The Power of Habit

INTRODUCTION

BRIEF BIOGRAPHY OF CHARLES DUHIGG

Charles Duhigg was born and raised in Albuquerque, New Mexico. After graduating with a B.A. in History from Yale University, he worked in private equity and attended Harvard Business School. But by the time he earned his M.B.A. in 2003, he already knew that he wanted to become a journalist instead of continuing in business. For the next three years, he worked as a staff writer for the *Los Angeles Times*, where he largely covered the Iraq War and the U.S. music industry. In 2006, he moved to *The New York Times*, where he did in-depth investigative reporting on issues like the dangerous working conditions at the factories that make Apple products in China and toxic tap water in the U.S. But he is still best known for *The Power of Habit*, which has sold millions of copies and spent more than a year on the *New York Times* bestseller list. He has won more than a dozen journalism awards for his work, including a Pulitzer Prize for his *New York Times* reporting on Apple in 2013. He has also spoken for audiences at companies like Google, Microsoft, and Bloomberg and appeared on popular shows like *This American Life* and *The Colbert Report*. He published his second book, *Smarter Faster Better*, in 2016. Since 2017, he has been a staff writer covering business for *The New Yorker*, and from 2019 to 2021, he also hosted *Slate* magazine's "How To!" podcast.

HISTORICAL CONTEXT

In *The Power of Habit*, Charles Duhigg emphasizes that recent developments in psychology and neuroscience are the foundation for his insights about habit formation and change. While psychologists and philosophers have studied habits for centuries, modern research on habits and the brain began with the rise of cognitive neuropsychology and psychobiology in the mid-1900s. For a long time, neuroscientists had few tools to understand the brain—and one of their most valuable was studying patients with brain damage. The most famous of these patients might have been Henry Molaison, or "H.M.," who lost the ability to form new memories—but maintained all his previous ones—after an invasive surgery to treat epilepsy. Molaison showed neuroscientists that short-term and long-term memory depend on different parts of the brain. In fact, Molaison's case was also the foundation for research on habit because it showed that habits depend on unconscious memories, not active information recall. Later, Larry Squire's interviews with the brain damage patient Eugene Pauly (or "E.P.") confirmed this theory. However, new technology has also made more complex, innovative research into habit formation possible in recent decades. For instance, Duhigg notes that brain scan techniques like fMRI—which was not invented until the 1990s—have made it possible for neuroscientists to actually see how the formation of new habits reshapes the brain. Similarly, he cites Ann Graybiel's influential research on habit formation in rats, which is only possible because Graybiel is able to implement thin probes in the rats' brains. Now, she is doing similar research with optogenetics, an innovative new technique that allows neuroscientists to selectively activate parts of an animal's brain by shining light at them. Such techniques—and other similar ones in development today—will allow science's understanding of the human brain to continue advancing in the future.

RELATED LITERARY WORKS

Charles Duhigg's second book is *Smarter Faster Better: The Secrets of Being Productive in Life and Business* (2016). Other influential recent books on habit include James Clear's *Atomic Habits: An Easy & Proven Way to Build Good Habits & Break Bad Ones* (2018), Brendon Burchard's *High Performance Habits: How Extraordinary People Become That Way* (2017), and Gretchen Rubin's *Better Than Before: Mastering the Habits of Our Everyday Lives* (2015). Classic books on habits include Stephen R. Covey's classic *The 7 Habits of Highly Effective People: Powerful Lessons in Personal Change* (1988) and James C. Collins and Jerry I. Porras's *Built to Last: Successful Habits of Visionary Companies* (2004).

KEY FACTS

- **Full Title:** The Power of Habit: Why We Do What We Do in Life and Business
- **When Written:** 2010-11
- **Where Written:** Brooklyn, New York
- **When Published:** February 28, 2012
- **Literary Period:** Contemporary
- **Genre:** Popular Science, Business, Self-Help, Organizational Psychology
- **Point of View:** First-person

EXTRA CREDIT

Study Habits. Since 2020, Duhigg has offered an online course based on *The Power of Habit*.

PLOT SUMMARY

In *The Power of Habit*, journalist Charles Duhigg argues that

habits are the foundation of human behavior. By truly understanding these habits, Duhigg believes, people can learn to master them—which gives them the power to control their own lives and shape their own identities. In his prologue, Duhigg introduces this principle with the story of Lisa Allen, a woman who turned her entire life around after a divorce and a fateful trip to Egypt. For twenty years, Allen smoked, drank, and ate too much; she never exercised, was deep in debt, and kept losing jobs. But after a flash of inspiration, she changed all of these habits in just a few months, starting with the **keystone habit** of smoking. Scientists **scanned her brain** and discovered that she had built new neural pathways for her new, healthy, disciplined habits. In other words, she actually reprogrammed her brain by changing her habits—and Duhigg wants to teach his readers to do the same. He argues that, whether they live ordinary lives or face critical, high-stress situations like the war in Iraq, people are only as effective as their habits. So are organizations. While habit change isn't always easy, Duhigg believes that it's always possible. And he knows that readers can greatly simplify the process by following a few simple principles.

In his first chapter, Duhigg explains how habits work in the brain. He tells the story of Eugene Pauly, an elderly man who almost entirely loses his memory after getting a dangerous infection in his brain. The neuroscientist Larry Squire discovered that, even though Pauly can't remember anything, he still retains all his habits. Thus, Pauly can go to the bathroom even though he doesn't know where it is. When Squire repeatedly gives Pauly the same game—he has to chose the "correct" one of a pair of objects—Pauly consistently gets better, but always thinks he's playing it for the first time. Pauly's disorder shows that the part of the brain that regulates habits is totally different from the part that regulates memory. In fact, neuroscientists know that structures deep inside the brain, like the basal ganglia, are designed to help save energy by turning frequently-repeated actions into routines. The brain then learns to start these routines after specific cues. And after a routine is done, the brain finds a reward—which can be sensory, emotional, or just psychological. This three-part loop of cue, routine, and reward is the foundation for all habits.

Next, Duhigg examines how people—and especially marketers—can use this three-part loop to create new habits. The advertiser Claude C. Hopkins famously popularized toothbrushing in the U.S. by teaching Americans a habit loop: when they feel a dirty film on their teeth (cue), they should brush (routine), which will leave them feeling and looking clean (reward). Similarly, marketers turned Febreze into a bestselling product by marketing it as the "final touch" (or reward) in a cleaning habit. As people started to associate the smell of Febreze with a clean room, they started to crave it—and buy more and more. Duhigg argues that the key to forming sustainable habits is building this kind of craving.

Neuroscientist Wolfram Schultz's research on monkeys supports this theory: once the brain learns to associate the cue with the reward, it develops a craving, which makes the whole habit addictive.

In his third chapter, Duhigg introduces what he calls the Golden Rule of habit change: to replace old habits with new ones, people should keep the same cue and reward, but change the routine. The star football coach Tony Dungy did this by teaching his players to automatically get into formation whenever they saw the other side. Similarly, the alcoholic Bill Wilson founded Alcoholics Anonymous when he realized that new habits—like prayer, attending support groups, and talking with trusted sponsors—can give people the same feeling of sociability and relaxation that they used to seek from alcohol. But replacing old routines with new ones is easier said than done. If they don't sincerely believe in their own ability to change, people often relapse into bad habits.

In the next four chapters, Duhigg focuses on habits' consequences for organizations. First, he explains how organizations can completely transform themselves by starting with one small but significant keystone habit. For instance, when he became the CEO of the aluminum manufacturer Alcoa, Paul O'Neill focused not on profits, innovation, or growth, but on worker safety. By getting everyone to work together on safety, he proved that change was possible, bridged longstanding conflicts between different groups within the company, and opened up lines of communication with factory workers—who often had the best ideas for improving productivity.

Next, Duhigg examines how people can become more successful by turning *willpower* into a habit. Starbucks famously bases its employee training program on teaching discipline, and it works—employees like Travis Leach credit Starbucks with teaching them key life skills. In fact, psychologist Mark Muraven's experiments show that it's possible to learn willpower over time. The key is to make it into a habit.

In his sixth chapter, Duhigg looks at how organizations transform themselves during crises. After a series of botched surgeries, Rhode Island Hospital faced a media firestorm and publicly committed to changing the toxic work culture that led to the mistakes. Similarly, when nobody managed to stop a devastating fire in the London subway, the city government reorganized the agencies that managed the subway and trained new staff to address safety issues. Duhigg concludes that crises can actually help organizations advance by motivating them to make needed changes.

Then, Duhigg discusses how companies manipulate their consumers' habits. For instance, Target hired the statistician Andrew Pole to analyze shoppers' purchases and determine if they are pregnant. His algorithm was successful, but Target didn't want customers to know that it was surveilling them, so it had to mix its personalized coupons in with random ones.

Similarly, to popularize the song "Hey Ya!," radio stations decided to sandwich it between two songs that listeners already knew and loved. The lesson from these two examples is clear: to succeed, habit manipulation has to be subtle.

In his final two chapters, Duhigg examines the social and moral implications of habit change. First, he looks at the civil rights movement. He argues that the 1955 Montgomery bus boycott was successful because of the social habits that drove it. Rosa Parks's wide range of friends made a point of defending her, and then the Black community stuck with the boycott because of social pressure. When Dr. Martin Luther King, Jr., came to the movement's head, his leadership convinced people around the country to adopt a new set of values and habits, like loving the enemy and protesting nonviolently. Just as King built a broad social movement by changing people's habits, Duhigg argues, the Baptist pastor Rick Warren built an enormous megachurch by appealing to changed habits. These examples show how habits are really contagious—when some people's habits change, others tend to follow. Sometimes, this process can transform entire societies.

In his last chapter, Duhigg asks a critical question: "Are We Responsible for Our Habits?" He compares Angie Bachmann, a stay-at-home mom who develops an uncontrolled gambling addiction and bankrupts her family, to Brian Thomas, a British man with a history of sleepwalking who accidentally kills his wife in the middle of the night during an unconscious episode called a night terror. Duhigg agrees with the courts' ruling on Bachmann and Thomas's cases: Bachmann is responsible for her behavior because she knew about it and had the power to stop it, while Thomas isn't responsible for his because he couldn't have changed it. While habits aren't the same as ordinary decisions, Duhigg reiterates, people can still control them if they take the right steps to understand and replace the habit loop. This brings the book full circle: Duhigg concludes that people have not only the power to build good habits and eradicate bad ones, but also the moral responsibility to do so. In a brief afterword, he offers several examples of people who have succeeded after reading his book. He thinks that anyone can do the same if they truly want to, if they learn about the research, and if they put their mind to it.

CHARACTERS

MAJOR CHARACTERS

Lisa Allen – Lisa Allen is an American woman who overcame a series of destructive habits—like smoking, overeating, and indebting herself—in a very short period of time, after getting divorced and taking a trip to Cairo. A scientific study showed that her brain formed new, stronger pathways to accommodate her new habits—although the pathways associated with her old habits didn't totally disappear. Duhigg uses Lisa Allen's story to introduce *The Power of Habit* because she shows how radical habit change is possible and can transform people's lives for the better.

Angie Bachmann – Angie Bachmann is an American stay-at-home mother from Iowa who started visiting the local casino, then developed a severe gambling problem, and finally bankrupted herself and her entire family. At first, Bachmann went to the casino to cope with her feelings of boredom and loneliness. But over time, gambling became her only routine for coping with negative feelings—including her anxiety about her gambling addiction. While she tried to quit, the gaming company Harrah's kept enticing her back by flying her out to casinos, gifting her free hotel rooms, and even extending her a line of credit. However, when she sued Harrah's, the court ruled that she was responsible for her own bad habits because she understood and had the power to change them. (Duhigg agrees with this conclusion.) Bachmann's story suggests that, no matter how powerful and resistant to change bad habits can be, people are still responsible for them.

Tony Dungy – Tony Dungy is a highly successful American football coach who turned the Tampa Bay Buccaneers and Indianapolis Colts into two of the NFL's winningest teams. His secret was to make his players practice a few key formations over and over again, until they were automatic. This taught them to act faster and more decisively than their opponents. Dungy's strategy shows how good habits are the key to successful teams and that the Golden Rule of habit change is the best way to develop them. However, it also shows why people have to truly believe in themselves in order to build new habits. For years, Dungy's teams repeatedly lost key playoff games because they overthought their strategies, instead of following the routines Dungy taught them. But after Dungy's son committed suicide, his players started to believe more sincerely in his methods and coasting to victory in the playoffs.

Claude C. Hopkins – Claude C. Hopkins was an influential American advertiser who ran several massive, successful marketing campaigns in the late 19th and early 20th centuries. Most notably, he made tooth-brushing into a national habit by promising that the toothpaste Pepsodent would remove the film from people's teeth. Hopkins also developed key rules for advertising—like finding clear cues and rewards to get consumers to use products. However, Duhigg argues that Hopkins overlooked the importance of cravings (which depend on connecting the cue to the reward, so that people actively seek out a new habit).

William James – William James was an influential American philosopher and psychologist active in the late 19th and early 20th centuries. In his 20s, James considered himself a failure, but turned his life around by forcing himself to blindly believe in his ability to improve. This shows how people have to believe in their ability to change in order to actually do so. Duhigg also repeatedly cites James's famous quote about the significance

of habits: "All our life, so far as it has a definite form, is but a mass of habits."

Julio – Julio was a monkey who participated in Wolfram Schultz's experiments on cravings and habit formation. In these experiments, a shape on a computer screen cued him to press a lever, and he was intermittently rewarded with blackberry juice. He quickly became addicted to the game and stopped doing anything else. His addiction shows how craving makes habits stick.

Dr. Martin Luther King, Jr. – Dr. Martin Luther King, Jr., was a world-renowned Black minister and activist who helped lead the Montgomery bus boycott in 1955 and, later, the broader U.S. civil rights movement. Duhigg argues that Dr. King helped the boycott succeed by instilling new values and habits of nonviolent protest in Montgomery's Black population. (Eventually, Duhigg believes, King's leadership set off a similar process in the U.S. public as a whole.)

Travis Leach – Travis Leach is a Starbucks employee who credits his job with turning his life around. He had a difficult childhood: his parents were heroin addicts, and both died when he was a teenager. Unable to cope with the stresses of everyday life, he got and lost a series of low-wage jobs until he landed at Starbucks—where the employee training program taught him key habits, like willpower and social skills. Duhigg uses Leach's life story to illustrate the importance of willpower, as well as how organizations can spread good habits throughout their structures.

Rich Meyer – Rich Meyer is the founder of Mediabase, a company that measures and analyzes the most popular songs at radio stations around the U.S. In 2003, he determined that people are more likely to listen all the way through songs that sound familiar to them. This supports Duhigg's argument that "making the unfamiliar seem familiar" is the key to changing other people's habits.

Mark Muraven – Mark Muraven is a psychologist who has conducted influential experiments on willpower. His research concludes that willpower is neither a limited resource nor a consistent skill that people can always exercise. Instead, Muraven has shown that willpower is more like a muscle—it can wear itself out, but also get stronger over time.

Paul O'Neill – Paul O'Neill was the CEO and chairman of Alcoa from 1987 to 2000, and then the Secretary of the Treasury under President George W. Bush from 2001 to 2002. By focusing on worker safety, O'Neill completely transformed Alcoa's culture. In addition to eliminating almost all serious accidents, O'Neill's policy also unified the workforce behind a single goal and gave ordinary workers the power to share their ideas with upper management. Ultimately, this helped Alcoa's profits and stock price skyrocket. Charles Duhigg uses O'Neill's tenure at Alcoa as a key example of how **keystone habits** can transform organizations by offering small wins, creating frameworks for further change, and changing organizational culture. Ultimately, he attributes O'Neill's success to his time working as a budget analyst for the U.S. government—which helped him develop effective management habits and showed him how such habits determined organizations' effectiveness.

Rosa Parks – Rosa Parks was a seamstress and activist who famously helped launch the Montgomery bus boycott and the civil rights movement when she refused to give up her seat on a segregated bus in 1955. Duhigg argues that the boycott was successful because Parks had a wide range of friends and acquaintances across Montgomery's Black community. He uses Parks's protest as an example of how social habits—like defending friends and succumbing to peer pressure—can spur social change.

Eugene Pauly – Eugene Pauly was an elderly California man who suffered from lasting brain damage after a severe infection. As a result of this damage, he couldn't remember any new information—including what day of the week it was and who his children were. But he could still act out all of his existing habits and even form new ones. For instance, he could easily walk around the block and find his way home, even though he couldn't say which home was his. Pauly's experience showed neuroscientists that memory and habit depend on different systems in the brain, and Duhigg uses him to emphasize that point.

Andrew Pole – Andrew Pole is a talented statistician who used Target's extensive data to build an algorithm to determine if its customers are pregnant. While Pole's success demonstrates how companies and organizations can gain an edge by manipulating consumers' habits, it also shows that this kind of manipulation carries dangerous ethical implications.

Brian Thomas – Brian Thomas is a British man who accidentally killed his wife during a sleep terror—an unconscious, extremely violent outburst in the middle of the night. The court ruled that Thomas was not legally responsible for his wife's death because he was just acting out a natural fight-or-flight habit loop, and he could not have possibly known about his problem or stopped himself. Duhigg views Thomas's actions as a very rare example of a habit for which people are not morally responsible. He contrasts this with most habits—like Angie Bachmann's gambling—which he argues that people are morally responsible for controlling.

Rick Warren – Rick Warren is the influential pastor and founder of Saddleback Church. Duhigg describes how Warren spread his message and built a congregation by appealing to people's habits. For instance, he accommodated people's existing habits by letting them wear whatever they wanted to church, and he helped them build effective new ones by having them meet in the same small groups every week for Bible study. Duhigg views Warren's success as evidence of how collective habits can be the foundation for social movements and communities.

MINOR CHARACTERS

Charles Duhigg – The author of *The Power of Habit* is a Pulitzer Prize-winning journalist who writes about the intersection of business, technology, and psychology. He first became interested in habits while reporting from Baghdad for *The Los Angeles Times* in the early 2000s.

Bob Bowman – Bob Bowman was Michael Phelps's childhood swimming coach. He taught Phelps many key habits, like following a consistent warm-up routine and visualizing the perfect race.

Reza Habib – Reza Habib is a psychologist and neuroscientist who studies how compulsive gamblers form their habits. His research shows that the habit loop completely overtakes these gamblers' brains while they play, which means that they essentially lose control of their free will.

E.D. Nixon – E.D. Nixon was the leader of the NAACP in Montgomery, Alabama during the 1950s. He helped connect Rosa Parks and Dr. Martin Luther King, Jr., to launch the Montgomery bus boycott.

Beverly Pauly – Beverly Pauly was Eugene Pauly's wife. She cared for him after his illness.

Michael Phelps – Michael Phelps is the world-champion American swimmer and 23-time Olympic gold medalist. Duhigg cites Phelps's pre-race routine as an example of how routines and **keystone habits** contribute to success.

Howard Schultz – Howard Schultz is the longtime CEO of Starbucks. Duhigg argues that Starbucks is so successful because Schultz learned about the importance of willpower early in life, then built Starbucks's employee training strategies around teaching willpower as a habit.

Wolfram Schultz – Wolfram Schultz is a German neuroscientist who studies habit formation in his lab at the University of Cambridge. His experiments have shown that monkeys (like Julio) form habits when they form cravings—or learn to associate a habit loop's cues with its rewards.

Larry Squire – Larry Squire is the world-renowned psychologist, neuroscientist, and memory researcher who studied Eugene Pauly after his illness. Pauly helped Squire understand the difference between ordinary conscious memory and the unconscious memory associated with habits.

Drake Stimson – Drake Stimson is the mathematician and marketer who led the advertising campaign for Proctor & Gamble's odor-eliminating spray, Febreze. He struggled to convincingly sell the product at first, but eventually realized that people would use it if they learned to use it as a reward for cleaning.

Bill Wilson – Bill Wilson was the New York man who found God, quit drinking, and started Alcoholics Anonymous in the 1930s.

TERMS

Alcoa – Alcoa is the massive aluminum manufacturing corporation that **Paul O'Neill** ran as CEO and chairman from 1987 to 2000.

Basal ganglia – The basal ganglia are several regions in the center of the brain that play an important role in habit formation.

Brain stem – The brain stem is the part of the brain that connects the rest of the brain to the spinal cord. It regulates basic, unconscious bodily functions like breathing, sleeping, and the heartbeat.

Cue – In the habit loop, the cue is the familiar stimulus that triggers someone to start a routine. For instance, anxiety might be a smoker's cue to light up.

The Golden Rule of habit change – The Golden Rule of habit change is to replace the old routine with a new one, while connecting it with the same cue and reward. For instance, Alcoholics Anonymous teaches people to identify the feelings that cue them to drink, then respond to them with a new routine instead—like going to a meeting or talking to a sponsor.

Reward – In the habit loop, the reward is the benefit associated with performing the routine. For instance, smoking might reward a smoker with a feeling of relaxation, which makes them more likely to keep smoking over time.

Routine – In the habit loop, a routine is the habit itself—or the automatic series of actions that someone takes in response to the cue. The routine then leads to a reward. For instance, smokers learn to perform a specific routine—smoking—in response to stress.

THEMES

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HABITS, HUMAN BEHAVIOR, AND SUCCESS

In *The Power of Habit*, journalist Charles Duhigg explores how people's habits—their automatic patterns of behavior—shape their lives, accomplishments, and identities. By making ordinary decisions automatic, habits save people time and energy. But, for this very reason, they're also easy to overlook. Every day, people make hundreds of habitual decisions about ordinary issues like what to eat, how to get to work, what to do during their free time, and how to handle stress. While some people thrive by building positive habits like

meditation, exercise, and willpower, others get addicted to more destructive habits like smoking, gambling, and overeating. Regardless, habits set the tone for everyone's daily life. And because habits tend to reinforce themselves over time, they also transform the people who practice them. Thus, by bringing the latest scientific research on habits together with case studies from business, sports, and social movements, Duhigg shows that people's success and failure depends more on their habits than their abilities, motivation, or conscious decisions.

Duhigg illustrates the difference between habits and normal decisions by examining how they work in the human brain. Neuroscientists know that complex thought depends on the cerebral cortex—the wrinkly layer on the brain's surface—while habits depend on more primitive structures like the basal ganglia, which are located deep inside the brain. MIT studies have shown that, as people and animals learn certain behaviors, their cortex stops working so hard and their basal ganglia take over. In other words, once they've worked out a pattern, they use the basal ganglia to automate it. Therefore, while habits might start out as conscious decisions, they become unconscious behaviors over time. The famous brain injury patient Eugene Pauly clearly illustrates the difference between conscious decisions and unconscious habits. After a brain infection, Pauly lost the ability to form and retain new memories. But his basal ganglia were still intact, so he could still perform habits. For instance, he couldn't say which house on the block was his, but he managed to take a walk around the neighborhood every morning and find his way home. Pauly's experience shows how habits and decisions rely on two completely different circuits in the brain.

