VERSIONING:
THE SMART WAY TO SELL INFORMATION

Positioning and pricing strategies become all the more important when the marginal cost of your product is zero.

by Carl Shapiro and Hal R. Varian

IN 1986, NYNEX ISSUED THE FIRST ELECTRONIC phone book, a compact disc containing all the telephone listings for the New York area. Charging $10,000 a copy, the company sold the CDs to the FBI, the IRS, and other large commercial and governmental organizations. Sensing a great business opportunity, the Nynex executive in charge of the project, James Bryant, left to set up his own company, Pro CD. His goal was to produce an electronic directory covering the entire United States.

The phone companies, fearing an attack on their lucrative yellow pages businesses, refused to license digital copies of their listings to Pro CD. But that didn't stop Bryant. He went to Beijing and hired Chinese workers – at $3.50 a day – to type into computers every listing from every U.S. telephone book. The resulting database, containing more than 70 million phone numbers, was used to create a master disc, which in turn was used to create hundreds of thousands of copies. The CDs, which cost well under a dollar each to produce, sold for hundreds of dollars, yielding a tidy profit for Pro CD.

But the CD-phone-book boom was short-lived. Attracted by the seemingly strong profit potential, competitors such as Digital Directory Assistance and American Business Information rushed to launch competing products containing essentially the same information. Because their products were indistinguishable, the companies were forced to compete on price alone. Not surprisingly, prices plunged. Soon, CD phone directories were selling for a few dollars in discount software bins. A high-priced, high-margin product just months before, the CD phone book had become a cheap commodity.

The rapid rise, and even more rapid fall, of CD telephone directories stands as a cautionary tale for the purveyors of information products, particularly those sold in digital form. It reveals that the so-called new economy is still subject to the old laws of economics. In a free market, once several companies have sunk the costs necessary to create an undifferentiated product, competitive forces will usually move the product's price toward its marginal cost – the cost of manufacturing an additional copy. And because the marginal cost of reproducing information tends to be very low, the price of an information product, if left to the marketplace, will tend to be low as well. What makes information products economically attractive – their low reproduction cost – also makes them economically dangerous.

Many information producers make the mistake of assuming that their products are exempt from the economic laws that govern more tangible goods. But, as Pro CD found out, that's just not so. Although information goods have unusual production economics, they are nevertheless subject to the same market and competitive forces that govern the fate of any product. And their success, too, hinges on traditional product-management skills: gaining a clear understanding of customer needs,

