# PART ONE

# *The History of Partnership Capitalism*

# 1
# It All Began with Shockley

Nearly half a century ago, way back in 1957, eight cocky young semiconductor whizzes decided that they could no longer stand working for a brilliant but autocratic inventor named William Shockley. Although his many real faults would later come to be widely perceived as well, Shockley was viewed as a genius by the scientific community of his day. In the 1940s, while employed at what was then AT&T Corporation's Bell Laboratories in New Jersey, Shockley had helped invent the transistor, a feat for which he shared a Nobel Prize in 1956. But Shockley's contribution to his time went even beyond his scientific achievements. To commercialize his world-altering invention, which made possible everything from the portable radio to the personal computer, Shockley left AT&T the year he got his prize and announced the founding of Shockley Semiconductor Laboratories.

In a move whose far-reaching consequences neither Shockley nor anyone else could have predicted, he located his new firm not in some established manufacturing area along the northeast corridor, but in faraway Mountain View, California, next door to his native Palo Alto. The decision turned out to be an unparalleled stroke of good fortune for the area.

Although Shockley chose the location in part to be near his mother, cementing the deal was the fact that nearby Stanford University was offering space in an industrial park it had created to lure electronics companies to the area. Shockley Semiconductor,

and the dozens of high-tech spinoffs later started by former employees in this same stretch of northern California, formed the nucleus of what was to become the world's single most important high-tech region, a myriad of computer and software firms now known as Silicon Valley.

Shockley's decision to walk out of AT&T had been precipitated by what he felt was a lack of respect paid to his genius. Management, he thought, behaved as if his contributions were no different from those of any other Bell Lab scientist, or even of the army of technicians and workers who punched in and out for hourly wages. Shockley thought he deserved to be treated as the sui generis article he saw himself to be and asked Bell Labs to give him a share of the royalties it earned from patents based on his ideas.

His request went nowhere. Bell Labs, you must understand, was more than just the research and development arm of AT&T. It was, by any standard, a world-famous laboratory, chock full of brilliant scientists and even other Nobel Prize winners. The lab's philosophy was to give virtually free rein to its researchers, who were in turn allowed to pursue their scientific interests as university academics would, with little thought for any immediate commercial application. The hope was that the few major breakthroughs achieved would generate enough revenue to justify the cost of the entire research program. However, all ideas a lab scientist produced belonged not to the individual, but to the company, which would turn them, if possible, into marketable products. Not surprisingly, AT&T refused as a matter of course to accede to Shockley's demand that he, or any other scientist, be given a share of the royalties derived from patents developed on its dime (a practice still common at most large companies today).

Shockley decided to pack up and start his own company. He turned for help to a fellow graduate of the California Institute of Technology, Arnold Beckman, who owned a Southern California medical instruments firm, Beckman Instruments Incorporated.

Beckman agreed not only to fund Shockley, but to give him what Bell Labs had refused him—the prestige and the financial rewards due a man of his talent and accomplishments. During their initial discussions over money, Beckman wrote Shockley reassuring him

that under the terms he proposed, Shockley would find everything he was looking for. Historians Michael Riordan and Lillian Hoddeson discovered the letter in Shockley's papers. It said, in part:

> Your objective in this undertaking is to employ your skills and experience in a manner which will give you maximum personal satisfaction. Important factors are suitable physical facilities, capable and congenial associates, a position of prestige and authority, with adequate voice in policy determination, and financial reward commensurate with performance, which embodies, in addition to salary, some means for obtaining capital gains benefits.

So the deal was closed, and Shockley Semiconductor Laboratory opened for business. It soon became apparent that in addition to all his other skills, Shockley had something of a genius for spotting talent. He quickly recruited a dozen of the country's sharpest young Ph.D. engineers and physicists. Just how good were these people? Several would later go on to found major computer companies, including Robert Noyce and Gordon Moore, who cofounded Intel Corporation. (Moore also authored Moore's Law, which predicted meteoric progress in this new field, holding that the power of a computer chip would double every eighteen months, even as its price fell.)

By rights, Shockley should have known exactly how to keep his troops happy and productive. All he had to do was to give them the same respect he had demanded for himself at Bell Labs. But his overweening ego got in the way. Shockley quickly became a boss with an arrogant management style, treating his band of hotshots even worse than AT&T had treated him. For example, Moore described how several Shockley Labs researchers had once suggested that they would like to publish more of their ideas in academic journals. Shockley went home that night, worked out a theoretical point of his own about semiconductors, and returned the next day to tell them: "Here, flesh this out and publish it."

Soon enough, Shockley's troops rebelled. In 1957, after just a year at the new company, Moore and a few other fed-up researchers appealed to Beckman to bring in a professional manager and make

Shockley a technical consultant. Beckman refused, leaving most of the group feeling that they had no choice but to quit the company. Depart they did, just as Shockley himself had walked away from AT&T's prestigious Bell Labs. But instead of launching out on their own, eight employees—including Noyce, whom they tapped as their leader—decided to offer up their services as a group. They wanted to develop a commercially viable silicon transistor—which Shockley had lost interest in—and thought the project stood the best chance of success if they pooled their knowledge. Their actions became one of the first examples of a high-tech talent rebellion, in which knowledge workers recognized the commercial value of the collective brainpower represented by their team and sought to offer it up as a commodity.

The Traitorous Eight, as Shockley called them, didn't set out to change the world, not even the business world. Originally, they just wanted to find employment in a workplace environment in which they would be treated as the intellectual equals of top management they felt themselves to be. But within a scant few years it became clear that changing the traditional relationship between management and employees was precisely what the burgeoning high-tech business sector needed to allow it to take off as it later did, and that they had taken a giant first step in doing just that.

Just as Shockley had found Beckman to help him, so did the Traitorous Eight hook up with a young New York City investment banker named Arthur Rock, who suggested an unusual move: Instead of trying to find someone to hire them as a team, the group should found their own company.

Back then there was no venture capital industry, and the idea wasn't a conventional business plan that might command funding from a bank or large corporation. In fact, it took Rock thirty-five tries to find a company willing to give the men both the capital they needed and the freedom to use it as they saw fit.

When that funding finally arrived, Rock came up with an unusual business plan. "Each of the eight scientists were given 10 percent, Hayden Stone (Rock's banking firm) got 20 percent, and Fairchild Camera and Instrument lent the group money for an option that they eventually exercised in 1959," Rock recounted in a

later interview. Jay Last, one of the eight scientists, said he and his colleagues saw this as a way of "being their own boss." The eight put up $500 each, about a month's salary, and opened their company just down the road from Shockley's shop.

From the beginning, they also insisted with their backers on a culture that would give them the respect Shockley had demanded for himself, but had been too egomaniacal to extend to his own creative team. Largely at Noyce's insistence, they dispensed with titles, dress codes, and reserved parking lots. Instead of a pecking order of different-sized offices, all the scientists sat in an open room. The egalitarianism and lack of hierarchy were designed to create an intellectual atmosphere in which creativity would flourish, producing an unfettered exchange of information and ideas. "Treat workers well and they work harder; treat them harshly and they get even," Rock explained to us in 2002. The formula flowed easily from the men's background as top scientists and seemed more natural in laid-back, sunny California than it would have been in the formal East Coast settings from which many had come.

All this was made possible because Rock had found as the investor for the company a man of unusual foresight, Sherman Fairchild, the inventor of the aerial camera. (His father had financed Thomas Watson, the founder of IBM Corporation, and was IBM's largest stockholder at the time.) Fairchild Camera & Instrument, of Syosset, New York, ponied up $1.5 million. In return, it got what amounted to an option on the new company, which they agreed to call Fairchild Semiconductor. If the startup succeeded, Fairchild Camera had the right to buy it for $3 million.

Sure enough, the company was a success. After two years the startup had done so well that Fairchild did in fact buy out the founders, who came to be referred to as the "Fairchildren," in honor of their angel investor. The purchase left each of the eight Fairchildren holding stock worth $250,000 (equivalent to $1.4 million in 2002 dollars). This was a princely sum. To offer a sense of perspective, Noyce, then thirty-one, had started at Fairchild two years earlier on a salary of $12,000 a year.

"Suddenly it became apparent to people like myself, who had always assumed they would be working for a salary for the rest of

their lives, that they could get some equity in a startup company," Noyce remembered in a 1980 interview. "That was a great revelation—and a great motivation." Indeed it was, and not just to the eight original founders. In the early 1960s, inspired by the riches showered on the founders, Fairchild Semiconductor employees began getting ideas of their own about starting up new companies, hoping that they too would be able to negotiate juicy equity clauses when they did.

Noyce, a man of business acumen as well as technical talent, saw that his employees had begun to recognize what he had learned from his own experience—the high value knowledge workers increasingly could command in the market. If he wanted to keep their services, Noyce reasoned, it would no longer be enough to create a nonhierarchical, egalitarian work environment. He had to do for them what he had done for himself and the other founders—give them an opportunity at equity, a share of ownership of the company.

Publicly held companies had long used various kinds of incentive plans to motivate workers, including profit sharing and monthly or year-end bonuses based on productivity, of the individual, team, division, or entire company. But plans that awarded equity, usually in the form of some sort of stock option, had almost always been reserved for top management. The stock option was a favored form of indirect compensation because it conveyed a right to purchase a fixed number of company shares at a fixed price, and thus tied the value of reward to the fate of the company. If the company failed to prosper, and its stock did not rise in price, the option was worth little. But if the price of the stock rose, the value of the option rose with it.

Fairchild, in fact, was already giving options to the most senior engineers and researchers, who tended to have managerial as well as creative responsibilities. But Noyce wanted to extend options to those who had no managerial responsibilities; in other words, to grant knowledge workers, solely on the basis of their unique contributions, perks formerly reserved for management only. Ideally, he may even have wanted to extend these options to non-knowledge workers as well, so that every member of the firm would know that

its success meant money in his or her pocket, above and beyond what came from their salary.

But Fairchild Semiconductor was no longer his company. It was now wholly owned by Fairchild Camera back in Syosset. So Noyce, who has been called the father of the Silicon Valley culture, needed the permission of Fairchild Camera to do what he knew needed to be done to keep his company at the head of the pack.

Unfortunately, by this time Sherman Fairchild had died, and his successors balked at Noyce's radical requests. They were plagued by an "East Coast mentality," Arthur Rock said later. "The new management of the parent company were kind of autocratic people located in Long Island and didn't really understand how things worked out here. For instance, they didn't appreciate the concept of giving employees stock options, even though in the year before Intel was formed, the semiconductor division of Fairchild represented 110 percent of the company's profits."

The new bosses in Syosset, including John Carter, Fairchild Camera's recently appointed CEO, instead began to exert more control, squelching Fairchild Semiconductor's independence and demanding that everyone in California report to the East Coast headquarters. This only made matters worse, since the Californians still thought of themselves as owners, even though they had been bought out and technically were now just employees. The clash of perspectives between the Syosset overseers and the California contingent crystallized in a visit Carter paid them one day. In an *Esquire* magazine article some years later, writer Tom Wolfe described the competing worldviews, neatly capturing the distinction between the rigid hierarchy of corporate America and the new style of an employee-owned, California company.

> One day John Carter came to Mountain View for a close look at Noyce's semiconductor operation. Carter's office in Syosset arranged for a limousine and chauffeur to be at his disposal while he was in California . . . . Nobody had ever seen a limousine and a chauffeur out there before. But that wasn't what fixed the day in everybody's memory. It was the fact that the driver stayed out there for almost eight hours, doing nothing.

While John Carter was inside playing CEO, Wolfe went on, "the driver sat out there all day engaged in the task of supporting a visored cap with his head." As word of the sight spread, people started collecting at the front windows just to take a look for themselves. "Here was a serf who did nothing all day," Wolfe reported, "but wait outside a door in order to be at the service of the haunches of his master instantly, whenever those haunches and the paunch and the jowls might decide to reappear. It wasn't merely that this little peek at the New York style corporate high life was unusual out here in the brown hills of the Santa Clara Valley. It was that it seemed terribly wrong."

The visit may have helped Noyce firm up his ideas about how far from the eastern norm the Valley firms were. Wolfe reports Noyce's new understanding:

> Corporations in the East adopted a feudal approach to organization, without even being aware of it. There were kings and lords, and there were vassals, soldiers, yeomen, and serfs, with layers of protocol and perquisites, such as the car and driver, to symbolize superiority and establish the boundary lines . . . .
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> Noyce realized how much he detested the Eastern corporate system of class and status with its endless gradations, topped off by the CEOs and vice presidents who conducted their daily lives as if they were a corporate court and aristocracy. He rejected the idea of a social hierarchy at Fairchild.

Carter's unwillingness to go along with the budding new culture turned out to be a mistake of historic proportions. By 1968, his California semiconductor division had lost many of its top engineers and executives to smaller rivals. Noyce and Moore finally quit that year as well, along with a hard-charging Hungarian immigrant named Andy Grove, Moore's deputy in research and development. With Rock's backing, Noyce and Moore formed a new company, which they called Intel Corporation, and brought in Grove as one of the first employees.

That the old ways were under strong challenge in this new business environment is glaringly apparent when you look at the fate of

these three companies—Shockley Semiconductor, Fairchild Semiconductor, and Intel. By 1963, Shockley's firm, just six years old, had been sold to ITT Corporation and moved back east to Waltham, Massachusetts. Shockley didn't go east with the firm but instead took a Stanford professorship, where he soon earned a reputation of a different kind—one of widespread opprobrium for his energetically expressed racist view that blacks were genetically less intelligent than whites. When he died in 1989 at the age of seventy-nine, he considered his widely rejected racial theories to be more important than all his truly brilliant breakthroughs in the semiconductor industry.

Meanwhile, Fairchild Semiconductor was stripped of much of its talent and gradually lost its standing as the powerhouse of Silicon Valley. Parent Fairchild Camera puttered along, was bought and sold several times, and finally managed to go public in 1999. By 2002, it had a market value of nearly $3 billion—respectable but far from a smashing success.

Intel, of course, went on to become one of America's most successful tech companies, with a capitalization of more than $130 billion—one of the most valuable companies of all time.

And yet, Shockley Semiconductor and Fairchild may ultimately have left a much greater legacy than their economic profiles suggest. For it was the demand for recognition first articulated by Shockley, then by Noyce and the other dissatisfied Fairchildren, that spawned a new corporate model, one that gave intellectual and financial credit not just to management but to workers whose creative talent contributed to the wealth of a company.

This new model, which would evolve into the standard for much of what came to be called the high-tech sector, gained its first foothold in the fertile soil of Silicon Valley. As one history of the area put it, Fairchild "exploded like a seed pod and scattered the germs of new firms throughout the valley." By 1970, forty-two new semiconductor companies had been founded by former Fairchild employees or by the firms they had started, according to one estimate. At the end of the 1980s, more than one hundred firms had lineage that extended back to Fairchild in one way or another. A 1994 book on Silicon Valley described the fact that "many of the re-

gion's entrepreneurs and managers still speak of Fairchild as an important managerial training ground and applaud the education they got at 'Fairchild University.' To this day, a poster of the Fairchild family tree, showing the corporate genealogy of scores of Fairchild spinoffs, hangs on the walls of many Silicon Valley firms."

Not surprisingly, as Fairchild workers left for other jobs, they didn't take just the technical skills they had acquired at Fairchild with them. They also shared and extended at least parts of the new Fairchild culture.

In 1967, for example, the Valley firm National Semiconductor Corporation hired a Fairchild manager named Charlie Sporck to be its CEO. Sporck had been one of those most fiercely complaining to his bosses back east about how hard it was to attract new people given Fairchild's restricted options package. Similarly, Advanced Micro Devices was founded by the flamboyant Jerry Saunders, fired from Fairchild in 1969 by new management that tried to rein in the company after Noyce and Grove left. Both companies adopted the open culture of Fairchild and instituted wide profit sharing in the years after their founding, and eventually extended stock options to many employees.

Fairchild also played a key role in the development of high-tech venture capital firms, many of which also propagated the message that an egalitarian culture and a share-the-wealth philosophy facilitate the recruitment and retention of knowledge workers. Eugene Kleiner, one of the Traitorous Eight, joined with Hewlett-Packard electrical engineer Thomas J. Perkins to form Kleiner, Perkins, Caufield & Byers, which found capital for a long string of Valley firms, including Tandem Computers, Amdahl Corporation, a mainframe maker, and Genentech, a leading biotechnology firm, all of which embraced the Fairchild model to one degree or another. Indeed, many of these funding agreements presumed a nonhierarchical culture, and some even required sharing the wealth with a broad range of knowledge workers.

Arthur Rock, too, went on to raise startup funds for many successful Valley companies that later practiced various degrees of partnership capitalism, including Scientific Data Systems and Teledyne. Decades later, when we spoke to him in 2002, he re-

mained as committed to the Fairchild model as ever. "Since Intel, almost every company I've been associated with has given options to all its employees," he said. "People like to know that they are wanted and that management understands they are working hard. Management is diluting their own equity by giving options to employees."

There were two basic strands to the new corporate culture being pioneered in the Valley. One involved trying to give employees more of a say-so about how their jobs should be done, opening up the corporate decisionmaking process, pushing authority down the ranks, and giving more power to ordinary workers. Some gathered workers into teams to encourage this new model to flourish. Others flattened their corporate hierarchies, creating new labor/management systems that put workers on a more equal footing with bosses and allowed employees or unions to participate in the running of the company.

The second approach was financial. As far back as the late 1800s, some of the giants of American business had tried all kinds of schemes to share profits with workers or get them to own company stock. The theory was that if workers, even factory hands, had a financial incentive to think like owners, they would be motivated to do a better job.

But for many reasons, none of these experiments had ever really taken hold as a dominant practice in corporate America. In the decades after Shockley's little rebellion, large corporations would continue to pursue new ways of improving production, such as teams, employee involvement in decisionmaking, profit sharing, and employee stock ownership plans (ESOPs). However, it was the high-tech firms of Silicon Valley (plus other companies scattered around the country, mostly those with ESOPs) that hit upon just the right combination of cultural and financial incentives—especially stock options—to make the concept succeed. They did so not necessarily out of any great insight on the part of their owners and managers. Instead, high-tech firms were led down this path by the particular business environment that developed in the Valley in the 1960s and 1970s—conditions that subsequently came to affect much of corporate America in the 1990s.

For one thing, the computer industry that took shape around the Stanford area after Shockley arrived was highly dependent on intellectual labor. Sure, workers in factories bent and shaped metal to fabricate room-size computers. But most of what transformed those boxy hunks of metal into computers came from the scientists and engineers who dreamed up ever-better ways to make the machines compute faster and perform a greater variety of tasks. The growing importance of software, which is almost pure thought, added further to the incentive for high-tech firms to tap the brains of their employees.

So it was that as the Valley's high-tech industry grew, executives increasingly came to recognize the value of worker knowledge. The trend hit there first, and subsequently spread to other industries as American companies in virtually every industry developed a growing need for more educated workers. The rise of the so-called knowledge worker, a term that only came into widespread use in the mid-1980s, was accelerated further as the U.S. economy shifted away from manufacturing toward a service-oriented economy.

Another factor that motivated high-tech firms to form a new relationship with their knowledge workers was the scarcity of people qualified to fill such jobs. While Stanford and many other universities began to churn out engineers, physicists, and other highly educated graduates in the 1950s, there were never enough to keep up with the rapid growth of the computer industry in Silicon Valley. The shift to services brought mounting shortfalls of more educated workers in many other industries in the 1980s and 1990s. As a result, Valley companies, in industries with steep growth curves, were especially pressed to find new ways to keep their valued employees happy. Many did so by giving them the respect and ownership stake that Shockley had sought for himself. "Sharing the wealth was a natural evolution of the egalitarian culture," said Regis McKenna, a public relations consultant in the Valley who worked with many of its seminal companies, in one interview.

