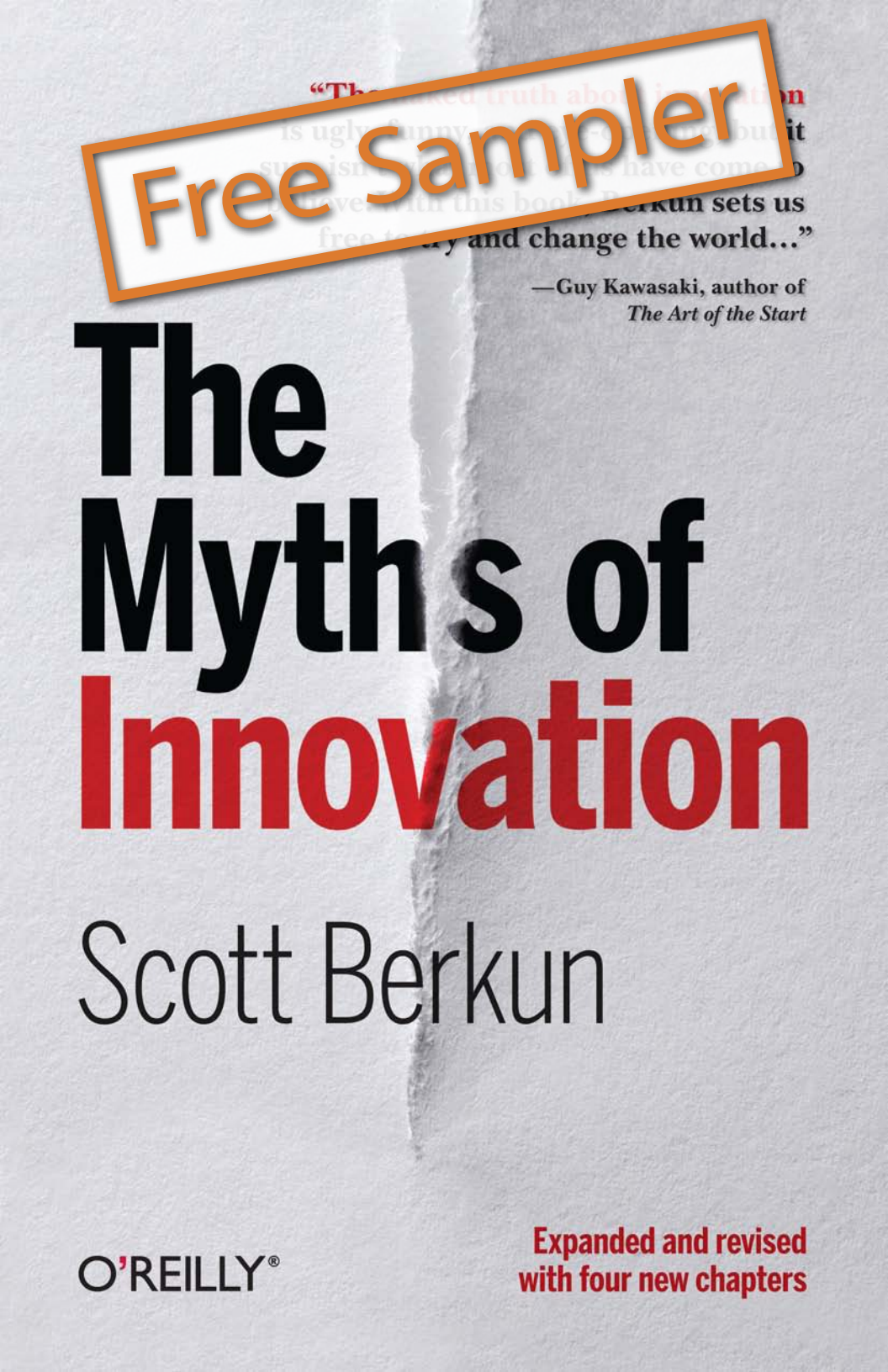
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—Guy Kawasaki, author of
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by Scott Berkun

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Contents

CHAPTER 4

People love new ideas

Imagine it's 1874, and you've just invented the telephone. After high-fiving your friend Watson, you head down to Western Union—the greatest communication company in the world—and show your work. Despite your excellent pitch (a century before PowerPoint), Western Union turns you down on the spot, calls the telephone a useless toy, and shows you to the door. Would you have given up? What if the next five companies turned you down? The next 25? How long would it take you to lose faith in your ideas?

Fortunately, Alexander Graham Bell, the telephone's inventor, didn't listen to the folks at Western Union.[1] He started his own business and changed the world, paving the way for the mobile phone in your pocket. Similar stories surround innovators like Google founders Larry Page and Sergey Brin, whose page rank ideas were turned down by AltaVista and Yahoo!, the dominant search companies of the day. George Lucas was told all kinds of no by every major Hollywood studio but one, for the original *Star Wars* screenplay. And, don't forget that Einstein's $E=mc^2$, Galileo's sun-centered solar system, and Darwin's theory of evolution were laughed at for years by experts around the world.

