The Entrepreneur of the Decade

An interview with Steven Jobs, Inc.'s Entrepreneur of the Decade

By Bo Burlingham By George Gendron

It took us all of about five minutes to decide that our Entrepreneur of the Decade would be Steven P. Jobs, co-founder of Apple Computer Inc. and founder of NeXT Inc. Granted, there are other entrepreneurs, a handful, who have enjoyed comparable success in the past 10 years, and who—unlike Jobs —have managed to avoid getting sacked by their companies in the process. But ultimately, their accomplishments pale alongside his. Without Jobs, after all, there would have been no Apple II. To that extent, he deserves credit for instigating—and shaping—a microcomputer revolution that has already transformed how we do business and may yet transform how we live.

Along the way, Jobs came to personify a whole generation of youthful company builders pioneering on the frontiers of technology—the men and women who, overnight, made Silicon Valley a business landmark and a household name. They were not only building companies; they were also experimenting with new ways of thinking about business itself. The national media hailed them for their innovative spirit and touted them as the people who would restore America's competitive edge.

Jobs was their most prominent representative, on the cover of *Time* before he turned 27. He came across as brash, abrasive, and rough edged. But he also had dreams, big dreams, and the peculiar ability to develop products that seemed to give us a glimpse of a bright and exciting future. What he did once with the Apple II, he did again with the Macintosh, only to be forced out of his company by the man he had recruited to lead it, former soft-drink executive John Sculley. Soon afterward Jobs started a new computer company, NeXT Inc., and then slipped from public view. But last fall he

reemerged, staging a dramatic presentation at San Francisco's Symphony Hall to introduce his latest creation—a workstation for the higher-education market. Once again, his picture was splashed across newspapers and magazine covers. Steve Jobs was back.

Through it all, we followed his journey and shared his experiences, quietly rooting for his success. But it was not until we had settled on him as our Entrepreneur of the Decade that we realized how little we actually knew about him. That is the paradox of Jobs. As public as his life has been, he has remained a mystery over the years. We weren't at all sure what to expect when we met him at his Palo Alto, Calif., office.

Boyish is probably the word that best describes our first impression. He was wearing jeans and a turtleneck as he bounded up the stairs. He was friendly, even cordial, but there was a diffidence in his manner that became more pronounced as the afternoon wore on. A profoundly shy man, he had an almost physical aversion to any question that could be construed as even remotely personal.

On the other hand, he was thoroughly forthcoming about business. The experiences of recent years have not diminished his passion. He clearly loves what he is doing and talks about it with a fervent voice and gleaming eyes. In that respect, he seems as youthful as ever. Yet, at the same time, one senses a newfound maturity. Ask him the right questions, and he comes across as an extremely thoughtful person, engaged by deep issues, struggling to find the appropriate words, now able to articulate things that before he knew only by instinct.

By reputation, Jobs is a perfectionist and an extraordinarily demanding boss. Stories abound of the people he has burned out. We can believe them all. NeXT is surely no fun for those who don't share his fervor. Yet as we left, we realized that our strongest reaction to Steve Jobs was the one we considered least probable going in. We liked him.

Steve Jobs was interviewed by Inc. *editors George Gendron and Bo Burlingham.*

INC.: Where do great products come from?

JOBS: I think really great products come from melding two points of view—the technology point of view and the customer point of view. You need both. You can't just ask customers what they want and then try to give that to them. By the time you get it built, they'll want something new. It took us three years to build the NeXT computer. If we'd given customers what they said they wanted, we'd have built a computer they'd have been happy with a year after we spoke to them—not something they'd want now.

INC.: You mean the technology is changing too fast.

JOBS: Yeah, and customers can't anticipate what the technology can do. They won't ask for things that they think are impossible. But the technology may be ahead of them. If you happen to mention something, they'll say, "Of course, I'll take that. Do you mean I can have that, too?" It sounds logical to ask customers what they want and then give it to them. But they rarely wind up getting what they really want that way.

INC.: It's got to be equally dangerous to focus too much on the technology.

