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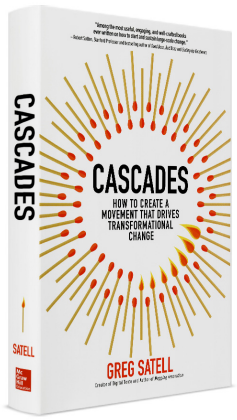
Cascades

How to Create a Movement That Drives Transformational Change



by **Greg Satell**

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THE SUMMARY IN BRIEF

Creating true change is never easy. Most startups don't survive. Most community groups never get beyond small local actions. Even when a spark catches fire, it often seems to fizzle out almost as fast as it started. The status quo is, almost by definition, well entrenched and never gives up without a fight.

In ***Cascades***, innovation expert Greg Satell delivers a guide for driving transformational change. To truly change the world or even just your little corner of it, you don't need a charismatic leader or a catchy slogan. What you need is a cascade: small groups that are loosely connected but united by a common purpose.

As individual entities, these groups may seem inconsequential, but when they synchronize their collective behavior as networks, they become immensely powerful. Through the power of cascades, a company can be made anew, an industry disrupted, or even an entire society reshaped. As Satell takes us through past and present movements, he explains exactly why and how some succeed while others fail. Let ***Cascades*** help your movement be one that succeeds.

IN THIS SUMMARY, YOU WILL LEARN:

- Why networks, rather than special leaders, are the key to understanding and generating cascades.
- Two key tools to develop plans for change.
- Why successful movements rely on values to not only achieve victory but sustain transformational change.

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PART I: THE ANATOMY OF A CASCADE

A Shift From Hierarchies to Networks

Revolutions are remarkable things because they upend the existing order, which has power and inertia on its side. In effect, they make farces out of the conventions of normalcy that have become ingrained in our minds.

But what if our conventional notions of how the world works are flawed? What if there are natural forces at work that make cascading movements not only possible but inevitable?

Our existing mental model is that strong governance drives change. Wise leaders who sit atop hierarchal organizations recognize the need for a shift and make it happen. Many of us were raised to believe in the "great man" theory of history, that movements succeed only when a charismatic leader like Martin Luther King Jr. or Gandhi inspires them.

But cascading movements don't follow the "great man" script. Today's reality is that hierarchies have lost their power not because they have suddenly become illegitimate but because they are slow and the world has become fast.

The connectivity that drives networks has become predominant. We can now initiate, build, and maintain relationships with far greater velocity and at far greater distances. That has changed the nature of power, shifting it from being a function of hierarchies to one of networks.

In a world pervaded by digital technology, connections form much faster than we can keep track of them, much less plan their formation. We now live in a world where networks trump hierarchies and cascades form whether we want them to or not.

Two Ingredients of Successful Movements

Successful movements combine two aspects. The first is network cascades. This involves a simple formula: small groups, loosely connected, but united by a common purpose. Anytime an idea goes viral and becomes a cascade, we will see those three components.

The second aspect, seemingly antithetical to the first, is planning, organization, and discipline, without which a cascading movement will spin out of control. It is not the passion and fervor of zealots that creates change, but it is when everyone else joins the cause that a movement gains power.

There are reasons why some ideas become movements and others sputter out, just as there are concrete principles we can apply to increase the likelihood of a cascade forming or to prevent one from harming us.

But to uncover them, we need to go back to 1998 in Ithaca, New York, where a young graduate student in mathematics had become fixated on the chirping of snowy tree crickets.

Fireflies, Snowy Tree Crickets, and the New Science of Networks

In the 1990s, Cornell University researcher Steven Strogatz was studying a strange phenomenon called coupled oscillation, which occurs when a disparate group of entities act in unison, such as when pacemaker cells synchronize to make our hearts beat. It happens about once a second for our entire lives. A more spectacular form of coupled oscillation comes in the form of various species of fireflies native to Thailand, Malaysia, and other parts of Southeast Asia, where it coordinates their behavior to make entire jungles blink on and off as if populated by Christmas lights.

