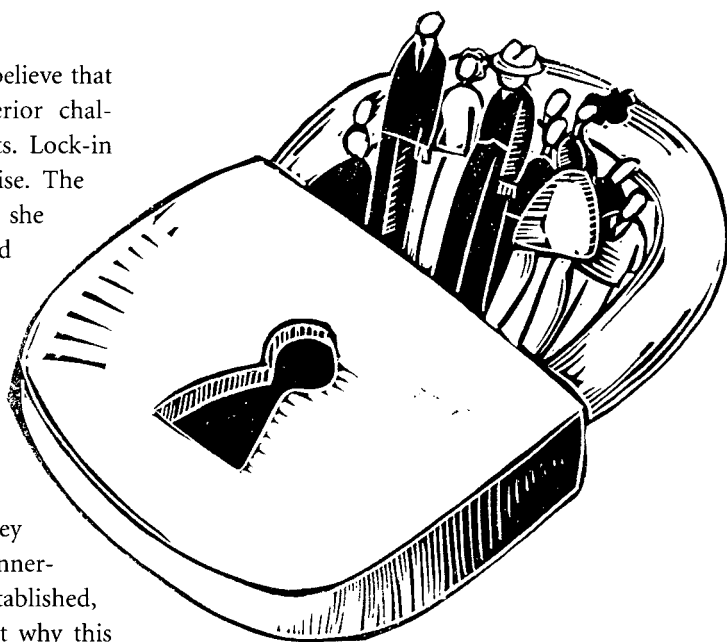
THE CONCEPT OF LOCK-IN

On its face, there is no reason to believe that incumbents can beat back superior challengers in winner-take-all markets. Lock-in theory, however, suggests otherwise. The winner not only takes all, he or she keeps taking it – even when pitted against a better rival. In this view, if the first entrant gets the largest market share, lock-in will keep the company's customers immobile and the company entrenched in the leading position.

In the telling of the lock-in story, network effects play the key role. Network effects lead to winner-take-all, and once the winner is established, they keep competitors at bay. Just why this would be so has to do with a particular coordination problem described below. Although the research focuses on network effects, economies of scale could have been used instead since they also can lead to a winner-take-all outcome.

Compatibility is also crucially related to lock-in concepts. In deciding which type of product to buy, consciously or not, consumers make a series of calculations. Of course, they compare the prices and qualities of the products. But they must also reckon with the costs of learning how to use a new product. And in network markets, they also

need to take account of the strength or size of the competing networks in order to gauge the size of the network effects associated with the competing products. For example, in the early 1980s, a consumer choosing between a VHS and a Betamax VCR needed to guess about the future popularity of the competing formats in order to estimate the amount of programming that would be available to rent or buy.



It is this need to gauge what others are doing that leads to the possibility that consumers could get locked into a product and find it impractical to switch to something better later on. How that might work in theory is the subject of numerous economics papers. How it has worked in the real world is the subject of a far smaller – and, as we shall see, notably faulty – literature.

Lock-in costs fit two distinct categories. First, there is always a cost to changing brands – breaking old habits, becoming familiar with the new product and in some cases not being

able to use the new product with old products. For example, new word processing software may not be able to read documents created on the discarded software. These are the costs of being compatible with one's self.

Second, there may be costs in losing compatibility with others. Think of someone wishing to switch from VHS to Beta and finding a dearth of prerecorded Beta movies available at the video store – or someone switching to Lotus WordPro and finding they have trou-

such a case, the switch would only occur if consumers didn't care about compatibility with others. Network effects, if they exist in a market, bring compatibility with other consumers to the fore. That's why the issue of whether superior products can overcome the lead of inferior incumbents has been closely associated with network effects.

Note that if the benefits of the new technology were not sufficient to trump learning costs and/or inability to use old products, it

Only the strong form of lock-in leads to potential coordination problems, and only the strong form leads to the new strategy of first-mover-wins.

ble exchanging documents with their colleagues who use Microsoft Word.

These factors – being compatible with one's self and being compatible with others – play an important role in understanding how lock-in works. What's more they play a key role in defining the difference between the weak and strong forms of lock-in. The strong form supports the concept of first-mover-wins. The weak form does not.

I must warn you that this distinction is not one normally made in the literature. Instead, all forms of lock-in are lumped together. Yet it is only the strong form of lock-in that leads to potential coordination problems, and only the strong form that leads to the new strategy of first-mover-wins.