Furthermore, by automating routine activities, habits allow the human brain to use energy more efficiently and perform more complex tasks. When the brain notices a pattern, it forms a habit loop: it looks for cue, then performs a predetermined routine, and then finally enjoys (or gives itself) a reward. For instance, a feeling of boredom (cue) might lead someone to smoke (routine), which leaves them feeling relaxed (reward). While the brain perks up during the cue and reward, it gets to power down during the routine, freeing up space to focus on other activities. Just like a computer can run many programs at once, the human brain can perform many tasks at the same time because of this habit loop—despite its limited capacity for attention. This is why habits are so useful and powerful.

In fact, Duhigg argues that habits are so important that they tend to determine people's most important life outcomes: who they become, what they choose to do with their lives, and whether they're able to achieve their goals. This is first and foremost because most of people's actions are based on habits, whether they realize it or not. If this weren't the case, people would get bogged down deciding what to eat, figuring out what emotions they feel, and remembering how to do their jobs. Instead, habits automate all of these processes—and countless others, which make up the bulk of everyday decisions. This is why the famous psychologist William James argued that life is nothing more than "a mass of habits." The idea here is that the kind and quality of people's habits determines how effective those people are. For instance, two people might learn to cope with fear in very different ways—one might learn to face, overcome, and learn from their fears, while the other learns to run away from them. Over time, the person who learns from their fears is likely to achieve their goals more than the one who doesn't. This is why Duhigg believes that developing good habits is the best way for people to become who they truly want to be.

Duhigg even sees habits as the root of many highly accomplished people's success. For instance, he notes that habits are the cornerstone of U.S. military training, and he points out how Starbucks makes its employees more mature and responsible by teaching them to make willpower an unconscious habit. Similarly, Duhigg argues that organizations are also effective because of the habits they teach their members— for instance, Starbucks provides excellent customer service because it teaches its employees to develop willpower. On an even larger scale, effective corporate structures build norms and routines that balance power (or create "truces") among rival executives. Meanwhile, poor habits can lead to catastrophic failure. Individuals can develop harmful addictions like alcoholism or compulsive gambling, while organizations can fall into dysfunctional patterns—like the Rhode Island Hospital, which repeatedly killed patients during botched surgeries because doctors ignored nurses who pointed out their errors. These examples again show why the stakes of developing good habits are so high: they can mean the difference between life and death.

Ultimately, Duhigg concludes that habits are a uniquely powerful tool. Controlling one's habits, he suggests, is the key to living well. When used correctly, habits make people more efficient and effective. But when they go awry, habits can ruin lives and make people think (incorrectly) that they have no power to improve. Either way, the first step to developing strong habits is understanding them in the first place—which is why Duhigg wrote *The Power of Habit*.

HABIT CHANGE AND PERSONAL GROWTH

Charles Duhigg wants his readers to understand how habits work and why they're so central to human life, but his real goal is to give people the tools they need to *change* their habits for the better. This is why *The Power of Habit* is best known for its detailed advice on how to replace bad habits with good ones. While many people think of their habits as automatic, set in stone, and outside their control, Duhigg insists that it is possible—if not always easy—to change them. The same strategies won't work for every person,

organization, or society, but the same general framework always applies: by understanding the cues and rewards that drive their habits, people can replace their harmful routines. Duhigg calls this "the Golden Rule of habit change." Similarly, by developing effective habit loops, people can build beneficial habits over time. Finally, by combining these two frameworks with other strategies—such as peer pressure, positive thinking, and prioritizing smaller **keystone habits**—people can make habit change more effective and durable. By following these evidence-based pathways to habit change, Duhigg concludes, people can take control of their lives and achieve wide-reaching changes that may even exceed their wildest expectations.

Duhigg argues that the key to changing bad habits is "the Golden Rule," which means keeping the same cue and reward but changing the routine. Mandy, a lifelong nail-biter, shows how people can overcome bad habits through the Golden Rule. First, she identified the cue and reward that drove her habit: the cue was a feeling of tension, and the reward was a feeling of relaxation. Then, she replaced nail-biting with a different routine: making slash marks on an index card. Making an X instead of nail-biting helped her see her habit improving, and this reward pushed her to stop biting her nails. Mandy's story shows that people can replace their bad habits through the Golden Rule. But first, they have to understand their habit loop—the cue, routine, and reward underlying their habit. And second, they have to experiment with new routines until they find one that effectively replaces their bad habit. Duhigg shows that this can work in many scenarios. Alcoholics Anonymous replaces the routine of drinking with that of attending meetings, for instance, and Lisa Allen quit smoking by replacing cigarettes with jogging. These examples show that eliminating bad habits is fully within people's control.

Next, Duhigg argues that the key to building good *new* habits is creating a strong cue-routine-reward habit loop. In particular, people have to closely connect the cue with the reward until they start to *crave* the reward. Because habits tend to become automatic through repetition, people can engineer them: they can create a cue, routine, and reward, then continue repeating the cycle until it all becomes natural. However, Duhigg points out that people often quit their new habits—for instance, they might quit going to the gym after a few weeks. This is because the reward doesn't motivate them enough—in other words, they don't *crave* the reward. Thus, Duhigg concludes that people need to build cravings in order to keep to their new habits. He cites Wolfram Schultz's research to illustrate this. Schultz set monkeys up with a computer game that gave them juice as a reward for correctly identifying shapes. The monkeys only chose to keep playing the game if they developed a *craving* for juice and began immediately associating the cue (the shape) with the reward (the juice). Similarly, to create sustainable new habits, Duhigg argues that people need to build cravings into their habit loop—which really just means finding a reward that makes them *want* to perform the routine whenever they see the cue.

Finally, Duhigg explains how other important factors can make habit change more or less effective. First, he argues that people and organizations that want to completely transform should take advantage of keystone habits—or smaller habits that spur larger change. Keystone habits lead to "small wins," create frameworks for change, and alter organizations' cultures. Paul O'Neill's worker safety policies at Alcoa illustrate all three. Everyone at Alcoa could agree on the importance of working toward better safety protocols, and achieving these protocols was a "small win." In turn, this "small win" eventually led to new leadership and communication structures, as employees were encouraged to actively work toward a better working environment. O'Neill's policies changed Alcoa's culture, making it more cohesive, honest, and transparent. Ultimately, by focusing on the keystone habit of worker safety, O'Neill made Alcoa far more efficient and profitable. Next, Duhigg argues that social support can help people change their habits more effectively. Groups show people that others share their concerns and care about them. Research shows that groups make positive habits stick—for instance, U.S. Military Academy students tend to be more successful if they attend regular support groups. Finally, to actually change their habits, people must believe in their ability to do so. Otherwise, they give up. The psychologist William James illustrated this: after struggling to feel in control of his life for years, he decided that, for one year, he would wholeheartedly believe in his capacity to change. In that year, his work and personal life both transformed for the better. While belief can't *cause* change, Duhigg argues that it powerfully motivates people to pursue it.

In fact, besides understanding how habits work, motivation is the most important ingredient for habit change. Anyone can change their habits by following simple frameworks like the Golden Rule and the habit loop, but not everyone will care enough to try. This is why people tend to successfully change their habits when they experience profound pain, crisis, or spiritual epiphanies. But Duhigg hopes that people will build motivation for their habit change by simply learning how straightforward it can be.

SOCIAL HABITS AND CULTURAL INFLUENCE

Most readers are likely to associate the word "habit" with individual behaviors (like eating healthy food, exercising regularly, and practicing good hygiene). But in *The Power of Habit*, Charles Duhigg argues that these aren't the only kinds of habits that affect people's lives. Instead, he shows that groups, organizations, and even whole societies also depend on the same kind of automatic, unquestioned habits as individuals. This happens because habits are contagious—they can catch on in social groups of any size, whether because of

power, peer pressure, or love. In fact, many habits that appear to just impact individuals are actually rooted in social life. Thus, Duhigg's point about the importance of habits and habit change applies as much to collectives as it does to individuals. He concludes that social groups develop different collective habits from one another because of their different underlying dynamics; these habits then shape how groups evolve and ultimately determine whether or not they achieve their goals.

Duhigg argues that, like individuals, social groups of all sizes depend on habits that make them succeed or fail. This is most evident in small groups of like-minded people, who tend to bond around particular habits and norms. For instance, Alcoholics Anonymous helps people quit drinking in large part because of the group habits it teaches people—AA members learn to habitually come together, tell their stories, and analyze their triggers and mistakes. In addition to replacing drinking, AA also exposes recovering alcoholics to others who have successfully stayed sober for longer. Thus, in AA meetings, small groups build a set of shared habits, which help them recover from their addictions.

Similarly, entire organizations can share and rely on particular habits. Duhigg cites Richard Nelson and Sidney Winter's influential book *An Evolutionary Theory of Economic Change*, in which the authors argue that institutions' routines define their identity, give them consistency, and determine whether they achieve their goals. One example of this is Starbucks's focus on self-discipline and willpower in employee training. By promoting these key values, Starbucks creates a shared culture for its workforce, helps employees cope with professional and personal setbacks, and ensures better customer service. Duhigg even argues that Starbucks owes its success to this training program, which shows how habits can define and shape institutions as much as they can define and shape people.

Entire societies also have specific habits, which have important consequences for their success. For example, Duhigg argues that the civil rights movement was largely about a shift in habits. Americans started changing the day-to-day habits that sustained segregation, while learning to respond to racist violence with inclusive messages of love, tolerance, and hope. According to Duhigg, Americans first learned these habits from civil rights leaders like Dr. Martin Luther King Jr., but they are now central to American democracy. In fact, King's principles and habits have even transformed American identity, to the point that many Americans view diversity and tolerance as defining features of their national story. This shows how powerful habits can shape entire societies.

Social groups have distinct, meaningful habits because habits are fundamentally social—they form and change when people come together. Duhigg argues that this can happen in many ways. The first and most direct way is simply through power. Leaders can impose new habits on their followers, like Paul O'Neill did by forcing all of his workers to prioritize safety when he became the CEO of Alcoa. But leaders can also change habits by inspiring their followers. Duhigg cites Dr. King's influence as a clear example of how moral leadership can spread new kinds of habits throughout a group or society. Next, habits can spread through strong personal and social connections. Namely, groups of people who share close ties—like families, groups of friends, or even AA chapters—often build good habits to help one another out. For instance, the Baptist pastor Rick Warren had his congregants meet in small groups because he knew that this would help them befriend and support one another. He believed that this personal connection would help them sustain a Bible study routine. This shows that small, unified groups can be one of the best places for habits to form and spread. Finally, habits also spread through weak social ties, or peer pressure. To protect their reputations and avoid rejection, people imitate others in a group—including by taking up their habits. For instance, Duhigg argues that the Montgomery bus boycott during the civil rights movement was largely successful because Montgomery's Black community felt obligated to participate for the sake of the common good. Because networks of casual acquaintances and friends-of-friends tend to be extensive, they can spread new habits far and wide.

For Duhigg, then, there's little difference between the way habits work for individuals and the way they work for groups, organizations, and entire societies. Just as individuals are defined by their habits but also have the power to change them, groups and institutions always function according to certain ingrained routines but can still transform themselves by changing these routines. And just as individual bad habits (like overeating or compulsive gambling) harm a person's health, collective bad habits (like unequal power structures or a culture of disrespect) can threaten the strength and sustainability of an entire organization. Not only is it limiting to only talk about individual habits—it's also wrong, because even individual habits tend to be rooted in a larger social group. Thus, individual and collective habits are always tied together. Often, changing one is the first step toward changing the other.

THE MORAL CONSEQUENCES OF HABITS

Because habit change is such a powerful tool, it can do immense good—or considerable evil. In *The Power of Habit*, Charles Duhigg surveys examples that span the whole moral spectrum. Many cases of habit change are obviously morally good—like overcoming violent tendencies or stopping medical malpractice. But when people develop or fail to overcome their *evil* habits, Duhigg asks, who is at fault? Habits are complicated because, while they are often involuntary, people ultimately have the power to change them. Moreover, habits challenge simple notions of freedom and autonomy because they show that people really only have

partial control over their decisions. In fact, powerful organizations like governments and corporations often profit by manipulating people into developing bad habits. It becomes somewhat unclear, then, whether people with bad habits are the victims or the instigators of their own behavior. While Duhigg doesn't provide a total moral theory of habits in this book, he does suggest that—with very few exceptions—people are ethically responsible for their habits because they're capable of changing them.

First, Duhigg acknowledges that the tools for habit change that he outlines in the book can also be used for evil, like when people manipulate others' habits in harmful or unethical ways. For instance, to determine if their customers are pregnant, Target buys and analyzes customer data without those customers' consent. Duhigg acknowledges that many customers feel violated, manipulated, and surveilled by this policy (which Target hides by mixing targeted ads and coupons with random ones that they don't expect customers to use). In particular, this policy challenges consumers' belief that they are truly in control of their decisions—it seems to violate their autonomy by planting ideas in their head. Worse still, the casino company Harrah's gave compulsive gambler Angie Bachmann free flights, hotel rooms, and credit in order to lure her back to gambling even though she was trying to quit. (She eventually went bankrupt, and Harrah's sued her.) If it weren't for the incentives from Harrah's, gamblers like Bachmann would be much more likely to quit and stay financially solvent. Does this make the company's behavior unethical? At the very least, Duhigg affirms, Harrah's took advantage of Bachmann's bad habits and made it harder for her to quit. But this doesn't mean she's not still responsible for her decision to gamble. Thus, Duhigg suggests that manipulation might *explain* bad habits, but it doesn't *excuse* them.

Next, Duhigg concludes that people are morally responsible for their bad habits—as long as they are aware of them—precisely because they still have the freedom and capability to change them. Still, this answer isn't obvious. Habits are complicated because they are neither totally conscious nor totally involuntary. In other words, they blur the line between free will and coercion. As the neuroscientist Reza Habib has pointed out, compulsive gamblers feel that they can't stop and genuinely lose control of their free will while they're playing. If this is true—that people with bad habits don't behave badly out of their own free will—then they aren't necessarily responsible for their actions. However, Duhigg thinks there's a difference between controlling habits in the moment and choosing to reform them at other times. In other words, while compulsive gamblers might not be able to stop once they've started betting, they can choose to seek help and change when they're *not* in the middle of gambling. Even if people with bad habits temporarily lose control over themselves, then, they regain control in other moments. This means that they still have the power to reform their bad habits.

Finally, Duhigg thinks that knowing about and being able to reform one's bad habits is enough to be morally responsible for them. He points out that this fits with the ordinary legal concept of guilt: if people freely chose to do something wrong—even if their choice was based on negligence or ignorance—they are morally responsible for their behavior. As a result, people like Angie Bachmann are responsible for their actions, even if they've also been manipulated by bad actors. The only exception, Duhigg argues, is in cases where people literally cannot know about their bad habits. He uses Brian Thomas as an example. Thomas accidentally killed his wife during a night terror (an unconscious episode that is like a violent kind of sleepwalking). Neuroscientists know that, during night terrors, the basal ganglia are in control—which means people are acting according to habit and cannot stop their violent behavior. Since Thomas literally could not have predicted, stopped, or known about the danger he posed to his wife, Duhigg agrees with the court that he wasn't morally responsible for her murder. But this example shows that the bar for escaping moral responsibility for bad habits is extremely high: in most cases, anyone who knows they have a problem also has a responsibility to fix that problem.

Duhigg suggests that it's unethical to change people's habits by psychologically manipulating them. But he argues that people are also responsible for their habits, even when those habits are the result of manipulation. For Duhigg, then, people's ability to control their habits means that they are truly free, autonomous decision-makers. If they *can* change their habits, they are morally responsible for those habits—even if they struggle or fail to change them. For instance, Duhigg believes that Harrah's behaved immorally, but that Angie Bachmann was still responsible for her own bankruptcy because she could and should have sought help. (The only exceptions are cases like Brian Thomas's, when people are literally unaware of their habits.) Thus, people with bad habits are quite often both the victims and perpetrators of evil.

SYMBOLS

Symbols appear in **teal text** throughout the Summary and Analysis sections of this LitChart.

BRAIN SCANS AND STUDIES

Brain scans represent science's power to give people control over their own destiny by revealing the secrets of human nature. Duhigg emphasizes that, in the last few decades, neuroimaging techniques have revolutionized science by allowing researchers to identify the links between specific behaviors and activity in specific areas of the brain. For instance, by scanning rats' brains, MIT researchers learned

about the basal ganglia's role in habit formation and identified patterns of brain activity consistent with the cue-routine-reward habit loop.

These brain scans are the basis for Duhigg's recommendations for habit change. Thus, they show how science's remarkable new tools give *people* remarkable new tools for improving themselves. They also offer proof that self-improvement works. For example, Lisa Allen's brain scans show how neural connections associated with new, better habits overrode the connections associated with her old, unhealthy ones.

At the same time, brain scans might appear to challenge people's sense of free will by showing them how much of their neural activity is unconscious and beyond their immediate control. For instance, Reza Habib's studies show that gamblers seem to continue playing because of unconscious processes in the basal ganglia, not because of conscious decisions. But in reality, it's just the opposite. Brain scans don't hamper human freedom—they unleash it. By giving people the knowledge they need to train their own brains and become the people they want to be, brain scans demonstrate how humankind's technological innovations give people more and more control over their own fate.

KEYSTONE HABITS

Keystone habits both represent and demonstrate the way that people can take control over their lives—and leaders can take control over their organizations—by adjusting their habits.

Keystone habits are the initial, often insignificant habits that individuals and organizations modify in order to pave the way for much broader transformation. For instance, Lisa Allen gained the confidence to lose weight, improve her sleep schedule, and plan for her future by embracing a single keystone habit change: quitting smoking. Similarly, Alcoa transformed under Paul O'Neill's leadership by focusing on the keystone issue of worker safety. In both these cases, the keystone habit might have seemed irrelevant or insignificant, but it was actually the key ingredient that brought about the deeper transformation that both Allen and Alcoa needed.

Charles Duhigg argues that keystone habits help people achieve broader change in three ways: they build people's confidence by giving them "small wins," help them create new systems and structures that allow other habits to form later on, and change organizations' culture. But all three of these advantages are based on the same common principle. Namely, by changing some aspects of their lives, people build the capacity and confidence to change other things, too. Thus, Duhigg uses the concept of keystone habits to reaffirm his belief that people have much more control over their habits, feelings, and identities than they think. Just as people can learn to control their individual habits by carefully changing their routines, Duhigg affirms, they can take control of their entire lives by identifying the most important keystone habits to change first.

QUOTES

Note: all page numbers for the quotes below refer to the Random House edition of *The Power of Habit* published in 2014.

Prologue Quotes

She needed a goal in her life, she thought. Something to work toward.
So she decided, sitting in the taxi, that she would come back to Egypt and trek through the desert.
It was a crazy idea, Lisa knew. She was out of shape, overweight, with no money in the bank. She didn't know the name of the desert she was looking at or if such a trip was possible. None of that mattered, though. She needed something to focus on. Lisa decided that she would give herself one year to prepare. And to survive such an expedition, she was certain she would have to make sacrifices.
In particular, she would need to quit smoking.

Related Characters: Charles Duhigg (speaker), Lisa Allen

Related Themes:

Related Symbols:

Page Number: xiii

Explanation and Analysis

In his prologue, Duhigg explains how Lisa Allen miraculously turned her life around. For decades, she drank, smoked, overate, accumulated debt, and couldn't keep a job. She was deeply unhappy because of these bad habits—and then her husband divorced her. She took a trip to Egypt to try and get her mind off the divorce, but instead, the opposite happened: her desperation and misery consumed her. She hit rock bottom. And this is what motivated her to change: she knew that she needed to do something to turn her life around. She set a goal for herself (trekking through the desert) and figured out what first steps she needed to take to achieve it (quitting smoking). Against all odds, she succeeded.

Duhigg starts his book with Lisa Allen's story because her experience demonstrates how powerfully habits shape people's lives—but also how people truly can transform their lives by changing their habits. Before her

transformation, Allen wasn't just an ordinary person with a few bad habits—like Duhigg's reader is likely to be. Instead, she had awful habits that ruined every single part of her life. If *she* could change her habits and turn her life around, Duhigg suggests, then anyone can.

Moreover, Allen's habit change also foreshadows two other key concepts in the book: belief and keystone habits. First, Allen succeeded because she learned to believe in her ability to change. As Duhigg explains here, she was motivated to change precisely because her life was so terrible. Because she was desperate to change her life, she *had* to believe in her ability to do so—she felt that there was no other option. And Duhigg believes that this kind of faith is the key to successful, long-term habit change. Second, Allen managed to turn her life around by focusing on one key habit first: smoking. This demonstrates how certain keystone habits can open the door for wider habit change by giving people the motivation, energy, and willpower they need to change other habits.

❝ When researchers began examining images of Lisa's brain, they saw something remarkable: One set of neurological patterns—her old habits—had been overridden by new patterns. They could still see the neural activity of her old behaviors, but those impulses were crowded out by new urges. As Lisa's habits changed, so had her brain.

Related Characters: Charles Duhigg (speaker), Lisa Allen

Related Themes:

Related Symbols:

Page Number: xiv

Explanation and Analysis

After her remarkable transformation, Lisa Allen signed up for a scientific study about habit change. The researchers scanned her brain, and their findings deeply shaped neuroscience's understanding of how new habits can replace old ones. As Duhigg explains here, the researchers could see her new habit loops in the brain. They also found that the patterns associated with her old, bad habits—smoking, drinking, overspending, and so on—were still encoded in her brain. In other words, her new, healthier habits didn't erase her old ones, but simply *overpowered* them. One part of her brain still craved cigarettes and alcohol, but another, stronger part of her brain craved health, happiness, and self-discipline.

This research has profound implications for Duhigg's approach to habit change and advice to his readers. First, it shows that habits actually get imprinted into the brain and change people's neural pathways. This is part of why they're so hard to beat: the brain gets used to habits and starts to expect and crave them. Second, Lisa Allen's brain scans indicate that people should fix their bad habits by *replacing* them, and not by trying to *eliminate* them. In other words, bad habits tend to persist in the brain once they're established—removing them is almost impossible. Instead, people have to build good habits that are strong enough to overpower their bad ones.

❝ "All our life, so far as it has definite form, is but a mass of habits," William James wrote in 1892. Most of the choices we make each day may feel like the products of well-considered decision making, but they're not. They're habits. And though each habit means relatively little on its own, over time, the meals we order, what we say to our kids each night, whether we save or spend, how often we exercise, and the way we organize our thoughts and work routines have enormous impacts on our health, productivity, financial security, and happiness.

Related Characters: Charles Duhigg , William James (speaker)

Related Themes:

Page Number: xv-xvi

Explanation and Analysis

In the second half of his prologue, Duhigg explains his book's central thesis: habits are the key to people's success and happiness, and people can learn to control these habits if they acquire the right strategies and mindset. He begins by citing the influential psychologist William James, who believed that habits are the foundation for human life. Because habits automate the majority of people's reactions and decisions, James argued, they determine how people respond to most of the crucial situations they face. People with good habits tend to come out the other end successful. Thus, James viewed habits as a way for humans to control their minds, turning them into an asset rather than a liability.

Duhigg essentially believes in the same principle. In *The Power of Habit*, he tries to update James's thinking with new evidence from modern neuroscience and marketing. As he explains here, habits seem small when people actually perform them, but they make a significant difference over time. Updating one's habits is like updating a computer operating system: people only have to do it once, but it

yields long-term effects. This means that building good habits is one of the lowest-cost, highest-impact ways for people to improve their lives.