Indeed, the culture of employee ownership that grew in Shockley's wake flourished in the informal, nonhierarchical atmosphere that long had differentiated California from the encrusted traditions of the East Coast business establishment. Treating knowl-

edge workers like partners rather than underlings was a much smaller conceptual and social leap on the laid-back West Coast, where the physical setting itself, notably the temperate climate, encouraged casual dress and looser social codes.

Still, in the years following the Fairchild diaspora in the late 1960s, the road to stock options for knowledge workers remained largely in the dirt-path stage. Almost all of the Fairchildren left with the belief that the rigid management style of corporate America inhibited the freewheeling exchange of ideas and hobbled American industry in an age of rapid technological change. However, they were never all of one opinion when it came to the even more radical issue of sharing company ownership.

In some instances, options were not offered for reasons unrelated to management's belief about their incentive value. For example, some Fairchildren founded firms that never went public and were sold or eventually went out of business. Others were quickly swallowed up by traditional companies such as General Electric, Philco, Motorola, and Raytheon, before they had enough of a chance to develop the distinctive corporate culture that Fairchild pioneered.

Many other firms took years to fully embrace the idea of including everyone in their stock option plan. Even companies such as Intel, whose founders deliberately set out to build off the concept they had encountered at Fairchild, took years to complete the project. While many founders said that all their employees were partners, in reality, the term "all" usually meant all those who counted, that is, researchers and engineers for the most part. It took nearly two decades, often filled with tension and griping, before technical assistants and factory workers were brought into the circle.

For example, in the beginning Noyce and Moore gave stock options to all Intel's engineers and office staff, as they had been blocked from doing at Fairchild. But that came to only about a third of the workforce. All other employees, including the factory workers hired to make chips, only were entitled to buy Intel stock at a discount. The company also had a profit-sharing plan that covered everyone. However, Intel's ownership remained very lopsided. When it finally went public in 1972, Noyce and Moore together

owned 37 percent of the stock. Intel only extended stock options to the full workforce in 1997.

You might even draw an analogy between the slow extension of partnership capitalism to all employees and the gradual evolution of democratic rights to all citizens in Western civilization. The ancient Greeks first practiced the concept of democracy in fifth-century B.C. Athens. But in the days of Socrates and Plato, rule by the people excluded most women, slaves, and others who weren't considered citizens. The United States started off in a similar fashion, taking some 150 years to allow women and blacks to vote.

Silicon Valley high-tech firms traversed a parallel arc, although they did so in decades rather than centuries. Shockley's disciples wanted to form companies that treated everyone as equals, but their conception of everyone really meant the scientists and engineers they considered their peers. Slowly, they were prodded by their own rhetoric and the pressure of tight labor markets to expand their definition of who counted to a more inclusive group. But the process took years to play out.

Still, the partnership approach spread steadily across the Valley and by the late 1960s and early 1970s, firms with no direct links to either Shockley's crew or Fairchild had begun to accept that treating knowledge employees like equals and perhaps like part owners could spur creativity and productivity.

As early as 1969, just a year after the Traitorous Eight fled Fairchild, a physicist named Bob Beyster left the General Atomic Corporation to found Science Applications International Corporation (SAIC). The privately held La Jolla, California–based research and engineering company coupled employee teamwork with ownership for everyone through stock options and other forms of employee ownership. The company, which later bought and then sold the Internet company Network Solutions, kept its nonhierarchical culture even as it swelled to a 41,000-employee giant with sales of $6 billion.

Three years later, in 1972, a brilliant computer scientist named Seymour Cray founded Cray Research to make what were then termed "supercomputers," huge metal boxes with the tremendous

computing power required by nuclear physicists, aircraft designers, and advanced weapons researchers.

The company soon developed an operating philosophy, based on high value instead of low price, which came to be known as "The Cray Style." A Cray computer could run up to $20 million, five times what a typical mainframe cost back then. The buyer could make up the difference with lower per-unit computing costs. But to remain competitive with mainframe manufacturers like IBM, Cray researchers had to stay several jumps ahead in the race for new ways to multiply computing power. Although Cray stumbled and was sold before becoming independent again, the Cray Style helped the company compete with rivals throughout the 1970s and 1980s.

That style stressed those corporate values that promised to spur creativity. Because Cray believed that scientific breakthroughs stemmed from small groups working in teams, informality was one key element of the style. To encourage experimentation and an entrepreneurial atmosphere, there were no corporate policy or procedure manuals spelling out how work was to be done. Even as the company swelled to several thousand employees, Cray insisted that everyone be treated as a professional, which meant no time clocks, even for secretaries and assemblers. Cray himself set the example, often arriving in the afternoon and leaving late at night by some accounts. While the company didn't employ stock options, it had a generous profit-sharing program that became vested in the employee as quickly as the law allowed. "The reason: Cray Research wants to keep its best talent because they want to stay, not because they are waiting for a vesting date," reported one account in the mid-1980s.

More and more entrepreneurs were coming to accept that when it came to their employees, bread cast upon the waters did truly return. Few of the new high-tech startups organized themselves on the old model that called for a clear demarcation between compensation for owners and employees.

An interesting case is that of Apple Computer, which pioneered a new kind of user- and graphics-friendly personal computer. Founded in 1977, Apple had its roots in the Shockley era. Arthur

Rock was an early investor who helped find venture capital for the company Steve Jobs and Steve Wozniak wanted to start. The two Steves in turn recruited a National Semiconductor executive named Mike Scott to serve as Apple's president.

Apple's early philosophy held that everyone should be encouraged to think like an entrepreneur. But, not surprisingly, at least when it came to stock options, "everyone" meant mostly managers and certain knowledge workers—engineers. The technicians working at the engineers' elbows were excluded, as were factory workers. In part, the company was run in a fairly chaotic fashion initially, with Jobs and Wozniak improvising in many areas as they went along. So they sometimes gave out options rather randomly, even among the managers and engineers, with the awards often determined by who clamored loudest.

The other side of the coin, however, according to several accounts, had Jobs repeatedly refusing to extend options to people he didn't like or care about, even people who had been there from the very beginning. As Apple headed toward its initial public offering (IPO) in 1980, resentment among the staff that had been left out burned hotter. Even within the new Silicon Valley model, there had to be a sense in the workforce that whatever was being offered gave all similarly situated employees a fair chance to participate. The inequities became so glaring that Wozniak took it on himself to help some employees who he felt had been treated especially unfairly. In 1980, he set up what he called the Wozplan, selling 80,000 shares from his personal holdings to thirty-six employees for $7.50 each, three dollars below the value at the time. (His generosity turned out to be vastly larger than that. As one stock watcher noted, anyone who owned 1,420 shares of Apple at the IPO was worth $1 million the next year.)

Sadly, Jobs acted as if his partner were a sucker. "Woz just couldn't say no" when employees asked to buy his stock, Jobs was quoted as saying some years later. "A lot of people took advantage of him." Jobs' attitude, coupled with his refusal to sell his own stock, helped to fuel anger about the ownership differences. "All along Steve Jobs had been talking about such high ideals for Apple," said Trip Hawkins, one of Apple's earliest employees, in a

later interview. "He talked about being generous and fair to employees and creating an atmosphere where they could share in the company's success. But in the end it was Woz not Jobs who put that into practice. It really elevated Woz in my estimation and made Steve look pretty bad."

Apple flip-flopped back and forth several times throughout the 1980s on the issue of just who should be considered an employee-owner. Eventually, the company did give options to mostly everyone after Jobs returned to the company as CEO in 1997, and he came to preach the idea fervently. "Of course you want to have your people share in the wealth you create," Jobs explained in a 1998 interview. "At Apple we gave all our employees stock options very early on. We were among the first in Silicon Valley to do that. It's a very egalitarian way to run a company."

A succession of other computer firms followed a similar arc by broadening their wealth sharing. Larry Ellison, who founded Oracle Corporation in 1977 and built it into the $10 billion software giant it is today, insisted early on that everyone should have options, although that changed as the company grew. (In 2000, only about a quarter of Oracle employees got stock options.) So did Alan F. Shugart, who started disc-drive maker Seagate Technology two years later. In 1980, Tandem Computers Incorporated attributed much of its 100 percent annual growth in the early years to a people-oriented management style that included options for every employee, sabbaticals every four years, and an open-door policy that invited employees to drop in for a talk with their managers anytime.

The ideas initially unleashed by Shockley and the Fairchildren also were nurtured by an antibureaucratic, wealth-sharing tradition that had bubbled up in the Santa Clara Valley long before the silicon chip he invented came along to transform its name. Several farsighted visionaries in the area had long before suggested that corporations should extend the rewards of property ownership to workers. One of the most prominent was the very man who founded the university that first rented space to those early high-tech entrepreneurs—Leland Stanford.

As far back as 1886, U. S. Senator Stanford, who the year before had founded Stanford University, introduced a bill to encourage

employee ownership. A railroad magnate who had made a fortune retailing mining supplies to miners during the California gold rush, Stanford had observed up close the desire for personal profits that motivated individual entrepreneurship, and thought extending a share of corporate earnings to employees was the way to harness such power within a business setting. Stanford's bill called on Congress "to encourage cooperation and to provide for the formation of associations in the District of Columbia for the purpose of conducting any lawful business and dividing the profits among the members thereof." He instructed the trustees of his new university "to have taught in the University the rights and advantages of association and cooperation."

In 1938, nearly half a century after Stanford articulated this philosophy, William Hewlett and David Packard, who had met at Stanford as freshmen, started an electronics company in their Palo Alto garage that soon developed many of the attributes we would later associate with the high-tech firms of Silicon Valley.

Like Shockley's successors, Hewlett and Packard recognized that in a business whose growth was dependent upon the inventiveness of knowledge workers, it was critical to provide a comfortable working environment to spur openness and creativity. A casual dress code, informal rules, and free coffee and soft drinks all sprang from Hewlett-Packard's desire to avoid hierarchical management structures that might inhibit the sharing of innovative ideas.

"If a company has the attitude that it needs to control (employees) and that 'we don't trust you,' that will be self-fulfilling," HP's vice president for human resources, Pete Peterson, said in 1990. "We don't try to surround our people with a big, long set of rules and regulations. We prefer to operate on guidelines, describe jobs in broad terms, and give workers the maximum amount of freedom to get the job done." In 1985, Packard said: "If people have some part in making decisions that they're going to be involved with, they're going to be much more effective in implementing those decisions."

HP depended on profit sharing rather than options to share the wealth, in part because for many years it remained a privately held

company with no publicly traded stock. However, another pioneering Silicon Valley firm, Varian Associates, gave employees stock options from the day it was founded in 1948. The company, started by Pan American World Airways pilot Siguard Varian and his physicist brother, Russell, developed microwave technology that served as the backbone for the development of radar applications, satellite communications, airplane and missile guidance systems, and television transmission.

The brothers got a helping hand through a professor who had been Russell's roommate at Stanford. The university gave them free use of a lab plus $100 worth of materials per year, in exchange for a 50 percent interest in their patents. In 1953 they became the first tenant of the Stanford Research Park where Shockley, Fairchild, and dozens of other high-tech companies later set up shop. Varian, too, cultivated a freewheeling exchange of ideas among employees, backed up by a financial stake in the firm, which grew to 7,000 employees and $1.5 billion in sales before splitting into three independent public companies in 1999. In a 1996 memoir, Ed Ginzton, who cofounded Varian with the two brothers and became its CEO, wrote: "We appended the word 'associates' (to the brothers' name) to convey the idea that the new company was to become a cooperative owned by the employees."

While these early experiments didn't contribute directly to the widespread propagation of partnership capitalism the way Fairchild did, they did help to create a receptive climate for the new casual corporate culture that would soon come to be associated with the Valley. For example, in 1967 Hewlett took a phone call from a twelve-year-old Steve Jobs, who wanted electronic parts for a project. Jobs got the parts and a summer job at HP's factory, where he got a firsthand look at the HP Way. "What I learned that summer at Bill and Dave's company was the blueprint we used for Apple," Jobs remembered later. Wozniak, his cofounder, also worked as an engineer at HP until he quit to build personal computers with Jobs.

Still, it wasn't until the early 1980s that a critical mass of high-tech companies began to adopt the distinctive culture that came to be associated first with Silicon Valley startups and then with the Internet industry. One factor was the mounting importance of soft-

ware. Most of the early computer companies in the Valley, such as HP, Intel, and National Semiconductor, focused mostly on producing hardware, electronic equipment, and computers of various sorts. Scientists and engineers were critical to company competitiveness in design and innovation, but these firms still relied heavily on blue-collar workers to manufacture the end product, usually in a factory. But as software became more of a separate function, an end product around which entire divisions or companies could be organized, knowledge workers began to take on even greater importance.

Indeed, a new breed of high-tech firm that grew rapidly in the 1980s often had no physical product to speak of at all. At companies such as Adobe Systems, Microsoft, and Oracle, the creativity of the human mind was what rolled out the door to customers. As a result, it became even more important to nurture employees who had the very special talents required to navigate these uncharted waters. With a distinctively nonphysical product to sell, the creative musings of employees are the means of production.

An intense competition in the Valley for employees with these new talents added to the pressure on high-tech firms to find new ways to recruit and retain valuable employees. Although computer scientists, software designers, and code writers flocked to the area from around the country, almost like a gold-rush migration, the new companies sprang up and grew, keeping available job opportunities always ahead of the expanding labor pool. As early as 1983, startups such as 3Com Corporation, which made networking systems, felt that it was next to impossible to find qualified staff without handing out options to all fifty employees it had back then. (Today, the company has more than 8,000 employees and sales of some $3 billion.) The only way to compete for talent with the larger and wealthier tech firms, which could offer more in salary and better security, was "to make it absolutely clear that there are rewards for coming, for staying, and for working hard," said 3Com founder and CEO Bob Metcalfe in an interview that year. "Without equity, there's suspicion. With it, there's more inherent, intuitive trust."

The shortage of people skilled in the exploding world of electronics took on a particular intensity in the hotbed of Silicon Valley.

As Michael Malone wrote in a book on the region, the two dozen cities that comprise Santa Clara Valley stretch down the San Francisco Bay south from the city, with a low mountain range hemming them in on the other side. They all run together in a more or less indistinguishable mass, creating a dense area of social interaction among the hundreds of high-tech firms that already populated the cities in the early 1980s. Many techies knew each other as students at Stanford and regularly ran into each other in restaurants, bars, parties, and local industry associations. The openness of their companies further helped foster an atmosphere in which ideas were shared not just within firms, but among them as well.

The result, according to a 1994 book, was

> unusually high levels of job-hopping. During the 1970s average annual employee turnover exceeded 35 percent in local electronics firms and was as high as 59 percent in small firms. An anthropologist studying the career paths of the region's computer professionals concluded that job tenures in Silicon Valley averaged two years. These high rates of mobility forced technology companies to compete intensely for experienced engineering talent. Headhunters became common during the 1970s, and firms began to offer incentives such as generous signing bonuses, stock options, high salaries, and interesting projects to attract top people.

Venture capitalists, too, played a key role in bringing about the change. If sharing the wealth and a participative culture was the seed, venture capital was the wind that spread it. People like Rock and Kleiner and Perkins attracted new capital based on their track record of having helped give birth to many successful companies that gave ownership to employees. So they naturally tried to push the idea whenever it seemed appropriate. Many corporate fundraisers who followed in their footsteps felt the same way. "Unless there is broad distribution of major equity portions to the primary key individuals, we're not an investor," said Don Valentine, then president of Capital Management Services Inc., a Valley venture capital firm, in a 1983 interview. "We don't believe you can build a major company with one man owning all the equity and the others

being employees with no ownership in the enterprise." Valentine was an early Fairchild employee who later founded Sequoia Capital, which focused on high-tech companies in the Valley and became one of the country's most successful venture capital firms.

Similar views were expressed in the same magazine article by William Hambrecht, who then headed up the San Francisco investment banking firm of Hambrecht & Quist Incorporated. He was particularly aware of the chronic shortfall of skilled labor that every Valley firm faced: "Single ownership doesn't work anymore," he said. "I'm hard-pressed to think how you could go out and acquire good people without giving them a share of the ownership. Most entrepreneurs now understand that. I would have trouble imagining that someone with 80 percent of the stock could keep a key team together and happy." This radical assessment by a respected investment banker illustrates how much had changed over so little time.

The most striking example of the new corporate structure, and one that would inspire both other high-tech companies and the Internet industry, was Microsoft. In Albuquerque, New Mexico, well removed from Silicon Valley, Chairman William Gates Jr. founded what would become the world's largest and most successful software company in 1975. The company, which soon moved to the Seattle suburb of Redmond where it has been ever since, was a small private partnership in the early years and money was tight. Gates balked at paying high wages in those days and even refused to compensate secretaries and other employees for overtime. Eventually, he began giving annual bonuses instead.

In 1981, Microsoft incorporated, creating stock initially held by just a handful of key officers. Gates held 53 percent; cofounder Paul Allen had 31 percent; Steve Ballmer, whom Gates brought aboard in 1980 to be the executive manager, received 8 percent; and the remainder was split among a few other managers. But this didn't sit well with the firm's other fifty-odd employees, who felt left out. In a first attempt to address the problem, Microsoft started a stock option program, but limited it to select employees. The complaints continued as the company grew and prospered, prompting Gates to install a plan in 1986, when Microsoft finally went public, that al-

lowed every employee to purchase company stock at a discount. He also expanded the option program to cover all full-time employees.

"We never thought that offering stock options to all our employees—instead of just to executives, like other companies did—was really that innovative," Gates said in an interview years later. "It seemed totally natural to us . . . . Even back then I felt that great programmers were just as important as great management. If we gave all the options to management, we couldn't hire the best developers." On another occasion, Gates said, "We're using ownership as one of the things that ties us all together."

Microsoft CEO Steve Ballmer, one of the company's cofounders, expressed similar views to us in 2001. "Early on, Bill and I recognized the importance of employee ownership. Microsoft was one of the first companies to grant stock options to all its regular, full-time employees. We believed that people should have a stake in the future success of the company. And by linking employees' long-term interests with the company's, employees naturally have a greater stake in seeing the company succeed. We also knew early on that hiring the most passionate and intelligent people was crucial to Microsoft's success."

Once Microsoft workers are hired, they're eligible for additional options every year, based on their performance, said John Molloy, the company's senior director of Compensation and Benefits. The company also periodically rewards employees with special grants to all full timers. For example, at the end of April 2000, after Microsoft's stock had fallen to almost half its value, the company gave everyone an extra round of options equal to what they had received during their annual performance review the prior July. In February 2001, Microsoft accelerated that year's grants, giving employees the options they had been due to receive the following August. This gave employees an extra six months of upside potential.

In business, as in most areas of life, success inevitably breeds imitation, and Microsoft's wild success contributed greatly to the spread of options and of partnership capitalism. One flash point came in 1992, when a frenzy of publicity arose after a Wall Street analyst estimated that 2,200 of the 11,000 workers on Microsoft's regular pay-

roll that year held options worth at least $1 million. "Not even the height of the Wall Street takeover frenzy of the mid-1980s made as many instant millionaires as did simple employment at Microsoft for the last five years," wrote a *New York Times* reporter.

Gates and Ballmer take no options for themselves, although they hardly need them. Gates still owned 12 percent of the company outright in 2001, worth $40 billion as of the end of the year, while Ballmer's 4 percent stake was worth $14 billion. Still, all the other employees owned 20 percent of Microsoft's shares according to one company estimate, worth some $65 billion in the spring of 2002. While the direct stock-ownership stakes vary dramatically among the company's 48,000 employees depending on their rank and tenure, they held stock options comprising 21 percent of the company's total equity at the end of that year. If all of these options were exercised in the spring of 2002, each employee would have a profit of about $335,000. In stark contrast to the way stock options had been reserved for top management in the pre–Silicon Valley days, the company's top six executives received only 1.6 percent of all options given out in 2001. This represented a broader distribution than had ever been known in the American corporate world.

