"A must-read for everyone who cares about driving customer engagement."

—ERIC RIES, author of *The Lean Startup*

HOOKED

How to Build Habit-Forming Products

NIR EYAL

WITH RYAN HOOVER

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with Ryan Hoover

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For Julie

introduction

Seventy-nine percent of smartphone owners check their device within fifteen minutes of waking up every morning.[1] Perhaps more startling, fully one-third of Americans say they would rather give up sex than lose their cell phones.[2]

A 2011 university study suggested people check their phones thirty-four times per day.[3] However, industry insiders believe that number is closer to an astounding 150 daily sessions.[4]

Face it: We're hooked.

The technologies we use have turned into compulsions, if not full-fledged addictions. It's the impulse to check a message notification. It's the pull to visit YouTube, Facebook, or Twitter for just a few minutes, only to find yourself still tapping and scrolling an hour later. It's the urge you likely feel throughout your day but hardly notice.

Cognitive psychologists define *habits* as "automatic behaviors triggered by situational cues": things we do with little or no conscious thought.[5] The products and services we use habitually alter our everyday behavior, just as their designers intended.[6] Our actions have been engineered.

How do companies, producing little more than bits of code displayed on a screen, seemingly control users' minds? What makes some products so habit forming?

Forming habits is imperative for the survival of many products. As infinite distractions compete for our attention, companies are learning to master novel tactics to stay relevant in users' minds. Amassing millions of users is no longer good enough. Companies increasingly find that their economic value is a function of the strength of the habits they create. In order to win the loyalty of their users and create a product that's regularly used, companies must learn not only what compels users to click but also what makes them tick.

Although some companies are just waking up to this new reality, others are already cashing in. By mastering habit-forming product design, the companies profiled in this book make their goods indispensable.

FIRST TO MIND WINS

Companies that form strong user habits enjoy several benefits to their bottom line. These companies attach their product to *internal triggers*. As a result, users show up without any external prompting.

Instead of relying on expensive marketing, habit-forming companies link their services to the users' daily routines and emotions.[7] A habit is at work when users feel a tad bored and instantly open Twitter. They feel a pang of loneliness and before rational thought occurs, they are scrolling through their Facebook feeds. A question comes to mind and before searching their brains, they query Google. The first-to-mind solution wins. In chapter 1 of this book, we explore the competitive advantages of habit-forming products.

How do products create habits? The answer: They manufacture them. While fans of the television show *Mad Men* are familiar with how the ad industry once created consumer desire during Madison Avenue's golden era, those days are long gone. A multiscreen world of ad-wary consumers has rendered Don Draper's big-budget brainwashing useless to all but the biggest brands.

Today, small start-up teams can profoundly change behavior by guiding users through a series of experiences I call *hooks*. The more often users run through these hooks, the more likely they are to form habits.

How I Got Hooked

In 2008 I was among a team of Stanford MBAs starting a company backed by some of the brightest investors in Silicon Valley. Our mission was to build a platform for placing advertising into the booming world of online social games.

Notable companies were making hundreds of millions of dollars selling virtual cows on digital farms while advertisers were spending huge sums of money to influence people to buy whatever they were peddling. I admit I didn't get it at first and found myself standing at the water's edge wondering, "How do they do it?"

At the intersection of these two industries dependent on mind manipulation, I embarked upon a journey to learn how products change our actions and, at times, create compulsions. How did these companies engineer user behavior? What were the moral implications of building potentially addictive products? Most important, could the same forces that made these experiences so compelling also be used to build products to improve people's lives?

Where could I find the blueprints for forming habits? To my disappointment, I found no guide. Businesses skilled in behavior design guarded their secrets, and although I uncovered books, white papers, and blog posts tangentially related to the topic, there was no how-to manual for building habit-forming products.

I began documenting my observations of hundreds of companies to uncover patterns in user-experience designs and functionality. Although every business had its unique flavor, I sought to identify the commonalities behind the winners and understand what was missing among the losers.

I looked for insights from academia, drawing upon consumer psychology, human-computer interaction, and behavioral economics research. In 2011 I began sharing what I learned and started working as a consultant to a host of Silicon Valley companies, from small start-ups to Fortune 500 enterprises. Each client provided an opportunity to test my theories, draw new insights, and refine my thinking. I began blogging about what I learned at NirAndFar.com, and my essays were syndicated to other sites. Readers soon began writing in with their own observations and examples.

