

THIS IS STRATEGY

The power and leverage that systems create can also cause them to create undesirable side effects and impede useful innovation.

11. THE BUILDINGS OR THE ROADS?

Stewart Brand points out that if you look at a map of Boston from 1924 and compare it to one from 2024, almost every building has changed over the last century. And yet few of the major roadways have.

It's far easier to renovate or replace a building than it is to reroute a road.

Systems have nodes (buildings) and connections (roads). Those roads have conventions that we all need to understand to stay safe.

Buildings (and people) get replaced all the time. Roadways (and the rules of systems) fight like crazy to stay the way they are.

12. THE UNSEEN ASSISTANT (AND THE MYSTERIOUS VANDAL)

Better waves make better surfers.

A useful skill in surfing is picking the right place and time to go surfing. The systems in our lives are like waves, making our work easier or more difficult.

Working *with* a system is like having an assistant, eager and skilled, always making your work better. But working *against* a system can feel like someone is intentionally harming your project.

When Michelin rolled out the puncture-proof tire, they were sure they had a billion-dollar innovation. It was better for drivers, car manufacturers, and the industry.

A few years later, the project was dead. Ron Adner explains that because the local tire shops, garages, and repair depots would need arduous training and new equipment, they hadn't eagerly participated in the early days of the project, and Michelin had largely ignored them.

As a result of this missing link, customers discovered that they had a great deal of trouble getting their tires serviced, and were often pushed to buy normal tires to replace their worn or damaged no-flat tires. Frustrated customers complained, and some even sued the car companies.

MAKE BETTER PLANS

While it's easy to point the finger at the selfish car mechanics, the truth is that the vandal was the system—the resilient automobile industrial complex that would rather not change quickly.

13. CAN YOU SEE THE RIVER?

A river is more than water. There's water in a lake, too.

The essence of the river is the current. Paddling upstream is more difficult than going downstream. A snapshot shows you the water, but not its motion, not the relentless force as the water moves from here to there. *The river flows.*

If you want to change the course of a river, you can try to build a dam, but those are expensive and can fail.

The alternative is to dig a small channel that helps a river to go where it was going anyway. When you make it easier for the current to flow, the current will respond.

A small channel quickly becomes a torrent, and then the river itself.

14. THE COLLECTIVE

Why do birds fly in formation? What makes a bird join in? It turns out that the lead bird doesn't stay in the lead the entire time. The flock rotates. The collective evolved to find an efficient system for travel.

It works with people too. Any time that a person can benefit from engaging with a community, a system will evolve.

Most of us don't walk to the stream to fetch the day's water. Instead, we're happy to pay a small fee to get water from a pipe, which comes from a treatment plant, which is part of the city's infrastructure.

We don't try to persuade every person we meet of our status and knowledge. Instead, we paid (with time and money) to engage with an educational institution that awarded us a certificate in exchange.

And even if we spend our days working as a soloist, we're not alone. We're part of a collective or an industry, a system to take inputs and outputs and turn them into something of value for all participants.

Systems are everywhere humans engage to fill a need. Sometimes they persist longer than we'd like. Sometimes they move in directions we don't appreciate. Often, they're cultural, invisible, and hard to notice.

But systems define our lives.

15. SUCCESSFUL SYSTEMS

There are roles and rules, inputs and outputs, and rewards and punishments.

There are feedback loops, power dynamics, and hierarchies. Systems create the status quo and they defend it.

The system can be invisible, but the people involved in the system feel its pull and often understand that it has power. And effective systems create the outputs that define them.

There are giant, wealthy systems like college admissions, the military-industrial complex, or even capitalism, but there are tiny systems, like the dynamic in a particular neighborhood or the way the board of a non-profit makes decisions. Every family is a system as well.

We can't change capitalism. We can't even put a dent into it. But we can change the incentives of consumers, employees and investors by creating different cultural boundaries and status roles that operate within the larger system.

Systems can be as small as a nuclear family, deciding who gets a say in what's for dinner, and as large as a planet of 8 billion people, trying to deal with climate change.

Systems within systems. Turtles all the way down.

16. REAL LIFE ISN'T LEGO

Part of the appeal of LEGO for kids is that the pieces fit or they don't. A building goes together, comes apart, and can be put back together as it was.

This is very satisfying. It's also not very realistic.

Try taking apart a Hot Wheels car. It will take real skill to put it back together—the act of disassembling will deform its parts.

Even with the promise of interchangeable parts, there are million-dollar airplanes that will never fly again because they're missing a computer chip or a widget that's no longer available.

But the real truth of systems is that they're far more complex than even an airplane. Systems are more than built objects—they are the collisions between those objects and the natural world. They are the complex interactions of culture, of humans engaging with one another, of nature and chaos.