Chapter 1 Quotes

❝ As they rounded the corner near his house, the visitor asked Eugene where he lived. "I don't know, exactly," he said. Then he walked up his sidewalk, opened his front door, went into the living room, and turned on the television.

Related Characters: Charles Duhigg , Eugene Pauly (speaker)

Related Themes:

Page Number: 12

Explanation and Analysis

After a severe brain infection destroyed Eugene Pauly's ability to form new memories, everyone around him—from his doctors to his wife—expected him to struggle with all of his everyday tasks. Sure enough, he couldn't remember what day it was or hold a sustained conversation. And yet he still managed to live a relatively ordinary life: he could make himself breakfast, go on walks around the neighborhood, and—paradoxically enough—even learn to play a memory game. This is because his *habits* were still intact. Thus, he unconsciously knew things that he couldn't consciously remember. This passage illustrates how Pauly managed to live with habits, but not memory: he couldn't *say* where his house was, but he could still find his way home.

Duhigg uses Pauly's life as a case study to illustrate the distinction between habits and decisions, which are separate processes that belong to separate parts of the brain. Once people learn to repeat a certain routine, they can automate it and transfer it to a primitive part of the brain called the basal ganglia. Then, they can repeat the routine indefinitely—even if they do not understand what they are doing. This is how Pauly managed to keep his routines, like making breakfast and walking around the neighborhood: his basal ganglia were still intact. Remarkably, he could even learn new habits (which is how he learned the memory game). Most people pay little attention to the difference between automated basal ganglia processes and conscious decisions—usually because they don't notice the former. But for Pauly, this difference was obvious and incredibly significant. And Duhigg hopes that, by recognizing this difference, people can learn to make better decisions *about* their habits.

❝ Habits, scientists say, emerge because the brain is constantly looking for ways to save effort. Left to its own devices, the brain will try to make almost any routine into a habit, because habits allow our minds to ramp down more often. This effort-saving instinct is a huge advantage. An efficient brain requires less room, which makes for a smaller head, which makes childbirth easier and therefore causes fewer infant and mother deaths. An efficient brain also allows us to stop thinking constantly about basic behaviors, such as walking and choosing what to eat, so we can devote mental energy to inventing spears, irrigation systems, and, eventually, airplanes and video games.

Related Characters: Charles Duhigg (speaker)

Related Themes:

Page Number: 17-18

Explanation and Analysis

After explaining the important behavioral and neurological difference between conscious decisions and unconscious habits, Duhigg investigates why this this difference exists in the first place. According to the available scientific evidence, Duhigg writes, habits give organisms a significant evolutionary advantage because they conserve energy. Put simply, habits automate certain decisions and behaviors by moving them from the conscious part of the brain to the unconscious one. This frees up mental energy for the kinds of tasks for which humans are uniquely adept—like learning, problem-solving, and creative pursuits. In a way, habits are nature's original kind of technology. Just like people have created spears, irrigation systems, and airplanes to make hunting, farming, and traveling simpler, the brain creates habits to simplify processes like breathing, walking, and deciding what to eat.

Because habits give people such an evolutionary advantage, Duhigg goes on to explain, the brain constantly wants to form them. Therefore, it tends to turn any repeated action into a habit. But it doesn't distinguish between desired and unwanted habits, nor between beneficial and harmful ones. Therefore, the same mental process that gives people the capacity to perform extraordinary complex behaviors, like driving a car and conducting a symphony, is also responsible for some of their worst behaviors—like procrastination, smoking, or even compulsive violence. This is why Duhigg believes that people ought to take control of their natural habit-formation processes and reshape their lives for the better.

Over time, this loop—cue, routine, reward; cue, routine, reward—becomes more and more automatic. The cue and reward become intertwined until a powerful sense of anticipation and craving emerges. Eventually, whether in a chilly MIT laboratory or your driveway, a habit is born.

Related Characters: Charles Duhigg (speaker)

Related Themes:

Page Number: 19

Explanation and Analysis

The brain learns new habits by combining three things—a cue, routine, and reward—into an automatic mental loop. The *cue* is the signal that tells the brain it's time to start the *routine* (or the habitual behavior). Then, after the routine, the brain receives a *reward*, which signals that the loop is over. Rewards can be sensory (like the feeling of stimulation associated with drinking coffee) or psychological (like the feeling of accomplishment athletes may feel after winning a game). Over time, the brain learns to automatize this entire process: when it notices the cue, it automatically begins the routine, and then continues the routine until it receives the reward. As it becomes more and more ingrained, the habit comes to require less and less effort.

But in this passage, Duhigg also introduces another crucial detail about how the brain forms habits: it learns to *expect* the reward. This is why people start to crave (and compulsively repeat) certain habits. For instance, someone might crave the energy they get from their morning coffee—to the point that, when they wake up, they immediately start to anticipate this boost. These cravings are what truly make habits stick (or make people actively seek them out). This process also explains why habits are harder to change the more ingrained they become.

And in almost every experiment, researchers have seen echoes of Squire's discoveries with Eugene: Habits are powerful, but delicate. They can emerge outside our consciousness, or can be deliberately designed. They often occur without our permission, but can be reshaped by fiddling with their parts. They shape our lives far more than we realize—they are so strong, in fact, that they cause our brains to cling to them at the exclusion of all else, including common sense.

Related Characters: Charles Duhigg (speaker), Eugene Pauly , Larry Squire

Related Themes:

Page Number: 25

Explanation and Analysis

Duhigg summarizes Larry Squire's research with Eugene Pauly by concluding that "habits are powerful, but delicate." While Pauly's powerful habits allowed him to live a dignified life after his brain injury, they were also so delicate that they fell apart under the slightest pressure. For instance, when there was construction in his neighborhood, it disrupted his morning walks, and he couldn't figure out how to get home.

Habits' power and delicateness isn't necessarily good or bad—rather, these features are what make habits such excellent tools for systematically generating *both* good and bad behavior. For instance, habits' power to override common sense enables artists and inventors to try out radical new ideas, but also traps many people in cycles of addiction. Meanwhile, habits' delicateness means that it's easy to accidentally lose good habits, but also easy to modify bad ones—if these modifications are deliberate and careful. This is why, in this book, Duhigg gives his readers a toolkit for consciously controlling their habits.

Chapter 2 Quotes

This explains why habits are so powerful: They create neurological cravings. Most of the time, these cravings emerge so gradually that we're not really aware they exist, so we're often blind to their influence. But as we associate cues with certain rewards, a subconscious craving emerges in our brains that starts the habit loop spinning.

Related Characters: Charles Duhigg (speaker), Wolfram Schultz , Julio

Related Themes:

Page Number: 47-48

Explanation and Analysis

In his second chapter, Duhigg explores why some habits catch on, but others don't. He wants to understand why people struggle to kick bad habits—but also how people can create sustainable good habits. He concludes that the decisive factor is *craving*: habits stick when people crave the rewards associated with them. And people learn to crave rewards when they learn to *anticipate* those rewards as soon as they see the cue associated with their habit loop.

Intermittent reinforcement—or sometimes receiving the reward and sometimes not—makes this tendency even stronger. For instance, when the scientist Wolfram Schultz made a monkey named Julio play a computer game—but only rewarded him with juice *some* of the times he won—Julio became totally addicted to the game. Therefore, the key to developing good habits is building cravings, while the key to overcoming bad ones is *fighting* cravings—either by overpowering them with a different reward, or by harnessing the same reward to learn to crave a different routine.

Each change was designed to appeal to a specific, daily cue: Cleaning a room. Making a bed. Vacuuming a rug. In each one, Febreze was positioned as the reward: the nice smell that occurs at the end of a cleaning routine. Most important, each ad was calibrated to elicit a craving: that things will smell as nice as they look when the cleaning ritual is done. The irony is that a product manufactured to destroy odors was transformed into the opposite. Instead of eliminating scents on dirty fabrics, it became an air freshener used as the finishing touch, once things are already clean.

Related Characters: Charles Duhigg (speaker), Drake Stimson

Related Themes:

Page Number: 54

Explanation and Analysis

When Proctor & Gamble scientists developed an innovative new odor-eliminating spray called Febreze, they thought they would capture a whole new market: people who want to eliminate foul smells from their homes and possessions. Drake Stimson and the company's other marketing executives just had to figure out how to appeal to these people. Specifically, to sell lots of Febreze, they had to make people start using it as a habit. But they quickly ran into a problem: it was almost impossible to turn eliminating odors into a habit. People who lived in smelly houses often either didn't know or didn't care. In other words, there was no clear *cue* to spray Febreze and no clear *reward* for doing so.

But Drake Stimson and his marketing team soon found a solution. They realized that some customers were using Febreze in a totally different habit loop. These customers didn't use Febreze as a routine to get rid of smells—instead, they used it as a reward for finishing the rest of their cleaning routine. Proctor & Gamble latched onto this idea, added a scent to Febreze, and started marketing it as "the nice smell that occurs at the end of a cleaning routine." It worked: sales skyrocketed.

Thus, as Duhigg notes here, Febreze became a bestselling product for the exact opposite reason that its developers intended. In fact, this ironic outcome again shows how people's habits fundamentally drive their behavior. Specifically, Febreze's effectiveness at eliminating smells was much less important than its *psychological* purpose for the people who incorporated it into a habit loop. In other words, people used Febreze because it fit into their habits—and not because of its actual function.

Dabbing a bit of sunscreen on your face each morning significantly lowers the odds of skin cancer. Yet, while everyone brushes their teeth, fewer than 10 percent of Americans apply sunscreen each day. Why?
Because there's no craving that has made sunscreen into a daily habit. Some companies are trying to fix that by giving sunscreens a tingling sensation or something that lets people know they've applied it to their skin. They're hoping it will cue an expectation the same way the craving for a tingling mouth reminds us to brush our teeth.

Related Characters: Charles Duhigg (speaker), Claude C. Hopkins

Related Themes:

Page Number: 59

Explanation and Analysis

In his chapter on cravings, Duhigg explains how the advertising executive Claude C. Hopkins turned toothbrushing into a national habit. Hopkins marketed toothpaste as the routine that would eliminate the dirty film that accumulates on people's teeth (cue) and leave them with a clean, beautiful smile instead (reward). Even more importantly, Duhigg argues, Hopkins turned toothbrushing into a *craving* by ensuring that his product, Pepsodent, contained chemicals that gave people a cool, fresh feeling after they brushed their teeth.

Duhigg contrasts Hopkins's success in spreading toothbrushing with marketers' failure to make other healthy decisions—like applying sunscreen—into consistent habits. As he explains here, few people habitually apply sunscreen because there is no clear, immediate reward for doing so—which means that people do not crave sunscreen and do not seek it out. This again reaffirms that people's

decisions—including their choices about essential things like their health—are driven more by habits and cravings than science and logic. Therefore, marketing healthy behaviors—convincing people to develop the habits that doctors and scientists know are good for them—is a significant public health challenge. Meeting this challenge requires understanding the science of habits and developing the right tools to change them.

Chapter 3 Quotes

His coaching strategy embodied an axiom, a Golden Rule of habit change that study after study has shown is among the most powerful tools for creating change. Dungy recognized that you can never truly extinguish bad habits.
Rather, to change a habit, you must keep the old cue, and deliver the old reward, but insert a new routine.
That's the rule: If you use the same cue, and provide the same reward, you can shift the routine and change the habit. Almost any behavior can be transformed if the cue and reward stay the same.

Related Characters: Charles Duhigg (speaker), Tony Dungy

Related Themes:

Page Number: 62

Explanation and Analysis

The legendary football coach Tony Dungy turned around two unsuccessful teams—the Tampa Bay Buccaneers and the Indianapolis Colts—by teaching his players to develop new habits. His approach was unprecedented and controversial in the high-stakes world of the NFL, but it was also remarkably successful.

Duhigg argues that Dungy succeeded by applying the key principle he calls the Golden Rule of habit change: "keep the old cue, and deliver the old reward, but insert a new routine." For instance, Dungy didn't change the way his players looked at the opposing team's formation before a play (the cue). Instead, he changed the way they *responded* to those formations by teaching them to make a series of automatic adjustments, rather than a single decision about how to line up. The reward—a successful play—was also the same.

The Golden Rule of habit change works because it taps into the brain's powerful existing habit loops. The brain is already primed to notice a certain cue (like the opposing team's formation) and undertake a certain routine in response. Rather than teaching the brain *not* to do the routine, it's far easier to make it do a *different* routine.

Notice how closely this study hews to the Golden Rule of habit change: Even when alcoholics' brains were changed through surgery, it wasn't enough. The old cues and cravings for rewards were still there, waiting to pounce. The alcoholics only permanently changed once they learned new routines that drew on the old triggers and provided a familiar relief.

Related Characters: Charles Duhigg (speaker)

Related Themes:

Related Symbols:

Page Number: 73

Explanation and Analysis

While cravings are often the decisive factor that makes habits stick, researchers have found that eliminating them often isn't enough to eliminate bad habits. This is because powerful habit loops—like drinking, for alcoholics—often come to serve other purposes besides merely satisfying cravings. In the study Duhigg describes here, neuroscientists used brain implants to stop alcoholics from craving alcohol. But the alcoholics kept drinking because they didn't have any other way to cope with stress. In other words, they didn't crave alcohol's chemical effects as much as the routine of drinking, which gave them a sense of relief. Even though a chemical craving helped build their habit loop, this loop ended up being far stronger than the craving. To break the loop, chemical change wasn't enough: *behavioral* change was necessary. Instead of getting rid of their cravings, the alcoholics needed to find new, better habits for dealing with negative emotions.

Often, we don't really understand the cravings driving our behaviors until we look for them.

Related Characters: Charles Duhigg (speaker)

Related Themes:

Page Number: 77

Explanation and Analysis

In order to change their habits, Duhigg argues, people first need to *understand* those habits. In other words, they have to identify the cues, rewards, and routines that make up their habit loops. This process can be far more difficult and complex than it sounds, because people frequently misunderstand the real motives behind their habits.

For instance, Duhigg notes that many smokers assume that they crave nicotine, when in reality they might crave the regular breaks or opportunities to socialize that smoking gives them. If they keep trying to replace nicotine cravings when they really crave breaks, they are bound to continue smoking. But if they can recognize and replace the *real* craving behind their habit loop, they are far more likely to succeed. While this is only the first step towards changing their habits—which is often still a difficult and time-consuming process—it is still a necessary one in order for their long-term habit change to succeed.

> It wasn't God that mattered, the researchers figured out. It was belief itself that made a difference. Once people learned how to believe in something, that skill started spilling over to other parts of their lives, until they started believing they could change. Belief was the ingredient that made a reworked habit loop into a permanent behavior.

Related Characters: Charles Duhigg (speaker)

Related Themes:

Page Number: 85

Explanation and Analysis

Duhigg notes that people who manage to change their habits in the short term often struggle to maintain their new habits over time. In particular, they frequently relapse in stressful situations, when their old habits promise a sense of comfort and release from the challenges they face. This is part of why sustainable habit change can be particularly difficult.

However, there is one key factor that protects people against relapsing into their old habits: *belief*. As Duhigg notes here, this can be a belief in God, specific values, or really anything else. These beliefs matter because they teach people to believe in *themselves*. And unless people believe in their own power to overcome obstacles, Duhigg argues, they often give up as soon as they encounter challenges. In other words, believing in oneself is like a self-fulfilling prophecy: belief motivates people to persevere and try harder, which leads them to succeed. And people who already "believe in something" can more easily learn to believe in their *own* capacity to change.

> How do habits change?
> There is, unfortunately, no specific set of steps guaranteed to work for every person. We know that a habit cannot be eradicated—it must, instead, be replaced. And we know that habits are most malleable when the Golden Rule of habit change is applied: If we keep the same cue and the same reward, a new routine can be inserted.
> But that's not enough. For a habit to stay changed, people must believe change is possible. And most often, that belief only emerges with the help of a group.

Related Characters: Charles Duhigg (speaker)

Related Themes:

Page Number: 92

Explanation and Analysis

At the end of his third chapter, Duhigg summarizes the three key ingredients that tend to make habit change successful. The first is to change habits through the Golden Rule—which means replacing undesirable routines with more desirable ones, while keeping cues and rewards the same. The second is believing in one's capacity to change, which motivates people to keep trying when they encounter obstacles. And the third is to find a social support group, preferably of people who understand the bad habit one is trying to kick. Social support serves several important functions: groups make people accountable for maintaining new habits, help people believe in their own capacity for change, and often also give them concrete examples to prove that change is possible. Thus, while there is no universal formula for changing habits, there *are* three universal principles. Duhigg believes that, by consistently applying these principles to their own situation, anyone can eventually achieve the habit changes they desire.

Chapter 4 Quotes

> Where should a would-be habit master start?
> Understanding keystone habits holds the answer to that question: The habits that matter most are the ones that, when they start to shift, dislodge and remake other patterns.

Related Characters: Charles Duhigg (speaker), Paul O'Neill

Related Themes:

Related Symbols:

Page Number: 101

Explanation and Analysis

In his fourth chapter, Duhigg uses the story of Alcoa CEO Paul O'Neill to introduce the concept of keystone habits—or the key habits on which other habits depend. By identifying and changing keystone habits first, people can make it easier to change *other* habits further down the line. For instance, O'Neill focused on improving worker safety at Alcoa. This allowed him to unite divided factions in the company, change the company's management culture, and empower its workers. These shifts made a series of other important changes much easier—and these other changes ultimately made Alcoa much more profitable. Similarly, an individual fighting many bad habits might decide to improve their sleep quality *first*, because this will give them the energy they need to work on other issues.

Thus, Duhigg's argument about keystone habits is actually quite simple: people should identify and work on the most important habits first. To identify keystone habits, people have to assess their situations holistically and look for the connections among the various habits they wish to improve. And to improve these keystone habits, they should apply the standard tools that Duhigg described in his third chapter: the Golden Rule of habit change, belief, and social support.

> What most people didn't realize, however, was that O'Neill's plan for getting to zero injuries entailed the most radical realignment in Alcoa's history. The key to protecting Alcoa employees, O'Neill believed, was understanding *why* injuries happened in the first place. And to understand *why* injuries happened, you had to study *how* the manufacturing process was going wrong. To understand *how* things were going wrong, you had to bring in people who could educate workers about quality control and the most efficient work processes, so that it would be easier to do everything right, since correct work is also safer work.
> In other words, to protect workers, Alcoa needed to become the best, most streamlined aluminum company on earth.

Related Characters: Charles Duhigg (speaker), Paul O'Neill

Related Themes:

Page Number: 106

Explanation and Analysis

In this passage, Duhigg explains precisely how Alcoa CEO Paul O'Neill's focus on worker safety led to a series of other valuable habit changes throughout the company. In essence, O'Neill realized that the changes Alcoa needed to make to protect its workers were the same changes that it needed to make to become more profitable and efficient.

First, as Duhigg explains here, O'Neill recognized that safety was a keystone issue because it reflected how the company's core manufacturing processes were running. Thus, he viewed every worker injury not only as a tragedy to prevent in the future, but also as a sign that something was out of order in the production process. Accidents became opportunities to improve and streamline manufacturing.

Second, O'Neill also saw that the company policies and procedures necessary to enforce worker safety would also enable other positive changes. For instance, he created a new corporate email system that let workers share not just complaints, but also ideas for improving the manufacturing process.

> Small wins are exactly what they sound like, and are part of how keystone habits create widespread changes. A huge body of research has shown that small wins have enormous power, an influence disproportionate to the accomplishments of the victories themselves.

Related Characters: Charles Duhigg (speaker)

Related Themes:

Related Symbols:

Page Number: 112

Explanation and Analysis

The first and most straightforward way that keystone habits enable broader habit change is by providing *small wins*. When people succeed at one thing, they tend to pursue their subsequent goals with greater confidence, comfort, and dedication. Thus, when people successfully achieve minor goals, they set themselves up to pursue and achieve major goals later on. Every small win makes a slightly larger one seem achievable, so over time, people can gradually

work their way up to major habit changes.

In short, small wins are valuable because they help people build *momentum*. And momentum is a crucial part of habit change, which depends heavily on effort, willpower, and perseverance. Therefore, Duhigg suggests that people should start with keystone habits that can give them clear, small, measurable wins in the short term. To take an obvious example, runners should start with a few miles instead of immediately trying to run a marathon. Similarly, Michael Phelps treats his morning training routine as a series of simple challenges, which helps him build up confidence and energy for his races.

❝ O'Neill's experiences with infant mortality illustrate the second way that keystone habits encourage change: by creating structures that help other habits to flourish. In the case of premature deaths, changing collegiate curriculums for teachers started a chain reaction that eventually trickled down to how girls were educated in rural areas, and whether they were sufficiently nourished when they became pregnant. And O'Neill's habit of constantly pushing other bureaucrats to continue researching until they found a problem's root causes overhauled how the government thought about problems like infant mortality.

Related Characters: Charles Duhigg (speaker), Paul O'Neill

Related Themes:

Related Symbols:

Page Number: 119

Explanation and Analysis

Duhigg argues that keystone habits contribute to further, long-term improvement in three ways. The first is that they create small wins, and the third is that they enable change in an organization's culture. But here, he explains the second: keystone habits "creat[e] structures that help other habits to flourish."

Paul O'Neill learned this principle while analyzing infant mortality data for the government. He realized that changing college biology curriculums could address infant mortality by improving high school biology instruction and getting better health and nutrition information to under-resourced young mothers. He came to this solution by doing three things. First, he asked a lot of questions, in order to amass as much information as possible. Second, he analyzed the chain of causes and effects that contribute to infant mortality. And third, he compared this chain of cause and effect with the policy tools available to him in the government. This allowed him to identify which link in the chain the government should change, in order to achieve the greatest possible impact. And while he reached a surprising, counterintuitive solution—just like he did with worker safety at Alcoa—he ended up being right.

Chapter 5 Quotes

❝ Starbucks has taught him how to live, how to focus, how to get to work on time, and how to master his emotions. Most crucially, it has taught him willpower.
"Starbucks is the most important thing that has ever happened to me," he told me. "I owe everything to this company."

Related Characters: Charles Duhigg , Travis Leach (speaker)

Related Themes:

Page Number: 130

Explanation and Analysis

After a difficult upbringing, full of chaos and conflict, Travis Leach started working at Starbucks. His heroin-addicted parents taught him poor social and emotional skills, which were inadequate to deal with the day-to-day challenges he faced at work. But whereas his previous jobs all fired him, Starbucks took a different approach: it trained him—like it does all its employees—in order to help him develop the skills he would need to thrive there. Thus, Starbucks essentially substituted for Leach's family, at least in the way it contributed to Leach's emotional development. This explains why he calls it "the most important thing that has ever happened to [him]."

Duhigg uses Leach's experience in order to illustrate several key principles. First, skills like willpower aren't fixed—rather, people can learn them, even in structured classroom and training settings. Second, Leach's experience shows how corporations and other organizations can operate more effectively when they build shared cultures around key principles and habits like willpower. Third and finally, Leach shows how willpower is a keystone habit that enables other positive habits to form and strengthen. This is the case because willpower enables people to choose their principles over their impulses. Needless to say, this ability is crucial to developing new habits because it determines whether people can choose the behaviors they know to be better for them over their ingrained habit routines.