Many species of crickets can coordinate their chirping in a similar way, providing a pleasant backdrop to summer barbecues. Somehow people, just like fireflies and crickets, can coordinate their behavior across vast collectives.

Duncan Watts, a graduate student and Strogatz's research assistant, found himself spending his evenings climbing trees in search of a coupled oscillator indigenous to Cornell's location of Ithaca, New York: the snowy tree cricket. During the day, Watts attempted to classify the insect's behavior by translating the synchronized chirps into mathematical formulas.

However, he soon became distracted by a series of questions. How were the crickets connected to each other? If they were each reacting to the behavior of others, maybe the structure of their relationships could explain how individual behavior scales up to collective behavior.

For more than 200 years before Duncan Watts attacked the problem of coupled oscillation, there had been scattered pockets of insight. Researchers had already shown that even random arrangements of links can be incredibly efficient, that real-life networks biased toward clustering were just as potent as random networks, and that these clusters could be very effective in transmitting information through second- and third-degree relationships.

It was Watts, under Strogatz's direction, who would show

A cascade makes change possible, but it doesn't make it inevitable. Cascades are only useful if they result in influence.

that information naturally forms a particular kind of network that accounts for the amazing behavior of pacemaker cells, fireflies, snowy tree crickets, and, more important to our story about cascades, protestors in a political revolution, consumers in a marketplace, terrorists on a battlefield, independent units in a large organization, and many other things.

Watts's beta model works like this: Imagine you're in a football stadium, standing with a ring of spectators around the circumference. You can communicate pretty easily with those standing close to you, but those across the stadium might as well be out in the parking lot, or even in another city. Although they're connected to you through the other people in the ring, the connection is so loose that they might as well not be.

Now hand out a few mobile phones randomly. Suddenly, the social distance of the ring collapses. You can call someone on the other side of the stadium, and that person can get the message to anyone near him or her. The social distance collapses, and all it takes is a little random mixing.

This is exactly what Watts discovered mathematically. The more he looked, the more it became clear that it takes very few random links in the network to shorten path lengths considerably. In fact, adding only five random links, he found, would cut social distance in half, regardless of the size of the network. In effect, Watts's mathematical model predicted that small-world networks are not a special case but a natural state.

The Making of a Cascade

The unlikely success of his network studies led Watts to begin studying another network-related phenomenon known as cascades. A particularly vivid example of a cascade occurred during the summer of 1996.

On August 10 of that year, an exceedingly hot day, air conditioners across the West Coast were going at full blast when a transmission line near Portland, Oregon, failed. This was not an unusual occurrence, and redundancies were built into the system to cover for just such a failure. The load of electricity was supposed to be rerouted by a relay to another substation. However, with the entire system operating at its limit, the surge caused another line to fail. The excess power from that backup line was rerouted to yet another overly taxed component of the system, causing yet another failure.

Soon, power surged throughout the system, causing cascading failures wherever it went. Within 70 seconds, the entire power grid between California and Oregon was out. Then the surge moved east, creating outages in six other states.

Disruptive movements are very much like the West Coast blackout of 1996. A disturbance in one part of the system eventually ripples through every other part of the system, finding vulnerable clusters as it travels. Eventually, the entire order is disrupted, much like the cascading failures in the electrical grid.

A cascade makes change possible, but it doesn't make it inevitable. Cascades are only useful if they result in influence, and to do that, they must travel far beyond where they start.

How Cascades Create Transformational Change

Many great movements have charismatic leaders. We see Mahatma Gandhi, Martin Luther King Jr., and other legendary figures leading the charge, inspiring large masses of people to act in the service of a cause. In business, we see larger-than-life figures like Steve Jobs and Elon Musk at the head of their own revolutions.