Every great idea in history has the big, red stamp of rejection on its face. It's hard to see today because once ideas gain acceptance, we gloss over the hard paths they took to get there. If you scratch any innovation's surface, you'll find the scars: they've been roughed up and thrashed around—by both the masses and leading minds—before they made it into your life. Paul C. Lauterbur, winner of the Nobel Prize for coinventing MRI, explained, "You can write the entire history of science in the last 50 years in terms of papers rejected by *Science* or *Nature*."[2] Big ideas in all fields endure dismissals, mockeries, and persecutions (of them and their creators) on their way to changing the world. Many novels in classics libraries, including James Joyce's *Ulysses*, Mark Twain's *The Adventures of Huckleberry Finn*, and J. D. Salinger's *The Catcher*

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1 Bell is often credited as the inventor, but as you'll learn in Chapter 5, it's rarely that simple. Elisha Gray, Philipp Reis, Innocenzo Manzetti, and others have similar claims. For a chronology of inventors who possibly contributed to the telephone, see *http://en.wikipedia.org/wiki/Invention_of_the_telephone*. And while Western Union did reject Bell's proposal, it's unclear how strong their rejection was. (If they saw its potential, would it have been wise to tell Bell on the spot?)

2 Kevin Davies, "Public Library of Science Opens Its Doors," *BIO-IT World* (February 2007), *http://www.bio-itworld.com/archive/111403/plos/*.

in the Rye were banned upon publication; great minds like Socrates and Plato even rejected the idea of books at all.[3]

The love of new ideas is a myth: we prefer ideas only after others have tested them. We confuse truly new ideas with good ideas that have already been proven, which just happen to be new to us. Even innovators themselves read movie reviews, consult Zagat restaurant ratings, and shop at IKEA, distributing the burden of dealing with new ideas. How did you choose your apartment, your beliefs, or even this book? We reuse ideas and opinions all the time, rarely committing to the truly *new*. But we should be proud; it's smart. Why not recycle good ideas and information? Why not take advantage of the conclusions other people have made to efficiently separate what's good and safe from what's bad and dangerous? Innovation is expensive: no one wants to pay the price for ideas that turn out to be not quite ready for prime time.

There is an evolutionary advantage in this fear of new things. Any ancestor who compulsively jumped off every newly discovered cliff or ate only scary-looking plants died off quickly. We happily let brave souls like Magellan, Galileo, and Neil Armstrong take intellectual and physical risks on our behalf, watching from a safe distance, following behind (or staying away) once we know the results. Innovators are the test pilots of life, taking big chances so we don't have to. Even early adopters, people who thrive on using the latest things, are at best adventurous consumers, not creators. They rarely take the same risks on unproven ideas as the innovators themselves.

The secret tragedy of innovators is that their desire to improve the world is rarely matched by support from those they hope to help.

Managing the fears of innovation

What's the most stressful thing that can happen to you? Juggling hungry cocaine-addicted baby tigers? Doing stand-up comedy in front of your coworkers and in-laws? Well, if you believe the studies, it's the big five: divorce, marriage, moving, death of a loved one, and getting fired.[4] All stressful events, including tiger-juggling,

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[3] Plato, *Phaedrus*, *http://classics.mit.edu/Plato/phaedrus.html*. In this dialogue, the risks of using books—instead of spoken language—are debated. They feared people would become stupid if they adopted the technology of writing; similar fears arise with every new technology.

[4] *http://www.surgeongeneral.gov/library/mentalhealth/chapter4/sec1_1.html*.

combine fear of suffering with forced change. A divorce or new job demands that your life change in ways out of your control, triggering instinctive fears: if you don't do something clever soon, you're going to be miserable (or dead). Although it's possible to endure the big five simultaneously, a notion that quiets most complaints about life, surviving just one devastates most people for months.

Now imagine some relaxing events: reading a funny novel by the ocean or having beers with friends by a midnight campfire. They're activities with little risk and guaranteed rewards. We've done these things many times and know that others have done them successfully and happily in the past. These are the moments we wish we had more of. We work hard so we can maximize the amount of time spent on the planet doing these kinds of things.

Innovation conflicts with this desire. It asks for faith in something unknown over something known to be safe, or even pleasant. A truly innovative Thanksgiving turkey recipe or highway driving technique cannot be risk-free. Whatever improvement it might yield is uncertain the moment it is first tried (or however many attempts are needed to get it right). No matter how amazing an idea is, until proven otherwise, its imagined benefits will pale in comparison to the real, and unimagined, fear of change.

This creates an unfortunate paradox: the greater the potential of an idea, the harder it is to find anyone willing to try it (more on this in Chapter 8). For example, solutions for world peace and world hunger might be out there, but human nature makes it difficult to attempt them. The bigger the changes needed to adopt an innovation, the more fears rise.