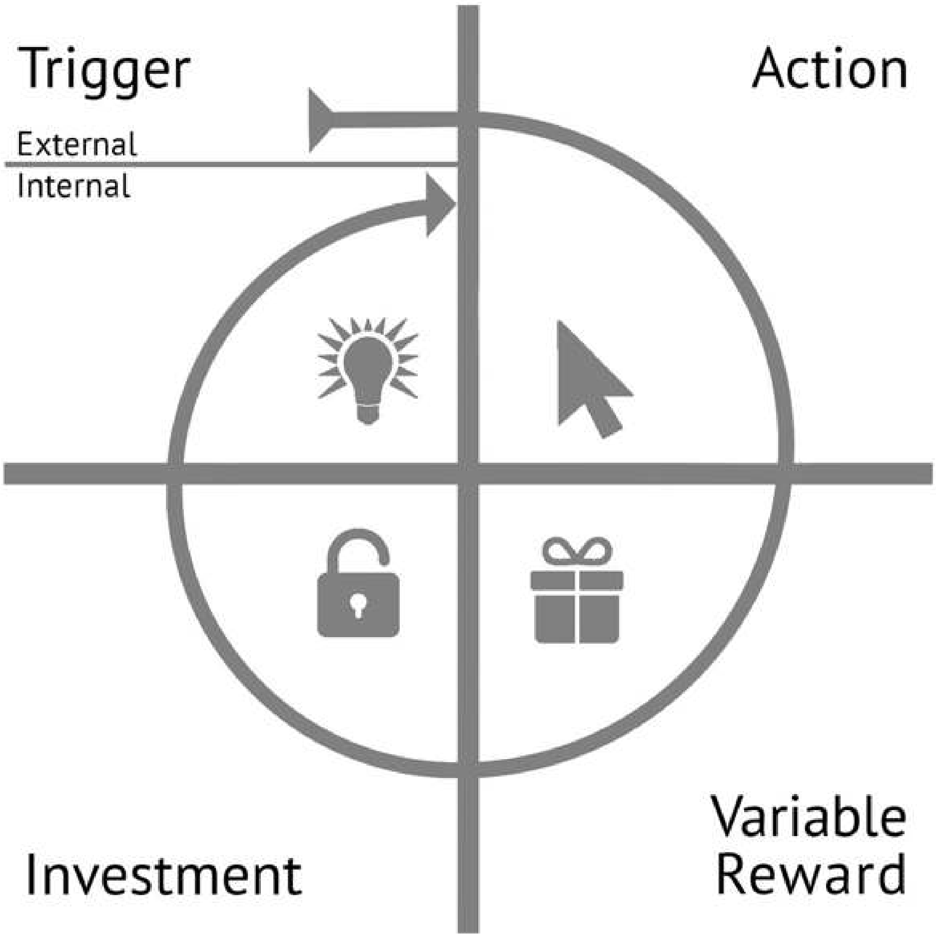
In the fall of 2012 Dr. Baba Shiv and I designed and taught a class at the Stanford Graduate School of Business on the science of influencing human behavior. The next year, I partnered with Dr. Steph Habif to teach a similar course at the Hasso Plattner Institute of Design.

These years of distilled research and real-world experience resulted in the creation of the Hook Model: a four-phase process companies use to forms habits.

Through consecutive Hook cycles, successful products reach their ultimate goal of unprompted user engagement, bringing users back repeatedly, without depending on costly advertising or aggressive messaging.

While I draw many examples from technology companies given my industry background, hooks are everywhere—in apps, sports, movies, games, and even our jobs. Hooks can be found in virtually any experience that burrows into our minds (and often our wallets). The four steps of the Hook Model provide the framework for the chapters of this book.

The Hook Model



1. Trigger

A *trigger* is the actuator of behavior—the spark plug in the engine. Triggers come in two types: external and internal.[8] Habit-forming products start by alerting users with external triggers like an e-mail, a Web site link, or the app icon on a phone.

For example, suppose Barbra, a young woman in Pennsylvania, happens to see a photo in her Facebook News Feed taken by a family member from a rural part of the state. It’s a lovely picture and because she is planning a trip there with her brother Johnny, the external trigger’s call to action (in marketing and advertising lingo) intrigues her and she clicks. By cycling through successive hooks, users begin to form associations with internal triggers, which attach to existing behaviors and emotions.