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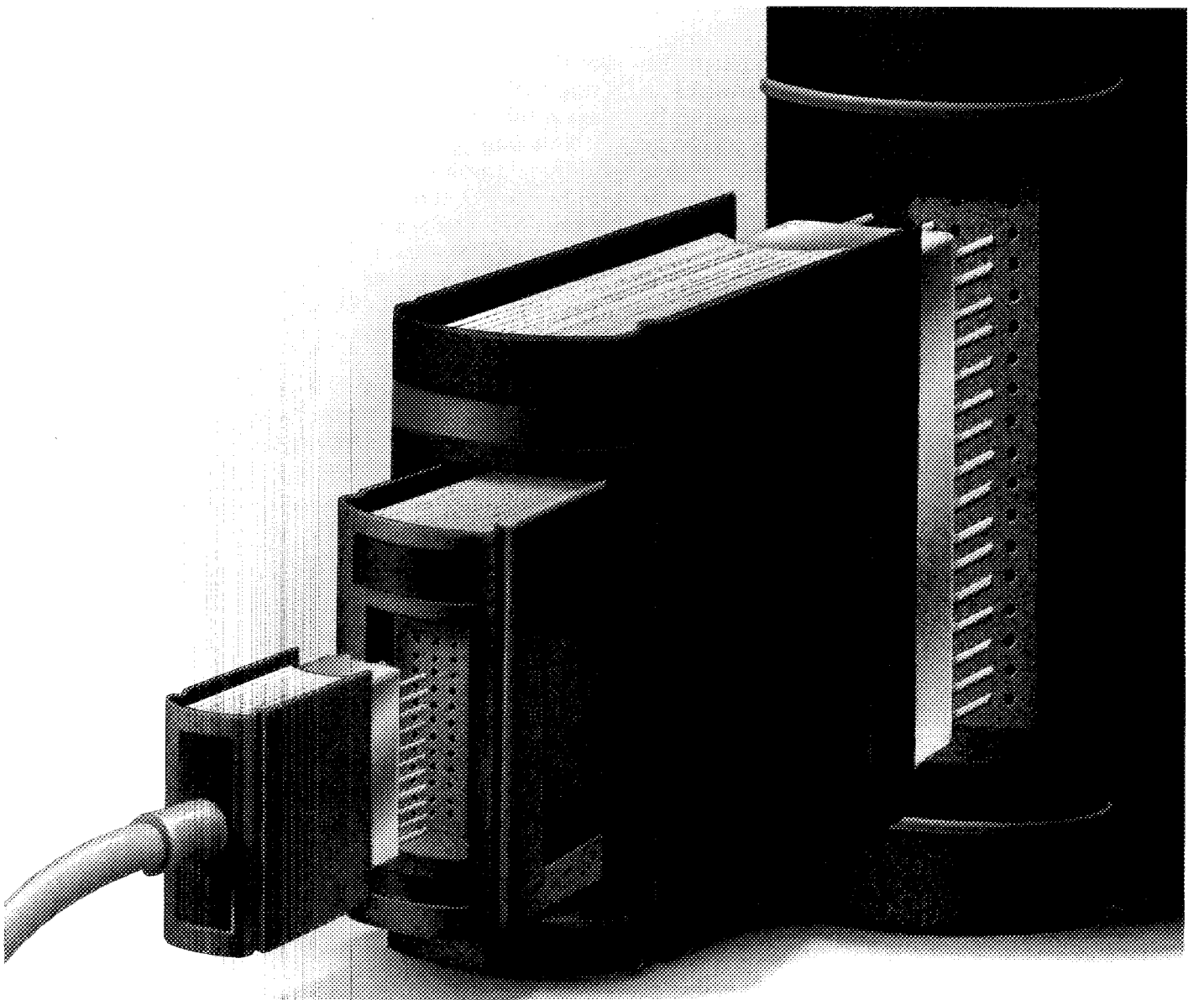
ARTWORK BY THEO RUDNAK



achieving genuine differentiation, and developing and executing an astute positioning and pricing strategy.

Information's Dangerous Economics

To forge a winning strategy for an information product, you need to understand the economics of information production. Information goods, which we define as goods capable of being distributed in digital form, have always been characterized by a distinctive cost structure: producing the first copy is often very expensive, but producing subsequent copies is very cheap. A book publisher, for example, may spend hundreds of thousands of dollars to acquire, edit, and design a manuscript, but once the first copy of the book has been printed, the cost of printing another is usually only a few dollars. To get a movie made, a producer may spend a hundred million dollars on cast, crew, script, and sets, but making a print of the final cut will cost only a few hundred dollars. The fixed costs of producing information are large, in other words, but the variable costs of reproducing it are small.

The sharp skew toward fixed costs is not the only thing distinctive about the cost structure of information goods. The fixed costs and the variable costs themselves have unusual characteristics. The fixed costs tend to be dominated by sunk costs – costs that are not recoverable if production is halted. If you invest in a new office building or factory and later decide you don't need it, you can recover part of your fixed costs by selling the facility. But if your film flops, you probably won't be able to sell off the script or the sets, and if your CD is a dud, it ends up in the cut-out racks at $4.95.

The variable costs of producing information also have a unique feature: the unit cost of creating an additional copy of an information product typically does not increase even if a great many copies are made. Information producers, in other words, have few capacity constraints, which is quite a different situation from that faced by most manufacturers. If sales of microchips grow, for example, Intel will at some point need to build an expensive new fabrication facility to meet the added demand. And if sales of airplanes increase, Boeing will have to invest heavily in new plants, machinery, and people. When these and other traditional manufacturers reach the limit of their existing capacity, the cost of producing an additional unit goes way up. That doesn't happen with most information products, which can be reproduced with a high degree of automation at very low cost. If you can make one copy, you can make a million copies, or ten million copies, at roughly the same unit cost.