> *There is nothing more difficult to take in hand, more perilous to conduct, or more uncertain in its success, than to take the lead in the introduction of a new order of things. For the reformer has enemies in all those who profit by the old order, and only lukewarm defenders in all those who would profit by the new order, this lukewarmness arising partly from fear of their adversaries…and partly from the incredulity of mankind, who do not truly believe in anything new until they have had actual experience of it.*
>
> —Niccolo Machiavelli

Negative things innovators hear

Every creator hears similar criticisms to his ideas. While I don't have proof, I bet the first caveman who captured fire, the first Sumerian with a wheel, the first person to do anything interesting in any society in human history, heard one of the following after pitching his idea:

- This will never work.
- No one will want this.
- It can't work in practice.
- People won't understand it.
- This isn't a problem.
- This is a problem, but no one cares.
- This is a problem and people care, but it's already solved.
- This is a problem, and people care, but it will never make money.
- This is a solution in search of a problem.
- Get out of my office/cave now.

Sometimes very smart people say these things. Ken Olsen, founder of the Digital Equipment Corporation, said in 1977, "There is no reason anyone would want a computer in their home." The leading art critics in France, in response to the opening of the Eiffel Tower, made comments like, "[That] tragic lamp post springing up from its bowels…[is] like a beacon of disaster and despair."[5] It took the British Navy, at the peak of their dominance in the 17th century, 150 years to adopt a proven remedy for scurvy.

Bo Peabody, serial entrepreneur, writes, "It's astounding the number of people who will tell you that you and your ideas are crazy. I have been thrown out of more than a thousand offices while building my six companies."[6] Remember, it's hard to know the future, and all great minds have failed to predict what would take off and what wouldn't. My point isn't to make fun of famous

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[5] Olsen's quote is disputed by some, who claim he was for personal computers, but simply didn't see them running people's homes like they do on *Star Trek*. The quote on Eiffel's work is retold in John H. Lienhard, *The Engines of Our Ingenuity* (Oxford University Press, 2006), 186.

[6] From *Lucky or Smart*, 28.

people for being wrong; instead, it's to point out that we're all wrong much of the time (see Figure 4-1).

Figure 4-1. *Many critics demanded that the Eiffel Tower be torn down when it was built. Today, it's one of the most popular attractions in Paris.*

Experienced innovators anticipate these criticisms. They prepare refutations or preempt them, as in, "Who would want electricity in their homes? Let me tell you who…"[7] But even with preparation,

[7] Edison was a shameless promoter of electricity, crossing moral and ethical lines. He created the first electric chair to demonstrate that his competitors' designs were unsafe, unlike his (which wasn't true). Matthew Josephson, *Edison: A Biography* (McGraw-Hill, 1959), 348–349.

charm, and amazing ideas, convincing people to see an idea in the same way its creator sees it is difficult. Most have little interest in having their minds changed, something that's hard to remember when you've spent your life savings, or an entire weekend, killing yourself to invent something. This gap—the difference between how an innovator sees her work from how it's seen by others—is the most frustrating challenge innovators face. Creators expect to be well received. They look at accepted innovations and the heroes who delivered them and assume their new innovations will be treated the same way (see Figure 4-2). But no matter how brilliant an idea is, the gap exists. Until the innovation is accepted, it will be questioned relentlessly.

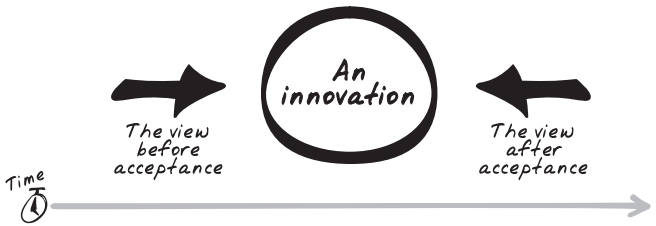

Figure 4-2. *Innovators know of other innovations only after the fact, and they are surprised when their ideas are treated differently from the accepted innovations of the past.*

Many innovators give up when they learn ideas—even with dazzling prototypes or plans in hand—are only the beginning. The challenges that follow demand skills of persuasion more than brilliance. As Howard H. Aiken, a famous inventor, said, "Don't worry about people stealing your ideas. If your ideas are any good, you'll have to ram them down people's throats."[8] Although beating up people to convince them rarely works, Aiken's point holds: people are unlikely to be as interested in your ideas as you are.

The observation many would-be innovators never make is that most criticisms are superficial. The spoken questions only hint at the real concerns. Responding to superficial comments is a loser's game; persuading demands mapping criticisms to deeper issues.

[8] *http://en.wikiquote.org/wiki/Howard_H._Aiken.*

All of the negative comments listed earlier can be mapped to one or more of the following perspectives:

- **Ego/envy:** I can't accept this because I didn't think of it, or I think I'll look weak if I say yes.
- **Pride and politics:** This makes me look bad.
- **Personal:** I don't like you, so I will never support your idea.
- **Fear:** I'm afraid of change.
- **Priority:** I have 10 innovative proposals but resources for one.
- **Sloth:** I'm lazy, bored, and don't want to think or do more work.[9]
- **Security:** I may lose something I don't want to lose.
- **Greed:** I can make money or build an empire if I reject this idea.
- **Consistency:** This violates my deeply held principles (no matter how absurd, outdated, or ridiculous they are).