In addition to the example it set, Microsoft employees went off to start hundreds of companies, spreading widely the new attitudes about worker compensation. One estimate pegs the number of Baby Bills at more than 500, most of them in software and related fields, usually in the Seattle area. Like the Fairchildren, these former Microsoft employees have often taken the options-for-everyone approach with them.

While many American companies offered stock options to executives in the 1980s, the heirs to Gates and Shockley took the further step of expanding them to a wide group of nonmanagement employees. As they did, average workers reaped the rewards of the bull market that followed in the 1990s, right along with other shareholders.

Quite a few of these companies managed to fuse the cultural and economic aspects of the new corporate model. Many pursued the team concept and other attempts at employee involvement, and many pursued ESOPs, managing to put the two strands together

into a cohesive whole. Since the 1980s, many leaders of smaller, less noticeable firms around the country have gone down this road. One, for example, was John Cullinane, who in 1968 founded Cullinet Software Incorporated in Westwood, Massachusetts, and soon created a company culture based on employee ownership and a lack of centralized control. As early as 1983, the company had included all 800 employees in its stock option plan and strove for "a lack of bureaucracy that gives employees a chance to impact the success of their project and the company," Cullinane said that year.

A few companies even managed the extraordinary feat of combining East Coast formality with an egalitarian atmosphere that fostered teamwork and communication. At Houston-based Compaq Computer Corporation, founded in 1982, pinstripes and dark shoes were the norm, the Friday beer bashes Valley firms used to lighten the atmosphere were out of the question, and alcohol was forbidden on its premises altogether. Yet somehow, the company meshed such trappings with options for everyone and a consensus management style that eschewed assigned parking places and made decisions in informal team meetings.

But most old-line tech companies have never shaken the autocratic East Coast mentality, whose top-down management style inhibited the open, fluid relationships that mark most Valley companies. Even today, companies such as IBM are still largely run as hierarchies. In fact, the company has a lengthy history of squelching shifts toward a more open culture. Just look at what happened after IBM purchased Rolm Corporation in 1984. Rolm was located in Santa Clara, California, even though it was founded in 1969 by four electrical engineers from Texas's Rice University. The company enjoyed tremendous success making telephone switching gear in the mid-1970s and developed all the trappings of a quintessential Valley tech firm. Rolm had no dress code or set working hours, according to one newspaper account, and employees who stayed with the company six years got a twelve-week paid sabbatical. The paper described the company's headquarters as being in a campus setting with landscaped streams, wooden walkways, a gym, and a swimming pool open to all employees. Rolm also made liberal use of profit sharing and stock options.

IBM took over with vows that it wouldn't disturb Rolm's flexible culture, which IBM officials recognized as a key to Rolm's success. But IBM's almost cultlike uniformity led inexorably toward the same creeping control that Fairchild had faced from its autocratic East Coast bosses. IBM did keep the stock options, but only for select managers. As IBM tightened its grip, more Rolm workers bailed out, including founder Kenneth Oshman, who departed in early 1986 saying he was "no longer needed." In 1987, IBM ended Rolm's status as a separate subsidiary and transformed it into just another IBM division. The unit soon stagnated, and by the end of the following year IBM was forced to pull out and sell its telephone equipment production facilities—and their 2,800 workers—to Siemens, the West German electronics company.

Doubts about the soundness of this approach have plagued some IBM executives for decades. One striking example came in a 1987 interview with former IBM CEO Thomas J. Watson Jr., who at the age of seventy-three expressed remarkably candid views on the subject a full sixteen years after he retired from the company he had inherited from his father. He said:

> My father strove to blur the distinction between white-collar and blue-collar workers. Not only did he pay well, but he eliminated piecework in the factories. In 1958 Jack Bricker, our manager of personnel, suggested that we shift all of our employees [from hourly wages] to salaries, eliminating the last difference between factory and office work. (Later) I considered taking even more radical steps to increase our employees' commitment to IBM. When I talked to my wife at night, I would speak of various ways of sharing our success more broadly. Those at the top were doing fantastically well on stock options. While IBM's workers were making high salaries, they weren't making the kind of capital gains that employees with options were. I even asked myself whether our present system of corporate ownership is the system that will support the free American way long term. Though I never found a practical way to achieve it on a meaningful scale, I looked for ways to increase employee ownership of the business. I disliked applying a double standard to managers and employees.

It may be that Watson would have seen options as the answer he was looking for had they existed in their current form when he was in charge in the 1960s and 1970s. (IBM extended stock options broadly only at the end of the 1990s.) Even if they had, however, it's far from clear that IBM would have ventured into that total revamping of the old ways pioneered by the Fairchildren. Employee ownership is the financial key to risk and reward sharing, but flat hierarchies and shared decisionmaking are just as central to the Silicon Valley concept. Watson and his successors have never given much indication that they had doubts about their company's command-and-control management style.

The ranks of high-tech firms that followed the partnership approach to a greater or lesser degree swelled steadily throughout the 1980s and early 1990s. Individual companies embraced or shied away from employee decisionmaking and ownership in a fairly idiosyncratic fashion, the precise structure adopted in each often related to the beliefs and talents of the founder or CEO. But as labor shortages mounted, more firms moved in the new direction. According to a 1994 survey by Venture One, a San Francisco research firm, only 47 percent of fast-growing small companies in the San Francisco Bay area offered stock options to a majority of employees. However, 78 percent of those founded after 1990 did so, the survey found.

By the time the next wave of high-tech companies sprang to life around the Internet in the mid-1990s, virtually everyone involved in it had brushed aside the reservations of Watson and other high-tech CEOs with barely a thought. At that point, enough Valley firms had opted for the alternative approach that newcomers felt they had little choice but to offer prospective employees similar packages or lose out in what would soon come to be called the talent wars. This was particularly true for companies whose products consisted almost entirely of knowledge.

To understand the revolution brought about by these changes, we must examine the extent to which these new high-tech companies, a brand new subset of the high-tech sector, adopted the new corporate model spread by Shockley's heirs. The next chapter will do that.

# 2
# The Soul of a New Corporation

## How High-tech Companies Institutionalized Partnership Capitalism

At a broad level, the Web is similar to other networks that have spurred technological innovation as Western economies industrialized over the centuries. Shipping networks, railroads, interstate highways, telegraph and telephone networks, and air traffic control systems have all used the idea of routing among interconnected nodal points to move goods, people, or information.

The network that blossomed into the World Wide Web was started by the U. S. Defense Department largely in response to the Soviet Union's 1957 launch of the Sputnik satellite. The following year, President Eisenhower set up a military agency called the Advanced Research Projects Agency to compete in the race to space. ARPA soon developed something called the Semi-Automatic Ground Environment, or SAGE, which consisted of computers that could receive and interpret a continuous stream of data, piped in over phone lines, from radar systems that tracked aircraft and satellites.

In the mid-1960s, government and university researchers came up with the idea of having computers sending and receiving information from different locations, all hooked up together over the phone. In 1969, the first so-called ARPANET sites were set up at

Stanford, the University of Utah, and the University of California at Los Angeles and at Santa Barbara. The system crashed when Charley Kline, a UCLA undergrad, typed the letter G of LOGIN on the first message.

Universities and military researchers constantly expanded the network over the next decade and set up new ones around the United States. The @ sign was accepted as a standard in 1972, and the next year the first international connections were made, to England through Norway. Email came along a few years later, and discussion groups were added in 1979. In the 1980s, the military split off into its own network (which was killed altogether in 1990), leaving universities as the main users. Their different networks gradually linked up into what began to be called the Internet, shorthand for the inter-networking of networks. By 1987, the number of host computers broke the 10,000 mark.

The Internet opened up to the wider public in the mid-1990s, with the advent of the World Wide Web and browser programs that allow individuals to jump from one host site to another and access clickable documents, pictures, streaming video, and sound. As the number of personal computers multiplied, the ranks of Internet users shot up by orders of magnitude. There were already 727,000 computers with unique Internet addresses when the Web was set up in 1991. But a decade later their ranks had swelled to 175 million. The number of email messages sent in North America jumped from 40 billion in 1995 to 1.4 trillion in 2001. By then, 115 million Americans spent an average of nineteen hours a month online and the Internet had become part of everyday life.

The advent of this new network of communication brought with it the birth of a new industry devoted to developing the equipment and software that make the Internet possible. While some of these companies began life in the Internet's early days, it wasn't until the Web created a widespread public phenomenon in the mid-1990s that they coalesced into a distinct industry.

Many of the companies settled in Silicon Valley, where they formed two distinct subgroups. Some—mostly those that went up in smoke in the tech crash of 2000—focused on selling goods to consumers over the Web. The rest, which form the core of the re-

maining Internet industry, churned out the Internet's routers, search engines, software programs, and content. Because of their products, everyone from companies and governments to universities and nonprofits can display their wares to the public via computer.

It was this branch of the high-tech industry that came, almost by accident, to fully embrace the concept that the prosperity of a company depends on how everyone there performs together. In a way, this isn't all that surprising. After all, these are the very firms serving one of society's most nonhierarchical and communitarian mediums. However, the original impetus came not from some abstract set of principles, but from the brutal market conditions that existed when the industry came into existence.

When the original Internet firms burst onto the scene in the mid-1990s, the high-tech job market was already extremely difficult terrain for employers. For more than a decade, corporate America had been sinking billions a year into new computers and other high-tech equipment. So companies everywhere were scrambling for workers with the special skills and training to adapt the hardware and software to their own particular needs, and then to run and maintain these systems. As well, the hardware and software makers themselves also needed programmers and computer engineers by the thousands, to create new products for this burgeoning market.

As a result, even before many of the new high-tech companies were established, thousands of firms of all sizes were scrambling for computer talent. They dangled all kinds of rewards in front of skilled employees, from bonuses to Porsches, or offered up the right to purchase the company's stock at a discount. Some imported inexpensive programmers from India and other countries and pestered Congress to expand the number of so-called H1B visas, which allow employers to import workers with skills that are in short supply in the United States. But nothing could keep pace with all the new jobs that needed filling. So began what came to be called the talent wars, as companies outbid each other to hire the best, or even the second or third best, in an attempt to find skilled employees.

In this highly competitive environment, startup high-tech companies were at a double disadvantage. First, prospective hires swim-

ming in job choices were being asked to take a chance on unproven firms that often had no revenue to speak of and poor near-future prospects for profits. In fact, the entire Internet concept as a viable business opportunity was unproven. Sure, the pundits back then gushed about the Internet's change-the-world potential. But in the past, many other new industries had streaked across the industrial sky like bright comets and then flamed out. Job hunters were well aware that when recruiters described a company as having "potential," it was another way of saying that the firm had no track record of success. In addition, many Internet startups lacked the cash to shell out above-market salaries that would offset the extra risk employees would run if they jumped aboard.

Stock options gave the budding new industry a way to compete for talent. Although they were already a familiar feature in Silicon Valley, no one really knew how effective a recruiting tool options would become. Would workers leave established companies like IBM for the right to share in the ownership of a place that might become the next IBM, knowing full well that the likelihood of any one company doing so was extremely small? As it turned out, the idea was extraordinarily powerful during those heady days.

"I didn't choose to go to IBM, I didn't choose to stay at another smaller computer company where I was before, which was a company where I would not have had stock options and nine-to-five would have been perfectly fine with them," said Rachel, a forty-something manager at Portal Software Incorporated, a Silicon Valley company that provides billing software for telecommunications companies and stock options for its employees. "I chose to come here, where you have a chance that it might add up to something."

In offering stock options, mind you, founders of high-tech firms didn't envision anything so grandiose as a new model of the corporation or of Western capitalism. To the contrary, their culture started with the same casual hierarchies and stock options prevalent in the Valley milieu of the early 1990s.

But there was a crucial difference. Instead of narrowly defining who would be in the corporate partnership and gradually widening out the group over the years, high-tech firms from the very begin-

ning extended both aspects of partnership capitalism to virtually everyone at the company. Many empowered employees to get involved in decisionmaking about how they did their jobs every day. They also gave options to everyone, so they would have a stake in the company's wealth-generating capacity.

The logic was spelled out clearly in early 2000 by Timothy Byland, a sales executive at Akamai, a Cambridge, Massachusetts, firm that manages corporations' e-commerce infrastructures. He told a congressional committee:

> Employees at all levels can and do play a role in all parts of their company's success, from management to product development to marketing. The concept of sharing the wealth at all levels reflects this culture of contributions. With stock options, I am part of the shared success. I am rewarded for the contributions I make and I am motivated to make them.

Although other Valley companies had begun to move in this direction before, the partnership approach had never snowballed into a broad-based standard until the Internet industry came along. By 1999, when the Internet frenzy reached its height, no high-tech firm in Silicon Valley could remain competitive without offering options to most or all employees and a flattened hierarchy that left lots of room for employees to manage their own time and resources. It didn't matter if the CEO believed in partnership capitalism or not. The concept became the industry norm, and every company had to embrace it.

This remained true even after the high-tech bubble burst in 2000 and pundits began declaring stock options worthless. The following year, Chris Wheeler, cofounder of Internap, which provides Internet routing services, observed: "We would be crucified if it (stock options) didn't exist (in our company), because everybody else does it. In this industry, you absolutely wouldn't be able to survive for one second." Indeed, every single firm in the High Tech 100 index we created offers options to most or all of their employees. Many also operate without the old management hierarchies in place.

Almost by happenstance, the high-tech companies launched a widely watched experiment in partnership capitalism. But why did the idea take off so suddenly and spread so completely across the industry, right from its very beginning?

To some extent, the answer is timing. The industry's decision to move to company-wide partnership capitalism was the culmination of a broader shift underway in America toward a knowledge economy. Throughout the 1970s and 1980s, many traditional manufacturers began to adopt Japanese and Scandinavian concepts, introducing production teams and employee involvement in decisionmaking. They did so because they too began to see that the quality and productivity of their factories depended increasingly on brainpower over muscle power, on new production techniques rather than on heavy equipment.

The early high-tech companies accelerated the journey down this road for similar reasons. They saw that their industry required ever-faster cycles of product innovations, which in turn spurred them to maximize the intellectual output of their staff. Innovation more than capital investment generated corporate wealth. High-tech 100 firms completed the move toward a company in which employees, not machinery, are the fountain of value and wealth. To a large degree, they are little more than a collection of employees and the offices they work in. (Only sixteen manufacture any hardware at all, and most of those consider the software they produce to be as important or even more so.)

The industry's zeitgeist was spelled out nicely in a 1999 book called *Netscape Time*, by James Clark, a cofounder of Netscape Incorporated, which created the first widely used Internet browser. "High technology isn't about software or hardware, but about brains and people," he wrote. Clark understood that even the most dramatic advance could not sustain a company over the long haul. As competitors caught up, the successful company had to keep producing leading-edge innovations to stay ahead of the pack. "Any advantage based on any one breakthrough is short-lived," he wrote. "But good, creative brains will keep producing new and better things. To own something is almost meaningless in the long-run. It's the ability

to recruit, inspire, and hold onto smart people that offers the key to ongoing success . . . . That's the one big thing that I know."

Or, as John T. Chambers, CEO of Cisco Systems Incorporated, one of the largest and most successful of Internet firms, once similarly observed in a speech:

> Not long ago . . . the output of machines was the fundamental driver of competitive advantage. We taught our managers to focus on physical assets, the cost of capital, and the value chain. Successful companies built more, for less. In the Internet economy, the dynamics are radically different. Intangible ideas—the output of people, in an economic sense—are the drivers of competitive advantage.

Cisco still produces physical products, like routers, which channel the bits of information around among all the dispersed computers that comprise the Internet. But as software, which is really nothing but thoughts, began to take precedence over hardware, other high-tech companies became even more extreme examples of pure knowledge companies. Today, many Internet companies have no actual physical product to speak of.

The prevalence of stock options says a great deal about the willingness of venture capitalists and other outside shareholders to accept the idea of a company as a partnership. After all, giving options to employees diluted the ownership of the company's founders and investors. Shareholders' willingness to swallow this consequence illustrates that partnership capitalism was accepted as a sound business practice.

The most important relationship to change, however, was not between investors and employees, but between management and worker. High-tech firms still have a hierarchy and the CEO still thinks about the company's overall direction, while a programmer, for example, focuses on a particular piece of software that may earn the company a few more dollars of revenue. But executives don't just give orders that workers faithfully carry out. Instead, the idea is that everyone collaborates to find the best way to achieve the company's goals.

This corporate behavior parallels the leveling values of the Internet itself. On the Web, everyone is linked together in a horizontal network of interactions that lack a central authority. Everyone has an opportunity to speak and to listen, and communication is fast moving, with few formal niceties. Ad hoc groups of individuals come together and break up at will, as in chat rooms. The value of any piece of information is based on its intrinsic utility, not on the authority or credentials of the person who provided it. The idea that every worker's individual prosperity depends on how they all perform together did not have to be sold to people who thrived on the Internet culture. It came naturally to them.

Stock options play a crucial role by giving everyone an ownership stake in the outcome. Once, not long after Amazon did its Initial Public Offering in 1997, CEO Jeff Bezos told a story at a retreat for managers. One who attended remembered it like this: A family Bezos knew owned a beach house that they would rent out for the off season. One summer they came back and found that their tenant had nailed a Christmas tree to the wooden floor of the house. Bezos told his staff: "If [the tenant] were the owner of the house, [he] never would have made that decision. . . . What we need to do in this company is to think like owners. You are an actual owner of the company, and we need to remind people of that, so they will make the right decisions."

Many high-tech firms found that a company of partners who all think and behave like owners enriches both the firm and its employees. This happens in a number of ways. When employees are motivated and given more leeway to make decisions on their own, it spurs innovation and performance from the bottom up. An ownership stake fuels the process by blurring the line between management and workers. Similarly, employees who know they're in a partnership are more likely to work together as teammates, rather than rivals competing with each other to climb the corporate ladder. They're also more likely to remain at the company over the long haul, reducing expensive turnover and helping the company to retain needed skills. In addition, the prospect of economic gain from the company's stock helps them to focus on the company's

broadest objectives, with an eye to what's most likely to turn a corporate profit.

"First and foremost, [stock options are] something that apply to all employees, which indicates that every job is important," said Frank Marshall, the vice chairman of Covad Communications, which provides high-speed access to the Internet. "If you have this caste system where there are the hourly workers that don't participate in the equity upside, then you have management that has private dining rooms and stuff like that, and it sets up an attitude that some employees are not important. Stock options send a message to all employees that they have an impact on the growth of the company and they will be rewarded for that impact."

Of course, no amount of innovation or extra effort can overcome larger external forces. The benefits that flow from the partnership approach can't offset illegal actions by rivals, or economic recessions that swamp entire industries. In 2001 and 2002, for example, the economic downturn badly battered America Online, causing AOL Time Warner to rack up billions in losses. Things got so bad that the company was forced to write down a record-breaking $54 billion in losses in the first quarter of 2002, and some observers began proclaiming that AOL's merger with Time Warner had been a big mistake. By August 2002, the company's stock had plunged by more than 75 percent, to a record low of $12.52. Soon thereafter, the company fired Chief Operating Officer Robert Pittman, the person next to AOL founder Steve Case who had been the most responsible for AOL's growth strategy.

That's something else that partnership capitalism can't do a whole lot about: poor strategic decisions by the company's CEO, which can overwhelm any gains from motivated employees. It's not clear whether AOL management did indeed commit major errors, either in the merger or in its core Internet strategy. If anything, the merged company simply couldn't morph itself quickly into the team-oriented partnership capitalism culture of the old AOL. The company gave a one-time grant of stock options to everyone, but there was no serious attempt to meld the cultures. Still, in general, while the partnership method can help a company do better than it

otherwise would, it's not likely to be the only factor influencing a firm's fate.

