Introduction

If Mark Zuckerberg Can Be a Billionaire

There is a line from a song in the musical *A Chorus Line:* "If Troy Donahue can be a movie star, then I can be a movie star." Every year one imagines hearing a version of this line reprised in high-tech start-ups across the country: "If Mark Zuckerberg can be a billionaire ..." For indeed, the great thing about high tech is that, despite numerous disappointments, it still holds out the siren lure of a legitimate get-rich-quick opportunity.

This is the great attraction. And yet, as the Bible warns, while many are called, few are chosen. Every year millions of dollars—not to mention countless work hours of our nation's best technical talent-—are lost in failed attempts to join this kingdom of the elect. And oh what wailing then, what gnashing of teeth!

"Why me?" cries out the unsuccessful entrepreneur. Or rather, "Why *not* me?" "Why not us?" chorus his equally unsuccessful investors. "Look at our product. Is it not as good—nay, better—than the product that beat us out? How can you say that Salesforce is better than RightNow, Linkedln is better than Plaxo, Akamai's content delivery network is better than Internap's, or that Rackspace's cloud is better than Terremark's?"

How, indeed? For in fact, feature for feature, the less successful product is often arguably superior.

Not content to slink off the stage without some revenge, this sullen and resentful crew casts about among themselves to find a scapegoat, and whom do they light upon? With unfailing consistency and unerring accuracy, all fingers point to—*the vice president of marketing.* It is marketing's fault! Salesforce outmarketed RightNow, Linkedln outmarketed Plaxo, Akamai outmarketed Internap, Rackspace outmarketed Terremark. Now we too have been outmarketed. Firing is too good for this monster. Hang him!

While this sort of thing takes its toll on the marketing profession, there is more at stake in these failures than a bumpy executive career path. When a high-tech venture fails, everyone goes down with the ship—not only the investors but also the engineers, the manufacturers, the president, and the receptionist. All those extra hours worked in hopes of cashing in on an equity option—all gone.

Worse still, because there is no obvious reason why one venture succeeds and the next one fails, the sources of capital to fund new products and companies become increasingly wary of investing. Interest rates go up, valuations go down, and the willingness to entertain venture risk abates. Meanwhile, Wall Street just emits another deep sigh. It has long been at wit's end when it comes to high-tech stocks. Despite the efforts of some of its best analysts, these stocks are traditionally misvalued, often spectacularly so, and therefore exceedingly volatile. It is not uncommon for a high-tech company to announce even a modest shortfall in its quarterly projections and incur a 30 percent devaluation in stock price on the following day of trading. As the kids like to say, What's up with that?

There are, however, even more serious ramifications. High-tech innovation and marketing expertise are two cornerstones of the U.S. strategy for global competitiveness. We will never have the lowest cost of labor or raw materials, so we must continue to exploit advantages further up the value chain. If we cannot at least learn to predictably and successfully bring high-tech products to market, our countermeasures against the onslaught of commoditizing globalization will falter, placing our entire standard of living in jeopardy.

With so much at stake, the erratic results of high-tech marketing are particularly frustrating, especially in a society where other forms of marketing appear to be so well under control. Elsewhere—in cars or consumer electronics or apparel—we may see ourselves being outmanufactured, but not outmarketed. Indeed, even after we have lost an entire category of goods to offshore competition, we remain the experts in marketing these goods to U.S. consumers. Why haven't we been able to apply these same skills to high tech? And what is it going to take for us to finally get it right?

It is the purpose of this book to answer these two questions in considerable detail. But the short answer is as follows: Our default model for how to develop a high-tech market is almost—but not quite—right. As a result, our marketing ventures, despite normally promising starts, drift off course in puzzling ways, eventually causing unexpected and unnerving gaps in sales revenues, and sooner or later leading management to undertake some desperate remedy. Occasionally these remedies work out, and the result is a high-tech marketing success. (Of course, when these are written up in retrospect, what was learned in hindsight is not infrequently portrayed as foresight, with the result that no one sees how perilously close to the

edge the enterprise veered.) More often, however, the remedies either flat-out fail, and a product or a company goes belly-up, or they progress after a fashion to some kind of limp but yet-still-breathing half-life, in which the company has long since abandoned its dreams of success and contents itself with once again making payroll.