When users start to automatically cue their next behavior, the new habit becomes part of their everyday routine. Over time, Barbra associates Facebook with her need for social connection. Chapter 2 explores external and internal triggers, answering the question of how product designers determine which triggers are most effective.

2. Action

Following the trigger comes the action: the behavior done in anticipation of a reward. The simple action of clicking on the interesting picture in her news feed takes Barbra to a Web site called Pinterest, a “social bookmarking site with a virtual pinboard.”[9]

This phase of the Hook, as described in chapter 3, draws upon the art and science of usability design to reveal how products drive specific user actions. Companies leverage two basic pulleys of human behavior to increase the likelihood of an action occurring: the ease of performing an action and the psychological motivation to do it.[10]

Once Barbra completes the simple action of clicking on the photo, she is dazzled by what she sees next.

3. Variable Reward

What distinguishes the Hook Model from a plain vanilla feedback loop is the Hook’s ability to create a craving. Feedback loops are all around us, but predictable ones don’t create desire. The unsurprising response of your fridge light turning on when you open the door doesn’t drive you to keep opening it again and again. However, add some variability to the mix—suppose a different treat magically appears in your fridge every time you open it—and voilà, intrigue is created.

Variable rewards are one of the most powerful tools companies implement to hook users; chapter 4 explains them in further detail. Research shows that levels of the neurotransmitter dopamine surge when the brain is expecting a reward.[11] Introducing variability multiplies the effect, creating a focused state, which suppresses the areas of the brain associated with judgment and reason while activating the parts associated with wanting and desire.[12] Although classic examples include slot machines and lotteries, variable rewards are prevalent in many other habit-forming products.

When Barbra lands on Pinterest, not only does she see the image she intended to find, but she is also served a multitude of other glittering objects. The images are related to what she is generally interested in—namely things to see on her upcoming trip to rural Pennsylvania—but there are other things that catch her eye as well. The exciting juxtaposition of relevant and irrelevant, tantalizing and plain, beautiful and common, sets her brain's dopamine system aflutter with the promise of reward. Now she's spending more time on Pinterest, hunting for the next wonderful thing to find. Before she knows it, she's spent forty-five minutes scrolling.

Chapter 4 also explores why some people eventually lose their taste for certain experiences and how variability impacts their retention.

4. Investment

The last phase of the Hook Model is where the user does a bit of work. The investment phase increases the odds that the user will make another pass through the Hook cycle in the future. The investment occurs when the user puts something into the product of service such as time, data, effort, social capital, or money.

However, the investment phase isn't about users opening up their wallets and moving on with their day. Rather, the investment implies an action that improves the service for the next go-around. Inviting friends, stating preferences, building virtual assets, and learning to use new features are all investments users make to improve their experience. These commitments can be leveraged to make the trigger more engaging, the action easier, and the reward more exciting with every pass through the Hook cycle. Chapter 5 delves into how investments encourage users to cycle through successive hooks.

As Barbra enjoys endlessly scrolling through the Pinterest cornucopia, she builds a desire to keep the things that delight her. By collecting items, she gives the site data about her preferences. Soon she will follow, pin, repin, and make other investments, which serve to increase her ties to the site and prime her for future loops through the Hook.

A New Superpower

Habit-forming technology is already here, and it is being used to mold our lives. The fact that we have greater access to the web through our various connected devices—smartphones and tablets, televisions, game consoles, and wearable technology—gives companies far greater ability to affect our behavior.

As companies combine their increased connectivity to consumers, with the ability to collect, mine, and process customer data at faster speeds, we are faced with a future where everything becomes potentially more habit forming. As famed Silicon Valley investor Paul Graham writes, "Unless the forms of technological progress that produced these things are subject to different laws than technological progress in general, the world will get more addictive in the next 40 years than it did in the last 40."[13] Chapter 6 explores this new reality and discusses the morality of manipulation.

Recently, a blog reader e-mailed me, "If it can't be used for evil, it's not a superpower." He's right. And under this definition, building habit-forming products is indeed a superpower. If used irresponsibly, bad habits can quickly degenerate into mindless, zombielike addictions.

Did you recognize Barbra and her brother Johnny from the previous example? Zombie film buffs likely did. They are characters from the classic horror flick *Night of the Living Dead*, a story about people possessed by a mysterious force, which compels their every action.[14]

No doubt you've noticed the resurgence of the zombie genre over the past several years. Games like *Resident Evil*, television shows like *The Walking Dead*, and movies including *World War Z* are a testament to the creatures' growing appeal. But why are zombies suddenly so fascinating? Perhaps technology's unstoppable progress—ever more pervasive and persuasive—has grabbed us in a fearful malaise at the thought of being involuntarily controlled.