JOBS: Oh, sure. You can get into just as much trouble by going into the technology lab and asking your engineers, "OK, what can you do for me today?" That rarely leads to a product that customers want or to one that you're very proud of building when you get done. You have to merge these points of view, and you have to do it in an interactive way over a period of time—which doesn't mean a week. It takes a long time to pull out of customers what they really want, and it takes a long time to pull out of technology what it can really give.

INC.: What do you mean?

JOBS: It's hard to explain. Sometimes the technology just doesn't want to show you what it can do. You have to keep pushing on it and asking the engineers over and over again to explain why we can't do this or that—until you truly understand it. A lot of times, something you ask for will add too much cost to the final product. Then an engineer might say casually, "Well, it's too bad you want A, which costs $1,000, instead of B, which is kind of related to A. Because I can do B for just 50¢." And B is just as good as A. It takes time to work through that process—to find breakthroughs but not wind up with a computer no one can afford.

INC.: And that's how you developed the NeXT machine?

JOBS: Right. I mean, we had the idea of doing a machine for higher education in the fall of 1985, but our original concept was about a third as good as the computer turned out to be. The improvement came from a lot of interaction between people in higher education and those of us at NeXT.

INC.: Give us an example.

JOBS: I have a friend at Stanford, a Nobel Prize-winning molecular biologist. He was showing me what some of his students were doing to understand how proteins fold. He asked, "Couldn't you model this stuff on a computer if you had something more powerful than a PC?" It really got me thinking. What if you came up with something that was as easy to use as a Mac, or even easier, and had the power of a workstation? What if you unleashed that machine in higher education? The more I thought about it, the more excited I got.

INC.: But there are a lot of workstations around and computers far more powerful than workstations. What's so exciting about a souped-up microcomputer?

JOBS: Well, that gets back to something I've said before. You see, I think humans are basically tool builders, and the computer is the most remarkable tool we've ever built. The big insight a lot of us had in the 1970s had to do

with the importance of putting that tool in the hands of individuals. Let's say that—for the same amount of money it takes to build the most powerful computer in the world—you could make 1,000 computers with one-thousandth the power and put them in the hands of 1,000 creative people. You'll get more out of doing that than out of having one person use the most powerful computer in the world. Because people are inherently creative. They will use tools in ways the toolmakers never thought possible. And once a person figures out how to do something with that tool, he or she can share it with the other 999.

INC.: That's a big idea.

JOBS: It's an extremely powerful paradigm. It's what has driven a bunch of us since this whole thing began to happen, and it hasn't changed. It hasn't changed for me since 1975. That's almost 15 years now. I believe this is one of the most important things that's going to happen in our generation. It would be easy to step back and say, "Well, it's pretty much over now." But if you look carefully, it's not over by any stretch of the imagination. The technological advances are coming at a rate that is far more ferocious than ever. To me, it's staggering to contemplate the tools we're going to be able to put in people's hands in the next few years—and I don't get impressed by this stuff so easily anymore.

So what we're doing here is driven by a fairly strong faith that people are going to continue to be as creative and as ingenious and as sharing with their results as they have been over the past 15 years. That sharing gives us a kind of leverage. For every improvement we can make in the tools we give people, we can improve the ultimate results even more, thanks to this leverage. That's what gets us so excited.

INC.: Let's go back to the process of creating these tools. How different was it back in the '70s, when you and Steve Wozniak were developing the Apple I and the Apple II?

JOBS: It was basically the same, although we were a lot less sophisticated. The customers for the Apple I were Woz and me and our friends in the Homebrew Computer Club. The Apple I was really the first computer to address the needs of the hobbyist who wanted to play with software but could not build his or her own hardware. It came with a digital circuit board, but you still had to go get your own keyboard, power supply, and television monitor. If you were a techie, the Apple I seemed to go 90 percent of the way. Of course, if you weren't a techie, it only went 10 percent of the way. We sold almost 200 of the Apple I. I think they're all collector's items now.

INC.: No doubt.