"Willpower isn't just a skill. It's a muscle, like the muscles in your arms or legs, and it gets tired as it works harder, so there's less power left over for other things."

Related Characters: Mark Muraven (speaker)

Related Themes:

Page Number: 137

Explanation and Analysis

This is how Mark Muraven, a prominent psychologist who studies willpower, explained his findings to Duhigg. Many people intuitively think of willpower either as an enduring personal quality (meaning that strong-willed people can always choose restraint over temptation) or a universally limited resource (meaning that people only have a finite amount of it). In reality, Muraven argues, it's both: while people have a finite stock of willpower, they can increase that stock by training their willpower. This is why he compares willpower to a muscle—people can exhaust their muscles, but they can also train them to become stronger.

Muraven's work has important implications for Duhigg's argument because willpower is so closely connected to habits. On the one hand, habits save willpower by automating key behaviors and saving the effort associated with making conscious decisions. On the other hand, willpower *is* a habit, and people can build it through practice over time. Thus, Muraven's research suggests that people should build willpower by practicing certain keystone habits—for instance, Duhigg suggests that children can build willpower by participating in sports or taking music lessons. In turn, this willpower can help people become more successful in other aspects of their lives over time.

What employees really needed were clear instructions about how to deal with inflection points—something similar to the Scottish patients' booklets: a routine for employees to follow when their willpower muscles went limp. So the company developed new training materials that spelled out routines for employees to use when they hit rough patches. The manuals taught workers how to respond to specific cues, such as a screaming customer or a long line at a cash register. Managers drilled employees, role-playing with them until the responses became automatic. The company identified specific rewards—a grateful customer, praise from a manager—that employees could look to as evidence of a job well done. Starbucks taught their employees how to handle moments of adversity by giving them willpower habit loops.

Related Characters: Charles Duhigg (speaker)

Related Themes:

Page Number: 145

Explanation and Analysis

Duhigg analyzes Starbucks's training practices in order to explain exactly how willpower contributes to habit change. People with high willpower, just like people who believe in their own capacity for change, are more likely to overcome stressful situations (or "inflection points"). And people who can overcome this kind of stress are also more likely to achieve their goals. Of course, these goals can include long-term habit change: willpower helps people stick with new habits by giving them the strength they need to resist relapsing into old ones.

Starbucks trains employees to deal with stressful "inflection points" by rehearsing routines with them beforehand. As Duhigg puts it, Starbucks teaches its employees "willpower habit loops," or habits that can substitute for actually exercising willpower. Thus, when employees are low on willpower, they can simply automate it. In other words, Starbucks used Duhigg's central insight about habits—that they save time and energy by automating key processes—in order to increase its employees' willpower and make difficult situations easier. Essentially, Starbucks figured out how to use habit loops to strengthen the most powerful and valuable of habits.

Chapter 6 Quotes

It may *seem* like most organizations make rational choices based on deliberate decision making, but that's not really how companies operate at all. Instead, firms are guided by long-held organizational habits, patterns that often emerge from thousands of employees' independent decisions. And these habits have more profound impacts than anyone previously understood.

Related Characters: Charles Duhigg (speaker)

Related Themes:

Page Number: 161

Explanation and Analysis

Duhigg cites the influential economists Richard Nelson and Sidney Winter to argue that organizations depend on habits just as much as people do. At first, this might seem

counterintuitive: unlike individual people, organizations tend to follow complex rules about structure, authority, and decision-making. They also usually pursue well-defined goals, like profit or social change, and employ executives whose sole job is to make the organization function efficiently.

Therefore, it would be odd if organizations were really driven by arbitrary habits and patterns, which simply become unquestioned dogma over time. Yet this is precisely what Nelson and Winter believe, and Duhigg clearly thinks they're right. Dysfunctional institutions, like the Rhode Island Hospital and the London Underground, demonstrate that leaders cannot fully control an organization's culture. And even if they could, they would not necessarily create more effective habits than the ones that already exist in their organizations.

Thus, organizations are driven by habits—just like individuals—which means that the tools of habit change should also be able to apply to them. Of course, just like individuals, organizations have to be *willing* to change before they can actually improve their habits. Much of the time, they aren't. This means that executives have to look out for special circumstances—including moments of crisis—in order to truly reform the institutions they lead.

> Now, imagine what you would tell a new colleague who asked for advice about how to *succeed* at your firm. Your recommendations probably wouldn't contain anything you'd find in the company's handbook. Instead, the tips you would pass along—who is trustworthy; which secretaries have more clout than their bosses; how to manipulate the bureaucracy to get something done—are the habits you rely on every day to survive. If you could somehow diagram all your work habits—and the informal power structures, relationships, alliances, and conflicts they represent—and then overlay your diagram with diagrams prepared by your colleagues, it would create a map of your firm's secret hierarchy, a guide to who knows how to make things happen and who never seems to get ahead of the ball.

Related Characters: Charles Duhigg (speaker)

Related Themes:

Page Number: 164

Explanation and Analysis

Duhigg further distinguishes between the formal rules that govern organizations, on the one hand, and the *actual* informal *habits* that really run them, on the other. Understanding informal hierarchies, norms, and agreements is simply more important to succeeding in a firm than memorizing the rules in the handbook. This is because, while handbooks explain how a company *should* be run, the informal habits demonstrate how its day-to-day operations *actually do* run.

This distinction explains why Duhigg believes that organizations' success—like people's—depends on their *habits*. Executives' rules, policies, and expectations can shape these habits, but what really matters is what's happening on the ground, inside the organization. To bridge the gap between their own intentions and the real workings of their organizations, leaders must change the habits of the people who work for and with them. This is why, just like individuals who want to improve their own lives, leaders who want to improve their organizations need to effectively understand habits and build a toolkit for changing them.

> The same kinds of shifts are possible at any company where institutional habits—through thoughtlessness or neglect—have created toxic truces. A company with dysfunctional habits can't turn around simply because a leader orders it. Rather, wise executives seek out moments of crisis—or create the perception of crisis—and cultivate the sense that *something must change*, until everyone is finally ready to overhaul the patterns they live with each day.

Related Characters: Charles Duhigg (speaker)

Related Themes:

Page Number: 180

Explanation and Analysis

After explaining how Rhode Island Hospital reformed its poor institutional habits and stopped committing serious medical errors, Duhigg affirms that any struggling institution can follow a similar path—as long as its leaders are wise enough to understand their own limits. Specifically, leaders must understand that they cannot simply order an organization's culture to change, no matter how much they would like to. Instead, they have to motivate everyone else in the organization to agree to change. To do so, they must get those others to understand the organization's toxic habits—and those habits' toxic effects.

This is why Duhigg argues that crises provide an excellent opportunity for change: they make it clear to everyone that

an organization is not functioning well. In fact, the same is true of individuals: people most often recognize that they need to change during periods of crisis or profound dissatisfaction. At Rhode Island Hospital, the media frenzy surrounding botched surgeries forced the hospital management to create new training programs and rebalance power between doctors and nurses. Similarly, the London Underground transformed after a major fire caused a scandal and a government investigation blamed the organization's poor management structure. These examples show that leaders can reform dysfunctional organizations if they know when and how others will be willing to adopt them.

Chapter 7 Quotes

❝ As Pole's computer program crawled through the data, he was able to identify about twenty-five different products that, when analyzed together, allowed him to, in a sense, peer inside a woman's womb. Most important, he could guess what trimester she was in—and estimate her due date—so Target could send her coupons when she was on the brink of making new purchases. By the time Pole was done, his program could assign almost any regular shopper a "pregnancy prediction" score.

Related Characters: Charles Duhigg (speaker), Andrew Pole

Related Themes:

Page Number: 194-195

Explanation and Analysis

Target, the retail giant, hired the mathematical analyst Andrew Pole to try and sell more items to pregnant women and new mothers. Its core assumption was that shopping is essentially based on habits: not only are most of people's purchases habitual, but people habitually go to the same stores and buy the same goods over time. This meant that, if Target could lure in large numbers of pregnant women, it would likely have return customers for years—specifically, for the years when these women had small children and would buy more household goods than at any other time in their lives.

Thus, Pole's job was to analyze people's shopping habits, so that Target could manipulate those habits in its favor. And he succeeded: he found that, across the U.S., pregnant women bought similar goods. In fact, they bought similar goods during similar times in their pregnancies, which meant that Pole could even predict their due dates. This information was invaluable for Target, which made millions of dollars off Pole's analysis.

With his Target case study, for the first time, Duhigg takes a look at habits from the *outside*. Instead of asking what people can do about their *own* habits, he asks what people can learn from and do to *other* people's habits. And Pole's analysis clearly demonstrates how much people's shopping habits reveal about their lives and identities. But it also shows how much of people's personal information is available to corporations like Target, whether through in-house analysis or third-party vendors. Thus, Target's policies also show how people's habits can be used against them, whether to simply manipulate their purchases or to completely transform their lives.

❝ This insight helped explain why "Hey Ya!" was failing on the radio, despite the fact that Hit Song Science and music executives were sure it would be a hit. The problem wasn't that "Hey Ya!" was bad. The problem was that "Hey Ya!" *wasn't familiar*. Radio listeners didn't want to make a conscious decision each time they were presented with a new song. Instead, their brains wanted to follow a habit. Much of the time, we don't actually choose if we like or dislike a song. It would take too much mental effort. Instead, we react to the cues ("This sounds like all the other songs I've ever liked") and rewards ("It's fun to hum along!") and without thinking, we either start singing, or reach over and change the station.

Related Characters: Charles Duhigg (speaker), Rich Meyer

Related Themes:

Page Number: 203

Explanation and Analysis

When Outkast came out with the song "Hey Ya!," record executives were convinced it would be a massive hit. While their prediction was right—many listeners loved the song, and it did eventually become a hit—they also ran into a classic habit-related problem. Namely, "Hey Ya!" sounded too unfamiliar to radio listeners, so they frequently turned it off.

As Duhigg explains here, people don't usually listen to the radio to hear their favorite songs or discover innovative new music. (This is doubly true in the 21st century, with the rise of streaming.) Instead, the radio is more of a habit—people play it in the background and listen to it, at

best, half-consciously. In other words, radio listeners don't want *good* music—they want *familiar* music. This is why they rejected "Hey Ya!": it didn't sound like the other songs on the radio, so they changed the station.

In addition to providing another example of how habits overpower conscious decisions, this episode also illustrates why habits are so essential to marketing in the modern economy. Namely, even quality entertainment (like "Hey Ya!") and useful new products (like Febreze) often can't reach an audience unless they appeal to people's habit loops.

❝ Whether selling a new song, a new food, or a new crib, the lesson is the same: If you dress a new something in old habits, it's easier for the public to accept it.

Related Characters: Charles Duhigg (speaker)

Related Themes:

Page Number: 210

Explanation and Analysis

To market "Hey Ya!," record executives asked radio stations to play the song between two common, popular hits. To get Americans to eat organ meat during World War II, the U.S. government proposed they use it in common recipes like meatloaf. And to get targeted ads to their customers without raising suspicion, Target mixed these ads in with generic coupons for random products. All three of these cases depended on the basic principle that Duhigg explains here: the best way to get the public to change its habits is by connecting these new habits to existing ones.

In simpler terms, people like what they know, so the more familiar something unfamiliar can seem, the more likely the public is to embrace it. As a result, change is often most successful when it's gradual—when it starts by appealing to people's lives as they are and asks them to change as slowly and imperceptibly as possible. This has important implications for fields ranging from marketing and media to religion and politics.

Chapter 8 Quotes

❝ The reason why social habits have such influence is because at the root of many movements—be they large-scale revolutions or simple fluctuations in the churches people attend—is a three-part process that historians and sociologists say shows up again and again:
A movement starts because of the social habits of friendship and the strong ties between close acquaintances.
It grows because of the habits of a community, and the weak ties that hold neighborhoods and clans together.
And it endures because a movement's leaders give participants new habits that create a fresh sense of identity and a feeling of ownership.
Usually, only when all three parts of this process are fulfilled can a movement become self-propelling and reach a critical mass.

Related Characters: Charles Duhigg (speaker)

Related Themes:

Page Number: 217

Explanation and Analysis

Habits, Duhigg argues, aren't just the key to improving individual lives and building successful organizations. He believes that habits are also the foundation of society itself, which means that effective social change depends on understanding and changing them. Specifically, social movements rely on the three kinds of relationships that Duhigg describes here: strong ties, weak ties, and effective leadership. And, for Duhigg, all three relationships are really about habits—friendship and community are just different long-term patterns of social habits, for instance, while successful leadership is about teaching a large group to faithfully adopt certain habits.

Duhigg argues that movements grow out of friendships, spread through communities, and eventually get sustained by effective leaders. At every stage of this process, however, people's principles, demands, and grievances spread through habits. For instance, people might protest, meet, or celebrate together. They repeat the same behaviors, use the same slogans, and promote the same ideas to demonstrate their commitment to the common good. During the Montgomery bus boycott, participants collectively agreed to pause one of their habits—taking the bus—for the same reason. In short, since Duhigg sees habits as the key to each of these phases in the process of social change, he thinks that engineering habits can be an effective way to form new political movements and change society.

When faced with the prospect of getting arrested (or worse) in Mississippi, most students probably had second thoughts. However, some were embedded in communities where social habits—the expectations of their friends and the peer pressure of their acquaintances—compelled participation, so regardless of their hesitations, they bought a bus ticket. Others—who also cared about civil rights—belonged to communities where the social habits pointed in a slightly different direction, so they thought to themselves, *Maybe I'll just stay home.*

Related Characters: Charles Duhigg (speaker)

Related Themes:

Page Number: 230

Explanation and Analysis

In the "Freedom Summer" of 1964, hundreds of students traveled from the northern U.S. to Mississippi to help register Black voters. But hundreds also planned to go, then backed out after a wave of violence at the beginning of the summer. Citing the sociologist Doug McAdam's research, Duhigg argues that *peer pressure* was the key factor that determined whether or not students followed through with their plans. Namely, students whose friends also signed up for the Freedom Summer were far more likely to attend it. For Duhigg, peer pressure—like most everything else—is fundamentally a habit. As he explains here, people generally make a habit of going along with their social circles' expectations, so it makes sense that students' friends' plans would strongly determine if they attended the Freedom Summer.

This research's implications are clear: the best way to make social movements effective is by harnessing the power of social networks. People's social habits determine their political behavior, even more than their political beliefs do. Therefore, true activism depends less on speaking the truth than on connecting people and making it easy for them to fight for their beliefs.

This is the third aspect of how social habits drive movements: For an idea to grow beyond a community, it must become self-propelling. And the surest way to achieve that is to give people new habits that help them figure out where to go on their own.

Related Characters: Charles Duhigg (speaker), Rick Warren , Dr. Martin Luther King, Jr.

Related Themes:

Page Number: 239

Explanation and Analysis

Just like habit-changers often relapse into their old habits over time, social movements often lose steam—and sometimes collapse entirely—if they don't start to see change after some time. For instance, many people started giving up on the Montgomery bus boycott, until Dr. Martin Luther King Jr. gave an impassioned speech that convinced them to continue. Similarly, the small groups at Rick Warren's church often spent their time discussing gossip—not the Bible—until Warren gave them a unified religious curriculum to follow.

King's speech and Warren's curriculum demonstrate a crucial principle about how habits help social movements stay afloat. Just like individuals, social movements often need to believe in something—or usually, some*one*—in order to remain vibrant and sustain their new habits over time. King and Warren were both inspiring leaders because they gave their followers compelling ideas that motivated them to action and that they could easily believe in. Specifically, Duhigg thinks, ideas are compelling when they give people a set of unified *habits* to follow. In the civil rights movement, this meant nonviolent protest; in Rick Warren's church, this meant attending Bible study. In both cases, social movements gained strength and spread because they were centered on compelling ideas that prescribed certain habits for the movements' followers.

Chapter 9 Quotes

Thomas is the most sympathetic murderer conceivable, someone so close to being a victim himself that when the trial ended, the judge tried to console him.
Yet many of those same excuses can be made for Angie Bachmann, the gambler. She was also devastated by her actions. She would later say she carries a deep sense of guilt. And as it turns out, she was also following deeply ingrained habits that made it increasingly difficult for decision making to intervene.

Related Characters: Charles Duhigg (speaker), Brian Thomas , Angie Bachmann

Related Themes:

Page Number: 259

Explanation and Analysis

In his final chapter, Duhigg asks whether people are morally responsible for their good and (especially) bad habits. He compares two people: Angie Bachmann, a compulsive gambler who went bankrupt because she could not control her gaming habit, and Brian Thomas, a habitual sleepwalker who accidentally murdered his wife in the middle of the night, during an unconscious episode called a sleep terror.

In many ways, Duhigg points out, Bachmann and Thomas's cases closely resemble each other. Both believe that they were not truly responsible for their actions because they were acting out unconscious habits, not making free decisions. After all, neuroscience research has shown that, because habits are automatic loops in the brain, people often perform them without thinking—including when their common sense knows that they shouldn't.

If habits prevent people from freely making decisions, Duhigg asks, does this mean that people don't truly choose them—and therefore aren't truly responsible for them? But wouldn't that give people with bad habits a convenient excuse to continue harming themselves and others? Duhigg doesn't answer these questions until later on in the chapter, but in this passage, he clearly lays out the stakes. Whether people can control their habits doesn't just determine whether they should try to change them—it also determines whether humans are truly free in their own lives and responsible for many of their actions.

> Every habit, no matter its complexity, is malleable. The most addicted alcoholics can become sober. The most dysfunctional companies can transform themselves. A high school dropout can become a successful manager. However, to modify a habit, you must *decide* to change it. You must consciously accept the hard work of identifying the cues and rewards that drive the habits' routines, and find alternatives. You must know you have control and be self-conscious enough to use it—and every chapter in this book is devoted to illustrating a different aspect of why that control is real.

Related Characters: Charles Duhigg (speaker), Angie Bachmann , Brian Thomas

Related Themes:

Page Number: 270

Explanation and Analysis

In the closing section of his book, Duhigg reaffirms his steadfast belief in the possibility and power of habit change. This isn't just a personal preference—rather, it's based on Duhigg's years-long survey of the available scientific evidence. The research has convinced him that habit change is *always* possible: even people facing the most severe addictions and most adverse circumstances can change.

Habit change is also relatively straightforward—although it's by no means easy. People must "*decide* to change," then determine how their cue-routine-reward habit loop works. Then, they have to replace the routine with an alternative one. It helps if they believe in themselves, find social support, and strategically begin with keystone habits.

If people follow this framework, Duhigg insists, no habit is insurmountable. Thus, his book's central message is really a profound optimism about people's power to control their lives, redeem their mistakes, and become the people they want to be.

> Perhaps a sleepwalking murderer can plausibly argue he wasn't aware of his habit, and so he doesn't bear responsibility for his crime. But almost all the other patterns that exist in most people's lives—how we eat and sleep and talk to our kids, how we unthinkingly spend our time, attention, and money—those *are* habits that we know exist. And once you understand that habits can change, you have the freedom—and the responsibility—to remake them. Once you understand that habits can be rebuilt, the power of habit becomes easier to grasp, and the only option left is to get to work.

Related Characters: Charles Duhigg (speaker), Angie Bachmann , Brian Thomas

Related Themes:

Page Number: 271

Explanation and Analysis

In his last chapter, Duhigg asks to what extent people are truly responsible for their habits. Neuroscientists know that people act out their habits automatically—or even unconsciously. This fact strongly suggests that habitual behaviors are not truly free. At the same time, Duhigg's entire book is designed to show that people can change their habits. This implies that habits *are* free, and people *are* responsible for them.

Duhigg clarifies this confusion by distinguishing between people's general freedom to control their lives and their

specific freedom in the moment of their habit loop. Even if people lose their free will in the moment when they are acting out the habit loop, he argues, they still have it at other times—which means they still have the power and responsibility to control their habits. Thus, he concludes that people are responsible for their habits so long as they know about them.

Even though she was not fully in control of her behavior, then, Angie Bachmann is fully responsible for her gambling problem. Meanwhile, Brian Thomas is not truly responsible for murdering his wife because he didn't know about the sleep terrors that led him to do so. However, Duhigg emphasizes that Thomas's situation is a very rare exception—the vast majority of people in the vast majority of situations *do* know about their habits and therefore have the power to change them.

Thus, since people *can* control their habits, they *are* still free to decide them—they just have to put in the work to do so. But that's the purpose of Duhigg's book: he wants to help people use their freedom by showing them how simple (if not always easy) habit change can be.

> Later, [William James] would famously write that the will to believe is the most important ingredient in creating belief in change. And that one of the most important methods for creating that belief was habits.
> […]
> If you believe you can change—if you make it a habit—the change becomes real. This is the real power of habit: the insight that your habits are what you choose them to be.

Related Characters: Charles Duhigg (speaker), William James

Related Themes:

Page Number: 273

Explanation and Analysis

Duhigg concludes *The Power of Habit* right where he began: with William James's influential theory about habits. Like Duhigg, James believed that habits are central to human life, and people have the power to control their habits. Duhigg also explains how James came to believe this: James was on the brink of suicide, when he realized that he had nothing to lose by blindly believing in his own free will. So he tried it for a year—and completely changed everything in his life. He never went back. Instead, he realized that *belief* was actually what he needed all along.

Duhigg uses James's story to reiterate his argument that people have to believe in themselves in order to change their habits. He also notes that, for James, belief isn't just the key to building good habits—it's also a habit in itself. Specifically, in order to successfully change their habits, people have to build the habit of believing in their free will and their power to shape their own lives. Thus, paradoxically, the key to habit change is actually developing the right kind of habit. Ultimately, this habit of believing in oneself is a way for people to both affirm and exercise their freedom as human beings.

SUMMARY AND ANALYSIS

The color-coded icons under each analysis entry make it easy to track where the themes occur most prominently throughout the work. Each icon corresponds to one of the themes explained in the Themes section of this LitChart.

PROLOGUE: THE HABIT CURE

In a research study about habit change, Lisa Allen was "the scientists' favorite participant." For almost two decades, she smoked, drank, was obese, amassed thousands of dollars in debt, and struggled to keep a job. But in just a few months, she totally changed. She stopped smoking and drinking, shed 60 pounds, started running marathons, got a stable job and paid off her debt, and even went to grad school and purchased a house. She then joined the scientists' study, which focused on how people can successfully correct their own destructive habits in a short period of time.

Duhigg begins with Lisa Allen's story in order to emphasize that habit change is possible and show how profoundly habits shape people's lives. Allen's bad habits totally dominated her life—they limited her personal, financial, and professional success. Her turnaround was remarkable because she corrected so many bad habits in such a short period of time. This shows that even the most destructive, deeply ingrained habits are ultimately within people's control. In other words, Duhigg promises that people can change any habit if they have the right tools.

Lisa Allen told the scientists that she decided to quit smoking a few months after a sudden and devastating divorce. After the divorce, she went on vacation to Cairo, but on her first morning there, she woke up exhausted and disoriented in her pitch-black hotel room and accidentally lit a pen on fire, thinking it was a cigarette. She then kicked over and shattered a water jug. Feeling desperate and out of control, she decided that "she needed a goal in her life." She decided that she would return to Egypt in a year and do a trek in the desert. Over the next six months, Allen worked to improve her life. She started jogging instead of smoking. She changed her diet and sleep schedule, then started saving money and planning for her future.