Strong-Form Lock-In

A strong form of lock-in exists when a better product is not adopted, even though the quality difference is sufficient to overcome any self-compatibility issues for consumers. In

would be inefficient to replace the old technology with the new. After all, the time and effort to learn how to use a new word processing program or a new appliance are real costs.

Most important, if strong lock-in exists, it may make sense for sellers to try to get a large market share even if the costs of doing so are very high. That is because challengers, even those with superior products, may not be able to overcome the lead of the early birds. This is the basis for the belief in first-mover-wins.

At least in principle, incompatibility with other users can prevent a superior challenger from vanquishing an incumbent. With this strong form of lock-in, even though all consumers would like to switch if sufficient numbers of other users also switched, the inability to coordinate behavior prevents consumers from actually switching.

Let's pretend that the Betamax video recording format is universally acknowledged to be better than VHS. Because each consumer

fears that others will not switch and that, as a result, most prerecorded movies will not be available on Beta, all consumers stick with VHS. Here, we would all be better off making the change, but we do not make the switch because we cannot coordinate our actions.

This strong-form lock-in story has beguiled many an economist, particularly since there seemed at first to be evidence to support it. It is not just a story of incompatibility with others, however. At its core, this strong-lock-in story assumes that each user believes that others will continue to use the inferior product, even though everyone knows that the challenger's product is superior.

When a challenger enters the market, the two types of compatibility appear to favor the incumbent. Compatibility with one's old behavior imposes costs on a switch. And the incumbent, by definition, has a larger market share. However, when consumers go through a calculation about the value of switching, it is rational for them to project what the future will look like. Otherwise, the first automobiles would never have been sold since there were no gas stations, and the first fax machines wouldn't have been sold since there were no faxes to receive and no one to send faxes to. Thus it is the expectation of the size of the networks that actually matters. If consumers believe the challenger will do well, the market shares at the time of purchase need not be particularly relevant.

So, in fact, the importance of compatibility with others does not necessarily favor the incumbent. Challengers able to demonstrate the superiority of their products may very well prevail, as would be required if the market were working efficiently. Therefore, it is uncertain, in theory, whether strong forms of lock-in are likely to occur.

Examples of strong lock-in, such as the typewriter keyboard and the videocassette

recorder format, have been proposed. But as I discuss below, these examples simply don't survive close examination.

It might appear that winner-take-all brought about entirely by economies of scale would also be capable of generating strong-form lock-in for an incumbent. In such cases, after all, challengers enter the fray with higher costs than the incumbents. But that need not deter a challenger prepared to invest sufficient resources to achieve large scale. The task facing a company trying to overcome network effects appears less simple because it requires overcoming the impact of the existing stock of the incumbent's product and influencing expectations about the market shares down the road.

Weak Lock-In

Alternatively, a company may sell a product that is superior to the incumbent's, but not sufficiently superior to cover the self-compatibility costs associated with switching. Suppose a competitor to Iomega produced, at an identical cost, a Zip-like PC storage drive in an incompatible format with a minor improvement in capacity – say, from 250 MB to 260 MB. Current Zip drive users would be unlikely to switch to the new system since its very small advantage would not make it economical to throw out the old Zip drives and disks and replace them with the alternative.

Users of Zip drives can be thought to be weakly locked in to the Zip system. Here, it would be inefficient for current consumers to switch to the new product. And though the term “lock-in” is used to describe this situation, it is quite different from the strong form of lock-in. If the incumbent already dominates a mature market, it is efficient for it to remain dominant.

There are many, many instances of weak lock-in. You are unwilling to purchase a new

computer merely three months after buying your current one, even though the latest models are slightly better. You continue driving your car even after models with more horsepower come to market. You continue to live in a five-bedroom house after the kids have grown up and left. All of these, and millions of others, are examples of weak lock-in. And all provide limited protection to incumbents.

Weak lock-in has nothing to do with network effects or economies of scale. Weak lock-in shouldn't demand new business strategies since it has been around for so long that old strategies should have taken it into account. Indeed, weak lock-in has little to do with moving to an information economy unless we think that learning to use digital products is more difficult than learning to use old analog systems.