Although the fear is palpable, we are like the heroes in every zombie film—threatened but ultimately more powerful. I have come to learn that habit-forming products can do far more good than harm. Choice architecture, a concept described by famed scholars Thaler, Sunstein, and Balz in their same-titled scholarly paper, offers techniques to influence people's decisions and affect behavioral outcomes. Ultimately, though, the practice should be “used to help nudge people to make better choices (as judged by themselves).”[15] Accordingly, this book teaches innovators how to build products to help people do the things they already want to do but, for lack of a solution, don’t do.

Hooked seeks to unleash the tremendous new powers innovators and entrepreneurs have to influence the everyday lives of billions of people. I believe the trinity of access, data, and speed presents unprecedented opportunities to create positive habits.

> *When harnessed correctly, technology can enhance lives through healthful behaviors that improve our relationships, make us smarter, and increase productivity.*

The Hook Model explains the rationale behind the design of many successful habit-forming products and services we use daily. Although not exhaustive given the vast amount of academic literature available, the model is intended to be a practical tool (rather than a theoretical one) made for entrepreneurs and innovators who aim to use habits for good. In this book I have compiled the most relevant research, shared actionable insights, and provided a practical framework designed to increase the innovator’s odds of success.

Hooks connect the user’s problem with a company’s solution frequently enough to form a habit. My goal is to provide you with a deeper understanding of how certain products change what we do and, by extension, who we are.

HOW TO USE THIS BOOK

At the end of each section, you’ll find a few bulleted takeaways. Reviewing them, jotting them down in a notebook, or sharing them on a social network is a great way to pause, reflect, and reinforce what you have read.

Building a habit-forming product yourself? If so, the “Do This Now” sections at the end of subsequent chapters will help guide your next steps.

REMEMBER & SHARE

- *Habits* are defined as “behaviors done with little or no conscious thought."

- The convergence of access, data, and speed is making the world a more habit-forming place.
- Businesses that create customer habits gain a significant competitive advantage.
- The Hook Model describes an experience designed to connect the user's problem to a solution frequently enough to form a habit.
- The Hook Model has four phases: *trigger*, *action*, *variable reward*, and *investment*.

1

The Habit Zone

When I run, I zone out. I don't think about what my body is doing and my mind usually wanders elsewhere. I find it relaxing and refreshing, and run about three mornings each week. Recently, I needed to take an overseas client call during my usual morning run time. "No biggie," I thought. "I can run in the evening instead." However, the time shift created some peculiar behaviors that night.

I left the house for my run at dusk and as I was about to pass a woman taking out her trash, she made eye contact and smiled. I politely saluted her with "Good morning!" and then caught my mistake: "I mean, good evening! Sorry!" I corrected myself, realizing I was about ten hours off. She furrowed her brow and cracked a nervous smile.

Slightly embarrassed, I noted how my mind had been oblivious to the time of day. I chided myself not to do it again, but within a few minutes I passed another runner and again—as if possessed—I blurted out, "Good morning!" What was going on?

Back home, during my normal post-run shower, my mind began to wander again as it often does when I bathe. My brain's autopilot switch turned on and I proceeded with my daily routine, unaware of my actions.

It wasn't until I felt the nick of the razor cutting my face that I realized I had lathered up and started shaving. Although it is something I do every morning, shaving was painfully unnecessary in the evening. And yet I'd done it anyway, unknowingly.

The evening version of my morning run had triggered a behavioral script that instructed my body to carry out my usual run-related activities —all without mindful awareness. Such is the nature of ingrained habits—behaviors done with little or no conscious thought—which, by some estimates, guide nearly half of our daily actions.[1]

Habits are one of the ways the brain learns complex behaviors. Neuroscientists believe habits give us the ability to focus our attention on other things by storing automatic responses in the basal ganglia, an area of the brain associated with involuntary actions.[2]

Habits form when the brain takes a shortcut and stops actively deliberating over what to do next.[3] The brain quickly learns to codify behaviors that provide a solution to whatever situation it encounters.