JOBS: The Apple I took us over a big hurdle, but a lot of people who wanted to use the product were unable to. We were getting some feedback from a fairly small sample—maybe 40, 50 people. We were hearing from dealers, too. They'd say, "I think I can sell 10 times more of these if you would just put a case and keyboard around it." That's where a lot of the direction for the Apple II came from. If there hadn't been an Apple I, there would not have been an Apple II. The first product solved some of the problems and exposed the remaining ones in a much clearer light. But we were going on common sense. We didn't think in terms of customer feedback. We never even used the word *customer*.

INC.: So what were you thinking?

JOBS: We were thinking we should build a computer you could just roll out of the box and use. There were a lot more software hobbyists than hardware hobbyists around, and we could satisfy a lot more people if they didn't have to be hardware hackers to use it.

INC.: And that observation led to the Apple II.

JOBS: Right. And the same fundamental thing happened in 1979, when I saw an Alto [that had been developed] at Xerox PARC [Palo Alto Research

Center]. It was as if, all of a sudden, the veil had been lifted from my eyes. It had the mouse and the multiple-font text on the screen, and you realized in an instant that this would appeal to exponentially more people than the Apple II. I'm talking about people who didn't want to *learn* how to use a computer—they just wanted to use one. You could eliminate a whole layer of what someone had to know in order to take advantage of this tool.

INC.: So the contribution of the Apple II . . .

JOBS: The Apple II peeled off the hardware layer. You didn't need to know about the hardware to use a computer. The next step was the transition from the Apple II to the Macintosh, which peeled off the computer-literacy layer, if you will. In other words, you didn't have to be a hacker or a computer scientist to use one of these.

INC.: Let's talk about some other aspects of these products. We've read stories about how finicky you were with the Apple II—how you insisted that every line of solder on the circuit board be perfectly straight, for example, and that the inside of the machine look neat and attractive.

JOBS: Yeah, that's right.

INC.: The NeXT circuit board is a thing of beauty, too. So is the computer. In fact, it could probably go in some collection at the Museum of Modern Art.

JOBS: They've called.

INC.: But why is the appearance of a circuit board so important to you? Is this just a personal quirk of yours?

JOBS: No, it's not arbitrary. You're asking, where does aesthetic judgment come from? With many things—high-performance automobiles, for example—the aesthetic comes right from the function, and I suppose electronics is no different. But I've also found that the best companies pay attention to aesthetics. They take the extra time to lay out grids and proportion things

appropriately, and it seems to pay off for them. I mean, beyond the functional benefits, the aesthetic communicates something about how they think of themselves, their sense of discipline in engineering, how they run their company, stuff like that.

INC.: But who cares? Most people are never going to look inside.

JOBS: Woz and I cared from the very beginning. And we felt the people who were going to own the Apple II would care, too. We were selling these things for $1,600, I think, which was a lot of money back in 1977, and these were people who generally didn't have $1,600. I know people who spent their life savings on one. Yeah, they cared what it looked like on the inside.

INC.: Was this just intuitive to you?

JOBS: Yes, it was. We thought, why don't we take the extra few days or weeks and do it right? We had a fundamental belief that doing it right the first time was going to be easier than having to go back and fix it. And I cannot say strongly enough that the repercussions of that attitude are staggering. I've seen them again and again throughout my business life. They're just staggering.

INC.: How do you mean?

JOBS: In my experience, people get far more excited about doing something as well as it can be done than about doing something adequately. If they are working in an environment where excellence is expected, then they will do excellent work without anything but self-motivation. I'm talking about an environment in which excellence is noticed and respected and is in the culture. If you have that, you don't have to tell people to do excellent work. They understand it from their surroundings. You may have to coach them at first, but then you just get out of their way, and they'll surprise you time and time again.

INC.: So?

JOBS: So how do you communicate to people that they are in an environment where excellence is expected? You don't say it. You don't put it in an employee handbook. That stuff is meaningless. All that counts is the product that results from the work of the group. That will say more than anything coming out of your mouth or your pen. So you have to pay close attention to those details, even if they seem minor, because they communicate a big attitude about what you do.

INC.: Can you be more specific?