None of this is necessary. We have enough high-tech marketing history now to see where our model has gone wrong and how to fix it. To be specific, the point of greatest peril in the development of a high-tech market lies in making the transition from an *early market* dominated by a few *visionary* customers to a *mainstream market* dominated by a large block of customers who are predominantly *pragmatists* in orientation. The gap between these two markets, all too frequently ignored, is in fact so significant as to warrant being called a *chasm,* and crossing this chasm must be the primary focus of any long-term high-tech marketing plan. A successful crossing is how high-tech fortunes are made; failure in the attempt is how they are lost.

For the past two decades, I, along with my colleagues at the Chasm Group, Chasm Institute, and TCG Advisors, have watched countless companies struggle to maintain their footing during this difficult period. It is an extremely difficult transition for reasons that will be summarized in the opening chapters of this book. The good news is that there are reliable guiding principles. The material that follows has been refined over hundreds of consulting engagements focused on bringing products and companies into profitable and sustainable mainstream markets. The models presented here have been tested again and again and have been found effective. The chasm, in short, can be crossed.

That said, like a hermit crab that has outgrown its shell, the company crossing the chasm must scurry to find its new home.

Until it does, it will be vulnerable to all kinds of predators. This urgency means that everyone in the company—not just the marketing and sales people—must focus all their efforts on this one end until it is accomplished. Chapters 3 through 7 set forth the principles necessary to guide high-tech ventures during this period of great risk. This material focuses primarily on. marketing, because that is where the leadership must come from, but I ultimately argue in the Conclusion that leaving the chasm behind requires significant changes throughout the high-tech enterprise. The book closes, therefore, with a call for additional new strategies in the areas of finance, organizational development, and R&D.

This book is unabashedly about and written specifically for marketing within high-tech enterprises. But high tech can be viewed as a microcosm of larger industrial sectors. In this context, the relationship between an early market and a mainstream market is not unlike the relationship between a fad and a trend. Marketing has long known how to exploit fads and how to develop trends. The problem, since these techniques are antithetical to each other, is that you need to decide which one—fad or trend—you are dealing with before you start. It would be much better if you could start with a fad, exploit it for all it was worth, and then turn it into a trend.

That may seem like a miracle, but that is in essence what high-tech marketing is all about. Every truly innovative high-tech product starts out as a fad—something with no known market value or purpose but with "great properties" that generate a lot of enthusiasm within an "in crowd" of early adopters. That's the early market.

Then comes a period during which the rest of the world watches to see if anything can be made of this; that is the chasm.

If in fact something does come out of it—if a value proposition is discovered that can be predictably delivered to a targetable set of customers at a reasonable price—then a new mainstream market segment forms, typically with a rapidity that allows its initial leaders to become very, very successful.

The key in all this is crossing the chasm—performing the acts that allow the first shoots of that mainstream market to emerge. This is a do-or-die proposition for high-tech enterprises; hence it is logical that they be the crucible m which "chasm theory" is formed But the principles can be generalized to other forms of marketing, so for the general reader who can bear with all the high-tech examples in this book, useful lessons may be learned.

One of the most important lessons about crossing the chasm is that the task ultimately requires achieving an unusual degree of company unity during the crossing period. This is a time when one should forgo the quest for eccentric marketing genius in favor of achieving an informed consensus among mere mortals. It is a time not for dashing and expensive gestures but rather for careful plans and cautiously rationed resources—a time not to gamble all on some brilliant coup but rather to focus everyone on pursuing a high-probability course of action and making as few mistakes as possible.

One of the functions of this book, therefore—and perhaps its most important one—is to open up the logic of marketing decision making during this period so that everyone on the management team can participate in the market development process. If prudence rather than brilliance is to be our guiding principle, then many heads are better than one. If market forces are going to be the guiding element in our strategy—and most organizations insist this is their goal—then their

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High-Tech Marketing Illusion

When this book was originally drafted in 1989, I drew on the example of an electric car as a disruptive innovation that had yet to cross the chasm. Indeed at that time there were only a few technology enthusiasts retrofitting cars with alternative power supplies. When I revised it extensively in 1999, once again I drew on the same example. GM had just released an electric vehicle, and all the other manufacturers were making noise. But the market yawned instead. Now it is 2013, and once again we are talking about the market for electric vehicles. This time the vendor in the spotlight is Tesla, and the vehicle getting the most attention is their Model S sedan.

Stepping back a bit from the cool factor, let's assume these cars work like any other, except they are quieter and better for the environment. Now the question is: When are you going to buy one?