Lisa Allen resolved to change her habits after hitting rock bottom. While many people view their habits as outside their control, Allen managed to change when she realized that habits were one of the few things she actually could *control. This shows how motivation is a crucial ingredient in habit change: people must* want *to change in order to actually do it. Unfortunately, motivation is also the only ingredient that people have to supply for themselves. While Duhigg can teach people evidence-based techniques to change their habits in this book, people have to decide for themselves if their habits are worth changing.*

In the laboratory, **brain scans** clearly showed the change in Allen's habits. The neurological patterns associated with her old habits were still there, but she had also created new patterns for her new habits, and these were much more active. Like everyone else in the scientists' study, Allen started by changing a single "**keystone habit**." (For her, it was smoking.) This taught her how to reprogram her other habits. Her brain scans showed that, when she was hungry, areas of her brain associated with food cravings still lit up. But after her habit change, areas responsible for self-discipline and inhibition *also* lit up. Allen's brain scans helped scientists understand how decisions turn into habits over time.

Allen's brain scans show how science has given people remarkable new tools for improving themselves. They show that that building new habits doesn't require infinite willpower; rather, it just requires people to make the right decision enough times for their brain to start making that decision automatically. By doing this, Allen's brain scans show, anyone can permanently change their habits by altering their brain. Crucially, Duhigg explains that the secret isn't eliminating *bad habits—it's* replacing *them with newer, better ones.*

Charles Duhigg (the author) asks the reader about their habits: what do they do first thing in the morning? What did they eat for lunch? What did they do when they got home from work? William James famously wrote that "all our life, so far as it has definite form, is but a mass of habits." In other words, most of people's choices aren't well-reasoned decisions—they're habits. Over time, people's habits deeply shape how they live and who they become.

Duhigg asks these questions and quotes William James in order to emphasize two important but contradictory truths about habits. First, they're easy to overlook because they're automatic. Most people probably don't give much thought to their daily routines—indeed, the purpose of routines is to save energy. Second, habits are also incredibly important because they form the foundation for people's everyday lives. Thus, Duhigg suggests that people can greatly improve their lives by paying attention to habits and learning to improve them.

This book is about scientists and marketers' research into how habits work and change. The first section focuses on how individuals form and change habits. The second section is about the habits of companies and organizations. And the third section is about the social implications of habits. Duhigg's central thesis is that understanding how habits work makes it possible to change them. To write this book, he reviewed hundreds of studies and interviewed hundreds of scientists and businesspeople.

Duhigg emphasizes that his research is based on evidence—including both scientific research and real-world case studies of habit change. He also hopes to show that his book's key principles apply to habits across a variety of different scales, ranging from individuals to society as a whole.

Duhigg's interest in habits started when, as a reporter in Baghdad, he realized that the U.S. military is essentially just a huge habit-formation machine. It depends on teaching soldiers routines for how to think, act, shoot, and follow orders. In Iraq, the U.S. military also used habits to try and create peace. For instance, one army officer noticed that riots usually broke out after a crowd built up in a public plaza for several hours. He asked a small city's mayor to ban food vendors in public plazas, and it worked: instead of staying all day and rioting, the next crowd of protestors got hungry and dispersed instead.

The U.S. military showed Duhigg what habits are good for: they make structured, repeated behaviors much more efficient and effective. He learned that, in addition to enriching individual lives, habit change can also make organizations—and entire countries—function more smoothly. By attacking habits instead of protestors, the Iraqi government managed to keep the peace without substantially infringing on people's freedom to protest. While this technique is ethically debatable, it also shows how psychological manipulation can be a more effective and less disruptive way to exercise power than conventional means, like military force.

The army officer Duhigg interviewed explained that his entire military career was about forming habits. Having built his entire life around controlling his habits, he learned that they could change entire organizations and societies. Moreover, he was confident that everyone is capable of such change. Now, Duhigg points out, scientists know more about habits than ever before. Transforming these habits isn't always simple, but it's definitely possible—and science can show how.

The army officer represents the ideal of a composed, effective person who is fully in charge of their own habits—and therefore makes the best possible use of their time and abilities. Duhigg clearly implies that his readers can become this kind of person over time, if they follow his advice and learn to take control of their habits.

CHAPTER 1: THE HABIT LOOP: HOW HABITS WORK

In 1992, an elderly man named Eugene Pauly suddenly forgot who his son was. Then, he started vomiting and ran a fever of 105°F. In the emergency room, he deliriously attacked the nurses. He had viral encephalitis in his brain, which can be extremely dangerous. Fortunately for him, he survived with little damage, though scans showed strange gaps in his brain tissue. Still, within a few weeks, he was walking and talking like normal. But he couldn't remember almost anything—not the day of the week, his doctor's name, or who his friends were. Some days he had breakfast several times in a row because he kept forgetting that he'd already eaten.

Cases like Eugene Pauly's illness are extremely valuable for neuroscience, because they can help researchers determine which parts of the brain contribute to certain abilities and behaviors. Pauly's infection appears to have affected areas of the brain responsible for memory—but not areas responsible for unconscious abilities like walking and talking. His condition had the potential to help neuroscientists understand the way memories are formed, processed, and stored in the brain. But it also suggests that these memories are very different from the unconscious habits that he still performed.

Eugene Pauly's wife Beverly brought him to Larry Squire, a memory researcher in San Diego. Squire discovered that while Pauly couldn't recommend basic information, he could still develop complex habits. Pauly's **brain scans** showed that he had lost a small chunk of the middle of his brain. This looked similar to the brain of H.M., a patient who famously lost his memory after brain surgery. But unlike H.M., Eugene could maintain normal conversations and remember his early life. He just couldn't retain *new* information for any longer than a minute. He didn't even know where the rooms in his house were located—yet he could still easily find his way around it. Ultimately, Eugene would revolutionize science's understanding of habits.

Pauly's experience strongly suggests that habits depend on different parts of the brain than conscious memory. Somehow, the part of his brain responsible for habits could make use of the new information he learned, but the part responsible for conscious knowledge and decisions couldn't. This has important implications for people who want to change their habits: they have to alter the right part of the brain. Learning new information can't lead to forming new habits unless people learn to encode this information in a way that their unconscious, habitual brain can use.

Beverly Pauly started taking Eugene on walks around the block twice a day. One day, he left the house on his own. Frightened that he would get lost, Beverly started frantically looking for him—but she found him back inside the house, watching TV. He had gone on his walk alone and brought back pinecones. He started taking walks every morning, but he could never remember where he had gone. Larry Squire wanted to investigate. He learned that Pauly couldn't answer basic questions about his neighborhood—but he could guide someone around the neighborhood and back to his home. Clearly, Pauly was learning new information—the question was just how he did it, and where it was located in his brain.

Pauly was able to take walks without consciously remembering or thinking about his route simply because the habit of taking a morning walk doesn't rely on conscious memory or thought. His condition affirms that habits are fundamentally different from conscious decisions—and it proves that absolutely everyone *can change their habits under the right conditions. This meant that Pauly's life and condition could improve if he learned new habits—even if he didn't consciously understand what was happening.*


At Massachusetts Institute of Technology, there are labs full of miniature surgery tables, where neurologists implant sensors in rats' brains. The **experiments** done here are the key to understanding how Eugene Pauly formed new habits. In the 1990s, MIT researchers were studying the basal ganglia, a small, primitive structure at the very center of the brain that seemed important to habit formation. They learned that while rats wandered around a maze looking for chocolate, their brains were highly active—especially their basal ganglia. But when rats repeated the same maze many times, they eventually learned to do it faster, and their brains became *less* active—except for their basal ganglia, which kept working.

MIT's research shows that, for the first time, neuroscience is allowing people to understand the hidden, unconscious part of the brain—the part where habits are based. As a rat learned to navigate the maze, its knowledge of this maze gradually moved from the conscious part of its brain (the cortex) to the unconscious part (the basal ganglia). In other words, a specific process may depend on conscious effort at first, but once an organism has repeated it enough, it can learn to do that process unconsciously—turning it into a habit. Of course, this is consistent with the way people learn many skills, ranging from typing to riding a bicycle: at first, they're difficult and require lots of concentration, but over time, they get easy and become automatic.

The rats learned to navigate the maze through chunking, or "convert[ing] a sequence of actions into an automatic routine." This is the same process that people use to develop habits, including complex ones like starting a car and backing it out of a driveway. Habits help the brain save effort—which is why the brain tries to turn every routine into a habit if it can. By saving effort, the brain becomes more efficient and can pack more processing power into less space.

Duhigg addresses the key question of why *people form habits in the first place. Habits are, in a sense, a kind of technology: they make life easier by automating certain repeatable processes. By developing new habits, people can learn to automate new processes and save themselves energy. In turn, good habits are so valuable because they keep people happy, healthy, and productive without requiring them to expend significant energy.*

But saving effort can also be dangerous for the brain, which can miss important cues, like a car speeding into the street behind the driveway. **Brain scans** show that to compensate for this danger, the brain's activity spikes right at the beginning and the end of a habit. At the beginning, the brain actively looks for a cue that can tell it which habit to use. Then, the brain powers down during the routine. Finally, at the end of the routine, the brain powers back up to evaluate what happened and receive a reward (whether mental, emotional, or physical). The brain gradually gets used to this three-part loop (cue, routine, reward). Over time, it even learns to expect and crave the reward.

Neuroscientific evidence shows that evolution has programmed the cue-routine-reward habit loop into the human brain to help people conserve energy and make decisions more efficiently. This explains why Duhigg makes this loop so central to his theory of how habits work and change: he wants his readers to use the brain's built-in machinery to their advantage. In other words, people can consciously trick their unconscious brain into learning new cues, routines, and rewards.


Because the brain diverts its energy elsewhere during a routine, people tend to repeat the same routines automatically—unless they manage to deliberately replace those routines with new ones. While old habits never go away, new ones can still overtake them. Without the basal ganglia, people would be overwhelmed by basic everyday decisions. But the mind's dependence on habits can also cause problems.

Habits' energy-saving ability explains both their advantages and disadvantages. On the one hand, habits help people perform complex tasks efficiently and successfully by making them automatic. On the other, habits are also easy to overlook—and often difficult to change—precisely because they are automatic and unconscious. Therefore, people have to make a conscious adjustment if they really want to change their habits.


Eugene Pauly's basal ganglia were still intact, and Larry Squire wanted to test whether Pauly could still form habits. Squire gave Pauly a memory test over and over again for several weeks. In the test, there were eight pairs of objects; in each pair, one had a sticker saying "correct" on the bottom. Pauly couldn't remember having done the test before, but after a few weeks, he was choosing almost all of the "correct" objects. But when Squire gave Pauly all sixteen objects and asked him to choose the eight "correct" ones, he couldn't. This shows that he built a habit loop for the memory test, but he couldn't actually remember which items were "correct."

The unconscious part of Pauly's brain learned to do the memory test, while the conscious part couldn't. In fact, he couldn't even remember having done the test before. Since habit is largely unconscious, people are often as unaware of their own habits, as Pauly was of his. This underlines the counterintuitive fact that conscious memory and habit are totally separate processes. Learning new habits requires bridging this gap—using the conscious part of the brain to teach the unconscious part new tricks.

Eugene Pauly could also form other habits—like his daily walks. He could also act out his anger, even when he couldn't remember why he was angry. But when his cues subtly shifted, his habits stopped working. For instance, when there was construction in his neighborhood, he couldn't find his way home on his walks. By studying Pauly, Larry Squire proved that people can unconsciously learn things and make decisions without remembering or understanding them.

Pauly lost his habits due to shifting cues, which shows how delicate the habit loop is: cues, routines, and rewards have to stay exactly the same over time in order for the loop to continue functioning. This makes it relatively easy to break good habits, but also to modify bad ones. Thus, the key to controlling one's habits is carefully controlling these cues, routines, and rewards.

In the decades since Larry Squire published his research on Eugene Pauly, hundreds of scientists all around the world have started to study habits. Habits can involve all sorts of cues, routines, and rewards. They are "powerful, but delicate"—people can build and alter them either consciously or unintentionally, and they can often override common sense. For instance, scientists have shown that mice will continue pushing a lever to receive food even when they know the food is poisonous. This is similar to why many people frequently eat fast food, despite their intentions to avoid it. In fact, McDonald's designs its restaurants and food to give customers consistent cues and immediate rewards.

Duhigg started his book with Eugene Pauly because Squire's research on him is the foundation of contemporary scientific studies on habit. These studies have helped explain many of the common-sense mysteries about habit—like why people struggle to overcome habits that they know are bad for them. As Duhigg explains here, this tendency happens because the habit loop occurs in the primitive, unconscious part of the brain. Therefore, it continues automatically, even when people consciously want to stop their habits. In other words, the brain doesn't distinguish between good and bad habits on its own. Meanwhile, corporations like McDonald's manipulate people into adopting bad habits by using the same research that Duhigg hopes his readers can use to break those bad habits.

Over time, Eugene Pauly settled into new habits. He went on walks, ate what he wanted, and spent most of his time watching the History Channel. But these habits became dangerous—he spent too long in front of the TV, didn't stay on a healthy diet, and couldn't remember to be careful on his walks as he aged. Beverly helped improved his diet, but it wasn't enough to improve his health.

Pauly's life shows both the positive and negative sides of habits. On the one hand, because habits are so powerful, he was able to enjoy a reasonable quality of life by learning and repeating new habits. On the other, because habits are automatic, he ended up repeating the same behaviors to an extreme and put his own health in danger.

When Eugene Pauly had a heart attack, he kept ripping off his chest monitors in the hospital. His daughter convinced him to keep them on by having the nurses repeatedly compliment him for sitting still. Later, he broke his hip, and after settling comfortably into the hospital for a few weeks, he died of a heart attack. He made a profound contribution to science, even if he never fully remembered it.

Just as McDonald's exploits the habit loop to make people eat unhealthy food, Pauly's daughter used cues, routines, and rewards to get him to keep his chest monitors on (and possibly save his life). Again, this shows that habits and habit modification are a tool—they can be used for good or evil, depending on who implements them and in what context they do so.

CHAPTER 2: THE CRAVING BRAIN: HOW TO CREATE NEW HABITS

Early in the 20th century, the inventor of a minty new toothpaste called "Pepsodent" called up the wealthy advertising executive Claude C. Hopkins to ask for help designing a marketing campaign. Hopkins was famous for his outlandish claims promoting products like Palmolive soap and Quaker Oats. He also wrote an influential set of rules for getting consumers to develop new habits. But he wasn't interested in Pepsodent because almost nobody in the U.S. brushed their teeth. But his inventor friend eventually convinced him to give Pepsodent a shot.

Hopkins applied habit change in a way completely different from Lisa Allen or Eugene Pauly. Namely, he manipulated other *people's habits in order to sell more of his products. Needless to say, this kind of manipulation is central to modern marketing and explains why businesspeople are likely to find Duhigg's book valuable. Hopkins's work also shows that habit change isn't just individual: it can also happen on a mass scale, by getting thousands or millions of people to form the same cue-routine-reward loop.*

Hopkins's secret to selling Pepsodent was creating a *craving*. He always looked for a "trigger" that would get consumers to use products. After learning about the harmless natural film that builds up on the teeth, he started putting up ads that told people to run their tongue across their teeth and feel the dirty film—which Pepsodent would remove. The cue was the film, the routine was tooth-brushing, and the reward was a cleaner, more beautiful smile.

While Hopkins was working long before modern research found the habit loop's neurological basis in the brain, he still knew how to use it to sell his products. His ads taught consumers to recognize the cue (dirty teeth) and associate the reward (clean, beautiful teeth) with the use of his product. If he hooked his consumers on the tooth-brushing routine, then they would make a habit out of using—and buying—his product.

In three weeks, Pepsodent was sold out. A few years later, Pepsodent was selling all around the world, and most Americans were regularly brushing their teeth. Hopkins's ad campaign succeeded because he followed two basic rules: he found a straightforward, basic cue and "clearly define[d] the rewards." These two rules are the keys to advertising and habit formation today. But there's also one more rule.

Hopkins's campaign shows how effective mass habit change can be—and also how it can benefit the public, particularly in situations involving public health. As Duhigg pointed out in the last chapter, habit loops tend to be very delicate, so it makes sense that Hopkins succeeded by making the habit loop specific, clear, and consistent—this made it much easier for consumers to fall into the loop, and reinforce it over time.

In 1996, scientists and marketers at Proctor & Gamble were struggling to plan an ad campaign for a new smell-neutralizing spray based on the compound HPBCD. It was called Febreze. Drake Stimson, a former Wall Street mathematician, led the marketing campaign. When they test-marketed their product in Phoenix, they met a park ranger whose job was to capture skunks. As a result, everything in her house smelled like skunk. She said that Febreze changed her life. Stimson realized that Febreze could be a way for people to eliminate "embarrassing smells," and his team designed ads that showed Febreze getting rid of cigarette and pet odors.

Stimson and his team faced a similar challenge as Hopkins: how could they get consumers to turn Febreze into a habit? Their first instinct was to market Febreze to people whose lives were affected by bad smells. Arguably, this could turn into a habit routine: the cue would be foul smells, the routine would be using Febreze, and the reward would be a pleasant-smelling house. But while this was Febreze's true purpose, this wasn't necessarily the way to make it catch on or sell.

But the ads didn't work. Febreze barely sold—even people who received free samples never used it. Drake Stimson almost got fired. But then Proctor & Gamble agreed to hire more consumer psychologists and give the campaign one more try. They visited another Phoenix woman's home that stunk horribly like cats. But the woman couldn't smell it. They realized that this was the problem: people usually get used to the bad smells they live with, to the point that they can't smell them anymore. Therefore, they never made a habit of using Febreze. This left Stimson's team with a serious problem: if people with stinky homes wouldn't buy Febreze, who would?

Although Stimson tried to set up a habit loop for Febreze, he failed because few people actually noticed the cue of foul smells. Instead, they were already used to those smells. Again, unconscious, automatic habits actually prevented people from taking the steps that would improve their lives. Thus, Stimson's team had to find a way to make people crave a product that they didn't know they needed. This shows how difficult it can be to develop new habits, even when they're obviously beneficial.

While **studying** monkeys' brains in the 1980s, the Cambridge professor Wolfram Schultz noticed that some monkeys liked apple juice, while others liked grape juice. He made a monkey named Julio play a game: he had to press a lever whenever a shape appeared on a screen. If he did, he got blackberry juice as a reward. At first, Julio's brain activity spiked whenever he got the juice. Over time, however, it started to spike as soon as he saw the shapes, well before he got the juice. In other words, Julio started to *anticipate* his reward.

Schultz's experiments show how primates (like monkeys and humans) develop cravings by detecting patterns over time. As they learn to associate the rewards of a routine with the cue that triggers that routine, they start to proactively perform the routine in response to the cue, because they expect the reward. Thus, while at first people (or monkeys) might perform a habit either because they have to or because they force themselves to, over time, cravings make them actually want *to perform it.*

Then, Wolfram Schultz changed the experiment so that Julio only *sometimes* got juice. Whenever he pushed the lever but didn't get his juice, Julio started responding with anger or depression. He was *craving* the juice. When monkeys in the same experiment had the opportunity to leave and eat food or play with other monkeys, they tended to do so—*unless* they had already started to develop cravings, in which case they kept pressing the lever indefinitely, like a gambler at a slot machine.

Julio's decision to continue playing the game is very significant: it shows that he became addicted. While this clearly shows why negative habits like gambling and drug use can be so dangerous, it's also instructive for people who hope to develop positive *habits over time. Namely, it shows that they have to anticipate and crave rewards enough that they actively seek out the habit. Otherwise, they can easily abandon or forget the new habit they wish to form.*

Wolfram Schultz's experiment showed that habits' power comes from their ability to build cravings over time, as they cause individuals to associate specific cues with specific rewards. For instance, over time, Julio started to immediately crave the juice as soon as he saw the cue (the shapes on the screen). Similarly, smokers start craving nicotine as soon as they see a pack of cigarettes, and people start anticipating opening their email as soon as they hear a notification sound. When particularly strong, craving can lead to addiction. But it's still possible to overpower.

One of the most common obstacles to habit change is that people lack the motivation to improve. But Schultz's research shows that, once people learn to crave the reward associated with a habit, they become intrinsically motivated to pursue the habit. Therefore, it's possible for people to build a habit simply by forcing themselves to repeat it over and over, until they start to actually desire its reward.

Physical exercise provides a good example of the relationship between craving and habit. A New Mexico State University study showed that most habitual exercisers keep going because they crave the endorphins and the feeling of accomplishment that working out gives them. To build a lasting habit, people must create simple cues and clear rewards for themselves—but the cue also needs to make them start *craving* the reward in order to really work. Wolfram Schultz told Duhigg that cues, rewards, and cravings can even lead people to develop habits they don't want (like snacking on their children's chicken nuggets at dinner). But cues, rewards, and cravings are also the key to building good habits.

The importance of cravings runs contrary to the general wisdom about habit change, which says that discipline is the key to building new habits. While discipline might help people build cravings in the first place, it's not what keeps them going. Thus, while the common wisdom encourages people to deny and repress their feelings in order to improve, Duhigg suggests that people should instead acknowledge and embrace these feelings. In other words, rather than trying to overcome the habit loop, people should use it to their advantage.

After their first marketing campaign for Febreze failed, Drake Stimson and his team started desperately looking for other angles. Back in Phoenix, they visited a third woman. Even though she wasn't trying to neutralize any specific smell, she sprayed Febreze in her house every day. She used it "as a final touch" to make things smell good every time she finished cleaning a room. She treated it as "a little mini-celebration."

The Phoenix woman's use of Febreze shows that people always seek rewards at the end of their routines. In their earlier research, Stimson's team assumed that Febreze would be the routine *in a habit loop, but their market research showed them that it could function better as the* reward. *Rather than helping people with smelly houses clean those houses, Febreze would be a way for people who* already *cleaned their houses to feel a sense of accomplishment.*

Back at the company headquarters, the marketing team analyzed video footage and realized that almost everyone looks happy after cleaning. They decided that Febreze should be the *last* part in a routine, a reward promising that "things will smell as nice as they look" after cleaning. Surely enough, consumers started craving the smell of Febreze, and sales skyrocketed. This again showed that simply creating cues and rewards wasn't enough—ads also needed to create *cravings*. This is the third element that Claude C. Hopkins forgot about.

Ironically, although Febreze started out as an innovative new odor-eliminating compound, it ended up being marketed for an entirely unrelated purpose. People didn't buy Febreze until they had a reason to crave it—and this craving ended up being more important than Febreze's actual function. This suggests that habits are one of the prime drivers of consumer behavior—which again explains why they are so important to businesspeople and marketers.

Despite his wild popularity, Claude C. Hopkins never identified the value of cravings. But this was the real reason he sold so much toothpaste. In reality, dozens of toothpaste companies besides Pepsodent had already promised to remove the film and reveal a beautiful smile in their advertisement. But Pepsodent contained chemicals like mint oil and citric acid, which left "a cool, tingling sensation" in people's mouths after they used it. This created a craving. Over time, other companies copied Pepsodent, and today, most toothpastes contain cooling additives.