The final difference between the two forms of lock-in is that it is efficient for the economy to stay with the incumbent if the incumbent is weakly locked in. The costs of learning a new system are real costs, and if the advantages in using the new product do not outweigh those costs, it is efficient for society to stick with the old. Strong lock-in, on the other hand, creates inefficiency: if all the users of the old product switched, they would all be better off even after the costs of switching are included.

IMPACT OF LOCK-IN ON FIRST-MOVER-WINS

Proponents of the strong form of lock-in implicitly assume that, even if consumers wanted to switch to a better product, fear that others would remain with the old product constrains their behavior. The challenger not only has to produce a better product that can overcome self-compatibility, but must also overcome the consumer's cost of going it

alone in a world full of network economies.

Critics of strong lock-in, by contrast, believe that the expected market shares will depend mainly on the self-compatibility question. In other words, if the new product is sufficiently better than the old product that it pays individuals to switch (ignoring network effects), then consumers will expect other consumers to switch, too. The new, superior product will thus triumph.

If the strong form of lock-in were to hold, it would pay for producers to get to market first and largely ignore relative quality. The weak form of lock-in, on the other hand, implies that the key to winning is to offer a product that is good enough to overcome consumers' switching costs. Unless self-compatibility costs are very large, a better product will likely be able to overcome the incumbent.

Emerson's dictum to build a better mousetrap would still apply in the sense that a better mousetrap is understood to be one that is sufficiently better to overcome the costs of self-compatibility. While it is possible that self-compatibility costs could be so large that the original seller would win, this outcome seems unlikely. It hardly justifies a claim that, in the new information-based economy, rushing to market is a winning strategy even though it wasn't in the past.

The weak form of lock-in has been around forever. It can be found in the most mundane activities. I am used to going to a particular gas station, and will go there even if gas is a penny or two lower across the street. Does that imply that, to get my business, competing gas stations must cut their prices by one-half to two-thirds – a number that has been put forward by Arthur as the percentage differential required to break lock-in? Obviously not; surely most users would switch if the cost of gasoline were 10-15 cents a gallon lower. Weak lock-in is thus an unlikely candidate to

support first-mover-wins strategies.

STRONG LOCK-IN IN THE REAL WORLD

If it is to be relevant to the information economy, the concept of first-mover-wins requires a strong form of lock-in. Yet, there is no evidence that strong-form lock-in actually occurs. Altair, VisiCalc and Ampex – the first companies to produce PCs, spreadsheets and VCRs, respectively – are not the leaders in those markets today. Nor, apparently, are there other examples waiting to be discovered.

Economic historian Paul David, Arthur and their students have put forward various pretenders to this throne. The two most popular examples of truly pernicious strong lock-in are the typewriter keyboard and the VCR. But both are based on a misreading of the facts.

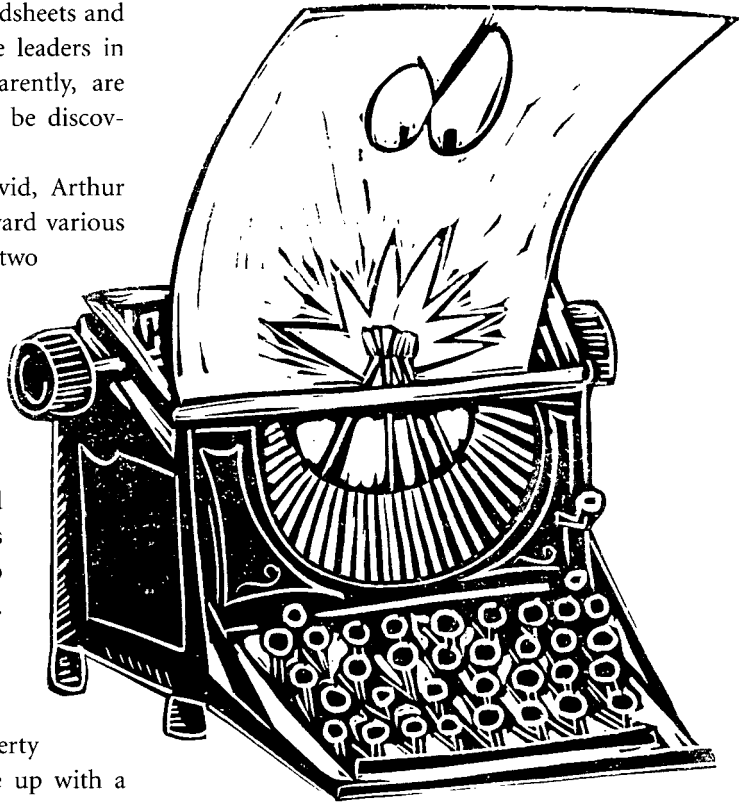
The keyboard story was introduced to economists by David and has been repeated numerous times – for example, in Shapiro and Varian's *Information Rules*. The story starts with the claim that, to prevent jamming of the keys, the typewriter mechanics who worked on the original Qwerty machine in the late 1800s came up with a design to slow down typing.