In ***The Tipping Point,*** Malcolm Gladwell's explanation for how personal qualities drive change is based on what he calls the "Law of the Few." He proposes three classes of highly influential people: Connectors, Mavens, and Salesmen. Connectors know a lot of people, but they are more than just social butterflies. They actively seek out folks to introduce and, by doing so, attract even more people to them. The Mavens influence others through their deep knowledge and expertise. They are subject matter experts that others actively seek out for advice. Salesmen seem to have supernatural powers of persuasion.

But it is not "special people" who create change, although some with great talent can help to inspire it, but small groups, loosely connected, and united by a common purpose. Each of those three elements is crucial, because small groups engender strong bonds, loose connections provide greater numbers, and a common purpose gives direction. Every change effort, if it is to succeed and provide lasting results, needs each of those elements because it requires *long chains of sustained influence* to make a real difference.

If the Law of the Few were true, we would expect people with "rare social gifts" not only to be able to persuade those around them but to create long chains of influence more reliably than a normal person would. That's a very testable hypothesis, and researchers who have studied it have found it wanting.

For example, a study of 1.6 million Twitter users found that, while highly connected users were slightly more likely to initiate large viral cascades, the difference between them and normal users was so small that it's probably not economically feasible to waste resources seeking them out.

What belies the theory of "influentials" or "opinion leaders" or whatever you want to call them is that change is a matter of networks and not nodes. While it is easier and more cognitively pleasing to single out individuals, the truth is that it is the *connections between people* that are decisive. True power does not lie at the top of hierarchies but emanates from the center of networks.

Also, the structure of the connections within the network matters—a lot. That's why, as crucial as it is to understand how cascades function, the second aspect of transformational change—organization, planning, and discipline—is just as important, because it's what allows us to put cascades to productive use.

PART II: HOW CHANGE MOVEMENTS SUCCEED—AND FAIL

Identifying a Keystone Change

Every movement starts with a sense of grievance. Yet, to succeed, you must go beyond grievance to identify an affirmative vision for what you would like to be different and then identify a single, fundamental change that will bring that vision about. That's no small task.

The women's movement in the nineteenth century, to take just one example, struggled for decades to identify a single, fundamental change that would uplift women everywhere. At the time, women were treated almost like property—they couldn't own land, get a substantial education, or seek legal protection from an abusive husband. So it wasn't at all obvious that voting rights would become the focus of the movement. Yet that's what led to greater equality.

Talia Milgrom-Elcott, who leads 100Kin10, a movement to train 100,000 STEM teachers in 10 years, calls this a "keystone change," based on the ecological concept that an entire ecosystem is highly dependent on the existence of one or two species. Identifying that keystone change is the first major challenge of any change movement, and until you meet that challenge, your efforts will likely be in vain.

Using a Keystone Change to Drive Transformation Forward

When Lou Gerstner was chosen to lead IBM in 1993, what most people saw was an old dinosaur that had lost its way. Overtaken by nimbler upstarts like Microsoft in software, Compaq in hardware, and Intel in microprocessors, many observers believed that IBM needed to be broken up into smaller, more focused units to compete on a more even playing field in the new economy.

Gerstner saw the situation differently. As a longtime IBM customer, he saw the value of what IBM could potentially deliver: integrated solutions. From his point of view, enterprise customers were struggling to adapt to new technologies and needed a partner that had the breadth of expertise to solve their problems. IBM was uniquely qualified to play that role but was failing to capitalize on the opportunity because it lacked shared purpose and shared consciousness.

"Units competed with each other, hid things from each other, and wanted to control access to their territory from other IBMers. . . . Instead of facilitating coordination, they manned the barricades and protected the borders." Gerstner would later write in his memoir, ***Who Says Elephants Can't Dance***.

What Gerstner understood was that what IBM needed wasn't a strategy. What IBM needed was alignment behind a strategy. So Gerstner set out to create a movement within his own organization. He changed the focus from forcing IBM's proprietary stack of technologies down customers' throats to a new model aimed at helping customers with their "stack of business processes." In doing so, he led one of the most dramatic turnarounds in corporate history.