The effect of these feelings, whether justified or irrational, is the same. They're just as real in the mind of the person feeling them as anything else. If your boss feels threatened by a proposal—even if those reasons seem entirely paranoid or delusional to you—those feelings will define his behavior in response to new ideas. If those feelings are strong, it's easy for him to use the comments above to reject proposals for even the greatest ideas. If the innovator defends only the superficial and makes no attempt to persuade the deeper feelings to change, or find ways to recast the innovation so that those feelings become positive, she will fail to get the support she needs.

For example, when Galileo claimed the sun was the center of the solar system, he faced persecution from the Church and the Western world for reasons listed above. It wasn't the idea itself that caused the outrage—it was how that idea made them feel. They didn't care about what was at the center of the solar system. Galileo would have been in similar trouble had he suggested the earth rotated around a purple dragon or a half-eaten sandwich. They weren't upset about the details of his theory; they were

[9] Related quote: "Most people would rather die than think; in fact, they do so." —*Bertrand Russell*

angry that anyone would advocate a theory different from the one they believed in (of course, making fun of the Pope didn't help any).[10] It was the principle of the thing, as well as how it questioned their sense of order—two common reasons for rejecting ideas that have nothing to do with the idea itself.

This is the magic double-secret principle: innovative ideas are rarely rejected on their merits; they're rejected because of how they make people feel. If you forget people's concerns and feelings when you present an innovation, or neglect to understand their perspectives in your design, you're setting yourself up to fail.

The innovator's dilemma explained

Earlier, I asked you to imagine inventing the telephone. Did you like that? Well, you'll like this even more, as this scenario has a surprise ending.

Imagine it's 1851, and you're sick and tired of waiting for the Pony Express to deliver important messages. You happen to meet a Mr. Morse and buy into his idea for using copper wire to send instant messages over great distances. Your friends laugh, telling you to get a real job because wires are silly things for grown men to play with. At great financial risk, you build the first cross-country cables in the U.S., and they work, changing the world. Your organization thrives for years; the nation is communicating, for a price, over your cutting-edge digital communication network. Wealthy and famous, you soon find attractive people throwing themselves and their money at you. But you're not finished: in a fit of innovation, you create the first stock ticker in 1866, give the nation its first standardized time service, and revolutionize the financial world with money transfers—allowing people to send cash thousands of miles across the country in seconds.

In the middle of your glory, as your rise to innovation fame reaches untold heights, a young man visits you. He holds an odd machine in his hands. He claims it will replace everything, especially all the things you've struggled all your life to build. He's young, arrogant,

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[10] In short, when Galileo wrote *Dialogue Concerning the Two Chief World Systems*, he put quotes from Pope Urban VIII into the mouth of his character Simplicio, a fool who is ridiculed for rejecting heliocentricism. See James Reston, *Galileo: A Life* (Beard Books, 2000).

and dismissive of your achievements. How long would you listen before you threw a telegraph at him? Could you imagine, given all you'd built, that something as simple as his clunky wooden box would replace everything you know? Or would you have the guts to give up the innovations you'd made and put everything behind the unknown?

This challenge of mind is known as the *innovator's dilemma*. The face-off between Western Union and Alexander Graham Bell (dramatized but roughly accurate in my telling) has been played out for centuries, with the captains of one aging innovation protecting their work from the threat of emerging ideas. The concept is well described in Clayton M. Christensen's book *The Innovator's Dilemma*, which provides hearty business examples of faith in the past, blinding smart people from the innovations of the future.[11]

It's both a psychological and economical phenomenon: as people and companies age, they have more to lose. They're not willing to spend years chasing dreams or to endanger what they've worked so hard to build. Attitudes focused on security, risk aversion, and optimization of the status quo eventually become dominant positions, and even become organizational policy at companies that were once young, nimble, and innovative. For these reasons, it's rare in art, music, writing, business, and every single creative pursuit for innovators to sustain that role throughout their lives. It's not that their talent wanes, it's more that their interests change. Having succeeded, their strongest desire is not to find new ideas to conquer, but to protect the success they've already earned.

Frustration + innovation = entrepreneurship?

The last 30 years have seen an amazing wave of innovation at the intersection of technology and entrepreneurship.[12] Companies like Apple, Google, Microsoft, HP, and Yahoo! started as small groups who dismissed the well-worn path of convincing others

[11] Clayton M. Christensen, *The Innovator's Dilemma* (Harvard Business School Press, 2003).