The Technology Adoption Life Cycle

Your answer to the preceding question will tell a lot about how you relate to the *Technology Adoption Life Cycle,* a model for

understanding the acceptance of new products. If your answer is "Not until hell freezes over," you are probably a very late adopter of technology, what we call in the model a *laggard.* If your answer is "When I have seen electric cars prove themselves and when there are enough service stations on the road," you might be a middle-of-the-road adopter, or in the model, the *early majority.* If you say, "Not until most people have made the switch and it becomes really inconvenient to drive a gasoline car," you are probably more of a follower, a member of the *late majority.* If, on the other hand, you want to be the first one on your block with an electric car, you are apt to be an *innovator* or an *early adopter.*

In a moment we are going to take a look at these labels in greater detail, but first we need to understand their significance. It turns out our attitude toward technology adoption becomes significant—at least in a marketing sense—any time we are introduced to products that require us to change our current mode of behavior or to modify other products and services we rely on. In academic terms, such change-sensitive products are called *discontinuous* or *disruptive innovations* The contrasting term, *continuous* or *sustaining innovations,* refers to the normal upgrading of products that does not require us to change behavior.

For example, when Warby Parker promises you better-looking eyeglasses, that is a continuous innovation. You still are wearing the same combination of lenses and frames, you just look cooler. When Ford's Fusion promises better mileage, when Google Gmail promises you better integration with other Google apps, or when Samsung promises sharper and brighter TV pictures across bigger and bigger screens, these

are all continuous innovations. As a consumer, you don't have to change your ways in order to take advantage of these improvements.

On the other hand, if the Samsung were a 3-D TV, it would be incompatible with normal viewing, requiring you to don special glasses to get the special effects. This would be a discontinuous innovation because you would have to change your normal TV-viewing behavior. Similarly if the new Gmail account were to be activated on a Google Chrome notebook running Android, it would be incompatible with most of today's software base, which runs under either Microsoft or Apple operating systems. Again, you would be required to seek out a whole new set of software, thereby classifying this too as a discontinuous innovation. Or if the new Ford Fusion is the Eriergi model, which uses electricity instead of gasoline, or if the new sight-improvement offer were Lasik surgery rather than eyeglasses, then once again you would have an offer incompatible with the infrastructure of supporting components otherwise available. In all these cases, the innovation demands significant changes by not only the consumer but also the infrastructure of supporting businesses that provide complementary products and services to round out the complete offer. That is how and why such innovations come to be called discontinuous.

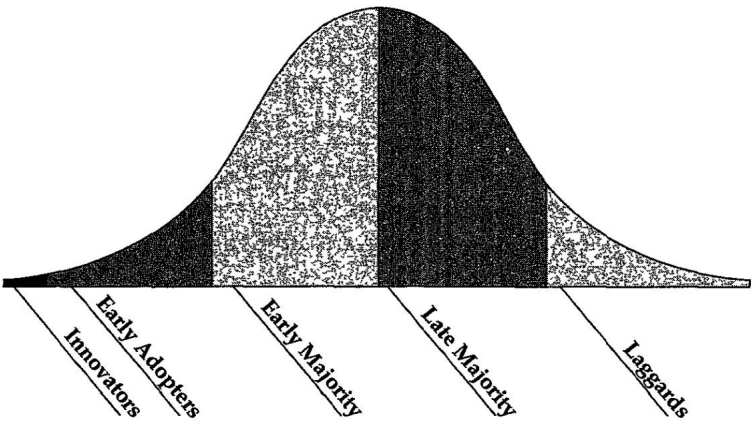
Between *continuous* and *discontinuous* lies a spectrum of demands for behavioral change. Contact lenses, unlike Lasik surgery, do not require a whole new infrastructure, but they do ask for a whole new set of behaviors from the consumer. Internet TVs do not require any special viewing glasses, but they do require the consumer to be "digitally competent."

Microsoft's Surface tablet, unlike the Chrome notebook, is compatible with the installed base of Microsoft applications, but its "tiles" interface requires users to learn a whole new set of conventions. And Ford's hybrid Fusion, unlike its Energi model, can leverage the existing infrastructure of gas stations, but it does require learning new habits for starting and running the car. All these, like the special washing instructions for certain fabrics, the special street lanes reserved for bicycle riders, the special dialing instructions for calling overseas, represent some new level of demand on the consumer to absorb a change in behavior. That's the price of modernization. Sooner or later, all businesses must make these demands. And so it is that all businesses can profit by lessons from high-tech industries.