Because of their cost structure, information products offer vast economies of scale: the more you produce, the lower your average cost of production. That's why Microsoft, with its dominance in personal-computer operating systems and business applications, enjoys gross profit margins of 92%. But the cost structure has a big downside as well. Because the fixed costs are both large and sunk, companies that don't enjoy market dominance can be caught in devastating price wars. If competition forces a company to reduce its prices to a level near its marginal production costs – as was the case with publishers of CD phone books – that company will never be able to recoup its big up-front investments. It will, in time, face economic doom. What economists call a perfectly competitive market represents a disaster scenario for information producers.

The dangers inherent in the economics of information production become even more pronounced when the information is produced digitally. Copies of information in digital form – such as CDs or digital video disks – are much cheaper to reproduce than analog or print copies. Think of encyclopedias. Printing an encyclopedia set can cost more than a hundred dollars. Cutting a CD-ROM of that same set costs just pennies. By reducing variable costs, digital reproduction further exaggerates the skew toward fixed costs.

And that's not all. When digital information is delivered over a network, the variable costs can disappear almost completely. Because the product has no physical form – it exists purely as bits of data – there's no cost for manufacturing, no cost for packaging, no cost for shipping. Once the first copy of the information has been produced, transmitting additional copies is essentially free. Consider again the case of electronic phone books. Today, if you want to quickly look up phone numbers for people around the country, you don't even need to buy a CD – no matter how cheap they've become. You can search phone listings for free at dozens of Web sites. It costs next to nothing to let an additional customer search an on-line database, so competing providers give the information away to all comers, hoping to make their money by selling ads.

Many commentators have marveled at the amount of free information on the Internet, but to economists like us it's no surprise. The generic information flowing through cyberspace – phone

The Logic of the Free Version

A refrigerator manufacturer would quickly go broke if it started handing out free samples of its products. But information producers give away free versions all the time. When you buy a computer, you are likely to find a bundle of free software on the hard drive. When you surf the Web, you discover not only oceans of freely distributed news stories, statistics, and other information, but also loads of software demos and "freeware" that you can download with a few clicks of your mouse.

Free versions of digital goods are common for two reasons. First, the low marginal cost of creating copies of information means that it doesn't require much, if any, investment to give information away. Second, information is an "experience good" – customers don't know what it's worth until they've actually tried it. Free versions provide customers with an easy and attractive way to test out a digital product.

Of course, if all you did was give information away for free, you wouldn't have much of a business. (Many Web site operators are learning this lesson the hard way.) There has to be sound business logic behind the free offer. We have found that the most savvy information producers offer free versions only when they are likely to achieve one or more of the following goals:

Building Awareness. Many companies use free versions simply to create awareness of their products. They give away a version with limited content or features in order to entice consumers to pay for the full version. Computer game makers, for example, distribute free demos over the Web or on CD-ROMs bundled with game magazines. The demos allow users to play only the first few levels of a game – enough to get hooked but not enough to get bored. The hope is, of course, that the user will rush out to buy the complete

numbers, news stories, stock prices, maps, and the like – is simply selling at its marginal cost: zero. (See the insert "The Logic of the Free Version.")

Linking Price to Value

The extremely low marginal costs of information production rule out many traditional pricing strategies. You can't, for example, use cost-based pricing. Nor can you set prices according to the competition – that's a sure road to ruin. The only viable strategy is to set prices according to the value a customer places on the information.

But which customer? The value of a piece of information can vary dramatically from one person to the next. A stock market speculator will place a far greater value on stock quotes than will a long-term investor who buys and holds. A computer "power user" will value the latest operating-system upgrade much more than the average home user will. And a drug company executive will likely place more value on the text of the latest FDA rulings than a pharmacist, who, in turn, will place greater value on it than a premed student. Information never has the same value for every potential customer.

In a perfect world, an information producer would sell its product to each buyer at a different price, reflecting the value that the different buyers place on it. In reality, though, such personalized pricing is rarely possible. For one thing, even in these days of cheap computing, it is awfully expensive to capture, store, and distribute data on the

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game. Using a free version to build awareness works for games because each game is unique; the customer can't buy a substitute. But if you're only one of many providers of the same information, a free version may simply underscore the commodity nature of your product. The customer, spoiled by the free version, will be motivated to find the cheapest possible source of the information.