[12] This power combo has been a phenomenon since the early days of the Industrial Revolution, when the first steam engines, factories, and mining systems were pioneered by entrepreneurial technologists. See Arnold Pacey, *The Maze of Ingenuity* (MIT Press, 1992).

and chose instead to realize ideas on their own. These start-up ventures were born out of the frustration of failing to make innovation happen in larger, established businesses. Had the founders of these companies found positive responses from corporations, history might be different. Frustration with people in power is a perennial complaint among creative minds: Michelangelo and da Vinci were infuriated by their employers' limited ambitions and their peers' conservative natures, in the same way creative people are today.[13]

Innovators rarely find support within mainstream organizations, and the same stubbornness that drives them to work on problems others ignore gives them the strength necessary to work alone. This explains the natural bond between breakthrough thinkers and new companies: innovative entrepreneurs not only have the passion for new ideas, they also have the conviction to make sacrifices that scare established companies.

The risks for an individual focusing 100% of his resources on a crazy idea are small: it's one life. But for an organization of 500 or 10,000 people, the risks of betting large on a new idea are high. Even if the idea pays off, the organization will be forced to change, causing fears and negative emotions to surface from everyone invested in the success of the previous big idea. Of course, some corporations are so large that they can take great risks: they can lose $20 million on an experiment and survive. But these efforts fail so often that it's possible that having less to lose works against innovation, compared to scrappy bootstrapped efforts led by people with everything at stake.

But as rosy as it sounds, the entrepreneur, whether he's wealthy or happily subsisting on ramen noodles,[14] must eventually convince one group of people—customers—of the merit of his ideas. And if he doesn't have enough money to support his new ideas, or his family refuses to eat canned chili for the third straight month, he'll need to

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[13] However, the major difference between the 15th century and the present day is opportunity. In Europe back then, if you had an idea for a cathedral design or siege weapons (hot technologies of the day), you were dependent on the one organization that could afford your services: the Church. But software programmers in the late 20th century and beyond not only have many patrons, they have the means to build their dreams themselves.

[14] For a trifecta of innovation, see Tadashi Katoh and Akira Imai, *Project X—Nissin Cup Noodle* (Digital Manga Publishing, 2006). It's a great read—in graphic-novel form—of how the office staple of noodles-in-a-cup was invented.

convince a second group—investors. As far as we know, both groups are human beings (though some debate the DNA of venture capitalists) and have the same emotional responses listed previously.

How innovations gain adoption: the truth about ideas before their time

One frequent saying in innovation circles is that an idea is "ahead of its time." What a strange phrase. How can an idea be ahead of its time? How can anything be ahead of its time? It makes little sense. What people mean when they say this is one of two things: they think the idea is cool but not necessarily good, or they think someday in the future a similar idea will be popular. But it's faint praise. How often do the things we imagine in the future ever come to be? Personal rocketships? Cars that fly? Nuclear-powered everything? The odds of cool ideas from sci-fi movies gaining adoption are low, and it's not much of a compliment to have something labeled "ahead of its time."[15] People don't slave away on insanely difficult work, sacrificing the pleasures of life, with the singular hope that, on their deathbeds, after everything they've done has been ignored, they will be told they were "ahead of their time." To be told your idea is ahead of its time is typically innovation pity, not praise, unless that was your actual goal.

But more importantly for us, this phrase exposes myths about how innovations do gain adoption in the world. First, it assumes technology progresses in a straight line (as covered in Chapter 2). To be ahead of its time implies that an idea *has* a time, marked in red at the universal innovation headquarters, waiting for people to catch up to it: an entirely inaccurate, innovation-centric view of how people live.

In *Diffusion of Innovations*, Everett M. Rogers writes:

> *Many technologists think that advantageous innovations will sell themselves, that the obvious benefits of a new idea will be widely realized by potential adopters, and that the innovation will therefore diffuse rapidly. Unfortunately, this is very seldom the case. Most innovations in fact diffuse at a surprisingly slow rate.*[16]

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[15] Notice I said movies, not sci-fi books. Films are visual media and choose technologies that look good or have dramatic value, not necessarily things that solve important problems, have progressive value, or obey the laws of physics.

[16] Everett M. Rogers, *Diffusion of Innovations* (Free Press, 2003), 7.

The book takes an anthropological approach to innovation, suggesting that new ideas spread at speeds determined by psychology and sociology, not the abstract merits of those new ideas. This explains the mysteries of great innovations that fail and bad ideas that prevail; there are more significant factors than the ones inventors focus on. Technological prowess matters less than we think in the diffusion of innovation.

Rogers identifies five factors that define how quickly innovations spread; they belong in every innovator's playbook. Roughly summarized and loosely interpreted, they include:

1. **Relative advantage**. What value does the new thing have compared to the old? This is perceived advantage, determined by the potential consumer of the innovation, not its makers. This makes it possible for a valueless innovation—from the creator's perspective—to gain acceptance, while more valuable ones do not. Perceived advantage is built on factors that include economics, prestige, convenience, fashion, and satisfaction.
2. **Compatibility**. How much effort is required to transition from the current thing to the innovation? If this cost is greater than the relative advantage, most people won't try the innovation. These costs include people's value systems, finances, habits, or personal beliefs. Rogers describes a Peruvian village that rejected the innovation of boiling water because of cultural beliefs that hot foods were only for sick people. You could argue all you wanted about the great benefits of boiling water, but if a religious or cultural belief forbids it, you're wasting your breath. Technological compatibility is only part of what makes an innovation spread: the innovation has to be compatible with habits, beliefs, values, and lifestyles.
3. **Complexity**. How much learning is required to apply the innovation? If a box of free, high-quality, infinite battery-life cell phones (and matching solar-powered cell towers) mysteriously appeared in 9th-century England, usage would stay at 0%, as the innovation requires a jump in complexity that would terrify people ("They're witches' eggs—burn them!"). The smaller the perceived conceptual gap, the higher the rate of acceptance.
4. **Trialability**. How easy is it to try the innovation? Tea bags were first used as giveaways so people could sample tea

without buying large tins, radically improving the trialability of brewed tea.[17] Samples, giveaways, and demonstrations are centuries-old techniques for making it risk-free to try new ideas. This is why Gap lets you try on clothes, and the Honda dealership lets anyone with a pulse test-drive a car. Many websites today have freemium services, where the basics cost nothing but you pay for extras. The easier it is to try, the faster innovations diffuse.

5. **Observability**. How visible are the results of the innovation? The more visible the perceived advantage, the faster the rate of adoption, especially within social groups. Fashion fads are a great example of highly observable innovations that have little value beyond their observability. Advertising fakes observability, as many ads show people using a product—for example, drinking a new brand of beer while all kinds of wonderful things are happening. Many technologies have limited observability, say, software device drivers, compared to physical products like mobile phones and trendy handbags, which are highly visible when socializing.

This list clarifies why the speed at which innovations spread is determined by factors that are often ignored by their creators. They grow so focused on creating things that they forget that those innovations are good only if people can use them. While there's a lot to be said for raising bars and pushing envelopes, breakthroughs happen for societies when innovations diffuse, not when they remain forever "ahead of their time."

This list is a scorecard for learning from past innovations, as well as a tool for improving diffusion of innovations in the present. The key is not to trivialize this list as bastardized marketing, as if these traits can be grafted to an innovation after it's finished, or simply pumped into sales literature and advertising (though those efforts rarely make the difference). Is it a successful innovation if it's purchased but ignored or bought and soon returned? A better way to think of the list is as attributes of the innovation itself.

And since these factors vary from culture to culture, some innovations gain acceptance in surprising ways. There is no uniformity in

[17] Joel Levy, *Really Useful: The Origins of Everyday Things* (Firefly Books Ltd, 2002).

progress around the world; innovations may be adopted by one culture or nation decades before another. As writer William Gibson quipped, "The future is already here—it's just not evenly distributed."[18] And no innovation is immune; everything new passes through culture in unpredictable ways and, given the limits of human nature, always will.

[18] *http://en.wikipedia.org/wiki/William_Gibson.*

CHAPTER 12

Creative thinking hacks

Each one of us possesses everything necessary to be more creative. The problem is that schools, parents, and workplaces tend to reward us for following rules. It's something quite different to learn to ask our own questions and seek our own answers (which is one simple definition of creative thinking). This chapter is a high-speed, condensed version of a course I taught at the University of Washington on how anyone, with some honest effort, can easily become more creative at any task at any time.

Kill creative romance

Like most media today, this chapter starts with violence—and an unnecessary exclamation point! Close your eyes, and imagine the most amazing sword ever made. Now, with it in hand, attack every creative legend you've ever heard. (We've romanticized da Vinci, Mozart, and Einstein into gods, minimizing the ordinary aspects of their lives so intensely that their mothers wouldn't recognize them in the legends we tell.) Next, using your sword's mint-scented flamethrower attachment, set fire to childhood tales of Isaac Newton and the apple, Benjamin Franklin and the lightning kite, and Edison and the lightbulb. Think of other similar legends you've heard, even if they were not mentioned in this book. These popular tales of creativity are deceptive at best, wild lies at worst. They're shaped to placate the masses, not to inform or help people actually interested in doing creative work. Slash each and every one with your sword, throw a dozen napalm-coated hand grenades in for good measure, and watch your old, broken-down view of creativity go up in flames. Dance around the smoldering ruins! Roast marshmallows over the still-warm remains of your creative fulminations! The fun begins now: free yourself. Feel like you did when you were young, without any preconceptions over what is or is not creative.

In this new landscape, plant the following simple definition: *an idea is a combination of other ideas*. Say it five times out loud. Say it to your cat. Yell it out your car window at strangers waiting for the bus. Every amazing creative thing you've ever seen or idea you've ever heard can be broken down into smaller ideas that existed before. An automobile? An engine and wheels. A telephone? Electricity and sound. Reese's Peanut Butter Cups? Peanut butter and chocolate. All great creative ideas, inventions,

and theories are composed of other ideas. Why should you care? Because if you want to be a creator instead of a consumer, you must view existing ideas as fuel for your mind. You must stop seeing them as objects or functional things—they are combinations of ingredients waiting to be reused.