For Lou Gerstner and IBM, switching the company's focus from its own proprietary stack of technology prod-

ucts to its customers' "stack of business processes" was the keystone change.

To create real change, change that sticks and won't be soon reversed, you need to identify a fundamental issue that encapsulates the value of the mission—a keystone change that is concrete and tangible, unites the efforts of multiple stakeholders, and paves the way for greater change. Revolutions don't begin with a slogan—they begin with a cause.

What makes a keystone change so difficult to identify is that, while grievances are what drive the passion of some, a keystone change needs to resonate with those outside the early adopter group if it is going to spread. Movements, as the name implies, need to be kinetic. They start somewhere and need to end up somewhere else. So it's never enough to just speak to the hopes and aspirations of the loyal and faithful. You need to speak to common values shared by those outside your movement for change to occur. Driving change is always about attracting, never overpowering.

Creating a clear sense of purpose and identifying a keystone issue that can achieve that purpose is absolutely essential to create transformative change. However, it is merely a first step. Once you figure out what the end game should look like, you need to develop a plan to get there.

Making a Plan

Successful movements don't start by rousing crowds but by formulating a clear objective and building out from there. As with any journey, you start with where you want to end up and then figure out how you're going to get there. That's what a plan is.

The Spectrum of Allies

There are two tools that nascent movements can use to develop plans to make change happen. The first is called the Spectrum of Allies, which outlines the groups from which you can expect active or passive support, neutrality, and active or passive opposition. It is only through understanding where the thresholds of resistance lie that you forge the connections you need to push through them.

Make no mistake: You will not win everybody over, but it is also a grave misapprehension to see your opponents as monolithic or to dehumanize them.

In the American Civil Rights Movement, leaders had spent years mobilizing support from southern blacks and liberal whites. During their protests, mainstream America had witnessed scenes on the televisions in their living rooms that they could not imagine happening in their own country. Ordinary citizens were being beaten for exercising their right to speak and to vote. Children were being attacked by snarling dogs and fire hoses. It was unconscionable. Few wanted to be associated with such brutality and injustice.

Successful movements don't start by rousing crowds but by formulating a clear objective and building out from there.

The subsequent March on Washington in 1963 was designed not to rally the faithful but to appeal to those in mainstream America who had been watching those enormously powerful scenes unfold on their televisions—those in the middle of the Spectrum of Allies—and to shift some passive opponents to a more neutral position and active opponents to a more passive position. Surely, in the end, it didn't convince everybody, but it did enough to win civil rights and bring important changes about.

The only way to create change is to gather support, and the Spectrum of Allies maps your path to victory. If, for example, you are an employee at a major corporation and you want to push for change, camping out with a few confederates outside the CEO's office would achieve little more than losing your job and being led out of the building by burly security guards. If, on the other hand, you built allies and worked to recruit others, especially those with somewhat higher thresholds of resistance, your chances of achieving something worthwhile would markedly increase.

The Pillars of Support

The second element of strategy is the Pillars of Support. In a private organization, leaders need to maintain the support of a variety of different stakeholders, including shareholders, customer groups, partners, various functional departments, and others. Every situation is different, but one thing is always constant: Nobody rules alone. No regime is a monolith.

A successful strategy matches the key constituencies in the Spectrum of Allies and the key institutions that make up the Pillars of Support with the tactics that are most likely to bring them into the fold. That's how you win and bring about the change you want to see.

Once you've decided not to camp outside the CEO's office and you begin to recruit allies, your attentions would turn to the various stakeholders that support the business, such as internal departments, shareholders, customer groups, and so on. Which ones stand to gain from the change you want to see? Which stand to lose? How can they be convinced that change is in their best interest or, at the very least, so inevitable that resistance is futile? If you want to make change happen, these are the questions you need to ask.