Gaining Follow-on Sales. A more sophisticated strategy is to give away a version in order to build a base of customers to which you can sell follow-on products, such as extensions, upgrades, and services. The free version, in this case, is usually a complete version; no content is missing and no features are disabled. The idea is to get customers to become dependent on the product. The more they use it, the more interested they'll be in add-ons. McAfee Associates, for example, offers many of its core virus-protection products for free over the Web. It makes money by selling site licenses to companies, upgrades to individuals, and an array of services to both groups. McAfee's products now account for half the sales of antivirus software.

Creating a Network. Because many digital goods are subject to network effects – they only become valuable once a large number of people are using them – free versions can also be a good way to bring a product's use up to a critical mass. Adobe, for example, gives away a simple version of its Acrobat software that enables users to view and print electronic documents even if they lack the software the documents were created with. Because Adobe was the first to seed the market with such a program, it is now able to sell full versions of Acrobat – at between $200 and $600 – to anyone who wants to share electronic documents over the Web or through other media.

Attracting Eyeballs. As the war for attention continues to intensify on the Internet, free information becomes ever more valuable as a lure to attract the eyes of surfers. Some information companies, in fact, are finding that they can earn more money from advertising than from selling their own information. Playboy, for example, posts free images of its playmates on its Web site, along with banner advertisements that it sells for more than $10,000 a month. Each image incorporates a digital watermark, enabling Playboy to track not only how many people view the image on its own site but also how many people view it after it's been copied onto other sites. In this way, Playboy learns more about its on-line customers and how they use its products, further strengthening its ability to sell ads as well as on-line and print subscriptions.

Gaining Competitive Advantage. Sometimes the strategic value of getting a large number of people to use your information is greater than the economic value of getting a smaller number of people to buy it. Microsoft, for example, gives away its Internet browser in order to prevent Netscape from gaining control over computer desktops. That competitive benefit far outweighs the money it could make by selling the browser. Microsoft sometimes finds itself on the other end of such strategies, too. One of the main reasons Sun Microsystems gives away many of its Java programming tools is to reduce the market power wielded by Microsoft. Because Java can be used with any computer, it makes operating systems like Windows 98 relatively less valuable and hardware, such as Sun's servers, relatively more valuable.

tastes of individual customers. For another, traditional sales channels, like retail stores, cannot set an array of prices for the same good. (Even if they could, it would be next to impossible to get customers to stay within their intended pricing strata – just look at all the gyrations airline customers go through to locate the cheapest routes.) And finally, information producers run the risk of annoying or even alienating their customers if they charge different prices for the same product.

But there is a practical way to set different prices for basically the same information without incurring high costs or offending customers. You do it by offering the information in different versions designed to appeal to different types of customers. With this strategy, which we call *versioning*, customers in effect segment themselves. The version they choose reveals the value they place on the information and the price they're willing to pay for it.

Traditional information providers have always used versioning, in one form or another, as a way to structure their product lines. Publishers release a book first in hardback and later in paperback, selling the same text at a high price to readers who must have the book right away and at a lower price to people who don't mind waiting. In a similar way, movie houses charge $7 or more for a ticket to a film that can be rented six months later for $3 a household.

With versioning, customers reveal the value they place on information and what they're willing to pay for it.

When information is produced digitally, versioning becomes an even more flexible and powerful strategy. For one thing, it's easy to manipulate digital data, so the cost and time required to produce and distribute different versions go way down. For another, the proliferation of CD-ROM players, VCRs, and Internet browsers opens many kinds of information to a much larger and more diverse audience. When legal information was conveyed only in heavy and expensive tomes, lawyers were the only people interested in purchasing it. Now that the information can be searched and bought by the bit, there are many more potential customers for it. Versioning provides a way to sell information to those customers in a form that they will value without cannibalizing the existing high-price, high-margin market.

The trick is to identify the best ways to distinguish the different versions of your product. You need to determine which features will be highly valuable to some customers but of little value to others. Then you need to create the right number of versions and set the right prices for them. The goal is to get each customer to pay the highest possible price for the product, thus maximizing the overall returns. Since the customers themselves are selecting the price they'll pay, based on their own calculation of the information's value, they will be far less likely to take offense at paying different prices than they would if the manufacturer were imposing the prices on them.