For example, nail biting is a common behavior that occurs with little or no conscious thought. Initially, the biter might start chomping on her fingernail for a reason—to remove an unsightly hangnail, for example. However, when the behavior occurs for no conscious purpose—simply as an automatic response to a cue—the habit is in control. For many persistent nail-biters, the unconscious trigger is the unpleasant feeling of stress. The more the biter associates the act of nail chomping with the temporary relief it provides, the harder it becomes to change the conditioned response.

Like nail biting, many of our daily decisions are made simply because that was the way we have found resolution in the past. The brain automatically deduces that if the decision was a good one yesterday, then it is a safe bet again today and the action becomes a routine.

On my run my brain had associated making eye contact with another person during my run with the standard “Good morning!” greeting; thus I automatically uttered these words no matter how inappropriately timed.

WHY HABITS ARE GOOD FOR BUSINESS

If our programmed behaviors are so influential in guiding our everyday actions, surely harnessing the same power of habits can be a boon for industry. Indeed, for those able to shape them in an effective way, habits can be very good for the bottom line.

Habit-forming products change user behavior and create unprompted user engagement. The aim is to influence customers to use your product on their own, again and again, without relying on overt calls to action such as ads or promotions. Once a habit is formed, the user is automatically triggered to use the product during routine events such as wanting to kill time while waiting in line.

However, the framework and practices explored in this book are not “one size fits all” and do not apply to every business or industry.

Entrepreneurs should evaluate how user habits impact their particular business model and goals. While the viability of some products depends on habit-formation to thrive, that is not always the case.

For example, companies selling infrequently bought or used products or services do not require habitual users—at least, not in the sense of everyday engagement. Life insurance companies, for instance, leverage salespeople, advertising, and word-of-mouth referrals and recommendations to prompt consumers to buy policies. Once the policy is bought, there is nothing more the customer needs to do.

In this book I refer to products in the context of businesses that require ongoing, unprompted user engagement and therefore need to build user habits. I exclude companies that compel customers to take action through other means.

Before diving into the mechanics of how habits are made, we must first understand their general importance and competitive benefits for businesses. Habit formation is good for business in several ways.

Increasing Customer Lifetime Value

MBAs are taught that a business is worth the sum of its future profits. This benchmark is how investors calculate the fair price of a company's shares.

CEOs and their management teams are evaluated by their ability to increase the value of their stocks—and therefore care deeply about the ability of their companies to generate free cash flow. Management's job, in the eyes of shareholders, is to implement strategies to grow future profits by increasing revenues or decreasing expenses.

Fostering consumer habits is an effective way to increase the value of a company by driving higher customer lifetime value (CLTV): the amount of money made from a customer before that person switches to a competitor, stops using the product, or dies. User habits increase how long and how frequently customers use a product, resulting in higher CLTV.

Some products have a very high CLTV. For example, credit card customers tend to stay loyal for a very long time and are worth a bundle. Hence, credit card companies are willing to spend a considerable amount of money acquiring new customers. This explains why you receive so many promotional offers, ranging from free gifts to airline bonus miles, to entice you to add another card or upgrade your current one. Your potential CLTV justifies a credit card company's marketing investment.

Providing Pricing Flexibility

Renowned investor and Berkshire Hathaway CEO Warren Buffett once said, “You can determine the strength of a business over time by the amount of agony they go through in raising prices.”[4] Buffett and his partner, Charlie Munger, realized that as customers form routines around a product, they come to depend upon it and become less sensitive to price. The duo have pointed to consumer psychology as the rationale behind their famed investments in companies like See’s Candies and Coca-Cola.[5] Buffett and Munger understand that habits give companies greater flexibility to increase prices.

For example, in the free-to-play video game business, it is standard practice for game developers to delay asking users to pay money until they have played consistently and habitually. Once the compulsion to play is in place and the desire to progress in the game increases, converting users into paying customers is much easier. The real money lies in selling virtual items, extra lives, and special powers.

As of December 2013, more than 500 million people have downloaded *Candy Crush Saga*, a game played mostly on mobile devices. The game’s “freemium” model converts some of those users into paying customers, netting the game’s maker nearly $1 million per day.[6]

This pattern also applies to other services. For example, take Evernote, the popular note-taking and archiving software: It is free to use but the company offers upgraded features, such as offline viewing and collaboration tools, for a price—which many devoted users are happy to pay.