Whereas other industries introduce discontinuous innovations only occasionally and with much trepidation, high-tech enterprises do so routinely and as confidently as a born-again Christian holding four aces. From their inception, therefore, high-tech industries have needed a marketing model that coped effectively with this type of product introduction. Thus the Technology Adoption Life Cycle became central to the entire sector's approach to marketing. (People are usually amused to learn that the original research that gave rise to this model was done on the adoption of new strains of seed potatoes among American fanners. Despite these agrarian roots, however, the model has thoroughly transplanted itself into the soil of Silicon Valley.)

The model describes the market penetration of any new technology product in terms of a progression in the types of consumers it attracts throughout its useful life:

TECHNOLOGY ADOPTION LIFE CYCLE



As you can see, we have a bell curve. The divisions in the curve are roughly equivalent to where standard deviations would fall. That is, the early majority and the late majority fall within one standard deviation of the mean, the early adopters and the laggards within two, and way out there, at the very onset of a new technology, about three standard deviations from the norm, are the innovators.

The groups are distinguished from each other by their characteristic response to a discontinuous innovation based on a new technology. Each group represents a unique *psychographic* profile—a combination of psychology and demographics that makes its marketing responses different from those of the other groups. Understanding each profile and its relationship to its neighbors provides a critical foundation for high-tech marketing overall.

Innovators pursue new technology products aggressively. They sometimes seek them out even before a formal marketing program has been launched. This is because technology is

a central interest in their life, regardless of what function it is performing. At root they are intrigued with any fundamental advance and often make a technology purchase simply for the pleasure of exploring the new device's properties. There are not very many innovators m any given market segment, but winning them over at the outset of a marketing campaign is important nonetheless, because their endorsement reassures the other players in the marketplace that the product could in fact work.

Early adopters, like innovators, buy into new product concepts very early in their life cycle, but unlike innovators, they are not technologïsts. Rather they are people who find it easy to imagine, understand, and appreciate the benefits of a new technology, and to relate these potential benefits to their other concerns. Whenever they find a strong match, early adopters are willing to base their buying decisions upon it. Because early adopters do not rely on well-established references in making these buying decisions, preferring instead to rely on their own intuition and vision, they are core to opening up any high-tech market segment.

The early majority share some of the early adopter's ability to relate to technology, but ultimately they are driven by a strong sense of practicality. They know that many of these newfangled inventions end up as passing fads, so they are content to wait and see how other people are making out before they buy in themselves. They want to see well-established references before investing substantially. Because there are so many people in this segment—roughly one-third of the whole adoption life cycle—winning their business is fundamental to any substantial profits and growth.

The *late majority* shares all the concerns of the early majority, plus one major additional one: Whereas people in the early majority are comfortable with their ability to handle a technology product, should they finally decide to purchase it, members of

the late majority are not. As a result, they wait until something has become an established standard, and even then they want to see lots of support and tend to buy, therefore, from large, well-established companies. Like the early majority, this group comprises about one-third of the total buying population in any given segment. Courting its favor is highly profitable indeed, for while profit margins decrease as the products mature, so do the selling costs, and virtually all the R&D costs have been amortized.

Finally there are the *laggards.* These people simply don't want anything to do with new technology, for any of a variety of reasons, some personal and some economic. The only time they ever buy a technological product is when it is buried deep inside another product—the way, say, that a microprocessor is designed into the braking system of a new car—such that they don't even know it is there. From a market development perspective laggards are generally regarded as not worth pursuing on any other basis.

To recap the logic of the Technology Adoption Life Cycle, its underlying thesis is that technology is absorbed into any given community in stages corresponding to the psychological and social profiles of various segments within that community. This process can be thought of as a continuum with definable stages, each associated with a definable group, and each group making up a predictable portion of the whole.

The High-Tech Marketing Model

This profile is in turn the very foundation of the High-Tech Marketing Model. That model says that the way to develop a high-tech market is to work the curve left to right, focusing first

on the innovators, growing that market segment, then moving on to the early adopters, growing that segment, and so on, to the early majority, late majority, and even to the laggards. In this effort, companies must use each "captured" group as a reference base for launching their marketing into the next group. Thus the endorsement of innovators becomes an important tool for developing a credible pitch to the early adopters, that of the early adopters to the early majority, and so on.