The Many Versions of Versioning

In the past, versions of information products were usually based on timing or, more precisely, delay. For almost any type of information, some people will always be more eager to get their hands on it than will others. That's the rationale for releasing hardcovers before paperbacks and for showing movies in theaters before putting them on tape. Delay is often a good basis for versions of digital information as well. PAWWS Financial Network, for example, offers two versions of its portfolio accounting system, one at $8.95 a month and the other at $50.00. What's the difference? The inexpensive service uses stock quotes that are delayed by 20 minutes to calculate portfolio values, whereas the premium service uses real-time quotes. Those 20 minutes are very valuable to one set of the company's customers.

But with digital information, delay is only one of many possible dimensions for versioning. Just consider the wide variety of ways in which digital products are differentiated today:

Convenience. Restricting the time or place at which a customer can access information, or restricting the length of access, is often a good way to get buyers to reveal the value they place on the information. The more a customer needs the information, the more freedom they'll want in accessing it. America Online, for example, offers different monthly membership plans based on convenience. The standard plan, which provides unlimited access, costs $21.95. An alternative plan costs $4.95 but allows only three hours of connection time – if you use more, you pay a high hourly surcharge. By offering the cheaper version, AOL can attract customers who have only a limited need for its service – they may use it solely for e-mail, for example – while maintaining much higher prices for customers with

a greater dependence on it. Similarly, some on-line database companies offer discount subscriptions to users who agree to log on only outside of normal business hours.

Comprehensiveness. Some customers will pay a big premium for information that offers a depth of detail – in geographical coverage, historical scope, or statistical detail. Public affairs specialists and journalists, for example, will value the ability to search the full text of articles from newspapers around the world. Many scholars and students will value extensive historical information. Marketing managers will value information on individual customers and their long-term purchasing patterns.

Many newspapers and magazines are using comprehensiveness as the basis for creating versions of their on-line products. The *New York Times* and *Business Week*, for example, give away their current editions' content on the Web, but they sell access to their extensive archives. Because there are so many sources of news on the Internet, these publications know that the only way to attract readers – and in turn advertisers – is to give away their freshest content. But they can charge for their past articles because the segment of customers that values those articles – writers, researchers, and the like – have no other practical source for them.

Manipulation. Another important dimension that can form the basis for versioning is the ability of the user to store, duplicate, print, or otherwise manipulate the information. Back in the days of copy-protected software, companies like Borland sold two versions of their programs – one was low priced and could not be copied and the other was high priced and could. Many information providers today use similar constraints on information manipulation to distinguish their products. Lexis-Nexis, for instance, imposes additional charges on users who want to print or download information rather than just view it on screen.

Community. The chat rooms and bulletin boards that crowd the Web demonstrate that many people value the opportunity to discuss information with others who have similar interests. By restricting users' ability to join an on-line community, providers can identify customers who place value on the community in addition to the information.

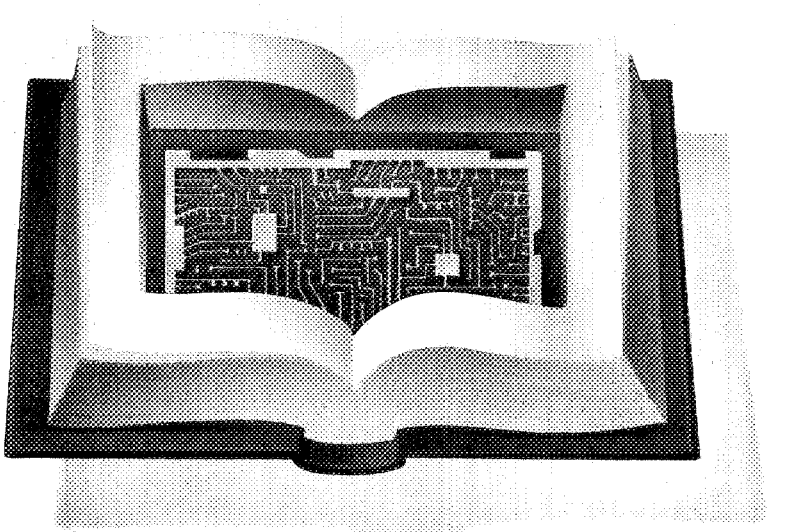
Silicon Investor, a popular Web site for investors in high-tech industries, offers hundreds of discussion boards on individual companies. It allows anyone to read the messages posted on the boards for free. But if you want to post a message – or send a private e-mail to another member – you have to pay an annual membership fee of $100 or a lifetime fee of $200. By allowing free access to the information on the site, Silicon Investor gets more people to visit the site, enabling it to charge more for advertising. By charging an extra fee for posting messages, it makes money on customers who want to do more than read.