Nevertheless, during 2001 and 2002 we interviewed employees, management, venture capitalists, and founders at high-tech companies about their experiences with partnership capitalism. Time and again, we found that they described changes that fell into one of the following categories.

## Bottom-up Decisionmaking and Innovation

Ironically, there is no better example than AOL (at least before its merger) of how partnership capitalism can improve corporate performance once a company hits upon a winning concept. America Online began life in 1985, first as Control Video Corporation and then as Quantum Computers. It wanted to help people play games over the Internet. In its early years, the company struggled just to stay alive, competing with deep-pocket rivals such as Microsoft and Prodigy. AOL pulled back from the brink of ruin so often that it picked up the nickname "cyber-cockroach" before emerging as the first online media leader when the Internet became accessible to the general public.

Today, of course, AOL dominates the public face of the Web. From its headquarters in Vienna, Virginia, the firm reaches 34 million homes in more than a dozen countries, in seven languages, and delivers more messages each day than the U.S. Postal Service delivers mail. In 2001, it merged with media giant Time Warner.

Almost from the beginning, James V. Kimsey, the founding CEO, gave almost every employee generous option grants. In fact, until the merger, an average of more than 90 percent of all options AOL granted each year went to employees below the top five corporate officers—everyone from customer service representatives to security guards and even consultants. Even after the merger, the practice continued within America Online itself. AOL's culture also has pushed Time Warner to make a symbolic grant of options to all its employees and to begin to emphasize options over other types of compensation. In 1999, Kimsey, who now heads the AOL Foundation as well as his own philanthropic foundation, called

the idea of giving ownership to all workers "one of the smartest decisions I ever made."

Before the merger, partnership capitalism helped the company to thrive once it hit upon its proper role in the marketplace. The outcome shows up all the way down to the company's 5,600 call center employees. These are the people on the other end of the phone when you call for technical help or a question about your bill. Like customer service reps anywhere, they are hourly workers strapped to a headset all day, earning about $32,000 a year according to one industry study. But they also get stock options, and have more skill and responsibility than the person you reach at most other customer help lines.

As a result, the reps come up with scads of new ideas, mostly by knowing what customers are looking for. They use a sophisticated database system to help them answer questions and deal with callers. It also helps them to identify problems or features missing in AOL's software. Executives estimate that the constant feedback call reps provide from customers accounts for some 40 percent of the new features in each new version of its software. "These consultants are the only people any of our members will ever talk to," Ken Nemcovich, the head of AOL's Jacksonville, Florida, call center, told an interviewer in the fall of 2000. "It's our secret weapon."

## Teamwork

While employee teams had become a common feature of American corporate life by the late 1990s, high-tech firms built the idea into the fabric of their working relationships from day one. John Chambers, for example, tried to turn Cisco into a federation of entrepreneurial teams by making managers invisible. "I learned a long time ago that in team sports or in business a group working together can always defeat a team of individuals," he said in 1996. "In our organization, if I've got a leader who can't be a team player, they're gone. That doesn't mean we don't want healthy disagreement, but regardless of how well they're performing, if they can't learn over time to be part of the team and to challenge when appropriate, they really aren't going to fit into our long-term culture." To

bring this about, Chambers set up a pay system for leaders pegged to the quality of the teams they built.

Some high-tech employees who came from more traditional companies, especially midcareer or older ones, told us that they had to learn to adapt to the new culture. Francine, an engineering vice president at Portal Software who had worked at several non-high-tech places before, described how she had crossed paths with a colleague in another division who wasn't really pulling his fair share of a job the two had to do. In a traditional corporate setting, "I would have been nasty with him," Francine, who was in her mid-forties, told us. But she knew that such behavior wouldn't play at a place like Portal, so she tried to curb her judgmental instincts. Her new strategy: "Instead, I would take him out to lunch and coach him on how to be a manager. I was always looking at what Portal was trying to do and how can we get there."

## Tying Employees to the Company

In addition to spurring innovation and teamwork, stock options also act like financial magnets, binding employees to their companies for the long term. One of the most common refrains you hear from high-tech workers is how the economic incentive that options offer ties them to their company.

This sentiment came through clearly in an informal discussion we had over lunch one day in early 2001 with a half-dozen employees at Portal. Virtually everyone there, from lower-level staffers to a vice president, said they felt much the same way. "I'm willing to stick it out longer and put up with more crap, because there's a financial stake," said Jack, an administrator in the company's finance unit. "There was a time in which I was sorely tested by my manager, and the only reason I stuck around is that we were on the track to that IPO. I knew that if I hung around long enough, it meant millions of dollars to me. That's why I'm with the company now, because it was untenable by every other measure except for that. It is obvious to me that longevity, retention, is really the thing [companies] are buying with stock options."

Added Geoff, a Portal engineer: "Your salary is your reward for doing a good job, and options are an incentive to stay at your job, that's really what it boils down to."

Other high-tech employees felt the same way. For example, in 1992, Rasipuram ("Russ") V. Arun left Sun Microsystems for Microsoft largely for the options the latter offered, which Sun reserved for the most senior executives. He even took a 55 percent pay cut to make the move. "I had no problem leaving Sun because I had no options," Arun told us. "Microsoft was the opposite. It's very difficult for you to walk away." He finally did, joining a Seattle Internet firm called Infospace in 2000 as its chief technology officer. "When I left Microsoft the amount [of options] I left on the table was very large. So I turned down joining Infospace three or four times. Anybody can match your salary and you can just walk away. If you have options, it is very difficult to walk away. It is in the self-interest of the company to reward people like that."

## The Profit Priority

Many high-tech employees we interviewed spoke about how their options encourage a new view of company needs that in turn prompts them to reorder their priorities. Software engineers, for example, are renowned in the tech world for putting their energies into what's hot in their field, the flagship technology of the moment that's both interesting and makes their resumes look good. But their focus changes when they know that their pocket books will grow fatter if they work on something less glamorous, but lucrative for the company.

For example, at a Palo Alto, California, company named Tibco Software Incorporated, a thirty-something events planner named Jennifer told us: "When you have ownership in the company, you . . . watch costs. We're going to Hawaii next week for a sales trip. Well, one person didn't get their travel [arranged] . . . so I called him and said: 'What are you doing, book your travel, if you wait your ticket is going to be so much higher.' You're constantly watching that stuff when you're an owner."

Or take a Portal quality controller named Mitch, who talked about how he is more willing to go to Francine, the engineering VP, and tell her that a product isn't ready yet, or that the company's reputation for quality will suffer if a program is released without doing these three things to it. Mitch attributed his behavior to the ownership stake his options give him. "I'm more willing to raise the issue and take responsibility when I have that much vested interest, as opposed to thinking, 'Oh well, it's not going to affect me, I'll get my salary regardless,'" he said.

Of course managers at traditional companies often use the language of a shared fate to spur employees to consider the larger interests of the company. But motivating people to do so doesn't exactly ring true if you don't give them a direct financial stake in the outcome. Robert, a Tibco employee, described how he had worked at a traditional employer for ten years before joining Tibco. Every year, he got leadership training courses, and the trainers would urge the class "to take ownership in this place." "We used to laugh," said Robert. "Why take ownership in it, you don't get anything out of it? Whereas here, you literally have an impact on the benefit that you're going to get fiscally from Tibco. So when I'm working on a project and I think it can impact how the company can sell our product, it motivates me, without question."

High-tech CEOs say that when employees own a piece of the company, they're more willing to apply their creative abilities to the company's broader interests. "When the company's profits are shared—not the cash profits, but the profits on the growth of the stock price—people in Redback, and people I know in other companies, are more motivated to get deadlines met, to get innovation done faster, and to apply themselves better to achieving company objectives," said Vivek Ragavan, the former CEO of Redback Networks Incorporated, a San Jose, California–based firm that produces software and hardware for broadband and optical networks.

"We have a saying, 'Juniper is my company,'" said Marcel Gani, the chief financial officer of Juniper Networks Incorporated, a Silicon Valley firm that is one of Cisco's largest competitors in the hardware business. "Often in large companies you have these slogans, and people hear the slogan but they don't believe in it. In

Juniper, there is an actual belief . . . that I have a lot of wealth tied into the company, so it is important for me if I see something that's not working properly in my area, I'll fix it. Or if I see something in somebody else's area, I'll go talk to them and say, 'Can't you do this more productively?' So you have this sense of ownership that's really critical to making things work well. And I think it happens at all levels of the organization, across all functions."

## Blurring the Lines Between Worker and Management

To make partnership capitalism work, everyone tells us, executives must take on very different roles. But so too must workers. "We tell workers when they come into this company, 'You're not going to be told how to do your job. You're going to be asked to use your expertise to drive a certain goal, and make sure it's the right goal and then figure out how we should be doing it,'" says Sandy Gould, the director of Recruiting at RealNetworks, which sells software that lets you get audio and video on the Internet.

In this setting, employees come to see taking important issues right to the door of management as appropriate, even to the door of the top executive. In fact, some companies already have a term for walking problems and issues up to management. They call it escalation, as in "She felt she had to escalate the issue, to bring it to the attention of the decisionmaker who could sort the problem out."

Sometimes, if an issue is important enough and involves the broadest interests of the company, an employee may even take it directly to the CEO. Jack, the Portal employee, told us how that very morning he had talked to John Little, the company's founder and CEO. His advice: Portal desperately needed a chief operating officer, someone to take over the day-to-day job of running the company. Jack felt that the task had become too much for Little now that the company had grown to 1,500 employees.

"My exercise price [on my options] is way lower than some of the other people at this table. So I can make a lot of money even at $8.81 a share [the price Portal's stock was trading at that day]. But a fifty- or sixty- or seventy-dollar stock price to me means a hell of a

lot. So I'm willing to talk to the CEO and tell him things that might in any other job limit my career. I wasn't afraid of doing it, escalating it, because of my strong financial stake." In early 2002, Portal did indeed create the position of President and Chief Operating Officer.

Executives at many traditional companies would see their authority as challenged if an underling came to them in such a fashion. But in high-tech firms, most of which have functioned like this from the start, executives not only expect such behavior, but perceive it as symbolic of a healthy work ethic. Jay Wood was the CEO of Kana Communications until he gave up the post and became the chairman in 2001. The company sells software to help companies stay connected to customers and suppliers through email and the Web. (He also was the founder of Silknet, a company that Kana acquired.) When Wood worked in a more traditional corporation, a London-based software firm, people were fearful of talking to the manager above their direct boss. But at Kana, Wood said, anybody will come up to him if they have an idea or a suggestion. Or they'll shoot off an email.

Wood put down this blurring of management and worker roles to the freewheeling high-tech tradition but also to the employee's sense of ownership. Employees "tend to feel that it's their right to be able to talk to anyone in executive management," said Wood. "They feel impacted by decisions and want their voice heard. That is tremendously valuable in a company, because some of the most brilliant ideas have come from people who had a suggestion for another department and spoke up."

EBay CEO Meg Whitman expressed similar views in a 1999 Harvard Business School case study. "I've worked in a few companies where senior managers are so afraid of appearing weak that they stand by a point of view even in the face of better, more informed data," she said. "At eBay, we have a no-penalty culture, meaning that there is no penalty for being on the wrong side of an issue or changing your mind in the face of better information."

In fact, the culture at some high-tech firms is so open, so flat and nonhierarchical, that some executives say they feel as accountable to employees as the employees do to them. A lot of this stemmed

from the extraordinarily tight labor market that most of these firms experienced throughout the 1990s. Most employees, certainly the programmers and engineers and other skilled workers, knew they could get a job across the street virtually whenever they wanted.

Another factor was the fantastic runup in stock prices. Many high-tech employees were sitting on options worth big bucks (or at least they were for a few years there). Unlike employees in many other industries, who often see themselves as no more than a few paychecks from financial disaster, employees with stock holdings do not live in constant fear of offending their managers. Many employees actually did cash in some of their wealth, and others thought they could whenever they wished. So they didn't see themselves as bound to the company simply because they needed a job and feared losing the one they had. In the absence of such fear, it is human nature to respond well to an opportunity to be innovative, to create something of value in their daily work lives.

"The challenges for executive management are primarily to foster that environment," said Ragavan, the former Redback CEO. "Employees hold us accountable for that . . . . We all have our roles to play. Management still has to make key decisions, and set guidelines . . . . But CEOs who build monuments to themselves in this environment will ultimately fail."

All of these themes could be seen clearly in the birth of Netscape, whose browser made it possible for ordinary people to experience the Internet. Netscape came about for much the same reason that Noyce and Moore walked out of Fairchild: Knowledge workers felt that they weren't being treated with respect and weren't sharing adequately in the wealth their ideas created.

In this case, the workers included Clark, a former Stanford University professor who founded Silicon Graphics Incorporated in 1982. The company blossomed into a billion-dollar enterprise based on Clark's invention of an integrated circuit chip that could transform boring bundles of data into three-dimensional computer images. (It later would become famous for such feats as conjuring up the dinosaurs for the movie Jurassic Park.)

But Clark butted heads with managers; in the Fairchildren tradition, he resented how little control and little equity he had in a ven-

ture whose success was based on his knowledge. He also became disenchanted with his inability to persuade Silicon Graphic's professional management to make cheaper computers, which he saw as key to commercial success in a market where personal computers were proliferating. So in early 1994, he walked away, abandoning $10 million worth of SGI stock options in the process. Clark soon met up with Marc Andreessen, a University of Illinois student who had worked on the first Internet browser, called Mosaic, for the university's National Center for Supercomputer Applications. Andreessen got little credit for his breakthrough work, and he too felt that he had not profited financially from it. When the two met, Clark saw Andreessen as another "disenfranchised entrepreneur" frustrated by the university bureaucracy's refusal to recognize his talent.

In April 1994, the two formed Netscape, based in Mountain View, California, not far from the site where Shockley had opened his company nearly thirty years earlier. The two men used the Mosaic software to cook up the first easy-to-use graphical browser for the Internet. It was a stroke of genius. The software program, built of a mere 9,000 lines of code—compared to much more in Microsoft's Windows 95—allowed nontechies to travel from web site to web site by pointing and clicking their way through interlinked text and pictures. Within months, Netscape's software was being used in 75 percent of web applications.

Clark and Andreessen didn't become another arrogant Shockley once they founded their own company. To the contrary, they not only ran their company by the values they espoused but began to articulate publicly the philosophy that stood as the foundation of the Netscape model. Clark wrote in his book:

> Somewhere in this process of equity sharing and technology IPOs is the basis for a new economy that distributes wealth far more diversely than at any other time in the history of business. Contrast the distribution of wealth in the Information Age with that of the Industrial Revolution. The Carnegies and Rockefellers were downright stingy compared to the founders of modern companies. Bill

Gates has enabled thousands of millionaires by causing Microsoft to award generous stock options.

Netscape started by paying its seven original programmers a competitive salary of $65,000 a year plus 100,000 shares of stock, which gave each programmer about 7 percent of the company. "They were partners from the first day . . . . I was intent on giving these young men and the future employees of Netscape a fair shake precisely because I had become so bitter about my early experiences at SGI," Clark wrote in his book. Each year from 1995 until the company was sold in 1998 to what was then AOL, Netscape gave employees stock options representing a tenth to a fifth of all outstanding stock. Clark, Andreessen, and CEO James Barksdale shared in the annual option grant, splitting 9 percent of all the options handed out over the three years.

Netscape built an egalitarian corporate culture that paralleled the wealth sharing. Even in the fall of 2001, after the company had sailed through several ups and downs, and the technology bubble had fully burst, its web site described the firm as follows: "Netscape's dress code is, you have to dress. People are at their best when they're comfortable, and can be themselves. . . . People work hard here and they expect to be treated like grown-ups. Grown-ups don't need dress codes or supervisors breathing down their necks, and they don't need to have their tasks spelled out for them." Even as part of AOL Time Warner, Netscape kept its California location and was proud of its share-the-wealth culture, although the effect of the company's troubled merger with Time Warner remains unclear.

Early on, Netscape grappled with a challenge that many other high-tech companies quickly came to face: how to maintain this casual, partnership-style culture as the firm ballooned from a startup into a billion-dollar enterprise. Cofounder Barksdale's response was to continuously decentralize, by breaking up expanding work groups into smaller teams. The idea was to operate like a large company by building central control systems, but use teams to maintain flexibility and encourage creativity. Every engineering team was pushed to take on as much responsibility as it could.

"Each of the teams working on the different products is pretty much self-contained, and has the ability to make decisions for its product," said Andreessen in a 1996 speech. "They actually set their own schedules, and we have a review process where they tell us their schedules."

Stock options were key to making this strategy work. One of the best examples involved Barksdale's decision in January 1997 to target the groupware market, which is software that allows everyone in a group to communicate with each other over the Internet.

Two journalists recounted what happened in a 1998 book called *Speeding the Net: The Inside Story of Netscape*. They told how Barksdale's goal was to land big-ticket sales to the largest companies or government agencies, entities that needed to connect hundreds of desktop computers. Toward the end of 1996, his staff had come up with a way to license Netscape's software so that buyers would pay fees that rise with the number of users. Early the next year, he told his top executives that he had an idea for how to fire up employees and get them to focus on the new corporate objective. Barksdale said:

> 'We've got to get our people behind us on this. And love and religion ain't gonna be enough to convince them . . . . I think we should put some options behind this . . . . We'll set a goal for sales—and if we meet it, everybody in the whole company will get more options.'
>
> Offering options would be a greater incentive than offering, say, a $500 bonus to everyone on the staff. If the company did well, there was no limit to how much the stock price might increase and no limit to how much the options could be worth someday. About 75 percent of [Todd] Rulon-Miller's [700-person sales] staff worked from field offices around the world, in places like Oslo, Norway, and Stockholm, Sweden, and Melbourne, Australia. If his deployed field operations were to make the design-wins goal [i.e. convincing large companies to use their software designs], they would desperately need the full support of the rest of the company.
>
> With an incentive program to motivate the company's

whole staff, Rulon-Miller decided it would be feasible to aim for a total of two hundred design wins by the end of the first half of 1997. Soon afterward, Barksdale announced an all-hands meeting, to be attended by everyone who worked for the company . . . . Netscape rented space at a nearby college . . . [and] Barksdale climbed up onto the huge stage and said, 'I want to tell you about a new program that I'm calling the two-for-two program' . . . . If Netscape managed to get two hundred design wins by June 30, 1997, every single employee of the company would get options to purchase 200 shares of Netscape stock. The plan was beautifully simple—and guaranteed to motivate everyone from the overseas sales reps to the secretaries, the janitors, and the shipping clerks to do whatever it took to help make these sales.

Feb. 27, 1997. On the wall in the company cafeteria a five foot sign thermometer with the mercury showing Netscape had 20 design wins and 25 or so pending . . . . 'The point is,' Barksdale had told his staff, 'I want everybody to feel like they're a part of this. When the sales force is out in Paris, and they call back to headquarters and say they need help to make a sale, I want the receptionist who answers the call to know how important it is to hook the sales person up immediately to the engineer who's got the little piece of code that will make the difference.'

Soon after the all-hands meeting, Barksdale E-mailed a little reminder to his staff: 'The web site for the 2-for-2 program is up, here's the URL, take a look at it.'

May 5, 1997. 75 design wins on thermometer. May 22, 1997. 100 wins including Bay Networks, Chrysler, Cypress Semiconductor, KinderCare, Eastman Kodak, Prudential Healthcare, Chubb Insurance.

June 30, 1997. Two hundred wins. Barksdale 2-for-2 program had been successful. In the second quarter of 1997, the company sold $135 million in software—an 80 percent increase over the same period of the previous year when sales had totaled a mere $75 million. And every Netscape employee was richer by two hundred shares.

The lure of stock options "motivates people to do great things," Andreessen said in a separate interview in 1995.

Bardsdale said: "This is a great reward for people who have worked so hard to build this company."