JOBS: Sure. When we started the Macintosh factory, I made a few mistakes before I finally put Debbie Coleman in to run it, and she turned out to be a good choice. I remember that I'd go out to the factory, and I'd put on a white glove to check for dust. I'd find it everywhere—on machines, on the tops of the racks, on the floor. And I'd ask Debbie to get it cleaned. I told her I thought we should be able to eat off the floor of the factory. Well, this drove Debbie up the wall. She didn't understand why you should be able to eat off the floor of the factory. And I couldn't articulate it back then.

See, I'd been very influenced by what I'd seen in Japan. Part of what I greatly admired there—and part of what we were lacking in our factory—was a sense of teamwork and discipline. We lacked discipline about little details, but they were important. This was an automated factory. It wasn't going to be the big things that would stop us. It was going to be the little details, because one little detail could shut down the whole line. If we didn't have the discipline to keep that place spotless, then we weren't going to have the discipline to keep all these machines running.

INC.: What happened?

JOBS: We went along for a while, and the factory became clean, but Debbie and I continued to have conflicts over various things. Then one day I came

into the factory, and I saw that she had rearranged some of the machines. Before, they had been randomly placed around the floor. Debbie had moved them for some functional reasons and also for some nonfunctional reasons. She'd put them in a straight line and cleaned the place up visually. And I hadn't mentioned anything to her. Well, that told me a light bulb had come on for her, and I didn't need to say a thing about it ever again—and I never did. From then on, she just took off like a rocket, because she understood the underlying principle. And the factory worked great.

INC.: It sounds as if she had to figure it out on her own.

JOBS: Yeah, but this stuff takes time. Let me give you an example from NeXT. We have probably the most automated factory in the world. Our circuit board comes out untouched by human hands. We have a series of sophisticated robots, some of which we built, some of which we bought. Now these robots come in different colors, and I wanted them all painted the same color. We went through a lot of trouble over that because the robot companies weren't used to painting things in any color but their own. People in our factory asked me, "Why is it so important to paint these machines the same color? We don't understand it." So we had to sit down with everybody and explain. Even after hearing the reasons, it took people six months or so before they began to understand.

INC.: What are the reasons?

JOBS: For one thing, we want the place to look nice because we bring customers through. They're going to make a decision on using NeXT products, and they ought to know that we have a very high-quality manufacturing operation. But the real reason is that we don't want people to think of the factory as separate islands of automation. We want people thinking of the whole. Suppose we have a bottleneck at one robot. In reality, you can probably rebalance the line and solve the problem—provided you think of it as a whole. It took people six months to understand this, but now it's in their bones. We spend a lot of time going over these concepts and why

they are important—not just in the abstract, but right down to the everyday tangible point of view. That's what building a company culture is all about.

INC.: Do you have more influence over things like that now than at Apple? There's a perception that the launch of Apple was a team effort, and NeXT is very much your show.

JOBS: Is that really the perception?

INC.: To some extent, it is. Of course, there weren't any celebrities at Apple back then. Now, you're a celebrity.

JOBS: Well, we all tend to reduce reality to symbols, but Superman went out a long time ago. The way you accomplish anything significant is with a team.

INC.: Is it a problem or an asset to be a celebrity?

JOBS: Is this *Inc.* or *People?*

INC.: Hold on. We're asking a legitimate business question. Maybe celebrity is the wrong word, but you must certainly be a magnet for bright, young talent, which is probably what helps make this an exciting place to work. Don't you ever worry that the very thing that attracts people to your company might also inhibit them from challenging you when they should?

JOBS: Again, it all depends on the culture. The culture at NeXT definitely rewards independent thought, and we often have constructive disagreements —at all levels. It doesn't take a new person long to see that people feel fine about openly disagreeing with me. That doesn't mean I can't disagree with them, but it does mean that the best ideas win. Our attitude is that we want the best. Don't get hung up on who owns the idea. Pick the best one, and let's go.

INC.: What about the expectations people have of you?