Not a shred of hard evidence has been offered in support of this claim. Rather, it appears that, to prevent jamming, the keyboard designers placed letters to maximize the probability that successive letters would be typed by alternating hands. But that doesn't slow typing – it actually speeds it up.

In the 1930s, August Dvorak, a professor of ergonomics at the University of Washington, patented a keyboard design after a systematic examination of which letters and pairs of let-

ter were most commonly used in English writing. He then positioned the keys to minimize the distance the fingers traveled. Dvorak claimed that this keyboard design worked much better than the Qwerty design.

A study conducted by the U.S. Navy during World War II purportedly demonstrated that



Dvorak's keyboard was indeed 40 percent faster than the Qwerty design. However, if one examines the Navy study, one discovers important irregularities that biased the results in favor of the Dvorak keyboard.

A more significant problem with the claims of Qwerty's inferiority is that Qwerty detractors ignore the results of another study. In the 1950s Professor Earl Strong of Penn State compared the two keyboard designs for the General Services Administration (GSA).

His findings received a great deal of publicity, with reports published in leading newspapers, including *The New York Times*. Strong found that Dvorak was not superior to Qwerty. He also reported that the earlier study by the Navy was overseen by the Navy's chief expert in such matters, none other than Lieutenant Commander August Dvorak!

soon routed from this market by VHS.

The proponents of lock-in report (correctly) that the VCR market wasn't yet mature, and that the number of units sold was too small to give much of an advantage to Betamax. But perhaps the reason the video-cassette recorder market didn't mature more rapidly under Sony's tutelage was the fact that

Lock-in theory survives and flourishes mostly due to the popularity of the economic theory that demonstrates that it could happen, and on the hopes of those who put forward the theory in the first place.

While it is more readily available than the Navy study, the GSA study was ignored by advocates of strong-form lock-in. There are critiques of Strong's study in the research literature. But the consensus in that literature appears to be that there is little difference in performance between the two keyboard designs. It is also worth noting that modern ergonomic studies of the keyboard and other experiments examining the costs of retraining typists to use the Dvorak keyboard are consistent with the GSA results – and inconsistent with those reported by the Navy study.

This more complete history of the keyboards has been available since 1990, but is almost never reported when lock-in advocates promote their version of the keyboard story. If they present any evidence contrary to the lock-in story, it's usually buried in a footnote.

The use of the VHS/Beta story as an example of lock-in, or first-mover-wins, is even more flawed. The Beta format actually had a head start of about a year-and-a-half over VHS. Hence it might be natural to ask where its first-mover advantage was, since it was

the first Betamax machines could only record for one hour – making it impossible to watch or record a movie on a single tape.

VHS used a larger cassette, but otherwise was based on virtually identical technology. The companies behind the two formats (Sony and Matsushita) had a patent-sharing agreement since they had jointly produced a prior-generation videocassette recorder. In fact, when Sony engineers first saw the VHS machine, they thought it was a clone of the Betamax. VHS's much bigger tape allowed a longer playing time for a given quality of picture. It was the inferior playing time that led to the demise of the Betamax – not the fact that it was first, second or third.

Now, you might expect belief that this strong form of lock-in must depend on more than just these two feeble stories, given its impact on current thinking (not just business strategy but antitrust prosecutions such as the Microsoft case). And it does – but not much more. Lock-in theory survives and flourishes mostly due to the popularity of the economic theory that demonstrates that it could happen, on a few other less plausible real-world

examples, and on the hopes of those who put forward the theory in the first place.

Arthur and others have claimed that the internal combustion engine locked out superior alternatives such as the steam and electric engine. If this seems pretty far-fetched, it's because it is far-fetched – but not so far-fetched to avoid serious academic scrutiny, particularly by those hoping to find evidence of strong-form lock-in. The research simply hasn't supported the conclusion.