Networking the Movement

A Broadway musical, like a movement, needs to attract people to it. To do so, the producers must find the right mix of tune, message, artistic expression, and commercial appeal to both engage audiences in the theater and impress critics enough to get good reviews. Millions of dollars depend on keeping people in the seats. So, if you were going to invest in a musical, what would you look for?

Two researchers, Brian Uzzi and Janet Spiro, analyzed 474 musicals that were performed between 1945 and 1989. What they found was startling. Even when controlling for factors such as competition, marketing budget, production budget, economic conditions, and the track record of the cast and crew that worked on the play, what best determined the success of any particular Broadway musical was the structure of the networks of the cast and crew.

Using a metric called "Q," which measures the "small worldliness" of a particular network, they found that if very few people among the cast and crew had previously worked together, the play performed poorly in terms of both critical recognition and financial results. However, if too many people had worked together and the connections were too dense, results were similarly bad. Top performers had combinations of both, people who knew each other well and new blood that could take the team in new directions.

In other words, small groups, loosely connected, but united by a common purpose are key to success on Broadway as well, and this can be represented by a measurable quantity. Similar results were found in studies focused on engineers at Bell Labs, currency traders, and the German automotive industry.

The results of network studies yield important insights for any movement that seeks to create transformational change. First, you need to create strong bonds within individual groups. That's how you build trust and operational effectiveness. Yet, at the same time, you must also keep your network open, not only so that you can keep the movement growing but so that new information and insights can flow through.

Lean Manufacturing via Network Effects

At Wyeth Pharmaceuticals, which sought to transform its operations through implementing lean manufacturing methods at 16 plants encompassing 20,000 employees, it was clear to leadership that a simple dictate from the top would not get the job done. So they planned to do it in stages, creating "mini-transformations" in two or three areas at eight of the plants and then using network effects to cascade early successes throughout the organization as a whole.

Michael Kamarck, then president of Wyeth's manufacturing group, described the process this way: "We copied the way viruses infect. We started small. We infected groups, individual groups, but then we brought in people from the other sites, who hadn't yet gotten started. We pulled them forward into the process, if you will. So, we made them part of the mini-transformation so that they could get infected and take the infection back."

In a movement for change, the role of leaders is not merely to plan and direct action but to inspire and empower belief. So, to create positive change, movements need more than shared purpose; they also need shared values.

Indoctrinating a Genome of Values

Our DNA is not a blueprint or a technical specification. In fact, our genome contains only about 1.5 gigabytes of data, barely enough for a full-length movie. Its genius is that rather than specifying detailed features of our biology, it provides us with rules for adaptation—first, for chemical gradients in the womb and later for the outside environment. Genetic codes are also not monolithic but contain various influences from different ancestors and can express themselves differently when exposed to different environmental factors.

Successful movements for change operate on a similar principle, providing genomes of values that act as rules for adaptation. Values are absolutely critical to success. Every effort to create transformational change is unique, with

A crucial feature of any successful movement is training activists to internalize the genome of values so that it becomes second nature.

its own "vision of tomorrow" as well as its own particular Spectrum of Allies and Pillars of Support.

However—and this is a crucial point—every movement must be true to itself, and that requires that it be faithful to certain values and maintain discipline. That's why instilling a genome of values is so crucial for success. A crucial feature of any successful movement is training activists to internalize the genome of values so that it becomes second nature.

Apple CEO Tim Cook often speaks out about data privacy and supports the principle that consumers should own their own data. This is, by all indications, a deeply held personal and corporate value. However, as many observers have noted, it is also a potent weapon against competitors like Google and Facebook, both of which have businesses based on monetizing their customers' data.

Hard Truths, Consistent Values

To create fundamental change, what is crucial is that values are tied to an affirmative vision of tomorrow rather than merely targeting grievances. You may believe that inefficiency stems from laziness, but unless you can present a clear plan for improvement, like the executives at Wyeth Pharmaceuticals did in their movement to implement lean manufacturing principles across the company, don't expect things to change. There are many people who can see flaws in any system but far too few who are willing to put in the hard work to actually make things better. That requires you to adapt to the hard truths of the real world but maintain your values nonetheless.