Annoyance. People who pay the Silicon Investor membership fee also get an added benefit: they have the capability to turn off the advertisements posted throughout the site. The ability to avoid the annoyance of on-line ads is valued by some Web surfers, and they're willing to pay extra for it.

Similarly, many shareware programs, which are distributed free for trial use, incorporate a start-up screen that asks users if they're ready to purchase a registered version. The only way to avoid the annoying screen is to send in money.

Speed. A common strategy for software makers is to sell versions of their programs that run at different speeds. The most serious users naturally gravitate to the faster versions even if they have to pay a lot more for them; the greater efficiency outweighs the higher cost. Wolfram Research, for example, used to sell two versions of Mathematica, its program for performing symbolic, graphical, and numerical mathematics. The high-priced professional version used a computer's floating-point processor to speed up the calculations. The cheaper student version disabled the processor, slowing the calculations considerably.

Interestingly, Wolfram had to write more code to get the student version to work without the floating-point processor. The inexpensive version thus



When information is produced digitally, versioning becomes an even more powerful and flexible strategy. Because it's easy to manipulate digital data, many different versions can be created cheaply and quickly.

cost more to produce than did the premium version. But offering the low-speed version made economic sense because it expanded the overall user network, making the professional product even more valuable to the sophisticated users, such as professors who wanted to share files with their students. (See the insert "Value-Subtracted Versions.")

Data Processing. Various data-processing capabilities can often be built into an information product, enabling certain users to carry out sophisticated tasks. H&R Block, for example, offers the standard version of its Kiplinger's TaxCut software to people who just want an automated way to fill in their tax forms. But it also offers a pricier premium version, TaxCut Deluxe, that includes a number of other tools – for example, it has an audit feature that examines your return and highlights entries likely to catch the attention of IRS agents.

User Interface. Varying the way that customers access information can be a particularly good basis for versioning. Sophisticated users will often be willing to invest time learning a complex interface that offers, for example, powerful searching capabilities. (And their up-front investment of time will make them less likely to shift to a competing product later.) More casual users will want a simpler, more intuitive interface even if its capabilities are rudimentary. Adobe's $600 Photoshop software for manipulating photographic images has a complex interface intended for professional designers. But the company also sells a lower-end product, the $50 PhotoDeluxe, that has a stripped-down interface geared for home users. You can't do as much with PhotoDeluxe, but you don't have to spend a lot of time learning how to use it, either.

Image Resolution. Many digital products include images, and different users will place different values on the quality of the images. The stock-photo house PhotoDisk, for example, offers its photographs over the Web at different resolutions. Professional

Value-Subtracted Versions

A few years back, IBM offered two very similar versions of one of its printers – the high-end LaserPrinter and the less expensive LaserPrinter E. The two versions looked the same and functioned the same, with one exception: the LaserPrinter could print ten pages per minute while the E version could print only five. A testing lab for computer equipment examined the two models and found that a special chip had been inserted into the LaserPrinter E to slow down its operation. IBM had, in other words, deliberately degraded the performance of its high-end model in order to create a cheaper model. And because the subtraction of value required the manufacture and installation of a special chip, the low-priced version actually cost more to produce than the high-priced one.

IBM's tactic was unusual. When most manufacturers want to create versions of their products, they start by building a bare-bones model, then add features to create premium versions. The high-end models cost more to create than the low-end alternatives. Toyota, for example, spends considerably more to produce a top-of-the-line Camry XLE, with leather upholstery, antilock brakes, and traction control, than it does to manufacture an entry-level Camry CE that lacks the luxury features.