Other possibilities have been suggested. Perhaps AM stereo should have replaced FM. Perhaps DC should have replaced AC as the standard for electrical generation and transmission. Perhaps quadraphonic sound should have replaced stereo. Perhaps the Macintosh operating system should have replaced DOS (a Mac-like graphical operating system did, but it was called Windows). Perhaps railroads used the wrong gauge of tracks for their trains. But advocates have never gotten beyond “perhaps.”

Arthur and David have recently tried to turn the debate around by claiming that it is not they who should have to find strong forms of lock-in. Rather, the skeptics should have to prove that every market yields the most efficient product.

Arthur has noted in several interviews that we (Liebowitz and Margolis) have not proved that Qwerty is the best possible keyboard. Indeed; but we have never made any such claim. Even if other keyboards were equally good or slightly better (which is what we did conclude), there is no reason to take this as evidence of strong-form lock-in.

In the examination of software markets that I conducted with Margolis – the only study of its kind that I know of – we found over and over again that the winning product is as good as or better than the competition. Even though these markets appeared to have

winner-take-all characteristics, exhibiting both network effects and economies of scale, and even though the market leaders had very large shares consistent with winner-take-all, good products trumped lesser ones whether or not they were there first.

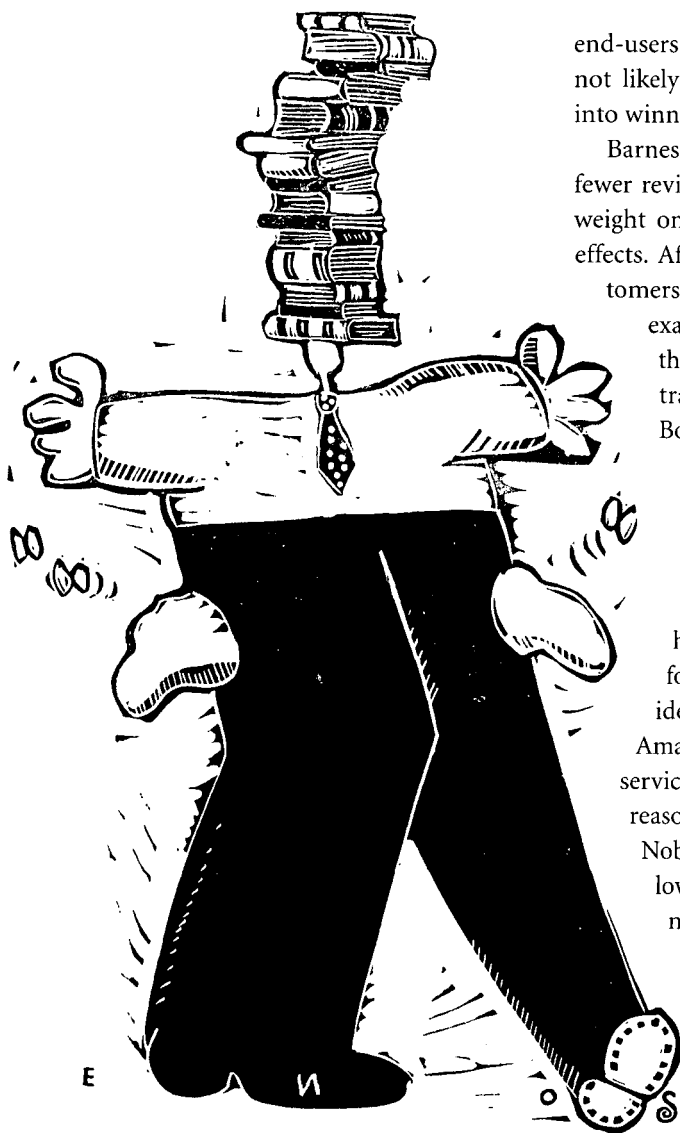
VisiCalc, the first spreadsheet, was supplanted by the superior Lotus 1-2-3, only to be replaced by the superior Excel. Managing Your Money was supplanted by Quicken, and so forth. This was true for markets in which Microsoft was a player and in markets in which it was not. It was true for Macintosh markets as well as Windows markets.

THE INTERNET AND FIRST-MOVER-WINS

For the most part, online retailing does not have the characteristics of a winner-take-all or first-mover-wins market. Likewise, most online markets do not exhibit network effects or instant scalability. Economies of scale, on the other hand, could be important here. But there is little reason to think that bricks-and-mortar companies in the same industry would not possess equivalent economies of scale.