The idea is to keep this process moving smoothly, progressing something like the passing of a baton in a relay race or like Tarzan making his way across the jungle swinging from vine to well-placed vine. It is important to maintain momentum in order to create a bandwagon effect that makes it natural for the next group to want to buy in. Too much of a delay and the effect would be something like hanging from a motionless vine—nowhere to go but down. (Actually, going down is the graceful alternative. What happens more often is a desperate attempt to re-create momentum, typically through some highly visible form of promotion, which ends up making the company look like Tarzan frantically jerking back and forth, trying to get a vine moving with no leverage. This typically leads the other animals in the jungle just to sit and wait for him to fall.)

There is an additional motive for maintaining momentum: to keep ahead of the next emerging technology. In the past decade desktop personal computers have largely been displaced by laptops, a substantial number of which are likely to be displaced in this decade by tablets. You need to take advantage of your day in the sun before the next day renders you obsolete. From this notion comes the idea of a *window of opportunity.* If momentum is lost, then we can be overtaken by a competitor, thereby losing the advantages exclusive to a technology

leadership position—specifically, the profit-margin advantage during the middle to late stages, which is the primary source from which high-tech fortunes are made.

This, in essence, is the High-Tech Marketing Model—a vision of a smooth unfolding through all the stages of the Technology Adoption Life Cycle. What is dazzling about this concept, particularly to those who own equity in a high-tech venture, is its promise of a virtual monopoly over a major new market development. If you can get there first, "catch the curve," and ride it up through the early majority segment, thereby establishing the de facto standard, you can get rich very quickly and "own" a highly profitable market for a very long time to come.

Testimonials

The Apple iPad is a prime example of leveraging the High-Tech Marketing Model end to end. Launched in 2009 after being demoed at MacWorld by Steve Jobs, its touch-interface dynamics and gorgeous display of images made it an instant hit with Mac enthusiasts, selling three hundred thousand units its first day. Then visionary executives began using it as their personal digital assistant, especially for email and presentations, forcing their CIOs to find a way to accommodate them. Then sales executives, the ultimate pragmatists, found that iPads were great for one-on-one presentations to economic buyers, and now whole sales forces were getting outfitted. Meanwhile, in boardrooms across America the iPad had become a socially acceptable way to be always online, in part because one could distribute board materials to it electronically to be accessed during the meeting. Then the kids got their hands on them, and there was a massive

explosion in use cases, primarily Facebook and other forms of social computing, but also including leveraging the World Wide Web for broader educational impact. And with Facebook along came the grandparents, historically a conservative if not a laggard constituency when it came to anything computer related. And finally it got to toddlers and babies, and God help us, kittens interacting directly with the screens and experiencing frustration with any image that fails to respond like an iPad. In sum, in less than five years, iPads have become pervasively integrated into the information fabric that makes up our digital lives—not bad for something not old enough to be in the first grade.

Astounding as this accomplishment is, many other companies have achieved a comparable status. This is what Microsoft, Intel, and Dell achieved in desktop PCs, Qualcomm and ARM in smartphones, Cisco in routers and switches, Google in search advertising, SAP in enterprise-class business applications, Oracle in relational databases, and HP in laser and inkjet printers.

Each of these companies has held market share in excess of 50 percent in its prime market. All of them have been able to establish strongholds in the early majority segment, if not beyond, and to this day look forward to continued growth, strong profit margins, and preferred relationships with suppliers and customers. To be sure, some like Dell and, more dramatically, HP have fallen on hard times, but even then customers often bend over backward to give market share leaders second and third chances, bringing cries of anguish from their competitors who would never be granted such grace.

It should come as no surprise that the history of these flagship products conforms to the High-Tech Marketing Model. In truth, the model was essentially derived from an abstraction of these histories. And so high-tech marketing, well into the

second decade of the twenty-first century, keeps before it the example of these companies and the abstraction of the High-Tech Marketing Model, and marches confidently forward.

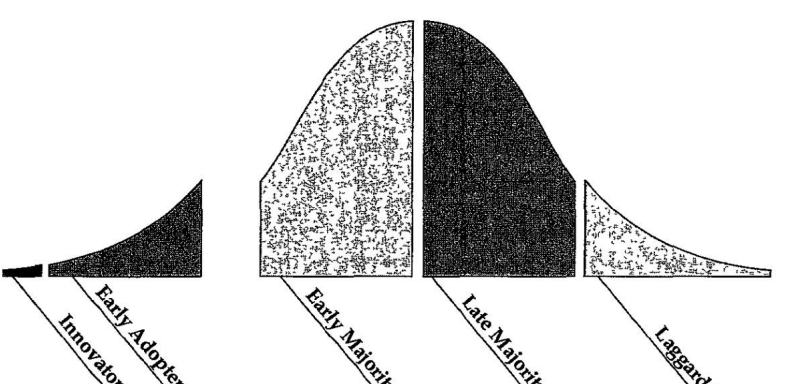
Of course, if that were a sufficient formula for success, you would need to read no further.