Hopkins thought that people were addicted to the feeling of not having film on their teeth. But in reality, Duhigg suggests, they were addicted to the pleasant tingling sensation that they associated with using the product. Thus, Pepsodent made toothbrushing seem more rewarding than it would have been otherwise. This elevated, in-your-face reward was what created true cravings: it clearly showed users that the product was benefiting them and gave them something to look forward to the next time they used it.

Duhigg concludes that cravings are the key to building habits. They're the reason why most people brush their teeth but don't use sunscreen on a daily basis. Cravings are also why business make shampoo, laundry detergent, and toothpaste that foam up—something consumers apparently crave. If they want to build new habits, people have to learn how to spark new cravings first.

Duhigg's analysis of cravings suggests that people don't really adopt habits because they know that those habits will benefit them. Instead, they adopt habits when they become attached to the immediate reward associated with completing them. It also helps when cues are very consistent, because this allows people to clearly predict the reward every time. Thus, to develop new habits, people shouldn't just convince themselves that those habits are good for them—instead, they should reward themselves consistently enough to start craving the habit.

CHAPTER 3: THE GOLDEN RULE OF HABIT CHANGE: WHY TRANSFORMATION OCCURS

Tony Dungy, the Tampa Bay Buccaneers' head coach, feels hopeful during the closing minutes of a game against the San Diego Chargers. Perhaps he shouldn't—the Buccaneers are one of the worst football teams in the league, and they're losing. For 17 years, Dungy had been trying and failing to get head coach jobs. Teams didn't like his unusual coaching philosophy: that players have to change their habits in order to win. Specifically, he believes in the "Golden Rule of habit change," which advocates for keeping the cue and reward the same while changing the routine. After Dungy got his job at the Buccaneers, he quickly turned the team into one of the NFL's most successful teams. Other coaches quickly started imitating his methods.

The "Golden Rule of habit change" allows people to directly replace one habit with another by tapping into their existing habit loops (rather than developing a totally novel one). Tony Dungy's coaching strategy shows how habit change can make organizations more successful by transforming the principles on which they operate. But it also suggests that many organizations are resistant to restructuring themselves around evidence-based habit change strategies. (Of course, Duhigg hopes that his book will help managers take these strategies more seriously in the future.)

During the game against San Diego, the Buccaneers get into formation. Rather than teaching them hundreds of different formations, coach Dungy only taught them a few—he wanted his players to act so automatically that they would be faster than anyone else. And it works: unlike the Buccaneers, who have mastered their few strategies, the San Diego players briefly hesitate. The Buccaneers, in contrast, react reflexively, and their speediness wins them the game.

Dungy's strategy is based on the insight that habits save time and energy over decisions. This enabled the Buccaneers to play faster and more efficiently, which gave them a significant edge in the game. While Dungy's strategy restricted the Buccaneers' range by limiting them to just a handful of possible plays, their success shows that efficiency was more important than flexibility. In other words, Dungy proved that football strategy is one of the many challenges better addressed through automation than creativity.

In 1934 New York, Bill Wilson—who struggled with alcoholism—met an old drinking buddy in his basement. But his friend refused a drink: he was sober. He said that his secret was religion. When Wilson went to rehabilitation a month later, he started having terrible pain and hallucinations from the withdrawal. He called out to God, and he suddenly felt better. He never drank again. In fact, he went on to found Alcoholics Anonymous (AA), which now helps millions of people quit drinking every year. Programs to change all sorts of destructive habits have copied its 12-step program—even though it's not based on science. Rather than addressing people's psychological and neurological motivations for drinking, AA focuses on *habits*.

Just as Dungy showed that good habits are secretly the key to effective football, Wilson showed that habits are actually more central to alcoholism than chemical addiction is. This again demonstrates how habit change can serve as a one-size-fits-all tool for overcoming a wide variety of obstacles. Meanwhile, AA's reliance on religion illustrates this chapter's second main principle: that belief plays a crucial role in motivating people to change. Through religion, both Wilson and his friend learned to believe in their own capacity to change. In turn, this belief motivated them to take the crucial steps necessary to achieve this change.

AA essentially ignores the science around alcoholism. Bill Wilson came up with the 12 steps during a flash of insight in a single night. AA focuses on spirituality, doesn't include addiction professionals, and hasn't adapted to new discoveries in addiction research. Academics long criticized it, but now some believe that it succeeds by using the Golden Rule of habit change. It teaches people to understand the cues and rewards that drive them to drink and then replace drinking with a different routine. AA members have to make a list of their triggers, admit their errors to others, and go to meetings that give them the same social rewards and release from anxiety as going to a bar.

AA succeeds because it recognizes that alcoholism isn't just a chemical addiction—rather, it's a habit pattern that affects the entirety of someone's lifestyle. This is why therapy and chemical treatments can help weaken *the habit loop associated with alcoholism, but not* replace *it. In contrast, even if AA doesn't necessarily weaken the existing habit loop, it creates a powerful replacement—it gives people a consistent, trustworthy framework for changing their habits. This is the core of Duhigg's advice about habit change: people should focus less on* fighting *their bad habits and more on* replacing *them with good ones.*

The German neurologist Ulf Mueller implanted devices in the basal ganglia of five alcoholics who had repeatedly failed to quit drinking. By emitting electrical signals, these devices interrupted the habit loop and stopped the men's alcohol cravings. They largely drank because it was their only tool for coping with stress, but they soon learned to switch drinking out for different routines like AA meetings and therapy. Again, new *routines* were key to changing habits.

Mueller's research confirms what AA discovered long ago: alcohol addiction is more about habit than chemistry. Of course, the chemical rewards associated with alcohol certainly contribute to the strong habit loop that alcoholics form. But once that habit loop exists, behavioral change—not chemical change—becomes the key to overcoming it.

Scientists have adapted AA's techniques to address all sorts of other bad habits. For instance, Mandy, a chronic nail-biter, desperately wanted to stop. Brad Dufrene, a psychology PhD student, had her describe the cue for her behavior and then analyze the underlying reward. The cue was a feeling of tension in her hand. The reward was a feeling of physical stimulation. He told her to make a check mark on an index card every time she felt the cue, and another every time she overrode the nail-biting habit. In just a month, she stopped biting her nails, suggesting that habit reversal can be very simple—it's just about identifying cues and rewards and then switching out the routine. This can work for any sort of habit, ranging from snacking to smoking.

Mandy's nail-biting is a classic example of how and why the Golden Rule of habit change succeeds. First, Dufrene asked Mandy to identify her cues and rewards. Second, he showed her how to insert a new routine into the same habit loop. Notably, Dufrene didn't *teach her to avoid or resist biting her nails—instead, he taught her to replace it with a* new *habit. Her new habit was so successful because it followed the same cue as nail-biting and offered a better version of the same reward. Making the first mark on her index card helped relieve the tension in her hand, and making the* second *mark showed her that she was making progress toward habit change. Thus, the index card let her see—and start to crave—this progress. While most real-world habit change might not be so quick or straightforward, Mandy's case shows that it's absolutely possible—so long as people follow the Golden Rule.*

After becoming the Buccaneers' head coach, Tony Dungy made the team repeatedly practice their most important moves until those moves were automatic. He figured out what visual cues they were looking for at the beginning of every play and then changed their routines. For instance, instead of looking at *all* of the opposing players and trying to choose a formation, Dungy taught his defense to automatically adjust their formation by looking at the opposing players *one at a time*—a much quicker and more efficient technique.

Dungy's method was very similar to Dufrene and Mandy's. His players already knew how to look for cues from their opponents, but their original routine was to assess all of those cues together and decide what to do. (Since they had to make a different decision every time, this was really no routine at all.) Instead, Dungy taught them a new, more efficient routine. It stuck because it provided a more reliable route to the reward—playing well and winning games.

The Buccaneers gradually improved. After failing to make the playoffs for fifteen years, they made it three years straight. But they also fell apart in high-stakes playoff games—at key moments, the players abandoned Dungy's method and went back to their old ways. Dungy got fired—and the next year, the Buccaneers won the Super Bowl using his techniques.

The Buccaneers failed when they abandoned the new habits Dungy taught them. This proves that his approach was effective—even if it also got him fired. This leads Duhigg to another crucial question: how can people stick to new habits in stressful times? What prevents them from relapsing into their earlier, more destructive patterns?

At an AA meeting, a man named John explains how he quit drinking after injuring his son while driving drunk. He then relapsed two years later when his mother got cancer. He got into another, more severe car accident while drunk driving, and then he started going to AA, which has kept him sober for seven years. Duhigg explains that stories like John's show the limits of habit replacement: when life gets too stressful, people often relapse into their former bad habits.

As Duhigg pointed out in the first chapter, old habit loops stay in the brain even after new ones are formed. This helps explain why, under stress, people like John (or organizations like the Buccaneers) can relapse into years-old destructive habits. These relapses show that people need more than just new routines in order to make habit change sustainable.

Researchers have also repeatedly found that former alcoholics who believe in a higher power are more likely to stay sober during stressful periods. This is because "believ[ing] in something" helps people learn to believe in their own capacity for change. Similarly, AA can succeed because it teaches people to believe in the program itself and shows them that it has worked for others.

At critical moments of stress, belief *is the key element that can prevent people from relapsing into unhealthy former habits. However, Duhigg suggests that belief in a higher power only matters because it leads people to truly believe in themselves. People who expect to relapse can use these moments as an excuse to do so, while people who truly believe in sustainable habit change can use these moments as a test to prove their commitment to change.*

After leaving the Buccaneers, Tony Dungy moved to the Indianapolis Colts. He used the same techniques, and the Colts followed the same pattern: they were successful during the season but struggled in the playoffs. Then, Dungy's son committed suicide. After the tragedy, the players felt like they owed it to him to play well. They started taking his techniques more seriously and bonding with one another. In other words, they started to believe in their own team. However, people don't need a tragedy to learn to believe—more often, they just need to surround themselves with a community of new people. But the Colts had both.

The tragic death of Dungy's son spurred change because it changed the way his players thought about their place on the team. This exemplifies the way that people often need a deeper motivation—like belief or a sense of obligation—in order to successfully change their habits. While Duhigg suggests that both tragedy and social support can spur belief, he again emphasizes that these are only two of the numerous possible paths to it. There are many others, and each person will have to find one suitable for their unique situation.

In 2006, the Colts had a strong season and won their first two playoff games. But during the third, against the Patriots, they started overthinking things in the first half, and they fell far behind. At halftime, Dungy reminded them to stick to their habits. They did, and they pulled ahead. In the final few seconds, the Patriots were positioned to score a game-winning touchdown, but the Colts' cornerback intercepted a key pass by following Dungy's rules. The Colts won the Super Bowl two weeks later, and many of the players credited their victory on believing in Dungy's method.

Duhigg uses this playoff game to emphasize how believing in oneself (or one's organization) can spur lasting change. Unlike the Buccaneers, the Colts stuck to their training because they believed in their team's potential and their coach's unconventional methods. While other teams might have tried new, complex tactics in such an important playoff game, the Colts managed to stick to their routines because of this faith.

While there's no automatic formula for changing habits, Duhigg concludes, this chapter has illustrated two key principles. The first is the Golden Rule: use the same cue and reward but change the routine. The second is that for new habits to stick, people have to believe they can change. One of the best ways to do this is by finding support from other people.

These two principles (the Golden Rule and belief) work together to create lasting change. While the Golden Rule is the key to getting new habits started, belief is the key to keeping them going after they're established. Thus, without the Golden Rule, people will struggle to break free of their bad habits, and without belief, people won't maintain their new habits in the long term.

CHAPTER 4: KEYSTONE HABITS, OR THE BALLAD OF PAUL O'NEILL: WHICH HABITS MATTER MOST

In 1987, investors met with the new CEO of the Aluminum Company of America (Alcoa), the former bureaucrat Paul O'Neill. To everyone's surprise, instead of promising to increase profits, he spoke about worker safety, which he said would show the company's devotion to excellence. All the investors told their clients to immediately sell Alcoa stock—which was a huge mistake. O'Neill made Alcoa's profits and share price skyrocket while its injury rate fell to almost zero. His secret was to change habits. Specifically, he started with one small but powerful habit, which created a chain reaction across the organization. Such **keystone habits** are valuable because they can help people "shift, dislodge, and remake" other habits.

When people or corporations want to transform many aspects of their lives or cultures, the best place to start is often with keystone habits, which help build momentum for greater change. O'Neill's presentation shocked Alcoa shareholders because CEOs conventionally focus on a company's overall strategy and profits—not the well-being of its workers. Meanwhile, the shareholders also didn't see how worker safety could form part of a broader strategy for improving the company as a whole. Of course, through this anecdote, Duhigg suggests that most corporate leaders and shareholders seriously underestimate the value that habit change can bring to their organizations.

At first, O'Neill wasn't sure if he wanted the CEO job at Alcoa. After rising through the Veterans Administration, he moved to the Office of Management and Budget, where he eventually became deputy director. He realized that lots of government spending was based on institutional routines rather than deliberate decisions. For instance, cities kept building new hospitals they didn't need because a government program funded the construction and local politicians benefited from them. In contrast, other organizations built more effective habits. For example, to celebrate risk-taking, NASA scientists cheered every time a new rocket design blew up. In this way, O'Neill learned that agencies' habits were the key to their success.

Unlike many business leaders, O'Neill clearly understood the power of institutional habits because of his time in the government. Duhigg argues that institutions behave just like individuals: most of their decisions depend on ingrained habits, and these habits determine whether they succeed or fail. Whereas local politicians' habit of building hospitals wasted resources, NASA's habit of encouraging risk-taking promoted new discoveries, without punishing those whose experiments failed. Thus, just as individuals can create better habits through the Golden Rule and believing in themselves, the leaders of institutions can do the same.

When O'Neill joined Alcoa, the company was struggling—quality was suffering and its workers were inefficient. But O'Neill couldn't just force his workers to work harder. In order to change how the organization worked, he first needed a priority that everyone could agree on. He chose safety—his goal would be zero injuries.

O'Neill understood that he would likely alienate his workers if he forced them to change their habits in the hopes of improving efficiency and quality. Thus, O'Neill needed a way to make employees willing to try out these changes.

After taking over at Alcoa, O'Neill faced opposition from Wall Street, the workers' unions, and the company's vice presidents. But he kept talking about worker safety, and nobody could disagree with him about that. To improve safety, managers needed to determine what was going wrong—which allowed them to streamline the production process. O'Neill made the company's unit presidents immediately report all injuries and develop plans to prevent them from recurring. This gave them a strong incentive to open communication channels with workers and lower-level managers.

Divided institutions are unlikely to faithfully adopt new policies and procedures, so O'Neill first had to unify Alcoa's competing factions. By focusing on safety, he got all of these factions to work together and believe in the company's potential. Then, he used this cooperation as a template for other changes. His success shows how keystone habits can set a foundation for broader change in institutions that would be difficult to manage otherwise. Of course, this principle also applies to individuals—especially people who struggle to change many different behaviors all at once.

O'Neill's focus on safety also changed other parts of Alcoa's culture. Unions agreed to measure individual workers' productivity, and managers agreed to let individual employees stop the production line. Both of these measures would improve safety. Alcoa executives even started telling local construction workers (who didn't work for Alcoa) to use better safety equipment. By fixing the causes of injuries—like inefficient processes for pouring molten metal or the use of old, broken machines—Alcoa also improved its products' quality.

These changes show that O'Neill chose the proper keystone habit for his situation. Safety was an unthreatening, uncontroversial goal that would help Alcoa build the unity and open communication channels that it needed. This offers important lessons for anyone who want transform their own lives or organizations through keystone habits. Such people should identify what is blocking their efforts to change, then look for a keystone habit that is easy to change and will specifically eliminate that block.

Keystone habits also make a difference in people's lives. For instance, people who start exercising tend to start improving other habits, and families that eat dinner together tend to raise more successful children. By identifying and changing keystone habits, people can learn to improve throughout their lives.

While it can be difficult to distinguish correlation from causation in these examples, they still suggest that certain smaller habits can serve as a valuable jumping-off point for more important, larger ones. For instance, exercise can help people build new habits because it gives them energy and a sense of achievement in the short term.

During the Beijing Olympics, Michael Phelps jumped into his routine as soon as he woke up. He ate breakfast, stretched for a half hour, warmed up in the pool for exactly 45 minutes, and then put on his bodysuit and listened to music until his race. Phelps's childhood swimming coach, Bob Bowman, instilled key habits in him. Bowman showed Phelps how to focus before each race and taught him to "watch the videotape"—or visualize an ideal race—every morning and night. Over time, Phelps developed other solid routines, like his diet and sleep schedule.

Phelps demonstrates how people can use routines and keystone habits to better prepare themselves for high-stakes, uncertain events. "Watch[ing] the videotape" is his keystone habit. It allows him to take control of his races, turning them into an automatic routine. Like Tony Dungy's football players, he succeeds when he reacts automatically instead of thinking through the race. Moreover, by following his usual warmup routine on morning before a big race, Phelps saves energy and avoids the nerves that could harm his performance.

Phelps's **keystone habits** were successful because they offered small wins. Small wins convince people to keep trying by showing them that success is possible. For instance, in the 1970s, the gay rights movement built momentum by first getting the Library of Congress to reclassify books about LGBT issues.

Small wins are valuable because of the way that different habits intersect. Reclassifying LGBT books was certainly a small win—it had virtually no immediate effect on LGBT people's place in American society. Instead, its purpose was to build momentum and gain attention for the gay rights movement.

Similarly, Bob Bowman taught Phelps to treat his warm-up as a series of small wins—they go exactly like he plans when he visualizes winning. However, when his race started that morning during the Beijing Olympics, he realized that there was a problem: his goggles were leaking. By his final lap, they were totally full of water. He couldn't see at all. But he stayed calm: he had already run through this scenario countless times before. He confidently kept going—and he set a world record.

By treating his entire warm-up as part of his routine, Phelps turns the actual race into merely the last in a series of challenges that he is already winning. By the time he starts a race, he has already achieved most of what he visualized the night before. And by visualizing potential accidents and problems, he takes control over them, turning them into part of his plan. Thus, Phelps's leaky goggles didn't jar him—they were part of his plan B, and they were a relatively small disruption in the context of his all-day routine.

Six months into his job at Alcoa, Paul O'Neill learned that a young worker in Arizona had jumped over a safety wall to try to repair a piece of equipment—which hit him in the head and killed him. O'Neill spent the next day reconstructing the accident with other executives. He blamed company's own "failure of leadership" for the man's death and focused on reworking safety policies. Injury rates declined in a matter of weeks, and O'Neill congratulated his workers on this small win. This snowballed into other changes. Workers started calling O'Neill not just with safety recommendations, but also with ideas for helpful changes across the manufacturing process.

At first, many Alcoa employees didn't take O'Neill's talk about safety very seriously. But his response to the worker's death proved that he was completely genuine. This death gave him an opportunity to modify many aspects of the company culture that he likely wanted to modify anyway—but wouldn't have been able to change due to opposition from different factions in the company. In other words, a company that succeeded at safety would likely succeed at everything else that O'Neill needed to improve. But it was far easier to make these changes for the sake of safety.

When O'Neill was analyzing infant mortality data for the government, he learned to get to the root of the problem by continually asking questions. He realized that improving college curriculums would improve high school biology teachers in rural areas. Better biology classes would help young mothers improve their nutrition, which would in turn reduce premature births. And reducing premature births was the key to reducing infant mortality. O'Neill's insights helped dramatically reduce the U.S.'s infant mortality rate. They show that beyond providing small wins, **keystone habits** also create "structures that help other habits to flourish."

For Dungy, asking questions was an important keystone habit in its own right. This helped him see the hidden connections and patterns behind public policy issues, which enabled him to do his job better. Meanwhile, his research on infant mortality also shows how certain keystone organizational habits—like effective college biology instruction—have ripple effects throughout the rest of society. Thus, understanding the cause-and-effect links between different phenomena is one effective way to identify keystone habits.

People can also apply **keystone habits** to their lives. For instance, doctors used to ask obese patients to lose weight by changing almost all of their habits at once. But a 2009 study showed that by simply keeping a food log once per week, people with obesity can learn to gradually notice and improve their eating habits.

Keeping a food log is much less daunting and more sustainable than changing all of one's health habits at once. Namely, the food log requires people to build one more, relatively straightforward habit into their lives. But total, instant transformation requires them to stop *all of their existing habit loops. This requires a superhuman amount of effort, particularly because—as Duhigg explained in the prologue—it's impossible to ever* eliminate *habits from the brain (only to replace them with new ones).*

At Alcoa, O'Neill used safety as a justification for building a company-wide email network. This happened in the early 1980s, long before corporate email was standard. Eventually, everyone in the company started using this network for almost all of their communication. This change to the way they communicated allowed them to coordinate much faster than their competitors.

Alcoa's email network is another example of how keystone habits build "structures that help other habits to flourish." O'Neill used the all-important justification of worker safety to pass through changes that, on their own terms, might have seemed too controversial or unimportant.

In 1996, a nun attended a shareholder meeting to report dangerous working conditions at an Alcoa plant in Mexico. While this was inconsistent with O'Neill's records, he sent a team to Mexico to investigate. They learned about an unreported accident a few weeks prior—and O'Neill quickly fired the executive who failed to report it. This demonstrates the third and final benefit of **keystone habits**: they change organizations' culture. For instance, the greatest predictor of success at the U.S. Military Academy is "grit"—or working hard to overcome difficult challenges. Cadets foster grit through group habits, like meeting with like-minded peers every morning.

O'Neill's response again proved that his interest in safety was completely sincere. He built a new organizational culture—a set of shared values, beliefs, and practices—by demonstrating that anyone who didn't take safety seriously didn't belong at Alcoa. Culture is a powerful way to unite people. After all, as Duhigg explained in the previous chapter, the two key ingredients that make habit change sustainable are strong belief and support from a group. Thus, it's unsurprising that O'Neill's strategy helped bring Alcoa's disunited factions together. Similarly, Duhigg suggests, the Military Academy cadets are able to develop willpower and perseverance through group support, which in itself is a routine.

In 2000, O'Neill left Alcoa to become the U.S. secretary of the treasury. Other companies have adopted his focus on **keystone habits**, and Alcoa's safety record continues to improve because of O'Neill's inspiration.

Few believed in O'Neill's methods when he started, but his success proved that changing keystone habits is a viable way to change complex organizations. Ultimately, he fostered lasting changes not only at Alcoa, but also in the business community as a whole.

CHAPTER 5: STARBUCKS AND THE HABIT OF SUCCESS: WHEN WILLPOWER BECOMES AUTOMATIC

Travis Leach's parents were erratic but outwardly functional heroin addicts. When Travis was nine, his father overdosed in the kitchen, and Travis was the one to call 911. When he was 16, he quit school and moved away. He worked at a car wash, a McDonald's, and a video store—but he lost control whenever he had to deal with rude customers or managers. But then he got a job at Starbucks. Six years later, he manages two Starbucks, earns a good salary, and gracefully teaches his new employees how to handle abuse from customers.