For digital goods, however, the IBM method is the rule, not the exception. Most versions of digital information are created by subtracting value rather than by adding it. The producer first invests in developing the most technologically advanced version – in order to have a distinctive product that will appeal to the most demanding and least price-sensitive customers – and then removes features or capabilities to tailor the product to less demanding customers. As the low-end users' needs advance, they can follow an established upgrade path within the same product family.

PhotoDisk, for example, scans its stock photos at high resolution to create its premium product, then degrades them to produce low-resolution copies. Offering the low-resolution versions requires extra work – and extra server space for storage – so it actually costs the company more to produce its cheap product than its expensive one.

Charging less for products that cost you more to produce may sound illogical, but for digital goods it makes sense. The extra investment required to create degraded versions is usually modest and can be recouped quickly as sales grow. And the revenue from versions designed to appeal to different market segments helps offset the big fixed costs required to create the product initially.

There's an important caveat to value subtraction: you have to make sure that customers can't transform the degraded version back into the original. With a world full of talented hackers, that's no easy feat. There have been reports, for example, that users of Microsoft's $250 workstation version of its NT software have figured out how to turn it into the original and more powerful $1,000 server version with just a few simple tweaks of the code. When you choose the dimensions of your product to manipulate to create different versions, choose carefully.

designers creating glossy brochures purchase high-resolution images at $49.95 each, but newsletter producers settle for lower resolution images at $19.95. The myriad pornography sites on the Web often offer low-quality "thumbnails" of their photographs for free but charge for the ability to view and download high-resolution copies.

Support. Some information providers offer different levels of technical support at different prices. You can, for example, download Netscape's Web browser for free over the Net or, for $40, you can become a subscriber and receive not only the software but also an instruction manual and one free phone call to a support technician. Using technical support as a basis for versioning can be tricky, though. Highlighting the added value of support may raise questions in customers' minds about the reliability of the product. And failing to deliver on promises of support can turn into a public relations nightmare.

In addition to being used in isolation, the different dimensions of versioning can also be combined. Dialog, the large on-line information provider, creates versions of its Web-accessible database by altering both its user interface and its comprehensiveness. A high-end version, DialogWeb, is designed for corporate researchers and other information professionals. It has a powerful but complex interface, allowing highly sophisticated searches, and offers access to the full range of Dialog's content. Another product, DataStar, is much cheaper and much less powerful, offering a subset of the full Dialog database with a simplified interface. DataStar suits casual users well, but because of its limitations it does not siphon away professional users from DialogWeb.

The Mechanics of Versioning

So how many versions should you offer? There's no pat answer to that question. The number should be guided by two considerations: the characteristics of the information that you're selling and the value that different customers place on it. If your information can be used in many ways, it probably makes sense to offer a wide array of versions. But if the value of your information hinges on the number of users who access it in the same format – if, in other words, the information is subject to network effects – you may want to restrict the number of versions you offer.

Kurzweil Applied Intelligence, for example, offers many versions of its voice recognition software. Kurzweil understands that voice recognition has many different applications and that they vary greatly in the value they provide to users. College students will be attracted to a simple product that enables them to create documents by speaking into their computers. But given their limited budgets, they'll only buy such a product if its price is low. Doctors, on the other hand, will be drawn to a highly sophisticated product that is able to understand a specialized vocabulary – and because such a product will save them a lot of time, they'll pay handsomely for it.

To capture the different levels of customer value, Kurzweil offers seven different versions of its software, distinguished mainly by the size and specialization of the vocabularies they recognize. The top-of-the-line, $8,000 version for surgeons, Voice Ortho, is 100 times more expensive than the $79 entry-level product for students, VoicePad Pro. Between those extremes are versions tailored to home users, business users, and lawyers, all at different price points. Because each segment's needs are unique, there's little chance that buyers will be confused by the various options. And there's also little chance that customers targeted for high-priced versions will opt instead for lower-priced versions. A version unable to recognize legal terms, for example, would have little value for an attorney. The way customers define the value of the product locks them into their intended segment. (See the table "One Product, Many Versions.")