You can't step in the same river twice, because your footprint the first time turned the river into a different river. And it changed you as well.

17. TWO MYTHS ABOUT SYSTEMS

- You have unlimited power
- You have no power

We need a strategy because we can't simply order the system to follow our wishes. Part of our cultural mythos is that each of us has unlimited agency, if we're only willing to work hard enough, demand enough, and insist enough.

But systems are resilient and systems push back.

The power you have lies somewhere between infinity and zero.

It's possible that you've accepted whatever arrives, adopting the posture of a cog or (worse) a victim.

But we're not powerless. Individuals organizing others with persistence and generosity change the world, and do it every day. With the right strategy and resources, we can make an impact. Sometimes.

Buckminster Fuller taught us that to fundamentally change something, we must build a new system that makes the existing system obsolete.

Balance this temptation of building a new system with the insight from Carl Sagan that "If you wish to make an apple pie from scratch, you must first invent the universe."

It's unlikely anything we build is going to be built from scratch. But with time and focus, we can find the leverage to alter systems we care about.

18. BUILT, NATURAL, AND COMPLEX SYSTEMS

An airplane is a built system in which a designer and a contracting company create plans, sub-assemblies, and manuals, creating something they believe they have control over.

However, once a built system gets even a little bit complicated, unanticipated outputs begin to appear. The Tacoma Narrows Bridge collapsed because the engineers failed to account for harmonic resonances that would cause the entire bridge (which weighed millions of pounds) to sway and disintegrate once the wind was strong enough.

A corporate bureaucracy is a built system, but it's also a complex one. It acts in ways that no one, especially those in the HR department, could have predicted.

Complex systems create unexpected and unpredictable outputs. They're probabilistic and unstable, not deterministic the way we expect.

Decades ago, General Motors didn't set out to design mediocre, poorly built cars, but they did. Ford Motor Company didn't plan for the Pinto to explode and kill people.

There doesn't have to be a plan for there to be outputs. In fact, that's what usually happens.

19. WHAT MAKES A SYSTEM?

Human-built systems have elements in common. Generally, you'll find:

- **Boundaries**—they begin and end somewhere
- **Benefits**—people voluntarily engage with a system because they believe in the promises it makes
- **Bystanders**—often, people who don't want to be in the system are still involved in it

- **Information flows**—a shared language and expectations creates trust and efficiency
- **Stability**—the system offers its participants a reliable picture of the future
- **Protocols**—there are shorthands, processes, and methods of how things are done
- **Roles**—participants in the system seek or gain status and affiliation through their actions
- **Resilience and feedback loops**—when something disrupts the system, it works to push back and regain equilibrium
- **Convenience and efficiency**—even though systems aren't perfect, they offer participants outputs that encourage them to support it
- **Side effects**—every system also creates outputs that aren't ideal for non-participants or those that are part of it.

And so we find systems like:

- Big-time college sports
- Starbucks
- Religious practices
- The chocolate industry
- Your local volunteer fire department
- The community orchestra
- The dating scene in certain parts of Boise, Idaho

Decisions may feel as though they're voluntarily made. But the system exerts influence on each participant through each decision.

Each decision is the sum total of all the expectations, feedback loops, and invisible and visible rules that we adhere to.

20. THE PERSISTENCE OF SYSTEMS

We've lived with them so long they have become invisible, but systems are everywhere. Systems shift our perceptions and our actions, and they don't always offer us what we want or need. So why do they stick around?

Status quo—when people coordinate into networks and groups, our individual aversion to certain kinds of change is multiplied, and so the default becomes keeping things as they are.

Sunk costs—once we've invested our effort, money, and emotions into something, it's hard to let it go, even if it might not be what we need.

Interoperability—there are practical reasons for things to work in the way they do—connectors that connect, languages that are understood, and procedures that maximize efficiency. No one wants to buy a phone that doesn't support Bluetooth.

Status roles—the hierarchy benefits those that are at the top (who have power) and they work to maintain it. They also sell everyone else on the idea that the system is the best way for them to achieve status as well.

Affiliation—culture is “people like us do things like this.” Humans find solace, satisfaction, and safety in community, and our desire for affiliation maintains existing systems.

It's a lot to undo. A more resilient and leveraged path is to work *with* systems instead of fighting them outright.

21. FROM FINE CHINA TO UNDERWATER HEADPHONES

Cultural systems evolve, layer by layer.

In 1759, Josiah Wedgwood used new production techniques to bring the world a refined, mass-produced set of china and pottery.

In 1843, Ada Lovelace did the groundbreaking work that informs computer programming to this day.

John Wanamaker pioneered the price tag in 1861.

By 1911, Frederick Taylor had published his ideas on scientific management, dramatically increasing productivity and quality.