Although the big push by employees helped Netscape carve out a new market in groupware, it wasn't enough to offset the devastating loss the company experienced in its core Internet browser market. The cause, of course, was an overwhelming onslaught from Microsoft. In mid-1996, Netscape had 80 percent of the market and Microsoft had 7 percent. By the fall of the following year, by bundling its own browser into the Windows platform preinstalled on most PCs, Microsoft had grabbed 25 percent and Netscape's losses were mounting daily. Netscape's weakened position became untenable and in September 1998 it announced a merger with AOL.

Eventually, in April of 2000, a federal court found that Microsoft had abused its software monopoly on a number of fronts, including the way it snatched away Netscape's browser business. The court then ordered Microsoft's breakup. The ruling was appealed, and the following year a federal appeals court reversed key parts of the ruling. AOL, Netscape's new parent, filed a new lawsuit against Microsoft, but by then Microsoft had snared 91 percent of the market, leaving Netscape less than 9 percent.

The lesson of Netscape's experience, which highlights the promise as well as the limits of partnership capitalism, can be found in the story of Cisco as well, although the company's reversal of fortune wasn't nearly so drastic. Although Cisco's products include hardware as well as software, the collective brainpower of employees has been central to its competitive strategy. Cisco used stock options and a bottoms-up culture of employee ownership to propel phenomenal growth in the late 1990s, much of it stemming from the acquisition of other small startups.

It did so in a fashion that was almost diametrically opposed to the traditional slash-and-burn takeover tactics that were pervasive in corporate America throughout the 1980s and 1990s. Many companies buy assets—technology, brand-name recognition, or market

share—and see the employees who had created these assets as secondary or even superfluous. Cisco, however, saw itself as buying people capable of creating future assets, and carefully planned its acquisitions to integrate newcomers into the employee partnership approach.

The company was founded in 1984 by Leonard Bosack, who managed a computer science facility at Stanford, and his wife, Sandy Lerner, who held a similar post at the university's business school. The couple also worked to expand Stanford's own internal computers, and in the course of doing so had applied a technology to link up several separate computer systems around the university. They started Cisco on a shoestring, later securing venture funding from Don Valentine at Sequoia Capital, but the company grew slowly at first. Then as computer networking grew, sales soared from $69 million in 1990 to more than $1 billion in 1995.

By then the couple had left the company after disagreements with a CEO Valentine had brought in to help them manage, and John Chambers took over. Chambers had signed on four years earlier after stints at computer maker Wang Labs, where he had been senior vice president of U.S. operations, and at IBM. His experiences at those two companies taught Chambers everything that was wrong with the traditional top-down cultures of corporate America.

When he took charge, he found a company that shared those characteristics that had come to define so many high-tech companies in Silicon Valley. Senior management worked in cubicles in the center of the fluorescent-lit space while employees got the windows. All offices were the same twelve feet by twelve feet. Employees in sales offices didn't even get their own desks; they all shared "nonterritorial" office space. Chambers and other top executives set an example of frugality and equality by flying coach wherever they went and eschewing the trappings of CEO power favored by most East Coast executives.

Cisco backed up the employee-centered strategy with generous stock programs that covered virtually everyone. Each year, employees have the right to purchase $25,000 worth of company stock at 15 percent off the opening or closing price of the previous six months, whichever is lower. They also all participate in a stock op-

tion plan that typically gives nonexecutives more than 90 percent of all options handed out.

Especially striking was how Chambers managed to keep this approach even as Cisco embarked on its wild acquisition binge. From the day he took over to the time the high-tech stock market nosedived in early 2000, the company bought sixty-nine companies. Chambers used corporate purchases as a way to grab every market opportunity in a business where the average product tends to have a life cycle of six to eighteen months. Since Cisco didn't have the internal resources to develop every new product quickly enough to meet the demands of this fastest growing sector of the economy, it tried to buy its way into market share on a broad front.

But Cisco's method of buying market share focused as much on the employees as on the product to be acquired. Typically it would identify a small, technology-driven firm with sixty to one hundred employees whose product had not yet hit the market. The ideal candidates frequently resembled the early-stage Cisco and were referred to within the company as "Cisco kids."

"When you combine companies, for a period of time, no matter how smoothly they operate, you lose business momentum," Chambers said in 2000. "Our industry is not like the banking industry, where you are acquiring branch banks and customers. In our industry, you are acquiring people. And if you don't keep those people, you have made a terrible, terrible investment. . . . So we focus first on the people and how we incorporate them into our company, and then we focus on how to drive the business."

When Cisco thought it had identified a potential acquisition, the initial step began with informal conversations between senior Cisco managers and the CEO and senior team of the target firm, according to a study by two Stanford professors. This would be followed by an exchange of documents on technology and human resources. Part of the assessment process evaluated what information the target was prepared to share. Early on, the study said, Cisco decided that excessive secrecy may signal a lack of the openness and honesty that Cisco insisted upon with its own managers. It also used these preliminary conversations to get a handle on how flexible the target firm's managers were and how widely they shared their eq-

uity within the company. "An unwillingness to share the equity may signal a misfit for Cisco's values," the professors wrote.

"This is an empowerment culture, a customer-focused culture, a culture of equals," Chambers explained in a mid-2000 interview. "If someone has an office four times the size of mine, if all the stock options are at the top of the organization . . . we don't touch that company."

Once the purchase was made, Cisco moved immediately to fold the newcomers into the family. Management, the Stanford study said, would assign an integration team to hold orientation sessions and explain company values to the newcomers. The sessions would involve employees from previously acquired companies who offered their insights. Cisco also assigned "buddies" to the new group to facilitate the bonding process. "The buddy system involves pairing each new employee with a seasoned Cisco veteran of equal stature and similar job responsibility," the Stanford professors wrote. "The buddy offers personalized attention better suited to conveying the Cisco values and culture." Of course, new employees also were plugged into Cisco's discount stock purchase plan and its stock option program.

The outcome of all this effort to retain intellectual assets can be measured by looking at how many acquired employees left the company. In the late 1990s, Cisco had an overall voluntary attrition rate of about 8 percent, which itself was unusually low at a time when at any given moment virtually every techie in Silicon Valley had several alternative job options and job-hopping was common. Even more extraordinary, Cisco lost only 6 percent of the employees who joined it through acquisition. It was Chambers's position that so many acquisitions did not work out because "Most people forget that in a high-tech acquisition, you are really acquiring only people."

Cisco's laserlike focus on employees was a central component of its phenomenal growth after Chambers took over. From 1995 through the tech market crash in 2000, Cisco zoomed from $1 billion in sales to $22 billion, with 37,000 employees in 54 countries.

Still, employee ownership couldn't insulate Cisco against the slump any more than it could protect Netscape from Microsoft.

Like so many other high-tech companies, Cisco was blindsided by the abrupt collapse of hardware sales that came with the crash. By mid-2001, its revenues had sunk an astonishing 30 percent, leaving the company stuck with $2.5 billion in inventory. As the industry went on developing new products, this enormous inventory became obsolete before Cisco could move very much of it. The company announced up to 5,000 layoffs, 17 percent of its total workforce—a move Chambers had vowed never to make. The meltdown ravaged Cisco's stock value, slashing it by some 70 percent, or a stunning $282 billion. The company also halted a building binge and left empty structures half constructed in San Jose.

The disaster, occurring as it did to the company that was almost an icon for high-tech super growth, may also have stemmed from so many rapid-fire acquisitions. For example, in August 1999, Cisco paid $6.9 billion for Cerent Corporation, a two-year-old startup that had run at a loss throughout its short life span. Cerent, which was supposed to jump-start Cisco in the optical network components market, had just 287 employees when it was purchased. Using Chambers's own analysis that in any acquisition the most important asset acquired is people, Cisco had forked out an incredible $24 million per employee. But by mid-2001, Cerent still had not gained a foothold in the optical network business.

A much smaller 1999 purchase turned out even worse. Cisco that year paid $500 million for Monterey Networks, another optical company. But Monterey's $1-million-plus optical router flopped, and Cisco was forced to kill the product in the spring of 2001.

Nonetheless, by the middle of 2002 there was no sign that Cisco's employee ownership culture was unraveling. The company issued new options to employees at prices that matched the much lower stock level, giving them new upside potential that helped offset some of the options rendered worthless by the market downdraft. Chambers also continued to stress equality and openness in the workplace. "I'd like to be the world's most successful company and yet be known as the world's most generous, giving-back, highest integrity, fair company," he said about six months after tech stocks began their descent. "No, I don't think those are opposite

goals. I think you can be the most influential company in history and yet be known as the most fair and the most trusting."

The story of how Cisco's partnership survived the test of a major setback can be found in many other High Tech 100 firms. While a handful did go bankrupt in the tech crash that brought down the dot-coms, most hung on and began to grow again. More important to our story, employees didn't abandon ship in large numbers. They hung on too, as did the culture of employee ownership. Most continued to work hard and still thought of themselves as having a stake in the company that was worth fighting for just like any other owner.

The reason lay with management's continued commitment to the egalitarian culture they had started with, and with the ongoing financial motivation provided by employee stock options. Unlike other forms of worker ownership that American companies have tried over the decades, options withstood the test of the tech stock slump.

They did so in several ways. First, employees don't need to use their own money to buy options, as they must do with employee share purchase plans and company stock in 401(k) plans. Instead, they pay for options by working harder, or smarter. So the loss in a down market, while painful, doesn't undercut employees' current living standards or their retirement security.

Second, options were especially lucrative for many high-tech workers, leaving many with gains despite all the potential wealth they lost when the market crashed. Even before the slump, High Tech 100 workers as a whole averaged an astonishing $300,000 per person from selling stock they had obtained through options. We'll look at this figure in much more detail later on, but suffice it to say that such good fortune bought tremendous goodwill and loyalty.

In addition, while High Tech 100 workers suffered huge paper losses from their options due to the tech stock collapse, some options they had received before the crash were still in the money afterward. The reason: The options had been granted at such low prices that they remained higher than the value of the company's stock despite the 96 percent falloff in the value of the High Tech

100 between the tech market high point in March 2000 and August 2002. Again, we'll discuss this more fully in a later chapter.

Third, after the slump most high-tech companies continued to do what they and other firms that issue employee options had done before: give employees a new round of options every year. Since options are set at the market price on the day they're granted, High Tech 100 employees received options at the much lower levels. This gave them a whole new ownership stake, with the potential to reap new rewards if the stock rose again.

Indeed, the culture of sharing the wealth remained firmly entrenched in the High Tech 100 companies. We did most of our reporting for this book in 2001 and 2002, after the industry's setback. Virtually everyone we spoke with, employees, executives, and company founders, reaffirmed their commitment to the partnership approach.

We found one example at Tibco, whose software helps financial institutions and others provide real-time data on the web. Tibco's stock followed the same steep arc as most other high-tech firms: It went public in 1999 at $5 a share, peaked at $138 in early 2000, and was trading all the way back down at $9.50 in March 2001.

In the spring of 2001, when Tibco's stock price was trading at that $9.50 level, a fifty-year-old software engineer named James described how his unit had a major product presentation coming up with Accenture, a multibillion-dollar management consulting firm that recently had been spun off from Andersen Consulting Worldwide. This was a major opportunity for Tibco, one that would open up an entire new line of business crucial to its plans for rapid growth. James and a colleague, Bill, flew to Dallas, where they were going to run through a detailed description of Tibco's software. The audience: a top-level Accenture team that had the power to say yea or nay to the whole Tibco account. The duo was supposed to give a live, three-hour demo of the software, which required endless preparation—and perfection.

James and Bill slaved all night to get everything just right. Then, at 8 o'clock the next morning, Bill got a call that a family emergency had come up. He agonized about what to do. "It was one of those

bottom-of-the-ninth, tie score, bases loaded kind of things," remembered James. Ultimately, James convinced his friend to go home and leave him to pinch hit. But that meant James had to redo the entire presentation to fit his own style of presentation. "It ended up that instead of going to bed at 8 A.M. and napping for a couple of hours, I had to work straight through," said James.

By the time he finished the demo that afternoon and attended the cocktail party with the Accenture folks that evening, where he had key conversations with their managing partners, James had been going for forty-two hours straight. The fact that the stock market depression had left his options so far underwater, rather than making him wonder if he should kill himself, actually drove him to put in the extra effort. If Tibco hadn't snared the deal—which it did—"we wouldn't have been able to achieve the growth rates that are a prerequisite for our success," said James.

Numerous other high-tech employees expressed similar sentiments when we spoke to them in 2001, when the industry was still struggling to emerge from the high-tech slowdown. "In a way the stock bust, while it's not nice for me, it is nice for Portal, because it keeps me working," said Francine, the Portal vice president. "I continue to think that the [stock price] is going to go up again."

Robert, the employee who used to laugh when his previous company had urged him to take ownership of the place, described how, the week we spoke to him, Tibco had allowed employees to exchange the expensive options they had received when the stock was trading much higher for lower-priced ones that would be worth something even at the stock's current market price. The action, he said, communicated the company's ongoing commitment to its employee-owners even after the bust. Said Rick Tavan, a Tibco executive vice president: "A company that is owned in part by its employees is going to be more effective than a company that is owned by an insurance company in Hartford."

The new culture is as important as the financial aspect. If you visit one of the High Tech 100 today, even after the crash has taken the wind out of the industry's sails, in many cases you'll encounter very different relationships than you find at even many lauded stal-

warts of corporate America. Said Vivek Ranadive, an entrepreneur who founded Tibco in 1985 and later developed it into a pure Internet software firm:

> The Internet Age is a back-to-the-future kind of a thing. In the ten thousand years of human civilization, corporations have only existed for two hundred years. Before that, everybody was an individual entrepreneur, a shopkeeper, craftsman, farmer, and that was how people made a living. Then corporations came along and tried to organize, for economies of scale and efficiencies and so on.
>
> What the Internet economy does is, everybody becomes an individual entrepreneur again. Basically, companies are collections of entrepreneurs that are organized to bring creators of value and consumers of value together. It's with this basic understanding that reward systems and compensation systems are structured. I think of it as jazz, where I've got all these different people and they each do their own thing. My job is to let them do their own thing and hopefully make music at the end of it. It is not a Souza marching band, which was the corporation of old where everybody had a little thing they did and they marched to the tune of the same drummer.

This is more than just some self-serving rhetoric you hear from the people in power. Rank-and-file high-tech employees articulate similar feelings. "A good part of this is trusting your employees and giving them the authority to make the right decisions," said Joe, a Tibco software engineer. "The point of upper management should be to set the overall company's strategic direction and allocate (resources) across departments. Then let those smaller groups run on their own. That's one of the bigger changes between the new Internet companies and old companies. People feel so much more a sense of ownership, and not just because of the stock options but because of the culture in the companies."

Ranadive's jazz metaphor doesn't hold true in every high-tech company all the time. They're run by humans just like any other company, and some of them are greedy, arrogant, or poor leaders.

But it does capture the feel of what many are striving for and how they go about it.

This view stands in stark contrast to the approach found in most of corporate America, where most executive power rests with the almighty CEO, and it becomes the role of each tier of managers to support the decisions and carry out the policies of the managers above them. To a large degree, most traditional CEOs have been unwilling to let go of this hierarchical management structure, which has characterized most American corporations from their earliest history.

Thus it's not surprising that when it comes to employee compensation, corporate America has become more, rather than less, top-heavy. It is commonplace for corporate leaders to talk about how highly their enterprises value their employees and depend upon them for success. But in a culture in which money is the arbiter of status and worth, the true expression of a company's views can be found in the way it pays its employees. While stock options have been a democratizing force in the high-tech industry, they have played exactly the opposite role in much of the rest of corporate America. Because they have been justified as necessary to lure and retain only top management, options in most traditional companies have been handed out mostly to CEOs and a handful of the highest-ranking officers.

To see how this odd turn of events came about, let's take a closer look at what an option is and how it evolved from a way to manage the uncertainty of future risk into a vehicle for fantastic riches for an elite few. In doing so we will tell the story of how employee stock options have been used in the non-high-tech side of corporate America, the subject of the next chapter.

# 3
# The Soul of an Old Corporation

## From Thales to Executive Stock Options

The concept underlying an option has a pedigree stretching back thousands of years. In his book on politics, Aristotle tells the story of Thales, one of the legendary Seven Wise Men of antiquity who lived in the sixth century B.C. Thales spotted an economic opportunity in the olive oil business. While the olive crop fluctuated year to year, the number of presses available to make olive oil remained virtually constant. As a result, a bumper crop would leave farmers stuck with extra olives they couldn't press into oil. A skimpy harvest, on the other hand, left press owners with underused presses and a lower income.

In exchange for a right to some of the potential reward, Thales took on some of the risk himself. As economist Marilu Hurt McCarty told the story in a 2001 book, Thales offered press owners a small fee in advance of the harvest, before anyone knew how it would come in. The fee gave him the right, though not the obligation, to rent the presses at harvest time. If the crop was bountiful, Thales exercised his option, rented out the presses to make olive oil, and made a handsome profit.

If, however, the crop was poor, Thales simply let his right lapse without exercising it. If that happened, he had lost only his upfront

fee. The press owners earned less income than they did in bountiful years, but at least they had Thales's fee as a partial offset. The first year Thales tried his scheme, the autumn olive harvest produced a bumper crop. Aristotle wrote: "When the harvest-time came, and many [presses] were wanted all at once and of a sudden, he let them out at any rate he pleased, and made a quantity of money."

Thales's little scheme stands as the earliest recorded use of an option. His insight was that you can manage the risk of ownership by buying and selling the right to use a property in the future. Because none of us can ever predict what's going to happen with complete accuracy, an option allows both a property owner and an investor to protect themselves against extreme outcomes. Property owners surrender a portion of the potential profit they might earn in exchange for getting someone else to share part of the uncertainties of ownership. In doing so they give up the chance to exploit a huge windfall to its maximum, but they also guard against the danger of being wiped out by a catastrophic loss.

On the other side of the transaction, the option buyer gets the rights of a partial owner for a much smaller investment than would be required to actually buy part of the property outright. Even more comforting, because the buyer has no obligation to exercise the option, the size of his or her loss is limited to the price of the option.

Options granted to employees to purchase their company's stock aren't all that different in concept from what Thales cooked up 2,500 years ago. Basically, they give employees the right to buy a set number of their employer's shares at a certain fixed price, specified at the time the option is granted to the employee. The price at which the stock can be purchased by the person holding the option is often called the "exercise price" or "strike price." Usually, the employer sets the strike price at fair market value, meaning the price the shares are trading at in the open market at the time the options are issued.

The company also must specify a time period the employee must wait before the option can be exercised (usually called the vesting period). Most companies choose three to five years. Some companies stagger the vesting, so that, say, a third of the options vest in the first year, another third in the second, and the remaining in the

third year. Options help tie the employee's economic interests to the firm's long-term outlook. Most employers require workers to make up their minds whether to exercise their options within ten years. So they usually have a window of five to seven years to decide whether and when to exercise them and buy the stock.

While options have lots of complicated rules, the practical consequences for employees are straightforward enough. If the company's stock price rises above the strike price, the employee can exercise the option and buy the shares at a discount off the price at which the stock is currently trading. The employee then has two choices. He or she can hold onto the stock, which can be risky. Or employees can sell the stock immediately and take the cash profit, as nearly all do.

However, if during the exercise period the stock price remains flat or falls, the option is worthless and is usually referred to as being underwater. In that case, the employee doesn't exercise the options. He or she gets no benefit. But unlike a regular public shareholder who purchased the stock on the open market, neither does he or she stand to lose anything. So options provide the holder an opportunity for wealth sharing with a limited downside risk of a loss.