Values are most powerful when they speak to shared human experiences. The way you communicate those values is through platforms and tactics.

Building Platforms for Participation, Mobilization, and Connection

In their book-length study comparing 323 violent and nonviolent resistance campaigns between 1900 and 2006, Erica Chenoweth and Maria Stephan found that nonviolent activists are nearly twice as likely to achieve their goals as violent ones. At first glance this seems implausible or, at best, naive. How could a bunch of hippies in T-shirts outperform hardened and committed rebels carrying AK-47s?

Nonviolent campaigns have very few barriers to participation. Everybody, from the youngest child to the meekest senior citizen, can join in. This participation advantage proves to be decisive. In fact, Chenoweth and Stephan show that "a single unit increase of active participants makes a campaign 10 percent more likely to achieve its ultimate outcome."

That's why successful change efforts work hard to make it as easy as possible to join in. Deep commitment is essential for any change effort. However, before you can have commitment, you must have participation.

Saving 100,000 Lives

In its 100,000 lives campaign, the Institute for Healthcare Improvement sought to enlist 1,600 hospitals in its program to implement six evidence-based procedures that would reduce needless deaths through medical error.

The healthcare industry is famously resistant to change. So a key part of IHI's strategy was to lower barriers to participation, so that early adopters could not only join its movement but also easily recruit their friends and colleagues. It did so by identifying and eliminating points of friction.

First, rather than requiring an extensive application process, a simple fax from the hospital CEO, along with a commitment to share mortality data, was enough to join the movement. Instead of including every improvement it had identified during its years of research, IHI narrowed the list down to six procedures, which were chosen not only for impact but ease of implementation.

For each of these, IHI provided "change kits" complete with how-to guides. And the participating hospitals were not even required to adopt all six procedures but were free to choose those best suited to their organization.

IHI didn't focus on recruiting hardcore healthcare warriors for its battle against preventable medical errors—it recruit-

ed everybody, and it worked. After the 100,000 lives goal was achieved, IHI launched a campaign to save 1 million lives and then 5 million lives. Simple things can sometimes have enormous impacts.

In order for a movement's tactics to be effective, they must focus not merely on making a point or "raising awareness" of an issue but on actually making a difference. They must be part of a larger strategy to mobilize constituencies in the Spectrum of Allies to influence institutions in the Pillars of Support.

Surviving Victory

Every movement has an immediate goal, whether it is to promote fundamental rights; to drive implementation of new ideas, methods, and procedures; or simply to return to profitability. That's what drives action. Once those immediate goals are achieved, however, change movements often fall apart.

All too often, we have our minds so set on what we need to win that we neglect to think about what comes the day after the victory we seek. We are so focused on beating our opponents into submission that we fail to realize that they will eventually rise up again, learn the lessons of their failure, and return to the fight with renewed vigor. That's why we so often succeed in making our point but fail to make a difference.

What should be clear by now is that successful movements create transformational change through shared values. It is that easy and that hard.

The American Revolution would not be considered the great success it is today without the Declaration of Independence and the US Constitution. In fact, the founders created and then adopted the Constitution more than five years after the British were defeated in the Battle of Yorktown, precisely because it had become clear that without shared values the whole experiment was unworkable.

Yet maintaining a commitment to values is a challenge even in the best of circumstances. The quest for change is always a journey, never a destination.

Successful movements survive victory by staying true to their values even after the initial triumph. For example, the turnaround at IBM endured long after Lou Gerstner was gone because it wasn't centered on any particular strategy or technology but continued to promote the values that made IBM a great company.

Values prevail because they are not situational or of the moment but lasting principles for adaptation. Most of all, successful movements are able to leave the battle behind and make peace with the fact that victory inevitably leads to the tedious boredom of governance. They do not see that as the price of progress but its reward.

That's how you win.

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