For other companies, a more limited array of options makes sense. Intuit, for example, offers only two versions of its popular Quicken software for personal financial management. Unlike Kurzweil's product, Quicken doesn't have a wide variety of applications – a lawyer balances her checkbook in pretty much the same way a doctor does – so having to choose from a broad range of versions would

One Product, Many Versions

Recognizing that its voice recognition software can be used in many ways, Kurzweil Applied Intelligence offers a broad array of versions at very different prices.

Version	Price	Vocabulary
VoicePad Pro	$79	20,000-word general
Personal	$295	30,000-word general
Professional	$595	50,000-word general
Office Talk	$795	business
Law Talk	$1,195	legal
Voice Med	$6,000	medical
Voice Ortho	$8,000	special-purpose medical

simply confuse customers. By limiting the number of versions, Intuit gets other benefits as well. Customer support stays simple, and users are able to share files with less risk of incompatibility.

But by offering only one high-end product and one low-end version, Intuit, like many information companies, may be missing out on an important opportunity. The two-version strategy, though enticing in its simplicity, ignores the psychological phenomenon known as "extremeness aversion." When buying products, consumers normally try to avoid extreme choices – they fear they'll pay too much if they go for the most expensive version, and they worry they'll get too little if they opt for the cheapest. They are drawn instead to a compromise choice – a version in the middle of the product line. Like Goldilocks, they don't want "too big" or "too small" – they want the product that's "just right."

By offering three versions of a product, companies can shift buyers away from the entry-level product and to the more expensive middle offering. The effect can be quite dramatic. In one experiment, researchers offered customers different sets of microwave ovens. When the choice was between a no-frills oven at $109.99 and a midrange model at $179.99, customers chose the midrange oven 45% of the time. When a high-end oven at $199.99 was added to the choice set, people chose the midrange oven 60% of the time. The existence of this phenomenon is the reason McDonald's offers its drinks in three sizes rather than just two.

Information producers can also capitalize on extremeness aversion. If they are currently offering only two versions, they should consider adding a third, high-end product to their line. If Intuit, for example, offered a third version of its Quicken software – Quicken Gold, say – at a price higher than that for the Deluxe version, many buyers who would have bought the standard product will instead move up to Quicken Deluxe. The important thing to recognize is that the product you really want to sell should be positioned in the middle – the high-end product is there mainly to pull people toward the compromise choice.

The optimum number of versions to offer is, as we've seen, rarely clear-cut. The best way to decide is often through trial and error. Because it's usually inexpensive to create new versions of an information product, a company can do a lot of experimentation. Recently, for example, Information America, a company that provides public records to banks, government agencies, and law offices, was trying to decide whether to offer its services to users operating at home. The company felt that demand would be high enough to justify entry into the new market, but it was concerned that a price low enough to attract home users might cannibalize its sales to professionals. To gain insight into the problem, the company created a subsidiary, KnowX, to offer home users access to a subset of its databases via the Web. It turned out that the restricted offering was very popular – and it didn't attract the high-end professionals. With today's powerful technologies for distributing information, more and more companies are, like Information America, finding it easy to explore market segments that were not reachable before.

Old Ideas, New Applications

Information has always played a central role in our economy – a simple fact that too often gets lost in all the hype about the information age. And the total amount of information in existence hasn't expanded all that much in recent decades. What has changed is that the information has become dramatically more accessible. Many of the great technological advances of the twentieth century – telephones, radio, motion pictures, television, computers – have served to speed the flow and widen the availability of information. The arrival of the Internet is just the latest step – albeit a very big step – in a process that continues to unfold.

As access to information has expanded, so too have the opportunities for selling information goods to a broader and more diverse set of customers. Versioning provides a way to serve that larger market by tailoring the same core of information to the needs of different buyers. It not only enables you to gain more revenue from an existing product but also provides a basis for thinking creatively about how to distinguish your product from competing offerings. By monitoring how the market reacts to new versions, you gain ever greater insight into how customers define value, allowing you to continually refine your product line. A creative versioning strategy is often the best defense against the commoditization of information.

Success in selling digital goods does not require a whole new way of thinking about business. Rather, it requires the same kind of smart managing and smart marketing that have always set apart the best companies. The real power of versioning is that it enables you to apply tried-and-true product-management techniques – segmentation, differentiation, positioning – in a way that takes into account both the unusual economics of information production and the endless malleability of digital data. ▽

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