Evernote’s CEO Phil Libin shared some revealing insights about how the company turns nonpaying users into revenue-generating ones.[7] In 2011 Libin published a chart now known as the “smile graph.” With the percentage of sign-ups represented on the y-axis and time spent on the service on the x-axis, the chart showed that, although usage plummeted at first, it rocketed upward as people formed a habit of using the service. The resulting down-and-up curve gave the chart its emblematic smile shape (and Evernote’s CEO a matching grin).

In addition, as usage increased over time, so did customers’ willingness to pay. Libin noted that after the first month, only 0.5 percent of users paid for the service; however, this rate gradually increased. By month thirty-three, 11 percent of users had started paying. At month forty-two, a remarkable 26 percent of customers were paying for something they had previously used for free.[8]

Supercharging Growth

Users who continuously find value in a product are more likely to tell their friends about it. Frequent usage creates more opportunities to encourage people to invite their friends, broadcast content, and share through word of mouth. Hooked users become brand evangelists—megaphones for your company, bringing in new users at little or no cost.

Products with higher user engagement also have the potential to grow faster than their rivals. Case in point: Facebook leapfrogged its competitors, including MySpace and Friendster, even though it was relatively late to the social networking party. Although its competitors both had healthy growth rates and millions of users by the time Mark Zuckerberg's fledgling site launched beyond the closed doors of academia, his company came to dominate the industry.

Facebook's success was, in part, a result of what I call the *more is more* principle—more frequent usage drives more viral growth. As David Skok, tech entrepreneur turned venture capitalist, points out, "The most important factor to increasing growth is . . . Viral Cycle Time."[9] Viral Cycle Time is the amount of time it takes a user to invite another user, and it can have a massive impact. "For example, after 20 days with a cycle time of two days, you will have 20,470 users," Skok writes. "But if you halved that cycle time to one day, you would have over 20 million users! It is logical that it would be better to have more cycles occur, but it is less obvious just how much better."

Having a greater proportion of users daily returning to a service dramatically decreases Viral Cycle Time for two reasons: First, daily users initiate loops more often (think tagging a friend in a Facebook photo); second, more daily active users means more people to respond and react to each invitation. The cycle not only perpetuates the process—with higher and higher user engagement, it accelerates it.

Sharpening the Competitive Edge

User habits are a competitive advantage. Products that change customer routines are less susceptible to attacks from other companies.

Many entrepreneurs fall into the trap of building products that are only marginally better than existing solutions, hoping their innovation will be good enough to woo customers away from existing products. But when it comes to shaking consumers' old habits, these naive entrepreneurs often find that better products don't always win—especially if a large number of users have already adopted a competing product.

A classic paper by John Gourville, a professor of marketing at Harvard Business School, stipulates that "many innovations fail because consumers irrationally overvalue the old while companies irrationally overvalue the new."[10]

Gourville claims that for new entrants to stand a chance, they can't just be better, they must be nine times better. Why such a high bar? Because old habits die hard and new products or services need to offer dramatic improvements to shake users out of old routines. Gourville writes that products that require a high degree of behavior change are doomed to fail even if the benefits of using the new product are clear and substantial.

For example, the technology I am using to write this book is inferior to existing alternatives in many ways. I'm referring to the QWERTY keyboard which was first developed in the 1870s for the now-ancient typewriter. QWERTY was designed with commonly used characters spaced far apart. This layout prevented typists from jamming the metal type bars of early machines.[11] This physical limitation is an anachronism in the digital age, yet QWERTY keyboards remain the standard despite the invention of far better layouts. Professor August Dvorak's keyboard design, for example, placed vowels in the center row, increasing typing speed and accuracy. Though patented in 1932, the Dvorak Simplified Keyboard was written off. QWERTY survives due to the high costs of changing user behavior. When first introduced to the keyboard, we use the hunt-and-peck method. After months of practice, we instinctively learn to activate all our fingers in response to our thoughts with little-to-no conscious effort, and the words begin to flow effortlessly from mind to screen. But switching to an unfamiliar keyboard—even if more efficient—would force us to relearn how to type. Fat chance!

As we will learn in chapter 5, users also increase their dependency on habit-forming products by *storing value* in them—further reducing the likelihood of switching to an alternative. For example, every e-mail sent and received using Google's Gmail is stored indefinitely, providing users with a lasting repository of past conversations. New followers on Twitter increase users' clout and amplify their ability to transmit messages to their communities. Memories and experiences captured on Instagram are added to one's digital scrapbook. Switching to a new e-mail service, social