JOBS: I think people outside NeXT have fairly high expectations of us, because we have a lot of people here with impressive track records. Before we introduced the machine, many people felt we had little chance of living up to those expectations. The feedback I've gotten is that we've exceeded their expectations—which is a double-edged sword. Now, we have to be pretty much world class with our products and services, but that's also an opportunity.

INC.: Did you ever doubt you'd meet or exceed the expectations?

JOBS: You don't think about it that way. You just make the best product you can, and you don't put it out until you feel it's right. But no matter what you think intellectually, your heart is beating pretty fast right before people see what you've produced.

INC.: What about your expectations of yourself? A lot of successful company builders we know agonize about going back and doing it all over a second time. They think, if it's not bigger—in importance, that is, not necessarily in scale—why bother doing it?

JOBS: Well, first, you have to realize this is my third time. The Macintosh was my second. I mean, that was a bunch of us going off and starting in the garage again. We used Apple as a financial mechanism, and we used the sales force. But we fundamentally redefined a lot of things at Apple, and we had to do it from scratch.

INC.: Are you saying that you've already proven to yourself that you can do it all over again?

JOBS: I'm saying that my motivation is a little different this time. The computer industry is young. I view its future and its history as one long vector. We're only in the first inch of that vector. For some reason, we are in the right place at the right time to influence its direction. You just have to move the vector a little bit in the first inch, and the swing will be enormous by

the time it gets to be three miles long. I think both the Apple II and the Macintosh contributed to setting the vector's direction—at least for the part of the computer industry that is most exciting to me. I hope the NeXT machine will contribute as well.

INC.: That's a tall order.

JOBS: It sure is. It means we have to succeed on a very large scale. Our smallest competitor is $1.75 billion these days. The world doesn't need another $100-million computer company. We have to get up to a certain scale if we want to play in the sandbox, and if we want to have the effect we're looking for at the end of the process. We're building the next billion-dollar computer company here—from the ground up.

INC.: How can you actually plan that kind of growth?

JOBS: You can't. Somebody once told me, "Manage the top line, and the bottom line will follow." What's the top line? It's things like, why are we doing this in the first place? What's our strategy? What are customers saying? How responsive are we? Do we have the best products and the best people? Those are the kind of questions you have to focus on.

INC.: Are those explicit goals for NeXT?

JOBS: We have three high-level goals. One is to make the best computers in the world for individuals. They might be in networks or in groups, but one person, one computer. Second, we want a company where really bright people can come and be handed a lot of responsibility early on. If we have an exciting place to work, we can get the best and the brightest to come work here. The third goal is to make sure that the people who build this company share in its success.

INC.: You once said that you felt people do their best work in their twenties. You're 33 now...

JOBS: I'm about to turn 34. Any day.

INC.: So is that a concern for you, given your ambitions for NeXT?

JOBS: No, I think I'm going to be doing some of my best work in the next few years. I want to make the most of it, and that means providing an unobstructed path for the brightest minds in our industry. My job becomes more to help them pick the targets correctly and then get out of their way.

INC.: That's very different from playing an intense hands-on role. It takes a certain maturity. You have to look for different rewards.

JOBS: I don't know about that. You're still in there working with your sleeves rolled up. Then the time comes to get out and let people do their work. But in a company as amibitious as NeXT, there is always another group asking for help. So it's not as if you ever have to sit around with nothing to do.

INC.: You seem to have thought a lot about your role.

JOBS: Yeah, well, when you do things the first time, you might have good instincts, but you don't understand the process intellectually. You may get some fairly good results, but you're not exactly sure why. It takes time and reflection to understand the process.

Then you get a chance to test your understanding. Some things will test out right; others will test out wrong. Hopefully, you're paying attention. By the third time, you should start to get a pretty good feeling in your gut that you understand the process. And you can use that understanding to become a lot more productive. That's how this feels. A lot of us have been working together for a long time.

INC.: So you can avoid mistakes?

JOBS: Oh, we'll make a whole bunch of mistakes. That's what life is about. But at least they'll be new and creative ones.

INC.: You once said that, in the early days of Apple, Woz was the great engineer, but you were the one who turned the ideas into products. Do you still think of your role in terms of the product?