Illusion and Disillusion: Cracks in the Bell Curve

It is now time to advise you that there are any number of us in Silicon Valley who are willing to testify that there is something wrong with the High-Tech Marketing Model. We believe this to be true because we all own what once were meaningful equity stakes in corporations that either no longer exist or whose current valuation is so diluted that our stock—were there a market for it, which there is not—has lost all monetary significance.

Although we all experienced our fates uniquely, much of our shared experience can be summarized by recasting the Technology Adoption Life Cycle in the following way:

THE *REVISED* TECHNOLOGY ADOPTION LIFE CYCLE



As you can see, the components of the life cycle are unchanged, but between any two psychographic groups has been introduced a gap. This symbolizes the dissociation between the two groups—that is, the difficulty any group will have in accepting a new product if it is presented in the same way as it was to the group to its immediate left. Each of these gaps represents an opportunity for marketing to lose momentum, to miss the transition to the next segment, thereby never to gain the promised land of profit-margin leadership in the middle of the bell curve.

The First Crack

Two of the gaps in the High-Tech Marketing Model are relatively minor—what one might call "cracks in the bell curve"—yet even here unwary ventures have slipped and fallen. The first is between the innovators and the early adopters. It is a gap that occurs when a hot technology product cannot be readily translated into a major new benefit—something like Esperanto. The enthusiast loves it for its architecture, but nobody else can even figure out how to start using it.

Take virtual reality, for example. It is very cool technology and was able to generate its own mark-up language, VRML, but aside from one early success with Second Life, it basically has been characterized by a series of interesting experiments which have yet to be followed up on. The challenge here is primarily technological, meaning that the gap is simply too great between the Google-class processing power needed to create a truly seamless experience (our neurons are very fussy consumers indeed) and the personal budgets that would fund any of these applications at scale. One can envision the

technology getting there someday, but for now that day is so far in the future, it leaves virtual reality stuck with the enthusiasts waiting for a visionary.

The same could be said for 3-D printing. This has inspired a generation of technology enthusiasts to form a "Maker's Movement," an extension of the do-it-yourself culture that specializes in fabricating objects of all sorts. At the time of this writing 3-D printing is getting a lot of press, but the actual market is still much like the original home computing market in the days of Heathkits before the Apple II—a DIY technology enthusiast's paradise.

This is a market development problem. As we shall see in the next chapter, the key to getting beyond the enthusiasts and winning over a visionary is to show that the new technology enables some strategic leap forward, something never before possible, which has an intrinsic value and appeal to the nontechnologist. This benefit is typically symbolized by a single, compelling *flagship application,* something that showcases the power and value of the new product. If the marketing effort is unable to find that compelling application, then market development stalls with the innovators, and the future of the product falls through this first crack in the bell curve.

The Other Crack

There is another crack in the bell curve, of approximately equal magnitude, that falls between the early majority and the late majority. By this point in the Technology Adoption Life Cycle, the market is already well developed, and the technology product has been absorbed into the mainstream. The key issue now—transitioning from the early to the late majority—has to

do with lingering residual demands on the end user to be technologically competent.

Simply put, the early majority is willing and able to become technologically competent where necessary; the late majority is not. When a product reaches this point in the market development, it must be made increasingly easier to adopt in order to continue being successful. If this does not occur, the transition to the late majority will stall.

Home automation, programmable appliances, and high-end cameras are all currently in this situation, as are a whole slew of telephones that offer call forwarding, three-way conferencing, or even just call transferring. How many times have you been on the phone and heard—or said—"Now I may lose you when I hit the transfer button, so be sure to call back if I do." The problem is that for people who are not frequent users of the system the protocols are simply too hard to remember. As a result, users do not use the features, and so companies in mature markets find it harder and harder to get paid for the R&D they have done because the end user cannot capture the benefit. Instead, they bemoan that the product has become a commodity when in fact it is the *experience* of the product that has been commoditized. This truly is marketing's fault, particularly when companies have ceded marketing the right to redesign the user interface and thus control the user experience.