Combinations

Cooking is a brilliant analogy for creativity: a chef's talents hinge on his ability to bring ingredients together to create things. Even the most inspired chef in history did not make bacon appear by mere concentration, nor suggest to the divine forces that a ripe tomato should be on the list of evolution's desired outcomes. Faith in the creativity-as-combinations view of the world helps creators in many ways. It means that if at any time you feel uncreative, the solution is to look more carefully at the combinations available to you, or to break apart something to see how it's made. Increasing creativeness doesn't require anything more than increasing your observations: become more aware of possible combinations. Here's a test: quickly pick two things in front of you, say, this book and your annoying, smelly friend Rupert. Now close your eyes and imagine different ways to combine them.

If you're stuck, here are three:

1. Rupert with a table of contents
2. An annoying, smelly book about innovation
3. Reading a book on, or making one out of, Rupert's face

Now while these combos might not be useful, good, or even practical, they're certainly creative (and if you think these are stupid and juvenile, you have confused bad taste with lack of creativity). Adding a third element, perhaps a gallon of cappuccino, might yield even more interesting combinations (a caffeine-overdosed, smelly book infused with Rupert's annoying personality).

Over time, creative masters learn to find, evaluate, and explore more combinations than other people. They get better at guessing which combinations will be more interesting, so their odds improve. They also learn there are reusable combinations, or patterns, that can be used again and again to develop new ideas or modify existing ones. For example, musicians throughout history have reused melodies, chord progressions, and even entire song

structures. The national anthem of the United States was based on the tune of an old British drinking song.[1] The Disney film *The Lion King* is a retelling of Shakespeare's *Hamlet*. Shakespeare was likely influenced by the early Greek tragedies. Study any creative field, from comedy to cooking to writing, and you'll discover patterns of reuse and recombination everywhere. It's an illusion that when an artist makes a painting or an author writes a novel it appeared magically into her hands from out of nowhere. Everything comes from somewhere, no matter how amazing or wonderful the thing is. The *Mona Lisa* was not the first portrait any more than the Destiny's Child song "Survivor" was the first four-minute R&B hit.

I'm not suggesting you steal something someone else made and put your name on it. That's theft, and a fairly uncreative kind of theft at that. Instead, the goal is to recognize how much in the world there is to borrow from, reuse, reinterpret, use as inspiration, or recombine without breaking laws or violating trust. Every field has its own rules and limitations, but creative fields are more liberal than you'd expect.[2]

Inhibition

We're afraid. We're afraid of the dark, of our parents, and what our parents do in the dark. Our tiny, efficient brains do their best to keep us from thinking about things we fear or don't understand. This is good for survival but bad for combination making. We shut down the pursuit of many combinations because of predictions we make about what the result will be. But remember: we suck at prediction. Lewis Thomas (see Chapter 7) mentioned the best sign of progress in his research lab was laughter, and laughter often comes from surprise.

Many of us who have the potential to be creative fail only because we struggle to turn off our filters and fears. We don't want to do anything that could yield an unexpected result. We seek external

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1 *http://en.wikipedia.org/wiki/The_Star-Spangled_Banner*.

2 An interesting challenge to this claim is the issue of sampling in music. How much of one song can another artist sample and reuse? One second? Five? None? See the excellent film *Copyright Criminals*, which explores this question from many different perspectives (and there's lots of good music in the film, too): *http://www.pbs.org/independentlens/copyright-criminals/film.html*.

validation from our teachers, bosses, family, etc., but creativity usually depends on internal validation. We have to judge for ourselves whether our ideas are interesting or useful.

One way to think of creative people is that they have more control over their fears—or less fear of embarrassment. They're not necessarily smarter or more capable of coming up with good ideas, they simply filter out fewer ideas than the rest of us. Creativity has more to do with being fearless than intelligent or any other adjective superficially associated with it. This explains why many people feel more creative when drinking, on drugs, or late at night: these are all times when their inhibitions are lower, or at least altered, and they allow themselves to see more combinations of things than they do normally.

Environment

Creativity is personal. No book or expert can dictate how you can be more creative. You have to spend time paying attention to yourself: when do ideas come easiest to you? Are you alone? With friends? In a bar? At the beach? Are there times of day when you're most relaxed? Is there music playing? Start paying attention to your rhythms and then construct your creative activities around them. To get all Emersonian on you, this is called self-knowledge:[3] you can't be productive as a creator if you're not paying attention to your own behavior and learning how best to cultivate the unique wonder in this universe that is you. Nothing is more counterintuitive than trying to be yourself by being like other people. It doesn't work that way—no book, course, or teacher can give this to you.

To help you figure this out, you need to experience different ways of working, and pay attention to which ones best suit you. They might be unexpected, not fitting into your framework (i.e., filters) for how creative work should be done, or what's appropriate for a 42-year-old middle manager to do. I learned that I tend to be most creative late at night. I don't find it convenient, and neither does my family, but I've recognized it to be true. If I want to maximize my creativity, I will spend hours working late at night. Each of us

[3] Read Ralph Waldo Emerson's essay "Self-Reliance" at *http://www.emersoncentral.com/selfreliance.htm*.

responds to environmental conditions differently. Half the challenge is experimenting to find out which ones work best; the other half is honoring them despite how inconvenient or unexpected they might be.