JOBS: I think the same philosophy that drives the product has to drive everything else if you want to have a great company. Manufacturing, for example, is an extension of the engineering process for us. We view it more and more as a software-engineering job with interesting I/O [input-output] devices on the ends. It demands just as much thought and strategy as the product. If you don't pay attention to your manufacturing, it will limit the kind of product you can build and engineer. Some companies view manufacturing as a necessary evil, and some view it as something more neutral. But we view it instead as a tremendous opportunity to gain a competitive advantage.

INC.: Have you always viewed it that way?

JOBS: Ever since I visited Japan in the early '80s. And let me add that the same is true of sales and marketing. You need a sales and marketing organization that is oriented toward educating customers rather than just taking orders, providing a real service rather than moving boxes. This is extremely important. For most of your customers, after all, the sales folks *are* your company. So you've really got to pay attention to that. The point is that our philosophy is not a product philosophy. It's a philosophy of how we go about things, and it affects everything—finance, information systems. Can I digress for a moment?

INC.: Go ahead.

JOBS: Let's take the decision to automate a factory. You might have a lot of reasons for doing it, quality and other things. But there's a nice by-product of automation if you're growing very fast: you probably don't have to hire people as rapidly as you would if you weren't automated. When you hire people too quickly and don't give them appropriate training, quality drops off. So you

have a much better chance of hanging on to your quality if you automate. The same is true in other parts of the company—accounts payable, for example. With a really good information system, you can automate a lot of those functions. Then you don't have to hire people, which saves your company an enormous amount of energy.

So, to build a great company, you need more than a great product. You have to pay attention to all the different areas and be as aggressive with them as with your product. Otherwise, you'll spend half your time fixing things that break. And that's typical of high-growth companies. Half the management time is spent making repairs—stock-option plans, marketing strategies, information systems, whatever.

INC.: Let's stop there. Suppose somebody is starting a company and doesn't have your resources to fall back on. Is any of this relevant?

JOBS: Well, obviously, you can't build a multimillion-dollar automated factory if you don't have the money. But a lot of this stuff just requires energy.

Take an employee stock-participation plan. You need help from a lawyer or a consultant. Most people take very little time selecting lawyers and consultants. It doesn't cost money to interview 10 lawyers, but you have to invest your time. And most people don't do it because they don't think it's important. But it is important. It will save you countless hours in the future.

And the same goes for auditors, accountants, engineering consultants, and so on. Because you need people who can anticipate the problems you will encounter and who can offer solutions.

INC.: It sounds as though you experienced these problems at Apple.

JOBS: Of course. I can show you the arrows.

INC.: This is just a personal observation. You seem much more interested in business than we had expected.

JOBS: Business is what I do.

INC.: But you have an image as someone more focused on the technical side of things.

JOBS: Well, there's the technical part of the equation and the business part, meaning the distribution, manufacturing, and so on. And then there's the human part. You just have to put the whole equation together.

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INC.: May we ask you a mushy question? We're in a business in which we rarely get to see people using our product, except maybe on an airplane once in a while. But you get to see the products you've created being used all the time. Do you sometimes marvel at the effect you've had on people's lives?

JOBS: Well, yes, there are some moments. I was in an elementary school just this morning, and they still had a bunch of Apple IIs, and I was kind of looking over their shoulders. Then I get letters from people about the Mac, saying, "I never thought I could use a computer before I tried this one."

INC.: To some extent, you don't know how people are going to use a computer when it first comes out, do you?

JOBS: No, you don't. Sometimes it takes years to exploit a computer's baseline capabilities. It took five years before people exploited the advanced features of the Apple II. With the Macintosh, it took three or four years. So it's important to build in as much raw capability as possible when you put out the machine.

INC.: Did you have any idea that you were creating whole new industries with the development of the Apple II and the Mac?

JOBS: With the Mac, it was fairly clear; less so with the Apple II. But I must also say that the experience of watching it happen is quite different from the

experience of imagining it happen. I think everybody who had anything to do with creating the Mac has very, very good feelings about it.