Readers can easily see the connection between Travis Leach's difficult childhood and his social issues as an adolescent. This is because people learn their habits from their environments—and most importantly from their families. Travis's chaotic upbringing taught him poor social and emotional habits, which left him unable to deal with conflict at work. But clearly, something at Starbucks changed Travis. That something, willpower, is the subject of this chapter.

Starbucks's extensive training program has taught Travis Leach all sorts of essential life skills—including, most of all, willpower. Numerous studies show that willpower is the single most important factor in academic performance, and people with the most willpower learn it as a habit. Starbucks valued willpower because it helps baristas treat customers with more enthusiasm. By teaching its baristas willpower, Starbucks is able to help people like Travis become disciplined workers.

Willpower is an important habit because it determines whether people choose the behaviors that they consciously know are best for them in the long term. Because people with willpower avoid temptations and stick to their goals, willpower is also key to learning and retraining other *habits. In other words, willpower is like a keystone habit that makes all other habits easier to achieve. This is why Starbucks put so much emphasis on it. It's also why Travis Leach improved at everything else after he learned willpower.*

In the 1960s, Stanford researchers had showed that kids who delayed gratification (by waiting for marshmallows rather than eating them immediately) later became more academically successful. The researchers also proved that it's possible to teach children willpower.

These Stanford experiments proved two key truths about willpower: it's learnable and it's valuable for long-term achievement. This strongly supports Duhigg's suggestion that people ought to make willpower into a habit if they want to be more successful.

In the 1990s, the PhD student Mark Muraven tried to understand why people's willpower fluctuates over time. He brought participants into a room with two bowls: one with chocolate chip cookies and one with radishes. Half were told to eat the cookies, and the other half were told to eat the radishes—while sitting right next to the delicious, warm cookies. They were then given an impossible puzzle. The participants assigned to eat the radishes had much less willpower left because they'd been trying hard to not eat the cookies. As a result, they spent less than half as much time working on the puzzle as the participants who ate cookies.

Muraven's study shows that people's willpower is limited: if they use it up on some tasks, they won't have any left over for others. This is similar to the principle of decision fatigue: after making several decisions, people have less energy left over for future ones. Murven's experiment has obvious applications for everyday decision-making: people should try not to spend willpower on unimportant tasks and conserve it for their most important goals instead. Of course, habits also help save willpower by making good decisions automatic, rather than forcing people to spend energy making them.

Muraven's experiment showed that willpower is more like a muscle than a skill. But, Duhigg asks, is it possible to strengthen it? A 2006 study in Australia found that people who started exercise, money management, and academic improvement programs also started using more willpower in other areas of their lives. This explains why putting children in activities like sports and music lessons helps them succeed: it teaches them to build willpower. Corporations that employ entry-level workers, like Starbucks, have also focused on building willpower. When its first after-work programs failed, Starbucks looked for a new strategy: it "turn[ed] self-discipline into an organizational habit."

Willpower is like a muscle because, while people's total amount of it is limited, they can still increase it over time. Thus, habits don't just save *willpower—they can also help* build *it. In fact, one way to increase it is through keystone habits. Namely, people can build willpower in one domain (like children in sports or music), then easily transfer it to another. This is why Starbucks trains such successful employees: the willpower they learn in training easily transfers to the challenges they face on the job.*

In 1992, a Scottish study tried to build willpower in elderly, low-income people after knee and hip replacement surgeries. Recovering from these surgeries requires regular, painful rehabilitation sessions. Patients who simply wrote out their goals and plans in a notebook recovered twice as fast as those who didn't. In their writing, they focused on how they would deal with pain—the key point that would test their willpower.

Just like Michael Phelps visualizes his races the night before he swims them, the Scottish patients learned to rehearse painful experiences before actually living them out. In other words, they practiced exercising willpower before *they actually needed it. In doing so, they turned willpower into a habit. This is one path to building willpower over time—especially when preparing for challenging but relatively predictable situations.*

Starbucks found something similar: their workers' willpower fell apart during stressful "inflection points." The company taught employees to deal with these situations by developing automatic routines for them. In training, they learn routines like "LATTE" (which means *listen*, *acknowledge*, *take action*, *thank*, and *explain*). Employees write out and practice plans for dealing with difficult customers. Companies like Deloitte Consulting and The Container Store use similar training programs to help employees deal with inflection points.

Like Tony Dungy's football teams, Starbucks employees most needed effective habits in the same stressful moments when they were least able to exercise them. Willpower was the key to effectively handling these situations, and Starbucks employees built this willpower through rehearsal (just like the Scottish surgery patients). Thus, not only is willpower an important habit in its own right—it's also key to making other *habits succeed at these "inflection points."*

Like Travis Leach, Starbucks CEO Howard Schultz grew up in a troubled family. His father struggled to hold a job, and Howard became extremely competitive on the sports field. While working for a plastic company in the early 1980s, he saw that the small Seattle coffee brand Starbucks was ordering lots of equipment, so he went to check out the company—he bought it seven years later and expanded it on a grand scale. Schultz attributed his willpower to his mother, who constantly pushed him to set and achieve goals. He ran Starbucks until 2000, but quality started to fall after he quit, so he returned in 2008, at which point he started focusing on willpower.

Schultz and Leach both developed their early habits in response to the difficult circumstances of their childhoods. But while Leach learned that he had little control over his drug-addicted parents' behavior, Schultz learned that his own willpower and perseverance would be the key to his success in life. Duhigg attributes Schultz's effective management at Starbucks to these early lessons about willpower. While readers may consider this explanation for Starbucks's success too anecdotal and simplistic, it's still clear that Schultz's interest in willpower at least affected the way he trained his employees.

Meanwhile, in another experiment, Mark Muraven again gave participants chocolate chip cookies and asked them not to eat them. But he asked half kindly and half rudely. Then, he measured their willpower by making them focus on a series of numbers. The students he treated kindly exercised more willpower because they felt like they had *chosen* self-control. This experiment shows that organizations function better when their employees feel like they have agency, or genuine control over their decisions. Starbucks does this by consulting employees on decisions about how to design their stores, how to greet customers, and more. This has increased satisfaction among both customers and employees.

In this experiment, unlike his previous one, Muraven forced all *of his subjects to exercise willpower. He learned that people deplete their willpower more slowly if they feel a sense of autonomy, or freedom in their decisions. Duhigg uses Muraven's results to suggest that autonomy reinforces willpower. In organizations, this means that making autonomy a habit can help make willpower a habit. Again, Duhigg believes that Starbucks has cracked the code to success as a company by promoting both willpower and autonomy among its employees.*

Travis Leach was 16 when his mother admitted that she thought about getting an abortion instead of having him. But she didn't, she explained, and having him was one of the best decisions she ever made. She died a few years after telling him this. By the time Travis made it to the hospital, she was already unconscious. A week after that, his dad died too. Travis didn't get a chance to say goodbye to his dad, either—the nurse wouldn't let him in. But when he started working at Starbucks a year later, he learned the social skills that he would have needed to convince the nurse otherwise.

Duhigg uses Travis Leach's reaction to his parents' tragic deaths to illustrate why effective organizational habits can make such a difference in people's lives. If Starbucks had gotten to him earlier, Duhigg implies, he would have been able to spend a few precious final moments with his family. Duhigg suggests that organizations like Starbucks can even become surrogate families for people like Leach, who do not learn good habits at home.

CHAPTER 6: THE POWER OF A CRISIS: HOW LEADERS CREATE HABITS THROUGH ACCIDENT AND DESIGN

An 86-year-old man went to the Rhode Island Hospital emergency room after a fall caused blood to start pooling in his head. While the hospital was one of the best in the world, it also suffered severe internal divisions. The nurses went on strike to protest dangerous working conditions and abusive treatment from doctors. The nurses got used to making extra efforts to fix doctors' errors and accommodate their rage. The hospital's culture was the opposite of Alcoa's: it was toxic and developed erratically, without any real planning.

Whereas Starbucks's effective organizational habits contributed to its success, Rhode Island Hospital's dysfunctional habits caused a series of catastrophic failures. Specifically, the hospital didn't efficiently balance power and authority among its employees. This underlines Duhigg's central point about habits: they can make or break the people and organizations that exercise them.

The Rhode Island Hospital's culture caused serious problems. The 86-year-old fall victim's paperwork didn't say which side of his head needed the operation. When a nurse proposed pulling up the **brain scans** to check, the neurosurgeon surgeon yelled at her, modified the man's medical consent forms, and then drilled into the wrong side of his head. The man died two weeks after the surgery, and the family successfully sued the hospital. The surgeon was fired. But the nurses knew that an error like this was inevitable because of the hospital's culture. While thoughtless leaders often promote dysfunctional institutional habits, effective leaders can build better ones—even during a crisis.

The surgeon who botched the operation is clearly responsible for this man's death, but Duhigg argues that the hospital's overall culture is also *responsible. This is because the hospital's culture encouraged the surgeon's misbehavior instead of stopping it. Again, this shows that dysfunctional habits have serious consequences. It also suggests that organizations have a moral responsibility to develop effective habits, even if doing so can be incredibly difficult and require major change.*

In their influential 1982 book *An Evolutionary Theory of Economic Change*, Yale professors Richard Nelson and Sidney Winter argued that organizations' behavior is really controlled by institutional routines, not rational choices. These routines help organizations perform consistently over time. They also enable rival factions to work together by building truces, even as they compete for power. For instance, executives can often get ahead by sabotaging their rivals, but most companies discourage this. So, rival executives make a truce to work together for the company's benefit.

Nelson and Winter's book essentially made the same argument as Duhigg—just on the scale of organizations, instead of individuals. Namely, habits determine most people and organizations' decisions, which means that habits are the key to people and organizations' success. Duhigg also points out that, unlike individuals, organizations often have to deal with competing interests and factions among their members. This means that one of organizational habits' most important purposes is to determine the balance of power—which determines if and how organizations can make key decisions. This is why the Rhode Island Hospital's habits were dysfunctional: the hospital gave doctors too much power and nurses too little.

Success at work usually depends on informal habits like who to trust, who has power, and how to get things done. For instance, highly creative fashion designers can't succeed unless they develop the right logistical routines. To do this, they usually have to work at other fashion companies and build truces with others in the process. In contrast, the truce between doctors and nurses at Rhode Island Hospital didn't hold together. The nurses bent over backwards to accommodate the doctors, who didn't care about them—and often didn't even learn their names. To fix this dynamic, the hospital's leaders needed to build better organizational habits.

Successful fashion designers again illustrate the key benefit of good habits: they save time and energy by automating complex tasks. Thus, by automating logistics, fashion designers save their energy for their creative work. But this requires effective personal and *organizational habits. In fact, Duhigg suggests that good organizational habits in the fashion industry depend directly on strong personal relationships. This isn't the case at the Rhode Island Hospital, where doctors get away with abusive behavior because they are not personally accountable to the nurses.*

In 1987, a London Underground worker learned about a burning tissue at the bottom of a long escalator at the King's Cross subway station. He ran down and put it out, but he didn't ask what happened or tell anyone about the incident. Although more passengers reported smoke, the station staff delayed calling the fire brigade. Meanwhile, passengers kept arriving at the station.

The London Underground fire demonstrates how poor habits prevent organizations from fulfilling their goals. Because of the Underground's organizational structure, its workers learned to hide problems and avoid responsibility. As a result of this disorganization, it failed to stop an obvious, ongoing crisis.

More than a half hour after the burning tissue, a fireman finally got to the station. The whole escalator was already on fire. To avoid tardiness, trains refused to let disembarking passengers back in, even though they could tell that the station was on fire. Then, the whole escalator exploded. Because the fire brigade couldn't coordinate with the Underground management, the fire took six hours to put out. More than 30 people died.

Like the station staff, the train operators made the crisis worse due to their improper habits and incentives. Their jobs were organized around timeliness, not saving lives, and they weren't interested in changing this when the fire broke out. Similarly, the fire brigade and Underground management also failed to cooperate because they viewed their jobs as separate. All of this was rooted in institutional cultures—which determined how people approached and performed their jobs.

The Underground's informal rules were responsible for this catastrophe. For instance, employees learned not to overstep their bounds, didn't know how to use the sprinklers or fire extinguishers, and were encouraged not to call the fire brigade—who weren't supposed to use other agencies' hydrants. All of these informal rules made sense in isolation. But they also meant that, at the end of the day, nobody was responsible for passenger safety. This shows that truces can actually be dangerous. Paradoxically, organizations need to balance authority evenly *and* give some people ultimate authority over others. To do this, they have to do what Tony Dungy and Howard Schultz did: take advantage of a crisis.

Duhigg shows that informal rules can shape an organization's culture and outcomes as much as formal ones. In this sense, all companies have cultures, norms, and habits—whether they recognize it or not. The Underground's core problems were its lack of clear hierarchy and its emphasis on employees filling narrow job descriptions, rather than collaborating to solve problems. As a result, nobody was equipped to address a crisis—and nobody else wanted to step in. Instead, Duhigg suggests, effective organizations have both clear leadership structures and clear incentives for lower-level members to innovate and take on greater responsibility. (Alcoa under Paul O'Neill's leadership is a good example of this structure.)

As the Rhode Island Hospital repeatedly botched surgeries, it gained national media attention. Doctors started fighting with reporters. Then the hospital's chief quality officer declared that the media attention was an opportunity for the hospital to completely rework its culture. The hospital gave the entire staff a day-long training, redesigned surgical safety procedures, and created an anonymous reporting system for safety issues.

The Rhode Island Hospital's dysfunctional organizational habits caused a full-fledged public relations crisis. But this crisis gave it an opportunity to improve, and fortunately, the hospital's leadership took that opportunity. While crisis isn't the best or only way for organizations to improve, Duhigg shows that it can be the most practical. To respond *to crises, organizations often have to change anyway, and it is much easier to change institutional habits when an institution's structure is already in flux.*

Other hospitals, like Boston's Beth Israel, have taken similar steps after major public mistakes. So have organizations like NASA and the international airline industry, which both overhauled safety standards after major accidents. After the 1987 London Underground fire, a special investigator started learning what happened. Everyone knew that the Underground needed to improve its fire safety, but nobody had taken responsibility for it, so the investigator took his inquiry public and published an extremely critical report about the Underground's dysfunctional bureaucracy. The Underground immediately reformed itself by appointing safety managers and empowering employees to report problems.

Rhode Island Hospital, Beth Israel, NASA, and the London Underground all took accountability for their mistakes and changed their institutional habits in response to crises. This is very similar to how many individuals—like Lisa Allen and Bill Wilson—have transformed their lives in response to crises. The Underground investigator clearly saw that the Underground needed a proactive, collaborative culture in order to stop future crises.

Duhigg concludes that any organization can successfully reform its toxic habits during a crisis. Rhode Island Hospital hasn't made any serious errors since 2009. Doctors now treat nurses with respect, and one young nurse even called the hospital "an amazing place to work."

Organizations succeed when they get everyone to work harmoniously toward shared goals. Duhigg has shown why institutional culture is key to creating this harmony. Namely, organizations have to balance power throughout themselves, and they have to develop shared habits that encourage collaboration rather than conflict. Clearly, the Rhode Island Hospital succeeded in doing so.

CHAPTER 7: HOW TARGET KNOWS WHAT YOU WANT BEFORE YOU DO: WHEN COMPANIES PREDICT (AND MANIPULATE) HABITS

Just after the eclectic statistician Andrew Pole started working at Target, he was tasked with building a model to figure out if customers are pregnant. He had spent six years analyzing greeting card sales for Hallmark before working for Target, which collected vast amounts of data about their consumers' buying habits. From their purchases, Pole learned about shoppers' lifestyles, families, and interests. Pregnant women were great customers because they subsequently turned into new parents, who would often buy everything they needed for their children in one place. Trying to figure out if customers were pregnant was an interesting challenge for Pole, but it eventually showed how surveilling customers can be dangerous.

Pole's assignment again shows how habits are absolutely central to people's lives. In fact, shopping habits reveal so much intimate information about people that it's possible to build a complex profile of them based simply on what they buy at Target. Thus, Pole's job also points to another important side of habit change: companies can profit by understanding and appealing to—or sometimes even manipulating—consumers' habits on a mass scale. While transformative, this possibility also raises important ethical questions about how much control and responsibility people have over their own habits.

For a long time, retailers like Target were more likely to hire psychologists than data analysts. By learning about consumers' psychology, they learned to change the placement of products and increase sales. These days, though, they try to target individual shoppers. Studies have shown that people's unique habits drive the way they shop. In fact, habit determines what people buy even more than what's on their grocery list.

Target's switch from psychologists to data analysts again shows how new technology transforms our ability to understand and change our habits. Just like scientists discovered the cue-routine-reward habit loop through brain scans, Target has been able to study and target individual shoppers' habits through its mass data collection.

To understand these habits, Target started collecting data about its consumers and linking their activity to a Guest ID number. It also began purchasing other data about them, including ages, addresses, ethnicities, job histories, and brand preferences. Target started using this data to guess what a customer buys habitually, then send them ads and coupons for those items at Target. Virtually all major American retailers use the same tactics, but Target is one of the most successful—largely due to its talented analysts, like Andrew Pole.

Since shopping primarily depends on automatic, habitual decisions, modifying consumer habits can be incredibly profitable for corporations like Target. However, whereas individuals and companies modify their own habits intentionally, Target wanted to modify consumers' habits without them realizing it. Therefore, it had to combine key tactics for habit change—like the Golden Rule—with other tactics that would prevent consumers from understanding what was happening to them.

In the 1980s, the professor Alan Andreason discovered that shoppers tend to change their habits (like by switching brands) in response to major life events like moving, getting a new job, or—most importantly—having a baby. This is why "pregnant women are gold mines" for Target. Their shopping habits are flexible, they have to buy thousands of dollars of items for their babies, and once they go to Target, it's easy for them to start purchasing everything else there, too. Companies even market to new mothers by giving them free samples in hospitals.

Target's strategy was possible because of how habits persist over time and tend to repeat themselves throughout society. First, marketers didn't just want pregnant women to buy certain items at Target—they wanted them to make shopping at Target a sustainable habit, because they knew that people tend to keep returning to the same stores over time. Second, Andreason's research showed that consumer habits are relatively consistent across any given society. As a result, Target could be confident that people with similar shopping habits were in similar life stages.

But Target wanted to push things even further by getting to couples *before* they had babies. That's where Andrew Pole came in. He analyzed data from the Target baby-shower registry to determine what women bought during pregnancy. For instance, he found that women tended to buy lots of lotion during their second trimester and vitamins during the first half of their pregnancy. He put together a list of 25 products that allowed Target to predict if a woman was pregnant and, if so, when she was due. Based on this list, he found several hundred thousand Target customers who were probably pregnant. Sending them ads could be hugely lucrative.

Target knew that habits, once established, tend to reinforce themselves. Therefore, it wanted to be the first *place where pregnant women went to shop. Pole's analysis confirmed the results of Andreason's research. Although they probably didn't realize it, pregnant women develop strikingly consistent shopping habits across the U.S. Having learned about people's lives from the habits that underpin them, Target's next challenge was to* change *those habits for its own benefit.*

But advertising to these women could also be dangerous, because they didn't know that Target knew so much about them. One Minnesota man angrily complained that Target was sending his teenage daughter coupons for baby items—only to find out a couple days later that she was pregnant. Therefore, Andrew Pole had to figure out how to get ads to pregnant women without them knowing they were being targeted.

Target's methods didn't just anger a few customers—they also raised a series of ethical questions that have become more and more important in the digital age. Namely, is it ethical to automate habit change? Should corporations be allowed to manipulate millions of people's habits through algorithms? Who is responsible for those algorithms, if the people who they target do not even know that they are being manipulated? While Duhigg understands these issues, he also seems to view Target's practices as justified and relatively innocuous. But his readers may or may not agree.

In 2003, Arista Records started promoting Outkast's genre-bending song "Hey Ya!" The company was using a new algorithm that forecasted a song's popularity based on factors like its tempo and melody. These algorithms were more reliable than industry experts' predictions, and they suggested that "Hey Ya!" would be a massive hit. But radio listeners hated it—a third of them immediately changed the station when it came on. Arista Records wondered if they could do anything to make the song into a hit.

Duhigg presents a puzzle: why would so many radio listeners turn off a song that the algorithm says they should *love? Perhaps the algorithm was faulty, or perhaps the reasons people love a certain song are very different from the reasons they keep listening to it on the radio. Of course, the difference is really that listening to a favorite song is a* choice, *while listening to the radio is a* habit.


The radio station manager Rich Meyer has been analyzing the most popular radio songs around the country and publishing his findings in a newsletter since the 1980s. In the early 2000s, he started wondering what made some songs "sticky"—meaning that listeners usually listened to them all the way through. Some sticky songs were by popular artists like Beyoncé. But others were bland and forgettable, and others were by artists that many listeners disliked, like Celine Dion.

Rich Meyer hit on the difference between good songs that people actually liked and "sticky" songs that were popular on the radio. However, unlike for pregnant shoppers, there was no obvious formula for "sticky" songs. Therefore, Meyer had to dig deeper to figure out what they all had in common. Specifically, he had to figure out why they all fit in with listeners' habits.


Rich Meyer concluded that sticky songs sound more *familiar* than other songs. In other words, they are closer to the average of their genre, so they sound like what the brain expects to hear on the radio. In fact, the parts of the brain that process music tend to seek out patterns and familiarity. This prevents music from overwhelming the brain or distracting the listener. This explains why people habitually listen through familiar-sounding Celine Dion songs on the radio, while they turn off unfamiliar-sounding ones like "Hey Ya!" Arista Records getting listeners to like "Hey Ya!" is like Target trying to send pregnant women ads without them knowing that Target is spying on them. The key is to "mak[e] the unfamiliar seem familiar."

A new stimulus has to be familiar—or meet the brain's expectations—in order to become part of a new habit. This fits with the neuroscience research Duhigg cited at the beginning of his book, which characterizes habits as a way for the brain to save energy. Clearly, familiar patterns are easier to process than totally new ones, like the beat in "Hey Ya!" Since listening to the radio is usually a habit, it makes sense that people will gravitate to familiar-sounding songs and avoid unfamiliar ones. As Duhigg hints here, this principle has important implications for habit change. Namely, change is easier when the end result feels familiar. This is why the Golden Rule of habit change states that people should keep the cues and rewards for their habits the same. These consistent cues and rewards make the new habit familiar for the brain.


During World War II, the U.S. exported so much meat to support the war effort that it started facing meat shortages at home. The Department of Defense led a successful campaign to popularize organ meat in the U.S. by making it more familiar—for instance, by telling Americans to add it to dishes like meatloaf.

By linking something totally new (organ meat) to something familiar (meatloaf), the government tapped into Americans' existing culinary habits. In a way, it used the Golden Rule of habit change: it kept most of the habit the same, while just slightly altering the routine by changing one ingredient in the recipe.

Radio DJs did something similar with "Hey Ya!"—they played it between two popular, sticky hits. The portion of listeners who turned off "Hey Ya!" fell from 26.6 percent to 5.7 percent. And as it kept playing on the radio, it became more and more popular. Now, it's remembered as a hit.

Sandwiching "Hey Ya!" between popular songs was an effective way of "making the unfamiliar seem familiar." Over time, this naturally made "Hey Ya!" familiar to radio listeners and gave them an opportunity to finally appreciate the song's merits.