In 1951, Lillian (Vernon) Hochberg began her direct mail campaigns.

The ubiquitous steel shipping container, first used in 1956, made shipping finished products around the world far more reliable and cheaper as well, enabling companies like Walmart to eventually transform retail.

The toll-free number, launched by AT&T in 1967, connected consumers directly to companies, allowing them to use credit cards, launched in 1950, to buy things directly.

Ethical email marketing, created by Yoyodyne in 1992, opened the door to electronic ordering, which was amplified dramatically by the adoption of web browsers a few years later.

And then Amazon wove it all together.

Which explains how I can buy a pair of Shokz underwater MP3 headphones online and get them delivered to my home the next day—for the equivalent of \$2 in Wedgwood's time.

22. DUNCAN HINES (AND NINA ZAGAT)

Duncan Hines was a traveling print salesman, operating in the midwest of the United States a hundred years ago.

There were no health inspectors for restaurants, which meant that visiting a strange town and going out for dinner carried real risks. Food poisoning was common.

Duncan liked to eat, and with the automobile becoming more reliable, he traveled a lot as well.

Combining his printing expertise with his love for food, Duncan began to publish a travelers' restaurant guide. His focus was on places where a traveler could find a safe place to eat a decent meal.

The first year, he sent it out as a Christmas gift to a few hundred people. In the years that followed, demand for the guide grew, and he began to sell it.

Soon after that, restaurants inquired about being listed—the traffic and status that came from being listed was extremely valuable to them.

Hines offered restaurants a chance to be included: If they paid a fee, he'd send an inspector. If the business passed muster, they'd not only be listed but be given a sign to put up in front of the restaurant.

This status ratchet spread, and the food safety of restaurants around the country was transformed. His project improved the health of millions of people. It made him rich and famous, and ultimately led to the licensing deal that still has Duncan Hines' cake mix in every supermarket.

Several generations later, Nina and Tim Zagat, New York lawyers, put together a pocket-sized guide to restaurants in New York. They had a particular point of view: These were restaurants for people who went out for dinner a few times a week. Tapping friends and friends of friends to contribute reviews, the book listed thousands of restaurants with a unique, quotable style of short insights.

And they included three numerical ratings for each restaurant.

The result? Restaurants in New York, and then around the country, changed their businesses to score well in the guide.

DNA tests, passports, digital surveillance, rankings, membership lists, and SAT scores are all transformative because they surface data and turn it into information.

Information changes systems.

23. ALL DOGS ARE MIXED BREED DOGS

The only thing that makes a purebred so valuable is that an association labeled it.

The status conferred on breeders and owners of dogs that match the invented profiles of the AKC and other organizations drives them to commit to the system.

The end result is a health crisis due to inbreeding, together with a shelter system that often has trouble keeping up with puppies rejected or unsold by breeders.

There are almost a hundred million dogs in the United States, and every one of them is affected by a simple rule book of what sort of dog someone said they are.

24. U.S. NEWS CHANGED COLLEGE

U.S. News & World Report was a struggling weekly magazine, in third place behind *Time* and *Newsweek*.

To make ends meet, they put out a special report ranking colleges in the United States.

The first edition was fairly informal, based on limited data and some hunches.

But because it caught on and made a little money, they decided to reinvest and turn the guide into a business on its own.

They pushed back against resistance from college presidents, brought in various research modalities, and added countless variables. It's almost impossible to rank something as diverse as educational institutions, but they did it anyway.

As the rankings increased in visibility and acceptance, status was awarded (or lost) as a result. Universities started assigning staff members to look at the game, to understand the statistics, and to take action to move up the rankings.

Some of the side effects include:

- Schools dramatically increasing spending on sports facilities
- Scandals at schools like Columbia, caught cheating on their self-reported statistics
- Many schools shifting focus and curriculum and grading approaches in response to low rankings
- Other schools creating easy-to-fill-in applications for high-scoring students, simply so they could reject them and improve their metrics

By narrating, labeling, and publishing a hierarchy, an outsider changed a system that had been around since before the country was established.

25. WHERE'S THE METER?

Donella Meadows shared a story she heard from a researcher in Denmark. In 1973, they examined a suburban neighborhood of Amsterdam, where all the houses were very similar.

Some of the houses had their electric meter in the basement. Others had the meter in the entrance hall, where residents couldn't help but notice the power usage every time they entered or left their home.

All other things being equal (and they were), the houses with visible meters used one-third less electricity than their neighbors.

26. SEEING (AND CHANGING) THE CHOCOLATE SYSTEM

The farmers who grow chocolate are some of the lowest-paid workers anywhere. In Ghana and the Ivory Coast, two of the largest producers of chocolate, a commodity system grinds people down, pushing them into endless hard work, and not rewarding them for the taste, innovation, or quality of the chocolate they produce.