Other examples of products in danger of falling through the crack between the early and late majority are scanning and project management software. The market leaders in these two areas, Hewlett-Packard and Microsoft respectively, have been quite successful in capturing the early majority, but their products still give conservatives in the late majority pause. And so

these categories are in danger of stagnating although neither market has ever in fact been saturated.

Discovering the Chasm

The real news, however, is not the two cracks in the bell curve, the one between the innovators and the early adopters, the other between the early and late majority. No, the real news is the deep and dividing *chasm* that separates the early adopters from the early majority. This is by far the most formidable and unforgiving transition in the Technology Adoption Life Cycle, and it is all the more dangerous because it typically goes unrecognized.

The reason the transition can go unnoticed is that with both groups the customer list and the size of the order can look the same. Typically, in either segment, you would see a list of Fortune 500 to Fortune 2000 customers making relatively large orders—five figures for sure, more often six figures or even higher. But in fact the basis for the sale—what has been promised, implicitly or explicitly, and what must be delivered—is radically different.

What the early adopter is buying, as we shall see in greater detail in Chapter 2, is some kind of *change agent.* By being the first to implement this change in their industry, the early adopters expect to get a jump on the competition, whether from lower product costs, faster time to market, more complete customer service, or some other comparable business advantage. They expect a radical discontinuity between the old ways and the new, and they are prepared to champion this cause against

entrenched resistance. Being the first, they also are prepared to bear with the inevitable bugs and glitches that accompany any innovation just coming to market.

By contrast, the early majority want to buy a *productivity improvement* for existing operations. They are looking to minimize the discontinuity with the old ways. They want evolution, not revolution. They want technology to enhance, not overthrow, the established ways of doing business. And above all, they do not want to debug somebody else's product. By the time they adopt it, they want it to work properly and to integrate appropriately with their existing technology base.

This contrast just scratches the surface relative to the differences and incompatibilities among early adopters and the early majority. Let me just make two key points for now: Because of these incompatibilities, early adopters do not make good references for the early majority. And because of the early majority's concern not to disrupt their organizations, good references are critical to their buying decisions. So what we have here is a catch-22. The only suitable reference for an early majority customer, it turns out, is another member of the early majority, but no upstanding member of the early majority will buy without first having consulted with several suitable references.

Bodies in the Chasm

What happens in this catch-22 situation? First, because the product *has* caught on with the early adopters, it has garnered a lot of publicity: Holograms, pen-based tablets, fuel cells, QR codes, Massive Open Online Courses—we have all read a lot about these types of offerings, yet not one has achieved to date

mainstream market status, despite the fact that the current offers actually do work reasonably well. In large part this is because of the high degree of discontinuity implicit in their adoption by organizations, and the inability of the marketing effort, to date, to lower this barrier to the early majority. So the products languish, continuing to feed off the early adopter segment of the market, but unable to really take off and break through to the high-volume opportunities.

Segways are a classic example of this phenomenon. You've seen them on occasion in malls or in airports, looking something like an old-fashioned lawn mower gone vertical, ridden around by someone in a security professional's uniform. Kind of dorky looking, but don't kid yourself. The gyroscopic balance control is fabulous, and the control movements once mastered are graceful. The hope was these devices would become a universal transport mechanism. Why didn't that happen? In a word: *stairs.* Stairs are pesky little devils that crop up everywhere, and Segways do not handle them well at all. That's what we call a showstopper. So while Steve Wozniak can still field a brace of Segways for a rousing match of polo, no one has yet come up with a breakthrough application for the rest of us. Hence its fate for any foreseeable future is to dwell in the chasm forever.

As expensive a lesson as the Segway was for its investors, it pales by comparison with the reputed $6 billion bath Motorola took on its satellite mobile phone venture Iridium. Again, from a technology enthusiast's point of view, what a great idea! Instead of building out tens of thousands of cellular base stations everywhere—and still failing to adequately cover sparsely populated areas—how about putting up seventy-seven low-earth-orbiting satellites and do the job for the entire planet? (FYI, seventy-seven happens to be the atomic number for iridium,

which is a technology enthusiast's idea of a cool inside joke.) So what happened? Well, in this case it was not stairs that were the problem, it was *buildingsl* Satellite communications do not work very well inside buildings. Add to that the bulkiness of the handsets compared to cellular mobile phones, plus the very high cost of subscribing, and once again you have a showstopper. Today the technology is indeed used successfully for niche applications, but to put that in perspective, the network was bought out of bankruptcy for $25 million. Chasms can result in very painful falls indeed.