Still, options present workers with a complex set of choices that are much trickier than just getting a raise or a bonus. The first is when to exercise it. If the employee had a strike price of, say, $80, and the stock rose to $100 by the end of year three, should he or she jump at the $20 profit? Or would it be wiser to wait for a few years, perhaps even to year ten, to make sure the stock is not about to take a tumble soon after the stock is purchased? Employees must grapple with all these decisions and make up their own minds, based on their tolerance for risk and on what they think will happen to their company's stock.

To further complicate matters, employees also must decide what to do with the stock they get if they do exercise their options. Once the employee purchases the stock, it's just like any other share he or she might have bought. But employees get no profit from their low option price until they actually sell. Sure, they were able to buy a $100 share for $80. But until they sell the stock, all that has happened is they spent $80 on something which at that point in time is

valued in the marketplace at $100. If they sell right away, they pocket the $20 profit. However, if the employee waits, the stock could rise in price, increasing his profit. Of course, the price also could fall, wiping out some or all of the profit, or even leaving the employee with a loss.

To avoid having to deal with such complex decisions, most employees simply sell the stock when they exercise their option. In fact, research on the stock option behavior of 50,000 employees in eight companies (which were unnamed in the study) suggests that 90 percent sell their stock immediately after exercise. Many exercise and sell simultaneously in a cashless transaction that doesn't require them to put up any money to pay for the stock.

A close cousin of the option is the futures contract, an idea employed for hundreds of years to trade mineral and agricultural products. While futures perform a function similar to options, giving people a way to manage risk, there is a key difference between the two. The former usually obligates its buyer to buy the corn, pork belly, or whatever, at the price agreed upon, no matter which way market prices go in the interim. The purchase is not optional. An employee stock option, by contrast, gives buyers the choice—that is, the option—to purchase the stock. An option allows buyers to simply do nothing if they would lose money by exercising it.

In the modern era, futures contracts became a way for buyers of commodities to protect themselves against the risk of extreme price fluctuations. They also allow commodity sellers, including farmers, to hedge against the chance that prices may fall before the harvest is complete. The U.S. futures market began to take shape in 1848, with the founding of the Chicago Board of Trade, where most commodities are still bought and sold. At first, traders mostly dealt in futures for grain and other farm crops. Later they extended the idea to livestock, then to metals such as iron and steel, and to lumber. Since the 1970s, futures trading has been adapted to a bewildering variety of economic transactions, including mortgages, bonds, electricity, and most recently to stock market indexes such as the Dow Jones Industrial Average.

Options, too, have been adapted to many situations over the millennia. Both the Romans and the Phoenicians optioned cargo on

their trading vessels. Before a ship set sail, an investor could buy an option on the shipment for a fraction of what it would cost after it arrived. This removed the risk of holding an interest in the cargo if the product went bad or the ship sank. After the ship landed, the investor could exercise the option, purchase a portion of the cargo, and pocket a profit. On the other hand, if the voyage turned out badly, there was no obligation to go through with the purchase. The investor lost the upfront fee, but nothing more. Option sellers reduced their risk, too, since the fee they got functioned like insurance to cover the cost of any failed trips.

Still, investors looked askance at options for many years. In his classic 1973 study of investing, *A Random Walk Down Wall Street,* Burton Malkiel wrote that options got a bad name when they were widely used in the Dutch tulip-bulb craze in seventeenth-century Europe. When sky-high tulip prices collapsed in 1636, speculators in options were wiped out. Still, options and similar instruments continued to dominate the Amsterdam stock exchange in the 1600s, when the city functioned as Europe's financial center. Finally, options were declared illegal on the London Stock Market by the Barnard's Act of 1733.

Trading in options and futures has a longstanding—though also controversial—tradition in the United States as well. Commodity options were used in colonial times—they were first traded on the New York Stock Exchange in the 1790s—and flourished until the Civil War. Thereafter, they came to be regarded as mere gambling contracts by the Progressive political movement. In the latter part of the 1800s, there was an active informal market in options on railroad stocks.

It's not clear exactly when U.S. corporations issued the first stock options for employees. One of the earliest recorded examples involved the New England Norton Company, a leader in grinding wheels, machines, and abrasives, which began awarding options to its top sales, financial, and management people in the late 1890s. However, it was the rise of the publicly traded corporation that really gave the idea a lift. During the Robber Baron era of the late 1800s, many big corporations were owned largely by the entrepreneurs who founded them, people like Andrew

Carnegie, John D. Rockefeller, and the Dupont family. In the first decades of the new century, ownership widened as major companies sold stock to millions of individual members of the public. One consequence of this shift was that control began to pass to a new class of professional managers.

The separation of ownership and control that accompanied the advent of publicly held corporations posed a major dilemma for American business in the 1920s and 1930s. There was much concern at the time about the potential pitfalls of so-called managerial capitalism, where hired executives rather than founders ran companies. One key issue was whether the new class of CEOs would rip off all those anonymous public shareholders, whose vast ranks precluded a close involvement in the day-to-day operations of the company. Shareholder suspicions were fueled by many exposés of insider dealing and stock speculation by executives, who weren't required to publicly disclose their salaries until the federal Securities and Exchange Commission (SEC) was created in 1934 to regulate public companies.

Options seemed like a good solution to this so-called "agent" problem. They very publicly tied the fortunes of executives to those of shareholders. If one prospered, so would the other, leaving a diminished incentive, it was hoped, for CEOs to bilk the company with secret deals. Shareholders also took comfort from the fact that while the new hired guns didn't own a huge chunk of their company's stock the way the founder had done, stock ownership by managers ensured that they had the interests of the corporation at heart. At the same time, options were a recruiting tool. Talented managers who asked to add their intellectual capital to the company were more likely to sign on if they got a chance to share in the wealth they helped to create.

Stock options for executives spread steadily throughout the 1920s and 1930s. The stock market crash of 1929 undercut some of the interest, since many once-burned executives were now more inclined to want hard cash. However, others soon began demanding options from Depression-struck companies that couldn't afford to pay big salaries. In fact, they became a favored way for troubled companies to attract expertise. For example, James O. McKinsey,

who founded the consulting firm of McKinsey & Company, received an extremely generous option package in 1934 when he became chairman of troubled Marshall Field and Company, the department store chain. Walter Chrysler was given options when he turned around the feeble Maxwell Motors, which later became the Chrysler Corporation. Similar arrangements took place at Gillette and National Cash Register in 1931 and 1932. By that year, fully a third of the firms traded on the New York Stock Exchange used options to pay their executives, according to Harvard University business professor John Calhoun Baker, who performed the first exhaustive study of options in 1937.

Still, options remained controversial even as their use increased. Many shareholders felt that directors who approved them were simply handing out corporate assets that rightfully belonged to the stockowners, Baker wrote. He was also critical of the practice of setting strike prices too low, "to a figure where . . . the executives can make an easy profit." (The government didn't require the price to be set at the market level in those days.) The practice, Baker thought, "dispels much of the incentive romance . . . and raises embarrassing questions." Moreover, he did not find clear evidence that stock options improved corporate performance. Critics, he concluded, felt that "executive options furnish a heads-I-win, tails-you-lose proposition."

Plenty of others felt the same way, and the intellectual battle seesawed back and forth for decades. Shareholders filed lawsuit after lawsuit, attacking the very idea of options as a giveaway of private property. The courts and the IRS fought to collect personal income taxes on options, which they saw as a substitute for salary, and in 1945 the IRS won a significant ruling on the issue from the U.S. Supreme Court.

On the other side, companies increasingly came to see options as a way to align the interests of executives and public shareholders. They won a victory in 1934, when the New York Supreme Court directly tackled the notion that only shareholders were entitled to share in the capital gains from property ownership. It wrote: "We have long since passed the stage in which stockholders, who merely invest capital and leave it wholly to management to make it fruitful, can make ab-

solutely exclusive claim to all profits against those whose labor, skill, ability, judgment and effort have made profits available."

In 1950, Congress overruled the U.S. Supreme Court. It passed a law that allowed executives—or any employee, for that matter—to pay the capital gains tax rate, which is lower than the tax rate on regular income, on the profits they make from selling shares purchased with options. The reasoning from Washington was very much like that of the New York Supreme Court. Congress said it wanted to make sure that professional managers were owners and partners in corporations. It also believed that options could help firms retain good people and improve their operations.

The 1950 law gave executives an even greater incentive to demand options than they have now, since the capital gains rate was just 25 percent at the time. By contrast, the top personal income tax rate back then was 91 percent. Of course, virtually no one ever paid the top rate, because they took other adjustments to income and deductions. Still, it was very difficult to whittle the effective rate all the way down to 25 percent, so options remained for executives an attractive alternative to salary increases. By 1952, a third of the 1,084 companies on the New York Stock Exchange were using executive stock options.

But the law did little to quash the complaints. Throughout the 1950s and 1960s, the business press ran articles such as: "Are Stock Options Legal?"; "The Booby Trap in Stock Options"; "Under Fire: Stock Options"; and "Tightening Tax Laws on Stock Options." The 1953–59 bull market helped executives make a lot from options by lifting stocks nearly threefold. A common criticism at the time was that these bonanzas came from the general market and not extra or unusual efforts by management. In fact, many politicians saw the favored tax treatment of options as little more than a giveaway to the rich, because the recipients were typically a very tiny corporate elite. In the 1960s, Senator Albert Gore Sr. of Tennessee (the father of the former vice president) and others tried repeatedly to get rid of the favored tax treatment provided by federal law for profits earned through the exercise of options. In 1964, Congress enacted a variety of strict rules for stock options, which made them virtually useless.

Then in 1976, Congress essentially legislated stock options out of existence by making employees go back to paying the regular personal income tax rate on option profits. By then, Washington had slashed the top tax rate to 70 percent, but the move still put a chill on executives' desire for options in lieu of direct compensation. At the same time, the stock market performed poorly in these years, so options didn't seem like such a hot idea anyway.

Two developments in the 1970s laid the groundwork for the explosion of options that came in the following decade. In 1970, three economists—Fischer Black and Robert Merton of the Massachusetts Institute of Technology and Myron Scholes of the University of Chicago—came up with a way to put a price on the value of an option (any option, not just ones granted to employees). Despite the long history of options, it always had been difficult for buyers and sellers to tell how much they were worth. After all, an option is really little more than a bet on what's going to happen in the future, whether it's the value of that year's olive harvest or the price of a company's stock three to five years out. The uncertainty didn't stop people from issuing and buying options, but until 1970 it often was something very close to gambling.

The new pricing system was a breakthrough that lifted confidence in options. The method, which came to be called Black-Scholes, involves a complex formula that correlates the current price of a stock, its price volatility, the risk-free interest rate, the strike price of the option, and its time to expiration. Throughout the 1970s, Black-Scholes gradually became a conventional tool by which investors—and employees—could put a price on options. (In 1997, Merton and Scholes won the Nobel Prize in Economics for their work. Black was excluded by his death two years earlier.)

Options got a further boost in 1973, when the Chicago Board of Trade opened the first public market for stockholders to trade options on the shares of public companies. Before that, options had been traded over the counter (meaning not through an organized market). By providing an open market, the Chicago Board Options Exchange (CBOE) further increased the general comfort level with options and helped to turn them into a mainstream investment. Today, the CBOE lists options on about 1,500 individual compa-

nies, and these kinds of options are traded on five U.S. exchanges. Options even trade on broad stock market indexes, such as the S&P 500.

By the early 1980s, the stage was set for executive options to go mainstream, too. The economy went through a wrenching recession in 1981 and 1982 that threw many workers out of a job. When it emerged, companies spent much of the decade engaging in very visible, often controversial, mergers, takeovers, and leveraged buyouts. Usually these changes brought massive layoffs. At the same time, the public was beginning to realize that these and other trends were holding down the wages of average workers, while the pay of CEOs and other top executives kept hitting record levels every year.

Options for senior executives offered a way to blunt some of the criticism of these huge CEO salaries in the face of shrinking worker paychecks. They made it more difficult to compare executive pay to worker pay, since options vest over several years and don't have to be exercised for many more. CEOs also renewed the argument that options gave them a bigger incentive to boost the company's stock price, thus aligning the CEO's personal motivation more closely with the interests of shareholders. The long bull market that began in 1982 added to the allure of options, as executives saw just how valuable they really could be.

Congress helped out, too. In 1981, under President Ronald Reagan, Congress set aside worries about inequities and created what's called an incentive, or qualified, stock option, which provides a tax break for capital gains. In addition, the capital gains tax rate itself was cut from 28 to 20 percent. Then Congress slashed the personal income tax rates, first to 50 percent and then to 28 percent. Since then, companies have had a choice. They can issue incentive options, which are taxed at the low capital gains rate. Or they can use what are called nonqualified ones, meaning options that don't qualify for the special tax break and are subject to regular income taxes.

All these strands came together in 1987, when the top executives at Toys "R" Us Corporation raked in one of the first great option

jackpots. The company's founder, Charles Lazarus, had sold the toy store chain in 1967, but it foundered in subsequent years, finally sinking into bankruptcy. When it emerged in 1978, Lazarus returned to the helm and set aside 15 percent of the company's shares for executives and store managers in the form of options. The chain's fortunes soared in the following years and Toys "R" Us became the country's top toy retailer. By 1987, the company Lazarus had sold for $7.5 million twenty years earlier was worth $5 billion.

That year, Lazarus earned a bonus of $3.3 million, which itself was large by the standards of CEO pay at the time. But it paled in comparison to his option payoff, which came to an eye-popping $56 million. Toys "R" Us president Norman Ricken pulled down $11 million, and even store managers found themselves with sizable windfalls.

All of a sudden, other CEOs woke up to the stock option bonanza. Instead of earning a million or two a year from a traditional salary and bonus, they saw that options could deliver them true wealth, tens of millions of dollars or even more. Corporate America's leaders quickly came to see options as "The Next Best Thing to Free Money," as a 1997 *Fortune* magazine piece explained in its title.

Soon, eager executives were ladling out options to themselves by the bucketful. In 1992, the top five executives at the 1,500 largest U.S. corporations cashed in about $2.4 billion worth of options. By 2000, they were exercising more than $18 billion worth. President Clinton fueled the option trend in 1993, when he pushed a law through Congress that limited companies from getting a tax deduction for salaries greater than $1 million. This gave companies an incentive to shift CEO pay to options, which retain their tax break. The bulk of the options, of course, go to top corporate executives. Indeed, you'd be hard-pressed to find a CEO of a major company who doesn't get an option package today.

One lesson CEOs didn't learn was the next step taken by Toys "R" Us. If options were so great, why not dole them out to everyone, or at least to managers or knowledge workers, as Intel, Apple, and other high-tech companies already had begun to do in the

1970s? "We thought, This will be a great motivational tool," Michael Goldstein, who joined Toys "R" Us in 1983 and became its CEO in 1989, told *Fortune*.

Relatively few major companies have followed the example set by Toys "R" Us. For the most part, the idea of giving a lot of stock options to ordinary employees has remained confined to the high-tech industry, and particularly those that focus on the Internet. Traditional CEOs have used options to bring their own financial interests into line with those of their company's stockholders. But they often have excluded most other employees from this relationship, keeping all the risk—and all the reward—for themselves.

One reason lies with the predominant view about who in a corporation is responsible for creating the wealth it produces. Think back to that 1934 New York Supreme Court ruling for a minute. Essentially, it agreed with critics that options confer the benefits of property ownership on employees (whether they're top executives or lowly janitors made no difference to the tax question before the court). But the court concluded that it's proper for those benefits to go to those employees "whose labor, skill, ability, judgment and effort have made profits available."

By and large, corporate America has felt that only top executives fall under this definition. For example, in 1953, William J. Casey, the New York corporate lawyer who later would head the CIA under President Ronald Reagan, wrote a monograph on employee stock options. His conclusion: "The best opinion seems to be that stock options should be restricted to key executives who can contribute significantly to profits and stock values."

A decade later, a writer at the *Harvard Business Review* published a book that reviewed the whole question of pay incentives for top executives. It quoted Thomas Ware, the president of International Mining, who defended the practice of restricting options to a few people at the top of the corporate pyramid. "I agree that the stock option is discriminating. However, I feel this is fitting since it is intended only as an incentive for those who bear the burden of decisions and take consequent risks. This is in keeping with the management philosophy that rewards should be comparable to risks."

The Conference Board agreed in a 1993 study, writing: "Many employees contribute to the overall success of the company. However, stock options are awarded to those who have the greatest opportunity for long-term effect upon the value and success of the business."

That fairly well sums up the attitude of many large companies today. Throughout the 1990s, much of corporate America gradually spread options to lower-ranking senior executives and to middle managers. But as we'll see later in the book, only about 6 percent of large corporations come close to the high-tech practice of giving them to most or all employees. Many companies talk about their workers being their most important asset. But they don't back that up by sharing the risks and rewards of ownership with them. Instead, most companies use options to allow higher-paid executives to become owners without using their own cash, while lower-level employees usually must use their savings to buy their employer's stock.

High-tech firms, by contrast, have gone to extraordinary lengths to bring most or all of their employees into the circle of corporate ownership. The next chapter demonstrates just how far they have gone.

# PART TWO

# *Sharing the Company with Employees*

# 4
# How High-tech Firms Share the Wealth

When we examine who owns the great corporations of the United States, we see that very few of them remain in the hands of their founders or heirs of the founders. Instead, most are owned by the public at large, either directly as individual stockholders or indirectly through financial institutions, such as pension funds, banks, insurance companies, and mutual funds. We've seen how in recent years it became common for publicly held corporations to extend options to the highest-level executives, both to motivate and to reward them. In prior decades, many mainstream corporations had experimented with a host of ways to extend ownership of one form or another to a broader range of employees, through ESOPs, 401(k)s, and other plans that allow employees to buy discounted company stock. However, the extent to which high-tech firms that are focused on the Internet have granted ownership to their employees has no precedent in modern American history. No other industry has ever attempted, much less achieved, the depth, breadth, and extent of wealth sharing found among these firms.

To determine just how broadly the industry has embraced partnership capitalism, we decided to focus on the newer high-tech companies that emerged in the 1990s with the growth of the Internet. We did so because we found that virtually all of them have gone the op-

tions route, something that not as many older high-tech companies have done. So we drew up the High Tech 100, which consists of the hundred largest public companies that generally derive more than half of their sales from the Internet. The index was constructed very much like the Standard and Poor's 500, which is comprised of the largest companies in the major U.S. industries. To identify the hundred largest, we measured size by each firm's market value as of October 2000, the date we began the project. (A more detailed explanation of how we constructed the index can be found in the notes. If you want to look at the entire list of companies, see Appendix A.)

Our High Tech 100 allowed us to separate the viable Internet industry from all those ephemeral dot-coms that jumped on the online fad—by trying to sell anything from pet food to wine over the Web—but which didn't survive the market crash of 2000. The High Tech one hundred companies certainly suffered then, too. In fact, when we look at the damage investors sustained as a consequence of the wildly unrealistic stock market runup of the late 1990s and the subsequent bursting of the high-tech bubble, these companies bear much more responsibility than the failed dot-coms.

Just look at the dizzying ride on which they took investors. At the March 2000 peak, the High Tech 100 index stood at $10,563. By July 2002, the index had collapsed to just $430, a stunning 96 percent decline. The total value of all public shares of these hundred companies was worth about $1.3 trillion at the beginning of 2000. By the end of July 2002, their value had sunk to just $162 billion. That's nearly a trillion dollars in real wealth that vanished in two years.

Put another way, these one hundred high-tech firms were responsible for almost a quarter of the entire decline in the NASDAQ. Over that same period, the total value of all 4,100 NASDAQ stocks plummeted by $4.8 trillion, to about $1.9 trillion. Since all but one of the High Tech 100 trade on the NASDAQ (AOL trades on the New York Stock Exchange), it's clear that the trillion-dollar loss they generated was one of the largest contributors to the rise and fall of high-tech stocks.