Persistence

Being creative for kicks is easy. But if you want to be creative on demand you must develop helpful habits, and that's about persistence. You won't always find interesting combinations for a problem right away, and identifying fears and working through them is rarely fun. At some point, all creative tasks become work. The interesting and fun challenges fade, and the ordinary, boring, inglorious work necessary to bring the idea to the world becomes the reality. Study the histories of great creators, and you'll find a common core of willpower and commitment as their driving force. Van Gogh, Michelangelo, and Mozart worked every day. Edison, Hemingway, and Beethoven, as well as most legendary talents, outworked their peers. Forget brilliance or genetics, the biggest difference between the greats and us was their dedication to their craft. Each of the names we know had peers who were just as talented, or more so, but twice as lazy. They consistently gave up before their projects were finished. Want to guess why we don't know their names? The world can only care about ideas that are shared.

When I give lectures on creative thinking, I often ask who in the audience has had an idea for a business, movie, or book. Most of the audience raises their hands. I then ask how many people have done any work at all on these ideas, and most of the audience drops their hands. That tells the whole story: ideas are lazy. They don't do anything on their own. If you aren't willing to do the ordinary work to make the idea real, the problem isn't about creativity at all.

When an idea is fully formed in your head, there's no escaping the fact that for the idea to change the world, it has to leave your brain—a journey that only happens with hard work and dedication. Writing proposals, sketching designs, pitching ideas: it's all work you know how to do. But how far are you actually willing to go to make your idea real?

Creative thinking hacks

Here are some clever tactics for applying this advice:

- **Start an idea journal**. Write down any idea that pops in your mind at any time. Don't be inhibited: anything goes. You will never have to show anyone else this journal, so there should be no filters—it's safe from judgment. This should help you find your own creative rhythms, as over time you can note what times of day you're more creative. I recommend a paper journal so you can doodle and write freely, but digital journals also work. Whenever you're stuck, flip through your journal. You're bound to find an old idea you've forgotten about that can be used toward the problem you're trying to solve.
- **Give your subconscious a chance**. The reason ideas come to you in the shower is that you're relaxed enough for your subconscious to surface ideas. Make this easier: find time to turn your mind off. Run, swim, bike, have sex, do something that's as far from your creative problem as possible. Afterward, you might just find that the problem you struggled with all morning isn't as hard, or that you have a new idea for approaching it.
- **Use your body to help your mind**. This is entirely counterintuitive to your logical mind, but that's exactly why it's so likely to work. In John Medina's *Brain Rules*, he explains how physical activity, even for people who don't like it, has positive effects on brain function. The theory is that for most of our evolutionary history, the acts of physical exertion and maximum brain function were correlated (think how creative you have to be when being chased by tigers). If your body is active, your mind will follow. Einstein and Bohr used to debate physics while going for long walks—they both believed they thought better when moving around. This might be true for you.
- **Inversion**. If you're stuck, come up with ideas for the opposite of what you want. If your goal was to design the best website for your team, switch to designing the worst one you can imagine. Five minutes at an inverted problem will get your frustrations out, make you laugh, and likely get you past your fears. Odds are high you'll hit something so horribly bad

that it's interesting, and in studying it, you'll discover good ideas you would never have found any other way.

- **Switch modes**. Everyone has a dominant way of expressing ideas: sketching, writing, talking. If you switch the mode you're working in, different ideas are easier to find, and your understanding of a particular problem will change. This is both a way to find new ideas and to explore an idea you're focused on. Working on paper, rather than computers, can make this easier because you can doodle in the margins (a form of mode switching), something you can't really do with a mouse and a keyboard. Or, try explaining your problem to a child, or to the smartest person you know, which will force you to describe and think about the problem differently.
- **Take an improvisational comedy class**. This will be easier and less painful than you think. These classes, offered for ordinary people by most improv comedy groups, are structured around simple games. You show up, play some games, and slowly each week you learn how to pay more attention to the situations the games put you in, as well as how to respond to them. You will eventually become more comfortable with investing in combinations without being sure of the outcome.
- **Find a partner**. Some people are most creative when they're with creative friends. Partnering up on a project, or even being around other creative people who are working on solo projects, keeps energy levels high. They will bring a new perspective to your ideas, and you will bring a new perspective to theirs. It also gives you a drinking buddy when things go sour.
- **Stop reading and start doing**. The word *create* is a verb. Be active. Go make things. Make dinner, make a drawing, make a fire, make some noise, but make. If all your attempts at being creative consist of passively consuming, no matter how brilliant what you consume is, you'll always be a consumer, not a creator. An entire culture of tinkerers and makers is out there, with projects and tools to help you get started. Check out *http://makezine.com* and *www.readymade.com*, two sites waiting to show you the way.