Take the case of Amazon.com, the company famous for its strategy of forgoing current profits in order to establish its brand name and generate a large market share – a company willing to lose almost 50 cents for each dollar of sales in the name of market-share growth. Was this a smart move? Does online book-selling exhibit the economic characteristics that will lead to winner-take-all or first-mover-wins?

The creation of a Web site represents a fixed cost, perhaps imposing some scale effects on the product market since the overhead costs per unit sold falls as output increases. But other costs of doing business on the Web are likely to swamp the cost of



end-users. But the value added by reviews is not likely to be sufficient to turn a market into winner-take-all.

Barnes & Noble's Web site, which offers far fewer reviews, apparently never put as much weight on the importance of these network effects. After all, it could have prodded customers to provide more reviews by, for example, offering discount coupons to those who wrote reviews or by contracting with an organization like Book Review Digest to provide major reviews. But even if reviews are significant, the resulting network effects are surely too small to lead to strong-form lock-in.

Any lock-in that might occur here is almost certainly the weak form: familiarity with the site, brand identity, pure habit. In any event, Amazon.com does provide high-quality service and low prices, so there is little reason for users to switch. Barnes & Noble would need to provide either lower prices or higher quality to have much hope of getting Amazon customers to defect in large numbers.

Amazon.com's winner-take-all characteristics, therefore, are largely limited to those enjoyed by conventional book-sellers. If bricks-and-mortar book-selling is not winner-take-

creating the Web site. Therefore, the fixed-cost component is likely too small to dominate Amazon.com's overall average costs.

Network effects for Amazon.com are also very limited – things like product reviews by users and purchase circle information, but little else. Product reviews have network effect characteristics because the number of reviews depends on the number of other users, and these reviews increase the value of the site to

all (and for all the bookstore consolidation that has occurred in recent years, Barnes & Noble and Borders each hold only about 10 percent of the book retailing market), online book-selling is also unlikely to be a winner-take-all market. Thus Amazon.com's enormous startup losses may have been largely without purpose except to create brand-name recognition and to provide a quality experience for consumers – worthwhile goals, per-

haps, but hardly ones that justify such enormous outlays.

ADDITIONAL EVIDENCE

In 1999, I conducted a study for McKinsey, the consulting firm, trying to determine what causes companies to be successful. I looked at 20 markets ranging from high-tech (Web portals) to low-tech (athletic apparel and discount retailing). My conclusions were quite consistent with those I drew from my research in software markets.

There was a very strong relationship between companies producing the best quality product (bang for the buck) and those that were most successful, as measured by either above-normal profit, large market shares or high stock market returns. Since PC manufacturers, software producers and Web-site portals were all included in the study, the study offered fresh evidence to support the conclusion that building the better mouse-trap remains an essential ingredient for success – even in high-tech markets.

In personal computer production, for example, being first didn't count for much. Dell was not the first seller of PCs. IBM, Tandy, Kaypro and many others (some long forgotten), all beat Dell to market. What Dell has achieved – and maintained for a long period – was a reputation for selling better products needing fewer repairs. Packard Bell, by contrast, gained a large market share with low prices, emerging as the largest seller to home users in the early 1990s. But Packard Bell was plagued with poor quality and service, and was only saved from bankruptcy by merger with NEC in the late 1990s.

STEPPING BACK

The concept of lock-in, which has proved so appealing to business strategists – particularly those of an academic stripe – is subtler than

has generally been understood. The type of lock-in that supports claims of first-mover advantages is nowhere to be found.