Nonetheless, the High Tech 100 are no market-bubble mirage like most of the dot-coms that enjoyed a brief moment of glory dur-

ing a market runup. As of July 2002, eight of the hundred had declared bankruptcy. More surprisingly, from the end of 1999 to the end of 2001, the total employment of the hundred firms actually had climbed by 26 percent, to 177,000. These companies have real customers and real sales, which continued to grow after the high-tech bust and the demise of the dot-coms. Indeed, the combined sales of the High Tech 100 climbed by 78 percent between 1999 and the end of 2001, to $59 billion. Only three of them experienced falling revenue (excluding the bankrupt ones).

Federal Reserve Board chairman Alan Greenspan made much the same point in mid-2002, although he didn't distinguish between dot-com and Internet infrastructure companies the way we have done. He said: "The dot-coms that went under went under because they did not [add] value, but a lot of them are still around, [and] they've produced major advances in technology and improved our standards of living."

In addition to tracking stock market swings, our High Tech index let us measure the extent of employee ownership among these leading firms in the industry. This ownership consisted of the future stock to which employees had a claim through stock options, plus the much smaller amount of stock they owned directly. There's no widely accepted term for the combination of stock employees currently own and the options they hold to purchase stock in the future, so we decided to call it "employee equity." Thus the term refers to both the actual and the potential ownership held by employees below the top five officers of each firm.

We found that these high-tech firms really had embraced partnership capitalism to an extraordinary degree. On average, employee equity in these hundred companies totaled 19 percent as of December 31, 2000. This was greater than the 14 percent held by the top five officers in each company, which represents an unprecedented development. As far as we can determine, never before in the history of the modern corporation has an entire industry handed over so much potential ownership to a broad cross section of employees.

The High Tech 100 index led us to other findings as well. One of the most startling was the inaccuracy of the popular perception that

high-tech employees had been left with little or nothing when high-tech stocks collapsed. After the crash, virtually the entire high-tech industry suddenly looked like a dead end, and all the options they had handed out so freely soon were being ridiculed as worth little more than deeds to Arizona oceanfront property. The twenty-something millionaire next door was no longer planning a retirement in the South Seas by age forty. Huge losses suffered by former high-fliers made a natural news story, and the media milked it for all it was worth. It quickly became the norm for business-school grads and other new hires to deride the promise of equity and ask for hard greenbacks, the good old currency of the suddenly solid-looking Old Economy. Keep those options, the new view went, they're just worthless pieces of paper now.

But this new conventional wisdom missed what really had gone on in the high-tech industry. True, hundreds of dot-coms closed their doors, shutting out the dreams of option wealth for their employees. In addition, workers at High Tech 100 firms lost a stupendous amount of paper wealth. We calculated that at the peak of the market, their options would have been worth $175 billion, or an average of about $1 million per employee. (The top five executives at all one hundred companies held options with a paper worth of another $43 billion, collectively—an amazing average of $86 million each.) As of July 2002, 83 percent of employee options were below their company's stock prices at the time and therefore worth nothing. So we estimate that they lost a total of $171 billion. Or at least, they lost that much on paper, since options don't require employees to shell out a dime of their own money.

Still, if you stand back and look at the broader picture, you'll see that partnership capitalism showered most High Tech 100 workers with magnificent—though to some degree undeserved—profits, despite all the potential wealth they lost in the crash. Even at the bottom of the market, the remaining 17 percent of employees' options were worth some $4.4 billion, or an average of about $25,000 per worker. Of course, this included some options that hadn't vested. But even if you look just at their vested ones, they still owned options worth another $3 billion that they could have cashed in at the time.

In addition, we found that High Tech 100 workers actually have taken home a total of some $78 billion in profits from all the options they have cashed in since their companies went public. We calculated that between 1994 and 1999, they collectively had exercised options that gave them profits of some $53 billion. (The top five executive officers of each company took out a combined total worth of an additional $10 billion.) This was actual cash profits employees and executives made from their stock options. It wasn't paper wealth; they really got the money.

Many investors may be surprised, and perhaps angered, to hear that High Tech 100 employees made billions more even as the market dropped in 2000 and 2001. Because many started at their companies early on, they still held options granted at IPO and pre-IPO prices. Even in July 2002, the stocks of forty-three of these firms remained above the IPO levels. Eight of them were actually more than 1,000 percent higher. AOL Time Warner, for instance, was trading at $10.90, an amazing 12,000 percent above the 9 cents that AOL went public at in 1992. As a result, all High Tech 100 employees were able to collect profits of $25 billion in 2000 and 2001 on options they had received in those early days. That's an average of some $125,000 each. (For more detail on the stock performance of the High Tech 100, see Appendix B.)

Employees probably deserved only part of all these gains. A fair amount of the $53 billion they took home prior to 1999 came because the stock market ballooned to unrealistic heights. Many investors foolishly sunk money into high-tech companies during the irrational exuberance that gripped much of the stock market. They left at least a portion of their dollars in the pockets of those employees lucky enough to have cashed in their options in those heady years.

Rank-and-file workers probably don't bear that much responsibility for the market's runup. But those who cashed in their options at the top received a huge windfall on top of what they would have earned if high-tech stocks had climbed at a more reasonable rate. This is money that came at the expense of dot-conned investors. Still, most of the rest of what employees made represents true wealth sharing between investors and workers.

Much of the $4.5 billion would seem to fall into this category, since that was their ownership stake after the air had been let out of the stock bubble. The same holds true for a lot of the $25 billion they earned in 2000 and 2001.

For the most part, all this option wealth came on top of high-tech employees' regular salaries, which averaged a very respectable $70,000 a year in 2000. Since the $78 billion works out to a rough average of $425,000 per worker, partnership capitalism paid these workers an additional six times their annual pay on average. (We'll see later that some firms treat options as a substitute for part of their workers' pay, rather than as something extra. However, even the companies that did this usually abandoned the practice after a few years.)

**TABLE 4.1 The Options Sweepstakes**
Value of Stock Options Held or Exercised by High Tech 100 Employees

| | |
|---|---|
| **As of the market's top in March 2000** | |
| Paper profits* | $175 billion ($1 million per employee) |
| Actual profits** | $53 billion ($300,000 per employee) |
| **As of July 2002** | |
| Paper losses*** | $130 billion ($970,000 per employee) |
| Remaining paper profits | $4.5 billion ($25,000 per employee) |
| From vested options | $3 billion ($17,000 per employee) |
| From unvested options | $1.5 billion ($8,000 per employee) |
| Actual profits**** | $25 billion ($125,000 per employee) |

NOTES: *Value of outstanding options whose exercise price was above the company's stock price at the time.
**Profits on options exercised prior to 2000.
***Loss since March 2000 on options whose exercise price was below the company's stock price in July 2002.
****Profits on options exercised in 2000 or 2001.
SOURCE: Authors' analysis of SEC filings.

Having said all this, you also should keep in mind that few workers match precisely the experience of the average worker. Individual High Tech 100 employees experienced a wide range of outcomes with their options. Virtually every firm had people who, mostly due to luck and timing, fell into a variety of camps. A few really did walk away with those million-dollar windfalls you read about. Many more got thousands or tens of thousands of dollars. Others made the big bucks on paper, but didn't exercise enough options in time, or didn't sell the stock they bought when they exercised before the market slumped. Of these, the fortunate ones were left with nice sums, but not spectacular ones. Others held tight to their options or shares while the market was rising. They bought in to all the gushing rhetoric about new rules for the New Economy, and thought high-tech stocks would rise forever. They "drank the Kool-Aid," as the saying goes (a somewhat macabre allusion to the follow-the-leader suicides in Rev. Jim Jones's commune in Guyana), and wound up with zip.

To appreciate the magnitude of the wealth sharing inside high-tech firms, it's helpful to begin with an overview of their financial architecture. The data we gathered for the High Tech 100 came mostly from the SEC, the federal agency that oversees publicly traded companies. The SEC requires every company whose shares trade on a public stock market to file a report each year describing exactly how many of its shares are owned by corporate insiders.

The SEC divides insiders into two camps. First are the company's top five executive officers, which the agency defines as the CEO plus the four other most highly compensated officers. Then there are the members of the board of directors, who typically are venture capitalists, wealthy individual investors, executives of other companies, as well as former executives, public figures, scientists, professors, or experts. The directors may also include very large outside shareholders who have special status as insiders by virtue of the amount of stock they control. They usually are privy to confidential information that's unavailable to the public and other outside shareholders.

The SEC reports told us how much stock each group held outright, as well as how many options they had. The commission also

requires companies to report the total number of options held by all employees. By subtracting the total held by the top five officers, we found out how many options were held by all other employees, from vice presidents to receptionists. The SEC doesn't require companies to specify just how many employees actually participate in any stock option programs. Many volunteer the information anyway. We contacted those who don't, and their responses gave us complete data on all High Tech 100 firms.

Now let's look at how much of the High Tech 100 these different groups own. There are two ways to think about corporate ownership. The standard approach is to look at the percent someone holds of all outstanding shares. If you have a million shares and the company has issued 10 million, you own 10 percent of the company.

But in companies with scads of options, you have to take into account what would happen if they were exercised. Options are really potential, rather than actual, ownership. After all, they may expire before the holder exercises them (which occurs when the share price falls below the strike price and stays there). When that happens, the ownership stake represented by the option evaporates.

If the options are exercised, though, more outstanding shares are added to the pile the company already had issued. The previously issued shares then become a smaller portion of the larger total. So if the company with 10 million shares outstanding had granted 10 million options and they were all exercised, there would be 20 million shares outstanding at that point. The million shares you had before would shrink to a 5 percent ownership stake. This is called dilution.

Because the high-tech industry relies primarily on options to share the wealth with employees, it's important to include them when we look at how ownership has been divvied up. We think the best way to do so is to treat all options as if they could be cashed in immediately for stock, that is, after dilution. This runs the risk of overstating employees' true ownership stake, which can decline if falling stock prices wipe out some of their outstanding options. But it's the only way to tally up both stock and option ownership on a consistent basis. Looking at the value of stocks and of options on a

postdilution basis provides the best way to measure who owns how much of the High Tech 100. The following table breaks down the industry's ownership after the dilution by options, as of the end of 2000.

**TABLE 4.2 Who Owns the High Tech 100**
Average Potential Ownership Stake as of December 31, 2000, by Type of Owner

| | Stock (%) | Option (%) | Total Equity (%) |
|---|---|---|---|
| Employees* | 2 | 17 | 19 |
| Top Five Officers | 10 | 4 | 14 |
| CEO | 7 | 2 | 9 |
| Other Four | 3 | 2 | 5 |
| Total Equity of Employees and Officers | 12 | 21 | 33 |
| Directors** | 8 | 1 | 9 |
| Total Insider Equity*** | 20 | 22 | 42 |
| Public Shareholders | 58 | 0 | 58 |
| Total | | | 100 |

NOTES: *Excluding top five officers. Stock holdings include estimated purchases through employee share purchase plans.

**Includes stock owned by companies, such as venture capital firms, with which directors are affiliated.

***Employees, top five officers, and directors.

All three columns are calculated as if all options, both vested and unvested, had been exercised, i.e., on a post-dilution basis.

The first column shows the percent of the High Tech 100's stock each group would own under this post-diluton scenario.

The second shows the percent of stock each group's options would represent.

The last column combines the first two to show each group's total potential ownership stake, including their diluted stock plus the stock they would have received if they had exercised all their options.

SOURCE: Authors' analysis of SEC filings.

The first point to appreciate is just how much of the industry was owned by all insiders, including employees, officers, and directors. At 42 percent, the insider share was several times greater than the average in most traditional companies. Of course, some of this has little to do with a philosophy of employee ownership. Instead, it reflected the startup status of most High Tech 100 firms. By and large, they only began selling shares to the public very recently, in the 1990s. Before that, many were private, which meant that by definition, insiders owned all their equity. Typically, most startups go public in stages, because the original owners want to hold onto as much of their ownership as possible. So insiders usually own a lot more than the norm during the first years after a company has sold stock on the open market.

More relevant is how the 42 percent was split up among the different inside groups. The 9 percent share held by High Tech 100 CEOs was quite large, especially their 7 percent direct stock ownership. The 5 percent share of the other top four officers was high, too. In part, this reflects the fact that most of these companies were started as entrepreneurial firms. The founders and the first executive team were given or purchased a lot of the initial stock at very cheap prices, often as part of the original incorporation process, before the company went public. By getting in on the ground floor, top High Tech 100 officers ended up with a lot of direct stock ownership. However, it's also true that they take a lot of their companies' options for themselves. They're much more generous with their workers than the rest of corporate America, but High Tech 100 executives still don't take much less for themselves than most of their counterparts in more traditional industries.

The truly astonishing figure, though, the one that would have been virtually impossible a generation ago, is the 19 percent of total equity held by High Tech 100 employees (excluding the top officers). Just 2 percent of this was direct stock ownership, with the rest coming from options. Most employees own few shares outright, because they weren't at the company in its earliest days and didn't have access to restricted stock or to founder's shares. After the IPOs, most of these companies offered employees the opportunity to buy stock through employee share purchase plans, which

typically offer a 15 percent discount off the market price. Most employees accumulated their 2 percent direct stock ownership through such plans.

(A related point of interest here is that virtually none of the 2 percent represented stock held in 401(k) retirement plans. The meltdown of Enron Corporation in early 2002 brought close public scrutiny to the way many large corporations fund their 401(k)s with their own stock, and then encourage employees to buy company stock with their savings. This is a form of employee ownership, but a vastly different, far more risky one than what's provided by stock options.

Most companies who match 401(k) contributions with stock are using employee ownership as a partial substitute for the regular compensation they provide their workers. In other words, they recognize that the labor market requires them to offer a retirement plan, but they fund it partly or even wholly with stock instead of cash. They do so for several reasons: because it's cheaper or keeps cash within the company; because management believes it can avoid hostile takeovers more easily if their stock is in the hands of employees; and because at least some of them want the economic and cultural benefits that flow from employee ownership.

High Tech 100 firms, by contrast, fund their 401(k)s with cash. Almost all have such plans, but only a handful use company stock in them. Those that do have less than 1 percent of the plan's total assets in their own shares, versus nearly 30 percent in other public companies that have company stock in their 401(k) plans. The reason: Most high-tech firms see options as sharing the risks and rewards of property ownership with workers, not as a substitute for compensation. Nor do they want to expose their workers to even more risk by using their savings and retirement plans to buy more employee ownership. We'll examine this point in greater depth later on, but for now suffice it to say that in high-tech firms, option wealth usually comes on top of regular pay and benefits.)

The 19 percent ownership stake held by High Tech 100 employees is huge. In just a few short years, they had accumulated more of their companies than their bosses or the directors. True, their ownership was contingent in ways that much of that held by the top of-

ficers or directors was not. For instance, employees' options may not vest if they leave the company too early. Options also may sink underwater and stay there until they expire. Even so, as far as we can determine no other industry in the United States has ever even offered to share so much wealth with employees. This didn't change with the stock market crash, either. That 19 percent stayed in the same range in 2001, at 20 percent.

Nor does extensive employee ownership seem to be a function of the startup, entrepreneurial nature of High Tech 100 firms. This conclusion may be somewhat premature, since the entire industry is less than a decade old. But so far, there's no evidence that High Tech 100 firms have dialed back on sharing the wealth as the companies expand and become more established. For example, we found that employee equity didn't shrink as companies grew. Nor did employees in larger High Tech 100 firms have less equity than those in the smaller ones; option ownership averaged 21 percent in those with market capitalizations of greater than $1 billion as well as in those with less than $1 billion. In fact, some of those with the highest market value had even higher employee equity, such as Amazon, BEA Software, Broadcom, Cisco, eBay, Siebel Systems, and VeriSign.

Microsoft illustrates the point as well, even though it's not in the High Tech 100. Bill Gates cofounded the company in 1975 and took it public in 1986. In 2002, Microsoft's employee option program put workers' equity at 22 percent, while Gates owned 10 percent.

The High Tech 100's large employee equity stake is tangible evidence of the industry's commitment to partnership capitalism. Most of these companies were founded by entrepreneurs who dreamed up the business idea and bore the initial risk of putting it into practice. Many put in their own life savings. They got outsized rewards for doing so, which is the traditional way U.S. capitalism is supposed to work. It's also standard practice for company founders to surrender large chunks of ownership to venture capitalists and other large shareholders who step in with funds in the firm's crucial initial stages.

The break from tradition came when high-tech founders used options to promise their employees more of the company's future

**TABLE 4.3 How Founders Share the Wealth**

While a Few High Tech 100 Founders Still Hold the Bigger Stake

| Company | Founder | Founder's Total Equity* (%) | Employees' Total Equity* (%) |
|---|---|---|---|
| Microstrategy | Michael J. Saylor | 43 | 18 |
| Infospace | Naveen Jain | 24 | 15 |
| eBay | Pierre Omidyar | 23 | 11 |
| CMGI | David S. Wetherell | 10 | 7 |

**...Many have given more to employees**

| Company | Founder | Founder's Total Equity | Employees' Total Equity |
|---|---|---|---|
| RealNetworks | Robert Glaser | 25 | 26 |
| Amazon | Jeffrey P. Bezos | 21 | 24 |
| Siebel Systems | Thomas M. Seibel | 11 | 26 |
| | Patricia P. House | 1 | |
| Freemarkets | Glen T. Meakem | 10 | 18 |
| Doubleclick | Kevin J. O'Connor | 7 | 13 |
| | Dwight Merriman | 3 | |
| Akamai | F. Thomson Leighton | 6 | 12 |
| Yahoo | David Filo | 6 | 19 |
| | Jerry Yang | 4 | |
| Juniper Networks | Pradeep Sindhu | 4 | 17 |
| WebMD | Jeffrey T. Arnold | 2 | 24 |
| E Trade | William A. Porter | 2 | 9 |
| AOL** | Stephen M. Case | 2 | 17 |
| Lycos*** | Robert Davis | 2 | 14 |

NOTES: *All outstanding shares and all options on December 31, 2000, after dilution, i.e., assuming that all the options had been exercised.

**Before merger with Time Warner Incorporated.

***Before merger with Terra Lycos.

SOURCE: Authors' analysis of SEC filings.

wealth than they had reserved for themselves. These entrepreneurs made a fundamental decision about property sharing in the firms they founded. They embraced substantial dilution of their own ownership stakes because they believed in the incentive effect of stock option capitalism.

Another significant finding that emerged from our research was that property sharing by the High Tech 100 includes virtually all employees. In recent years, a growing number of mainstream companies have begun to grant options to employees below top management. But they usually include only lower-level executives. Some extend the privilege to managers as well. However, it's much less common for corporate America to give options to every employee, or even to 80 percent or 90 percent of them, as do nearly all of the High Tech 100.

Other than general speculation in the press that high-tech companies seem to give stock options to a lot of employees, there has been little hard information on this question. To answer it, we scoured SEC filings, the High Tech 100's corporate web sites, magazine and newspaper clippings, plus some of the help wanted ads on Internet employment sites. Finally, where good information was not available, we called or emailed seventy of the companies directly.

We found that ninety-eight of the High Tech 100 provided options to most or all of their employees. Among the two outliers, MRV Communications Incorporated gave options to nearly half its workforce and was expanding the program further in 2001. The other, Checkfree Corporation, said that 40 percent of its employees received options, and a majority were enrolled either in the option program or the employee share purchase plan.

The extraordinary wealth high-tech workers received from options came largely from the decision of the companies' founders to share ownership with so many employees from the firms' earliest days. Most of the $78 billion employees cashed out was made by those lucky enough to get hired on before their companies went public. These employees got options with incredibly cheap strike prices, usually under $5 and sometimes just pennies. Then when the company did its IPO, the stock prices shot up into the $100 or

$200 range and employees who cashed in their options pocketed the difference.