Andrew Pole also followed the same formula with his algorithm to predict pregnancy among Target customers. His department learned that pregnant women wouldn't get offended if Target mixed together coupons for baby items and random coupons for items that pregnant women wouldn't buy. Essentially, Target disguised what it knew about its customers. And its sales skyrocketed in the "Mom and Baby" section. Organ meat, "Hey Ya!," and Target's ads show that, "if you dress a new something in old habits, it's easier for the public to accept it."

If pregnant women received coupons for nothing but baby gear, they would certainly notice—the new ads would be too unfamiliar. Instead, by mixing targeted coupons with random ones, Target made its ads feel more familiar. In fact, Target hoped that its customers wouldn't even know that they were being targeted. It wanted to modify the customers' habit loops, while tricking them into thinking that their habits never changed.

This lesson also applies to lifestyle change. For instance, the YMCA hired researchers to boost membership retention rates by analyzing customer satisfaction surveys. The researchers found that customers didn't keep coming back because of high-quality facilities, but rather because of their emotional connection with the gym. So, the YMCA trained its employees to remember customers' names.

The YMCA might seem very different from "Hey Ya!" and Target, because it doesn't involve "dress[ing] a new something in old habits." But the basic principle behind this guidance is still the same as the principle behind the YMCA's success: habits have to feel familiar in order to stick. "Hey Ya!" feels more familiar when it's surrounded by popular songs. Coupons for baby items feel more familiar when they're surrounded by a variety of other unrelated coupons. And exercising at the YMCA feels more familiar when one develops a personal relationship with the staff.

Soon, Duhigg concludes, companies will often know more about their customers than those customers know about themselves. But to get customers to actually take on new habits, companies must make new things seem "familiar." Duhigg notes that his wife is about to have a baby, and he's already noticing new Target coupons for diapers quietly arriving in the mail.

Duhigg again returns to the principle that the truth is no match for habits. People's unconscious habit loops control their lives much more than their knowledge or conscious decisions do. Similarly, knowledge about people isn't enough to change their lives unless it's paired with effective habit change strategies. On the other hand, by understanding the habit change strategies that corporations use to manipulate them, consumers can also resist this manipulation. (For instance, Duhigg understands why Target is sending him coupons for diapers.)

CHAPTER 8: SADDLEBACK CHURCH AND THE MONTGOMERY BUS BOYCOTT: HOW MOVEMENTS HAPPEN

On December 1, 1955, Rosa Parks refused to give up her seat on a segregated bus in Montgomery, Alabama and got arrested. She helped turn the civil rights movement from an esoteric legal battle into a mass popular struggle. This struggle started in Montgomery, where local Black residents boycotted the local bus system. Parks and the civil rights movement show how social habits can spur political change. Usually, a group of people with shared social habits starts a movement, and the whole community joins in because of those habits. Then, effective leaders create *new* habits among the movement's adherents.

At first, Rosa Parks and the civil rights movement might seem irrelevant to this book's focus on habit change. But it's helpful to remember that Duhigg sees habits as the foundation for most human behavior—both individual and social. This means that he views society as a mass of collective habits. In turn, social movements are really just large-scale efforts to change these collective habits. This makes it easier to understand why Duhigg views the civil rights movement as similar to Paul O'Neill restructuring Alcoa. Namely, civil rights activists began adopting and spreading new, more just habits with respect to racial segregation in the U.S. Meanwhile, other social habits (such as friendship and community cohesion) were like the keystone habits that helped these new political habits spread. For readers who consider Target's tactics from the last chapter unethical, the civil rights movement shows that habit modification can also be a force for good.

Rosa Parks was far from the first Black passenger to resist Montgomery's segregated bus system. But unlike the others, she was a respected member of her community, and her friends came to her defense. She volunteered at numerous organizations across town, and she knew people of all social and economic classes across Montgomery's Black community.

Duhigg believes that Rosa Parks's protest habits spread because of her unique social position and the unique social habits in her community. In fact, he argues that Parks's social position was the result of her own personal social habits, like attending various clubs. This again shows how Duhigg views habits as central to people's identities.

When Parks was arrested, her mother called the local NAACP leader, E.D. Nixon, who bailed her out. Nixon also called another of Parks's friends, the white lawyer Clifford Durr, to defend her. Parks agreed to let Nixon and Durr pursue her case in court to challenge Montgomery's segregation laws. Then, her close friend Jo Ann Robinson, a teacher and activist, organized the bus boycott with the help of her teacher colleagues. They were passing out flyers less than 24 hours after Parks's arrest. Duhigg argues that they helped because protecting one's friends is a natural social habit.

Parks's close friendships were key to launching the bus boycott. If she didn't have good friends in powerful places, Duhigg implies, her arrest would have gone unnoticed, and the bus boycott would not have gotten off the ground. Again, for Duhigg, this matters because friendship is really a social habit. *After all, people's feelings of love and concern for their friends are usually automatic. Moreover, friendships fit the basic criteria of habits: they're long-term, consistent, and foundational to people's lives.*

Next, the Montgomery bus boycott spread because of another social habit: the peer pressure that held the Black community together. The sociologist Mark Granovetter found that people consistently help not only their friends but also casual acquaintances and friends of friends when they ask for help in a job search. In fact, "weak ties" are especially important to finding jobs because they allow people to access a wider social and professional network. Sociologists have shown that gossip, public opinion, and political movements also generally spread through weak ties. Specifically, they depend on peer pressure: people follow their groups to avoid the consequences of flouting those groups' expectations.

The peer pressure associated with "weak ties" is a powerful social habit because it encourages wide networks of people to work together and agree on key issues. Thus, while peer pressure generally has a negative connotation, Duhigg suggests that it can also be a force for good. Individual people and families in Montgomery might not have wanted to participate in the boycott—after all, it was often difficult for them to get to work without taking the bus. However, they knew that they would face moral judgment from their community if they abandoned the boycott. Therefore, peer pressure convinced thousands of people to choose the common good above their own self-interest.

In 1964, hundreds of students helped register Black voters in the South in a push known as Freedom Summer. But, knowing they would face violence from white vigilantes, hundreds who signed up also chose not to go. The sociologist Doug McAdam studied their applications to try and figure out why. He determined that the single most important factor had to do with which clubs students belonged to. Students went to Freedom Summer if their friends and acquaintances in these clubs *also* went—or, in other words, because of their strong and weak ties. Once these students promised to go to Freedom Summer, McAdam explains, they would have lost their reputations if they withdrew. But students whose peers didn't sign up for Freedom Summer, too, were more likely to withdraw.

Pulling out of the Freedom Summer could have affected students' friendships (strong ties) and reputations (weak ties). In other words, while they may have originally signed up for the Freedom Summer because of their moral principles, students actually followed through with their plans because of peer pressure. Thus, McAdam's research demonstrates that peer pressure helped spread the civil rights movement to people who weren't directly impacted by segregation—like white students in the North. In turn, this again shows that social habits like peer pressure can be a profound force for good. Specifically, they can push people to act for the benefit of a larger group.

After Rosa Parks's arrest, E.D. Nixon called a young local minister, Martin Luther King Jr., to explain what happened and ask for support. Then, he called dozens of others and set up a meeting at King's church. They got every Black church in Montgomery to agree on a one-day bus boycott. When a local newspaper reported on their plans, thousands of Black residents throughout Montgomery decided to join in. The morning of the boycott, bus after bus drove by King's window, empty. Meanwhile, hundreds of people attended Rosa Parks's trial. Duhigg concludes that "the social habits of weak ties" turned the bus boycott into a city-wide movement. And social habits created by Dr. King's leadership kept it going.

Weak ties fueled the Montgomery bus boycott, just like they fueled the Freedom Summer: people agreed to do the right thing because they knew that their community was counting on them. But Duhigg shows how the boycott succeeded because these weak ties came together with two other kinds of social ties. The first was the friendships (or close ties) among community leaders like Nixon and Dr. King. The second was the community's support for Dr. King's leadership and faith in his message.

In 1979, the Baptist pastor Rick Warren was planning to build a new congregation. But he didn't know where. He spent months studying maps and census records, and then he settled on Saddleback Valley, a fast-growing part of Orange County, California. Warren's inspiration was Donald McGavran, an evangelist who tried to Christianize people around the world by appealing to their social habits—or, in other words, through marketing. Now, Warren's church has more than 20,000 members and nine campuses, and he is so influential that he even performed a prayer during President Obama's inauguration in 2009.

The Montgomery bus boycott shows how existing communities can mobilize for change based on their social habits. In contrast, Rick Warren harnessed social habits in order to build and mobilize new *communities. Similarly, whereas most churches ask people to change their lives and behavior for the sake of religion, Warren instead changed his church to adapt to people's lives. His counterintuitive approach to building community shows how understanding habits can give people the power to shape their societies.*

Rick Warren's worldview is based on turning faith into a social habit. People complained about boring sermons, bad music, and the rigid dress code. So he let them wear anything, played electric guitar music, and gave clear, practical sermons. In a year, he had two hundred congregants. But he was overworked. He had a panic attack during a Sunday service and fell into a serious depression. He realized that he needed to simplify his role in the church.

Rick Warren understood how habits drive people's behavior and how the most powerful habits are social ones. Therefore, he built a successful church through social habits. Specifically, he merged church services with people's familiar, pre-existing routines. Instead of treating church as a special social space for people to visit once a week, he presented it as an extension of their ordinary lives. This is very similar to how Target made targeted ads familiar by mixing them in with other coupons, or how record executives made "Hey Ya!" a success by playing it between sticky songs.

Warren decided to have his congregants meet weekly, in small groups. This made church a key social habit—people get to join the big crowd on the weekend but work with their small groups during the week. Like in the Montgomery bus boycott, the strong and weak ties worked together to create new social habits. However, at first, Warren's small groups mostly just got together and gossiped. They didn't really study the Bible; they needed better leadership. But Warren couldn't go to all of them individually. Instead, he built a curriculum to teach them Christ-like good habits during their group meetings. This illustrates how communities help spread compelling ideas by teaching people new habits.

After using the power of habit to convert people to his church, Warren next started using it to spread his church's teachings more effectively. Of course, Warren's purpose was also to teach his followers new habits—like Duhigg, he thinks that good habits are the key to living a good life. Like Alcoholics Anonymous groups, Warren's weekly Bible study groups sought to give people a consistent, safe, personalized environment for forming these new habits. Meanwhile, Warren's large weekly services reinforced the weak ties that connected his whole congregation together.

Two months into the Montgomery bus boycott, the Black community started to give up. The police were harassing them, and it was becoming harder and harder for them to go to work. Then, someone bombed Dr. King's house. A crowd formed outside, and the police asked King to calm them down. King preached about nonviolence and reframed the civil rights movement as an act of love, not a fight. He argued that the bus boycott "was part of God's plan" and told the crowd that they needed new habits—like "meet[ing] hate with love." Over the following weeks, even as bombings continued, the boycott strengthened. Meanwhile, churches held mass meetings, where congregants committed to King's principles as a unified group.

Throughout the book, Duhigg has repeatedly pointed out how stress makes new habits difficult to sustain. For instance, he noted that alcoholics tend to relapse during crises unless they can gain strength from their belief in a higher power. Similarly, the Montgomery protestors nearly gave up on the boycott, until Dr. King's speech reminded them that their fight had a greater cosmic and national significance. This shows that groups need to believe in themselves in order to sustain habit change, just like individuals do. And Dr. King's philosophy gave them something powerful to believe in.

As their movement spread, Black Montgomery residents shed their fear. Even when they were arrested and attacked, they responded with love and forgiveness. The movement grew stronger and stronger over time. Duhigg argues that Dr. King's teachings spread a new set of behaviors in the community. Through these behaviors, the protestors built a new identity for themselves. This allowed the movement to spread across the South and eventually reach Washington. When he signed the Civil Rights Act of 1964, President Johnson praised activists as defenders of democracy and justice. Duhigg concludes that movements depend on habits—the social habits of tight friend groups, the social habits of larger communities, and the individual habits that participants learn through membership in those communities.

The protestors built a set of shared values and habits around Dr. King's philosophy. This illustrates the third and final of Duhigg's points about social habits: people learn new habits by joining and participating in communities. Then, the habits they learn transform their lives and identities. On a large enough scale, they can also transform society as a whole. In fact, Johnson's praise shows that the civil rights movement transformed habits and values across the whole U.S., far beyond the communities that actually led it. In turn, King's ideas have also become foundation to certain visions of American democracy and identity.

CHAPTER 9: THE NEUROLOGY OF FREE WILL: ARE WE RESPONSIBLE FOR OUR HABITS?

Angie Bachmann had been a stay-at-home mother for two decades. When her youngest daughter finally started school, she didn't know what to do with herself. She decided to spend the afternoon at a casino. Over time, she started going every Friday, as a reward for making it through the week. But she carefully limited her gambling. Over time, she improved and started winning money. Gambling was long illegal in Bachmann's home state of Iowa. Governments have tried to regulate it and other practices they consider to be bad habits. But when Iowa legalized gambling, the state government started making lots of money.

Angie Bachmann's trips to the casino show how habit loops form over time. At first, when the casino became the reward for her weekly routine, she controlled herself and acted responsibly. But that gradually started to change as her habit loop became stronger and stronger. Bachmann's behavior and Duhigg's comments on the government regulation of gambling hint at this chapter's central question: who is to blame for bad habits, and who is responsible for stopping them?

When Angie Bachmann began caring for her parents, who were dying of lung disease, she started to feel even more distant from her family and friends. So, she started going to the casino more and more. Sometimes, she won—or lost—thousands of dollars in a matter of hours. She had to start borrowing money from her parents. But the casino excited her and soothed all of her anxieties about her family life, so she kept going. Eventually, she went bankrupt. But this was just the beginning of her story.

Bachmann's worsening gambling problem shows how habits can totally control people's lives—to the point of overriding their common sense and changing their very identities. Still, Duhigg presents her as a responsible and sympathetic character who understood her problem and just occasionally lost control of herself. This adds to the moral complexity surrounding bad habits. If good people can develop bad habits through no serious fault of their own, Duhigg seems to be asking, then are people really responsible for their habits?

In July 2008, Brian Thomas called the police and admitted to accidentally killing his wife in the middle of the night. He was a lifelong sleepwalker, and the court struggled to decide whether he was truly guilty of murder. Usually, the brain stem paralyzes the human body during sleep. But sleepwalkers' brains don't do this—which is why they can do complex tasks like walking, cooking, or even driving while totally unconscious.

Angie Bachmann and Brian Thomas's bad habits were very different. Bachmann gradually but knowingly developed her gambling habit, which slowly engulfed her whole life. In contrast, Brian Thomas committed a horrible crime in a split-second because of a lifelong habit that he didn't even understand. Yet Bachmann and Thomas's habits raise similar questions about moral responsibility, because neither one of them seemed fully in control of their actions.

Other people have sleep terrors: they experience intense anxiety, and the only active parts of their brain are the "primitive neurological regions" responsible for habits like the fight-or-flight response. During sleep terrors, people can't consciously turn off these habits, even when they're violent. In fact, hundreds of people have been acquitted of crimes they committed during sleep terrors. During Brian Thomas's trial, even the prosecution agreed that he was innocent because he killed his wife while asleep. But Duhigg asks why Angie Bachmann wasn't also considered innocent—as she was also just following her habits.

Sleepwalking and sleep terrors show how powerful the unconscious mind is. After all, the unconscious is primarily responsible for forming and implementing habit loops. Thus, much like Eugene Pauly's walks around his neighborhood, sleep terrors are automatic, unconscious habits that the conscious mind cannot recognize or stop. This is why Brian Thomas was acquitted: the U.S. justice system generally doesn't hold people responsible for behaviors that they didn't consciously intend (or consciously enable through negligence or recklessness).

When Angie Bachmann's parents died within two months of each other, she was devastated. She also inherited about $1 million, which she used to move her family back to her hometown in Tennessee—where gambling wasn't legal. But one night, she had a panic attack and went to the casino with her husband. She lost several thousand dollars at the blackjack table, but she still felt much better. The casino company, Harrah's, had a sophisticated system for tracking and manipulating customers. It started sending Bachmann free plane tickets, hotel suites, concert tickets, and even cash to gamble. One night, she lost $250,000 and didn't even tell her husband. But the casino kept calling, and she kept thinking that she could win the money back.

Bachmann's gambling got worse because it became her primary strategy for coping with negative feelings. She developed an addiction because she learned to crave the calm and emotional release that she found while gambling. Meanwhile, much like Andrew Pole at Target, Harrah's used complex data analytics to try and exploit Bachmann's addiction. While Target's targeted coupons don't necessarily harm its customers, Harrah's offers clearly do. Therefore, they raise an ethical question similar to Bachmann's behavior: is it acceptable for corporations to exploit bad habits that people struggle to control?

The neuroscientist Reza Habib **scanned the brains** of problem gamblers and casual gamblers while they looked at a slot machine. Habib found that problem gamblers get more excited when they win and, unlike casual gamblers, also respond to near misses as if they're almost real wins. This helps explain why they keep gambling for longer, and why casino companies program their slot machines to deliver lots of near misses. For compulsive gamblers, the habit loop simply takes over. In fact, patients have successfully sued pharmaceutical companies when drugs that affect the basal ganglia and brain stem have made them into compulsive gamblers, eaters, and more.

Habib's research shows that gambling blurs the line between free will and compulsion. Namely, while they are gambling, people simply play out an automatic habit loop—they don't really make free, conscious decisions. This has important ethical implications. Namely, if gamblers do not truly control their behavior—and their only sin is being born with the wrong brain chemistry—then perhaps they should not be held responsible for their gambling.

In 2006, Angie Bachmann was nearly broke when Harrah's invited her to a casino. She gambled away the rest of her money—and then her house. If Brian Thomas wasn't guilty of murdering his wife, Duhigg asks, why was Angie Bachmann considered guilty of gambling away her money? Reza Habib argues that problem gamblers lose control of their free will, just like Thomas did. When Harrah and Bachmann sued each other, however, the state Supreme Court ruled in favor of Harrah's and argued that compulsive gamblers must "take personal responsibility" for their actions. But Duhigg asks why people believe that certain habits are easier to control than others.

Bachmann and Thomas's actions led to tragic suffering, but neither of them truly controlled those actions. Thus, by simply calling for "personal responsibility," the court seemed to overlook the real moral issue at stake in Bachmann's case: she wasn't capable of acting responsibly. Meanwhile, the court also overlooked the way Harrah's manipulated Bachmann's habit loop to take her money. At the same time, there's still an obvious difference between Bachmann and Thomas. Namely, Bachmann could have stopped her bad habits—even if this would have been incredibly difficult.

The philosopher Aristotle thought that habits are an indication of people's true inner selves. In this book, Duhigg has tried to show that habits are powerful and deeply rooted, but also that they're not destiny. If people understand the cue-routine-reward loop behind their habits, they can decide to change them. This is why Angie Bachmann is responsible for her actions and Brian Thomas isn't: Bachmann knew about her bad habits, so was responsible for changing them. But Thomas had no idea that his habits could lead him to murder his wife in his sleep, so he can't be held responsible for them.

Duhigg's argument about people's moral responsibility for their habits ultimately rests on the principle of moral autonomy, or free will. Essentially, he thinks that people are morally responsible for their habits because they can control them through their own free will. It's true that many habits are difficult to change in the moment, but if Duhigg's book has proven anything, it's that people have power to control their habits over time. Brian Thomas is a very rare exception because he couldn't have saved his wife of his own free will—instead, his free will had no power over his unconscious habits. But Duhigg suggests that the vast majority of habits are more like Angie Bachmann's: they're controllable, even if actually controlling them can be very difficult.

In the prologue, Duhigg quoted William James: "all our life, so far as it has definite form, is but a mass of habits." In his twenties, James considered himself a failure and contemplated suicide. But first, he decided to try believing in free will and changing his life. It was a remarkable success. In order to grow, James realized, people have to first make a habit out of believing they can change.

William James's youth confirms two of Duhigg's central theses: good habits are the key to a successful life, and people have to believe in themselves in order to successfully change their habits. Of course, this connects to Duhigg's argument about morality because people who believe that they control their habits are also likely to take responsibility for those habits' effects.

Duhigg concludes that habits are like water to a fish: they're everywhere, but they're easy to forget unless we make a point of looking at them. James also compared habits to water: just like water carves out channels for itself, then repeatedly follows those same paths, people develop habits and then repeat them. But they also have the power to create new paths for themselves.

To conclude his book, Duhigg reiterates the stakes of taking habits seriously. The water metaphors emphasize one of his central points: habits are completely mundane and incredibly powerful at the same time. Finally, Duhigg hopes that his readers can learn to view habits as tools for self-improvement that are fundamentally within their own control.

AFTERWORD: SOME THINGS LEARNED ABOUT WEIGHT LOSS, SMOKING, PROCRASTINATION, AND TEACHING

After publishing *The Power of Habit*, Duhigg received many letters from his readers. For instance, one explained that the book convinced her to quit drinking and attend AA. He decided to contact some of the letter-writers and ask how the book influenced them.

These readers' letters confirm Duhigg's hope that his book would teach people to better control their habits and achieve their potential. By publishing them in this afterword, he hopes to show even more of his readers that they can do the same, if they faithfully apply the principles in his book.

Tom Peyton lost 70 pounds by recognizing that boredom and stress cued him to overeat. He then built new routines like weighing himself every morning and going on walks every day. He still occasionally eats unhealthy food, but it's infrequent and manageable. Duhigg remarks that he has used similar tactics to prevent his children from getting addicted to dessert.

Peyton used clear cues and compelling rewards to build new habits. His case is a reminder that nobody can ever fully eliminate old habit loops—but also that simply reducing and overpowering them is usually enough to change people's lives.

Personal trainer Eric Earle quit smoking by replacing it with different habits. He tried running, the sauna, and then meditation, which finally worked. In fact, quitters often need to experiment with and relapse into their bad habits several times before they can really understand their cues, routines, and rewards.

Earle used the Golden Rule of habit change to replace a bad habit with a better one. As Duhigg explains here, the Golden Rule usually doesn't work right away. Rather, it's a gradual process: people have to find the right new habit over time. This is part of why it's so important to build willpower and believe in oneself.

The college teacher Pratt Bennet started teaching habit change to his first-year seminar students by making them submit "life-hack reports" every week. The students loved it and saw significant progress. Meanwhile, Bennet saved years of work by simply changing the way he checked his email.

Bennet shows how classroom environments can teach and reinforce the psychological techniques associated with habit change. Adults who want to practice these skills in a real-world environment can find similar opportunities in therapy and group classes.

Finally, the woman who joined AA is still going—and has also started to lose weight. But she told Duhigg that his book should have also analyzed "the catalyst for change." For her, it was pain. Duhigg concludes that his readers' stories have shown him that anyone can change their habits—as long as they're motivated to change. He encourages readers to email him with their own stories.

The woman's comments highlight why motivation is the single most important—and most elusive—element in habit change. Duhigg has pointed out how belief in a higher power, belief in oneself, willpower, and group support can all contribute to motivation. But ultimately, everyone has to find their own balance of motivations if they truly want to succeed at habit change.

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