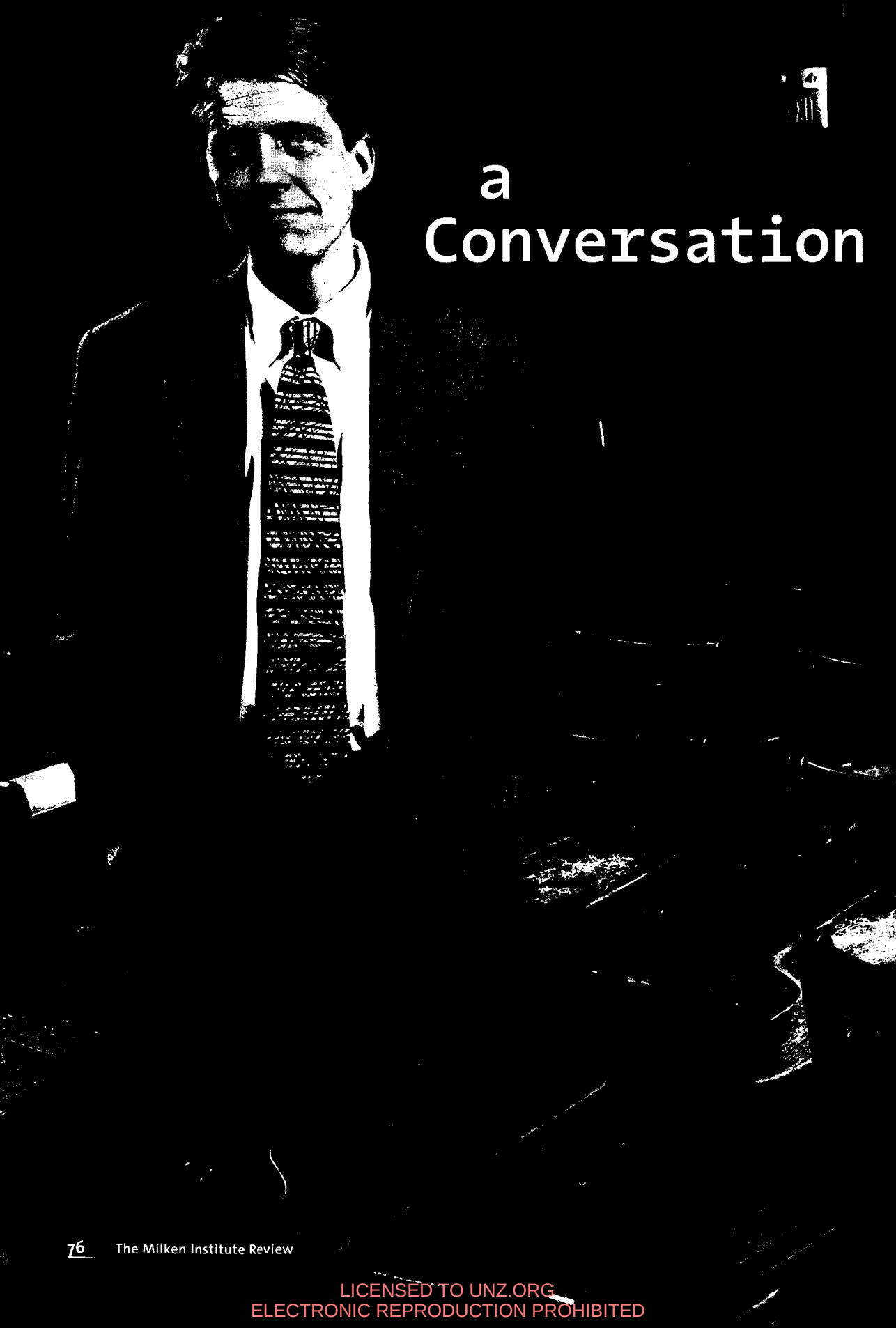
A company that takes big losses in order to win the market-share wars is likely to find that it has won a Pyrrhic victory. Businesses that invest enormous sums for early advantage are likely to fail. Indeed, the meltdown in high-tech can largely be blamed on misguided efforts to be first, even if that means selling a so-so product.

That does not mean, however, that the concept of winner-take-all is discredited. There is good evidence that high technology does breed conditions that lead to very large market shares for successful companies. A firm with a dominant market position, however, can expect to maintain that position only as long as it pleases consumers.

Many – perhaps most – Internet markets are no more likely to be winner-take-all than their bricks-and-mortar counterparts. For many, the Internet will offer a means of enhancing the business, but it will not bring about a fundamental restructuring of the business model.

The winning strategy for Internet companies is the probably the same as the winning strategy for bricks-and-mortar companies: make better products at lower costs. This strategy has worked countless times in both low-tech and high-tech industries, and it is not easy for competitors to copy successfully.

The choice between rushing a weak product to market to be first or taking the time to be best should be a no-brainer, although it wasn't for many beguiled by the lock-in story during the Internet mania. By the same token, a late start is not an insurmountable obstacle. Good Web businesses that continue to innovate may hold their positions for a long time, but not because they can expect to milk locked-in customers. **M**



a Conversation