Between 1994 and 2000, eighty-eight of the High Tech 100 did IPOs. All told, the workers employed at these companies when they did their IPOs raked in about $21 billion, or nearly one-half of the total option earnings through the end of 1999. This IPO wealth works out to an average of $540,000 per worker for those employed at the time of the offering.

The explanation for such enormous wealth isn't difficult to find: Most of these companies were still small when they went public. If you add up all the people working at each company when its IPO was done, it came to just under 39,000 employees, versus 177,000 employed by the High Tech 100 as of December 2001. So the $21 billion was divided among the 39,000. Of course, it wasn't parceled out equally. Those hired earlier usually got options at cheaper strike prices, so they made more. Higher-paid employees also often received a larger number of options than lower-paid ones, so they too made more. Still, because almost all workers got options, most shared in the IPO profits.

These founder employees got true insider prices on their options. If you average all their exercise prices together, treating all eighty-eight IPOs as if they were one giant offering, each worker paid just $1.27 a share for his or her stock.

Compare that to the investors who, by their connections, good fortune, or astute market sense, were able to buy a share of this IPO when it first hit the market. Average their purchase prices and you get $8.61. That may not sound like so much until you put it in percent terms. The founder employees already had a whopping 700 percent gain the minute their company's stock became publicly available. It was before much of the runup on many of the stocks started.

A rapid, and we now know irrational, runup is precisely what did occur with most High Tech 100 stocks. At the end of the very first day of public trading, the average High Tech 100 had shot up by a mind-boggling 29,083 percent, or 290 times the exercise price of the cheapest employee stock option that the company had

granted to employees in the years before the IPO. Since the stock market was in the middle of a general runup when these IPOs occurred, these first-day gains were just the beginning. Three months after each IPO, their average stock price had jumped by an even more unbelievable 42,600 percent, or 426 times the exercise price of the cheapest employee stock option.

To see how this shower of gold came pouring down on those lucky first employees, look at what happened to our friends at Portal. The company was founded in 1985 as an Internet service provider, then shifted to developing software for other service providers and communications companies. When the Internet began to expand exponentially after 1994, Portal went along for the ride. Its sales doubled in each of the succeeding years, hitting $103 million in 1999. Yet it had just 754 employees.

Portal had been granting options to all employees since its founding. Every employee got options when they were hired. Most got them annually, based on their performance, as well as for promotions and special achievements. Portal's goal was, and still is, to give options to at least two-thirds of its employees every year. In 2000, for example, the company provided options to 80 percent of its employees.

Portal went public in May of 1999, the height of the Internet boom. Its stock soared 167 percent, to nearly $12 that day. By the time the employee cash-out date arrived six months later, the stock had hit $30. Over the ensuing year, Portal's share price fluctuated between $84 and $27. We assumed that employees sold at the average of the two, or $56, and that nearly all immediately sold the shares they received. Of course, not all these people remained millionaires. Some exercised their options but didn't immediately sell, so they lost money when the stock later fell. Some who did sell may have invested in other stocks that also nosedived when the market crashed. Still, the outcome was an estimated $1.3 billion windfall, for an average of $1.4 million each. Not every employee got this much, since some owned more options than others. But Portal said later that its IPO created 350 millionaires, according to a study by the National Center for Employee Ownership.

One of those millionaires was Francine, the Portal vice president who learned to curb her judgmental instincts. She lost out on the chance to rake in several million dollars that her options could have brought if she had cashed them all in before the company's stock sank. In part, she was blocked by Portal's rules about when managers could exercise their options. She also didn't sell all the shares she did get from the options she had been able to exercise, because she believed that the market would eventually lift them up again. "I still kick myself that I didn't sell all of them," she said. Still, because she joined Portal in 1997, about two years before its IPO, she came away with plenty enough for most people: $6 million.

Francine's colleague, Jack, the finance administrator, raked it in, too. He hired on in April 1997, got a wad of options, and cashed in enough to take home $3.5 million after selling the stock. True, he held onto thousands more options, which were worth about $1 million at one point. But he still made about thirty times his annual salary, in less than four years on the job. "My expectation coming in here was that if I did one to two times my salary over the three or four or five years, $200,000 to $500,000, I thought I'd be fat, dumb, and happy," he said. "So I've got no complaints."

Or take Jennifer, the Tibco events planner. She started at the company in 1995, four years before it went public, and cashed in enough options to leave her with nearly $5 million. But it was an emotional ride, deciding when to sell, and how much. All told, Jennifer said, she could have made about $18 million if she had been able to time the stock market perfectly. Sometimes, she even felt not like she made $5 million, but that she lost $13 million.

"It was a very emotional internal battle, and extremely stressful for me," she said. "It is very hard to sell stock when it is going up all the time, extremely hard. And it's double hard to sell when it's on the way down. But it was too uncomfortable for me to hang on to too much."

Then when she did sell a lot, in 1999, "suddenly I was faced with tons of wealth. I came from an upper-middle-class family with a culture of, you never discuss money with people. I paid a million dollars in taxes in 1999 and I remember writing the check to the

government. I literally had to write it three different times, because I never had spelled out that word on a check. I literally wrote it wrong and I had to start over. My hand was trembling as I wrote the check."

Plenty of others went through the emotional wringer, too, although it's tough to feel sorry for someone who made millions but lost out on millions more. Owen, an Amazon manager we interviewed, pulled out some $5 million from his options, but missed the chance for $2 million to $3 million more. "I remember I said to my wife, 'We just lost one of the nicest homes in Seattle,' which is what I could have bought," he said.

"I'm not a real sob story, but I had nightmares about it. One of the most painful parts was the regret, which was the exact thing I had been most worried about. I never wanted to have regrets about any of this. But at that exact moment, I realized I had been drinking the Kool-Aid. Even on the day when our stock was at $30, I had a spreadsheet showing what it would be worth at $80. Finally, after a week or so, I just said, move on."

Another way to get a feel for the $78 billion windfall High Tech 100 workers lucked into is to look at the total they got at an individual company. At Tibco, for example, all employees including the top five officers exercised options worth an estimated $1.35 billion after its 1999 IPO. Of that, those below the top five took out $777 million. That averaged out to $1.6 million per worker (although of course all those options weren't distributed equally among the 490 workers on Tibco's payroll that year). They made more in the following years, about $400 million in 2000 and another $137 million in 2001, even though the stock price collapsed from $140 to about $5.

Employees of VeriSign, a 2,000-employee company that registers Internet addresses, got some $721 million since its IPO. Of that, $578 million went to non-top officers, or an average of $1.5 million for each of the company's 394 workers in 1999. The next year, after the firm had acquired Network Solutions, employees cashed in another $695 million, although the profits were split among many more people since the workforce had expanded to 2,200.

Even employees of the At Home Corporation, a High Tech 100 firm that went bankrupt in 2001, made a bundle on pre-IPO options. As of the end of 1999, employees of Excite@Home, as the company was commonly known, had cashed in some $660 million worth of options since the firm's 1997 IPO. That worked out to an average of $283,000 for each of the 2,319 workers the company had at the time.

Despite all the cheap options high-tech employees had received at pre-IPO prices, many still suffered the psychological blow of losing out on so much more. Just ask Mitch, the quality controller at Portal who spoke to us about how his ownership stake made him more willing to tell his boss if the company would suffer from releasing a product before it was ready. He had come aboard in 1997, before Portal's IPO. He got 5,000 options, which climbed to 30,000 with later stock splits. Mitch exercised all of them early on, at a nickel a share.

But then he held onto the stock, on the assumption that it would build wealth over the long term. At the time we spoke to him, in April 2001, Portal was trading at $7 a share. So his stake was worth $210,000 at that point. But he would have cleared $2.5 million if he had sold at the top, when the stock hit $84. "I have not sold a share," he said. "My philosophy is, hold it and wait to see what's going to happen."

That hurt, just as it hurt Rachel, the manager who had left a company with no options for the chance to hit it rich at Portal. She didn't even want to talk about how much she lost. Her strike price was a dollar or so. She had a standing order to sell if Portal's stock fell to $80. "But you know what, I drank the Kool-Aid, too," she said. "I thought we were going up to $140, so I cancelled my order. Now we're trading at $7. I didn't sell, because I viewed this as a long-term proposition."

Of course, having the right to pay a dollar for shares you can sell for seven is a nice return under any circumstance. Rachel also said that she did sell some, enough to give her savings of about as much as she earned from her salary in a year. So she could afford to put her kids in private school, and the mortgage didn't worry her any-

more. "But I felt stupid," she said. "For a long time I kept saying, 'I know it's going to go up, I know it's going to go up.' Until fairly recently I could grit my teeth and say, 'It's a long-term play.' It is much harder for me to believe now."

While High Tech 100 employees had a potential equity stake of 19 percent as of the end of 2000, a skeptic might retort: "Yeah, but I bet most of their options are underwater today. So their ownership probably doesn't amount to much anymore, not after the crash."

There's at least some truth to this. As we mentioned above, we estimate that 83 percent of the options held by High Tech 100 employees were indeed underwater as of July 2002. Some hadn't cashed in these options because they hadn't vested. Others chose to ride the market and came to regret it. No question, though, some high-tech employees emerged from the boom and the bust with little to show but the salaries they had earned.

Just ask Peter, who joined Tibco in 1999, right before its stock split two for one. He got 16,000 options with a strike price of $70. Within two months, Tibco's stock doubled, to $139, making him worth $2.2 million on paper. But he hadn't vested, so he couldn't exercise them. In 2000, he watched as the stock slipped lower and lower. By early 2001, it was down to just $10 and his millions seemed like a dream.

"I knew I didn't vest for a year, but it was already money in the bank for me," said Peter, who was about thirty at the time. "At certain times, I had these little visions of dollar signs dancing in my head. It doesn't really affect me, because all along I've thought of it as a lottery ticket."

Jay Wood, the former CEO of Kana who's now the chairman, said that the employees who felt the worst were those who counted their paper profits and thought they had won the lottery, only to find their dreams crushed. "They missed the opportunity, which is a hard thing psychologically to overcome," he said.

The people who felt just as bad were those who came in near the top of the market. Some had a chance to make a little from their options, but mostly they watched as the lucky ones spent their winnings. Many came down with severe cases of option envy. Wendy, a Tibco marketing official, started at the company in November of

1999, just five months before the stock peaked. She got a total of 10,000 options, but they didn't vest until her one-year anniversary came up. She cashed out some of her options while the price was already headed down, so she made a few thousand dollars. But that was it. By the spring of 2001, all options she still held were underwater.

The hardest part, she said, was watching everyone else in her department spend all their loot. "I saw other people buying new clothes, getting new cars, buying houses. I was the last of the group to vest, and when I vested the price wasn't as high. I definitely experienced the envy."

Although most high-tech employees either made money from options or just didn't exercise them if they wouldn't have made a profit, a few unlucky people actually lost their own money, sometimes buckets of it, because of the strange tax rules that apply to most options.

Federal law recognizes two types of options, which get taxed in very different ways. One is called a qualified, or incentive, stock option, which means employees can pay lower capital gains taxes on any profit, if they hold the stock for a certain period. The second is a nonqualified option, meaning it doesn't allow employees to qualify for capital gains. They must pay the ordinary income tax on the profit. Most of the stock options in the High Tech 100 are of this type.

A problem arises when employees with nonqualified options exercise them but don't immediately sell the shares—and the share price falls dramatically. That happened to some unlucky employees during the market downdraft of 2000. The IRS reasoning goes as follows. Say you exercise an option with a strike price of $5 and your company's stock is trading at $100 that day. The IRS says you just received compensation from your employer of $95, so you must pay tax on it immediately. That's not difficult if you actually sell the share and collect the profit. But if you chose to gamble by not selling your shares and actually collecting your profit, well, that's your problem, you still owe the tax. The same thing would happen if a relative gave you a gift of stock that you claimed as income, and then the stock price declined.

This is what happened to Jerry, an Excite engineer who spoke to us with a group of his colleagues in early 2001. He had been worth $15 million for one magical moment in 1999, when his company's stock was worth about $200 a share. He exercised his options at a much lower price and immediately owed Uncle Sam ordinary income taxes on the paper profits. But he didn't sell the shares he received and take his cash profits. His mistake in not selling, he said, stemmed from the arrogance that came when the stock price just kept climbing.

"I just kind of had this invincible thing, like if all my stock vests in another year, I'll be worth $4 million, so big deal, who cares (about the tax), I'll just sell some more stock. Once, I went out and bought a $3,600 gold watch just on a whim. The money just disappeared like you would not believe. I thought I knew what I was doing and knew all the tax laws. So I thought, I'll just hold on, it keeps going up. I had no reason to sell and minimize the taxes, because you never never could foresee that the stock would fly from $100 to $4." When he finally sold his stock, he got far fewer profits and had to struggle to pay his taxes.

Another problem had to do with the Alternative Minimum Tax (AMT), a federal tax designed to make sure rich people don't take so many deductions that they pay no federal income tax at all. Some employees with incentive stock options exercised their options, had terrific paper wealth, and once again held onto their shares rather than sell. However, they did so in order to get that special lower capital gains treatment.

This happened to John, another Excite@Home engineer. When he joined the company in the late 1990s, John had received several thousand options that quickly became worth hundreds of thousands of dollars, at least on paper. In April 1999, he was house-hunting and quickly locked himself into escrow on a $600,000 house. Excite's stock was soaring skyward, jumping from $120 a share to $175 in the space of a month. John's first tranche of options vested on May 1, and if he had exercised and sold, he would have had more than enough for a $25,000 down payment, as well as the $60,000 BMW he wanted, and still had enough left over to pay the tax bill.

That spring, he exercised his options just below Excite's $200 high and had enormous paper wealth. But he held tight, selling nothing. His plan was to hold the shares for a year so that he could qualify to pay the lower capital gains tax. Then the stock began to nosedive. At $135, John sold enough to make the down payment. However, he continued to hold the rest of his shares, still thinking Excite's stock price would rebound as it had in the past. In April 2000, he got hit with a $130,000 tax bill from the IRS because the Alternative Minimum tax on his paper profits now applied. He had no cash to pay it. Fortunately, he didn't have to sell his home to pay off the feds, because he could take out a home equity loan instead. But he has lamented his greed ever since. He had taken a risk to pay lower capital gains taxes and lost the gamble.

"What's stupid is that I could have sold at $175, but I waited because there was this whole jackpot mentality," said John. Now, "the problem is that my mortgage payments are $4,200 a month between the two loans, so I am literally teetering on the edge. I think I have like $400 left in the bank right now. It's ridiculous. I'm making a six figure salary and I'm living paycheck to paycheck." By the end of the year, he had even worse problems, since he lost his job when Excite went down the tubes. Of course, his stock became worthless, too.

On tax day, 2001, some employees got hit with AMT tax bills that occasionally ran into five figures. News reports said that many were unable to pay even after they dumped their stock, sold their homes, and cashed out 401(k)s and other savings. "What are they going to do if we don't fix this—spend the next five years paying the IRS taxes on something they never had?" U.S. Rep. Zoe Lofgren, a San Jose, California, Democrat, complained to the *San Jose Mercury News* that April. "That's not fair."

Lofgren and lawmakers from Silicon Valley and other tech hotspots pushed for federal legislation that would provide retroactive relief for thousands of workers caught in this dilemma in 2001. If the bill ever passes, workers who exercise stock options no longer would face the AMT on their paper profits. Instead, they would be taxed on any actual gains they made from selling stock. "There's something fundamentally troublesome with the concept of taxing income that never existed," said Lofgren.

Plenty of high-tech employees caught in this dilemma said they didn't understand the tax consequences of the various courses of action they might take with their options, nor how to avoid all the potentially calamitous pitfalls. According to a 2001 national survey by Oppenheimer Funds, more than half of employees who receive options know little or nothing about their tax implications, yet 50 percent seek no advice before exercising them. But some also concede that they got caught up in the Gold Rush fever. They thought the stock price would keep doubling every year, which would render the tax consequences inconsequential. So they exercised their options and held onto the shares in the hope of really making a killing. Then when the market suddenly crashed, they were the ones that got killed.

Some employees compounded their financial misery by borrowing on their stock, often at the urging of stock brokers. This happened to dozens of Microsoft employees in the 2001 tax season. One midlevel employee of the firm told the *New York Times* that the Microsoft stock he acquired from his options was worth $1.5 million when the company's share price peaked in 2000. He owed taxes on the paper profit, but instead of selling the stock to pay it, he held on, assuming the market would keep lifting Microsoft's share price. So he borrowed money from his broker, using the stock as collateral, a practice known as a margin loan.

But when the market fell and Microsoft's stock collapsed by 50 percent, disaster hit. The employee, who declined to give his name, found that his brokerage firm had the right to begin selling his collateral shares at the lower price to pay off his margin loan. By tax day, most of his stock was gone and he still owed $100,000 in taxes, more than his annual salary. More than two dozen Microsoft employees in similar situations wound up filing for bankruptcy.

A big part of the problem is that even the financial experts can't agree on what employees should do with options. Generally speaking, their advice falls into three camps, says Corey Rosen, Executive Director of the National Center for Employee Ownership, a nonprofit organization in Oakland, California. One group says you should hold options as long as possible if you believe that the stock

will go up over the long term. Corporate executives, the employees most likely to get options, are often faulted for selling too early.

Another school of thought says that you should not be trying to guess the market or react emotionally to your company's stock price. This group wants you to sell on an orderly, phased schedule once the options vest.

A third group talks of critical capital, by which they mean the amount of risk that is prudent given your own financial situation. Part of the consideration should be just how many retirement nest eggs you have in any one basket of stock. If a lot of your savings are sunk into the company where you work, through a 401(k) match, for example, you might want to regularly diversify into other investments—even if doing so sacrifices some upside potential. Rosen puts it this way: "If you are making $50,000 a year, are middle-aged, and have a daughter going to college next year on option wealth, then you may have a reason to take your profits now. But if you are making $50,000 and have money saved for your retirement and no immediate needs, you may not want to rush into exercising options."

Unfortunately, none of the pundits worried much about the peculiar tax complications of a catastrophic crash in market values. So some employees who used options to buy stock and hold it got caught. Still, most employees who get stock options don't end up in such a state, because most simply sell the stock and take their profit at the same time they exercise an option.

Options can be tricky, and sometimes financially dangerous. But it remains the exception for employees actually to lose money on them. If a company's stock price keeps rising above the exercise price, then by definition employees gain. If the market value falls, however, most employees usually have enough time to realize what's happening and just don't exercise the option. In that case, they incur no paper profit and the IRS doesn't come knocking at their door. Those who got hit in 2001 were unfortunate enough to exercise just before an abrupt, and very large, slump.

While on average many high-tech workers made significant amounts of money from their options throughout the industry's

boom and bust, that still left the question of what would happen to them from then on. True, the new conventional wisdom didn't accurately assess just how much wealth their options gave them. But when the glory days ended and the Internet's prospects started to resemble those of more traditional industries, were the new B-school grads right to think that a stock option isn't worth the paper it's written on?

There are two issues to consider. First, some high-tech firms used stock options to bargain down what they had to pay talented new hires, a practice that was especially prevalent in the industry's early days. Since it's highly unlikely that the High Tech 100 will repeat the crazy stock gains they enjoyed in the late 1990s, it's possible that some employees could earn less from their ownership than they give up in the form of below-market salaries.

On the other hand, there's another largely unnoticed feature of stock option capitalism that cuts the other way. The High Tech 100 don't just issue options as a one-shot deal to lure workers in the door. The vast majority also grant them on an ongoing basis, usually annually. This isn't apparent in the total employee equity figures we presented in this chapter. These numbers add up all the options employees ever had received in their company's entire history that remained outstanding in December 2000.

The question is, what's the value of the options that high-tech workers get every year? If it's high enough, they could offset the lower pay some receive. For the majority who do earn market-level salaries, the issue is whether the new options are sufficient to compensate for the extra risk of working in an industry whose long-term outlook no longer seems quite so shiny and bright.