Commodity chocolate is cheap, and needs to be sold in volume to people who care more about the convenience, price, and social interactions than they do about the flavor or the impact of their choice.

There are several systems at work here: The corporate industrial complex, which pushes for scale, profitability, and stability. The government regulatory system, in which bureaucracies balance social good with pressures from industry as well as a desire for stability. And, of course, the marketing system, responding to consumers who prize convenience and promotion.

Turning Halloween into a cultural phenomenon benefits the largest producers of chocolate. It's not unusual for 15% of their annual sales to be associated with this single celebration. The key metrics for them are market share and profit, not flavor or sustainability.

In 2003, Dutch journalist Teun van de Keuken reported on slave labor in the commodity chocolate market. His initial plan was to use publicity to shame the government and large chocolate companies to change the system.

His frustration with the system led him to become a producer, and he founded Tony's Chocolonely (named this way because he was the lonely voice speaking out). Tony is now one of the largest chocolate makers in the Netherlands, with nearly 20% of the Dutch market. Their chocolate is fully vetted, from bean-to-bar, offering consumers a different story, a more delicious option, and a better way forward.

Shawn Askinosie took a similar path in the US, combining open book management, ethical sourcing, and dramatically higher wages for chocolate growers (it helps that it's more delicious chocolate as well). Shawn brought commitment and bravery to a new industry and as a result, changed the standard for how it should be done.

A third enterprise, Original Beans, seeing the possibilities in a new system, committed to pushing it further, making bars that are vetted, using profits to regenerate the landscape, and also embracing once-lost flavor profiles that some people happily pay extra for.

Neither Shawn nor Tony nor Original Beans is going to change Halloween. But the options they create put pressure on the system at every step. Governments are no longer easily persuaded that it's not possible to trace chocolate back to the producer. Retailers realize that they can make a profit year-round without pushing junk for a few weeks a year. And consumers in search of status and affiliation can engage with this new story, particularly when friends and colleagues highlight the options.

"Better" is a tricky goal. The system wants what it wants until leverage points are found that enable cultural shifts to happen over time.

Horizontal change is harder to see than brave leadership, but even more important

The movies need heroes. Corporations need CEOs. Inventions need inventors.

And yet, *culture* is the driver of most systems, and culture is the result of the interactions between and among people. Strategies stumble when they depend on someone with power dictating how things will occur.

If you want to grow a garden, you'll need to plant seeds, but it's the ecosystem and the climate that will determine what happens after that.

Our job is to find a plan and then create the conditions for our project to spread from person to person, within and across the systems that already exist.

27. SERIOUS GAMES

Getting your insulin dosage right is a game. Getting the farm bill passed in Congress is a game. Finding a job is a game as well.

You move, then the system (actually, someone in the system) makes a move in return. There's a competition—for attention, for resources, for slots—and there are outcomes.

Often, there are random elements as well. No one is a perfect game player, and no one wins every time.

Your body is a system. If you have diabetes, getting your insulin right is a challenge, because the system isn't optimized on its own for your health and well-being. Take too much and the system pushes you one way. Too little and the system pulls you in a different direction.

And the game of finding a job engages with a system, one that's defined by scarcity and opportunity. Each action the job seeker takes requires effort, and sometimes these actions over time turn into the job that they're looking for.

Serious games are all around us, whether we choose to play them or not.

28. THERE ARE GAMES IN EVERY STRATEGY

A game has the following elements: players, rules, scarcity, choices, feedback loops, and outcomes.

Calling the project a game gives us a chance to depersonalize our work, to be more flexible in our approach, and most of all just to talk about it. Smart people have studied games—from nuclear proliferation and public health to poker—and we can learn from them.

Here are a few things about games that are generally true:

- You don't have to enjoy the game for it to be a game.

- You're playing a game whether you realize it or not, and seeing the game helps you play it better.
- The outcome of a game often has little to do with how much you want to win.
- Everyone playing the game sees it differently.
- Some games are easy to quit, other games are forever.
- Not all players follow the same rules or have the same goals, even when playing the same game.
- No game stays the same for long, because playing the game changes the game.
- Short-term gains can lead to long-term losses, and vice versa.
- Sometimes the best way to win is to help others succeed.
- Large games are made of smaller games, all the way down.
- Most games are not fair, and some games cannot be won.
- The most valuable skills in one game may be useless in another.
- Some games become easier as you win, others more difficult.
- You don't always have to play the game you're offered.
- Multiplayer games sometimes conceal themselves as two-player games.
- We often spend more time figuring out how to win the game we're in instead of choosing which game to play in the first place.

29. WE ARE ALL TIME TRAVELERS

And we are all farmers.

The seeds you plant today won't grow for weeks or months.