In sum, when promoters of high-tech products try to make the transition from a market base made up of visionary early adopters to penetrate the next adoption segment, the pragmatist early majority, they are effectively operating *without a reference base and without a support base within a market that is highly reference oriented and highly support oriented.*

This is indeed a chasm, and into this chasm many an unwary start-up venture has fallen. Despite repeated instances of the chasm effect, however, high-tech marketing still struggles to get this problem properly in focus. As a final prelude to our going forward, therefore, by way of evoking additional glimmers of recognition and understanding of this plight of the chasm, I offer the following parable as a kind of condensation of the entrepreneurial experience gone awry.

A High-Tech Parable

In the first year of selling a product—most of it alpha and beta release—the emerging high-tech company expands its customer list to include some technology enthusiast innovators and

one or two visionary early adopters. Everyone is pleased, and at the first annual Christmas party, held on the company premises, plastic glasses and potluck canapes are held high.

In the second year—the first year of true product—the company wins over several more visionary early adopters, including a handful of truly major deals. Revenue meets plan, and everyone is convinced it is time to ramp up—especially the venture capitalists who note that next year's plan calls for a 300 percent increase in revenue. (What could justify such a number? The High Tech Marketing Model, of course! For are we not just at that point in the model where the slope will increase exponentially? We don't want to lose market share at this critical juncture to some competitor. We must exploit our first-mover advantage and act while we are still within our window of opportunity. Strike while the iron is hot!) This year the company Christmas party is held at a fine hotel, the glasses are crystal, the wine vintage, and the theme, a la Dickens, is "Great Expectations."

At the beginning of the third year, a major sales force expansion is undertaken, impressive sales collateral and advertising are underwritten, district offices are opened, and customer support is strengthened. Halfway through the year, however, sales revenues are disappointing. A few more companies have come on board, but only after a prolonged sales struggle and significant compromise on price. The number of sales overall is far fewer than expected, and growth in expenses is vastly outdistancing growth in income. In the meantime, R&D is badly bogged down with several special projects committed to in the early contracts with the original customers.

Meetings are held (for the young organization is nothing if not participative in its management style). The salespeople complain that there are great holes in the product line and that what

is available today is overpriced, full of bugs, and not what the customer wants. The engineers claim they have met spec and schedule for every major release, at which point the customer support staff merely groan. Executive managers lament that the sales force doesn't call high enough in the prospect organization, lacks the ability to communicate the vision, and simply isn't aggressive enough. Nothing is resolved, and, offline, political enclaves begin to form.

Third quarter revenues results are in—and they are absolutely dismal. It is time to whip the slaves. The board of venture capitalists starts in on the founders and the president, who in turn put the screws to the vice president of sales, who passes it on to the troops in the trenches. Turnover follows. The vice president of marketing is fired. It's time to bring in "real management." More financing is required, with horrendous dilution for the initial cadre of investors—especially the founders and the key technical staff. One or more founders object but are shunted aside. Six months pass. Real management doesn't do any better. Key defections occur. Time to bring in consultants. More turnover. What we really need now, investors decide, is a turnaround artist. Layoffs followed by more turnover. And so it goes. When the screen fades to the credits, yet another venture staggers off to join the twilight companies of Silicon Valley—zombie enterprises, not truly alive and yet, due in part to the vagaries of venture capital accounting, unable to choose death with dignity.

Now, it is possible that this parable overstates the case—I have been accused of such things in the past. But it is no exaggeration to say that year in and year out, hundreds of high-tech start-ups, despite having good technology and exciting products, and despite initial promising returns from the market, falter and then fail. Here's why:

What the company staff interpreted as a ramp in sales leading smoothly "up the curve" was in fact an initial blip—what we will be calling the *early market*—and not the first indications of an emerging *mainstream market.* The company failed because its managers were unable to recognize that there is something fundamentally different between a sale to an early adopter and a sale to the early majority, even when the company name on the check reads the same. Thus, at a time of greatest peril, when the company was just entering the chasm, its leaders held high expectations rather than modest ones, and spent heavily in expansion projects rather than husbanding resources.

All this is the result of high-tech marketing illusion—the belief induced by the High-Tech Marketing Model that new markets unfold in a continuous and smooth way. In order to avoid the perils of the chasm, we need to achieve a new state—high-tech marketing enlightenment—by going deeper into the dynamics of the Technology Adoption Life Cycle to correct the flaws in the model and provide a secure basis for marketing strategy development.