

# The Laws of Subtraction: How to Innovate in the Age of Excess Everything

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# The Problem: Excess Everything

Our businesses are more complicated and difficult to manage than ever. Our economy is more uncertain than ever. Our resources are scarcer than ever. There is endless choice and feature overkill in all but the best experiences. Everybody knows everything about us. The simple life is a thing of the past. Everywhere, there's too much of the wrong stuff, and not enough of the right. The noise is deafening, the signal weak. Everything is too complicated and time-sucking.

Welcome to the age of excess everything. Success in this new age looks different, and demands a new and singular skill: **Subtraction.**

Subtraction is defined simply as the art of removing anything excessive, confusing, wasteful, unnatural, hazardous, hard to use, or ugly—and the discipline to refrain from adding it in the first place.

The world's most original innovators all know this: *less is best*. They know that by *removing* just the right things in just the right way, they can achieve the maximum effect through minimum means and deliver what everyone wants: a memorable and meaningful experience.

As John Maeda wrote in his 2006 book *The Laws of Simplicity*: “Simplicity is about subtracting the obvious and adding the meaningful. And as he told me in an interview: “Subtraction is just one of those beautiful words.”

Subtraction is the scalpel of value—the method by which the simplest, most elegant solutions will be created, now and in the future. Subtraction is the creative skill needed to win in the age of excess everything, yet until now there was no simple, incisive guide for developing and deploying it.

Enter the “laws of subtraction,” six simple rules for winning in the age of excess everything, distilled from a six-year study of over 2000 ideas, and centering on a single yet powerful one:

**When you remove just the right things in just the right way,  
something very good happens.**

*“To attain knowledge, add things every day.  
To attain wisdom, subtract things every day. — LAO TZU*

# The Solution: The Laws of Subtraction

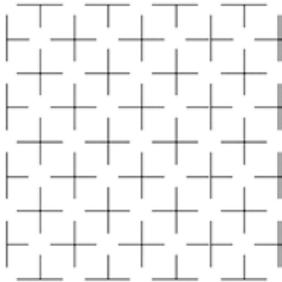
There are three critical choices inherent in every difficult decision in business, work and life:

- 1 What to pursue, versus what to ignore?
- 2 What to leave in, versus what to leave out?
- 3 What to do, versus what not to do?

Most of us focus only on the first half of each of these choices—rarely do we focus on the second half. But that’s where the laws of subtraction come in, offering a guide for everyday people at levels in all kinds of positions to create more engaging experiences using six simple rules:

- Law #1 What *isn't* there can often trump what is.
- 2 The simplest rules create the most effective experience.
  - 3 Limiting information engages the imagination.
  - 4 Creativity thrives under intelligent constraints.
  - 5 *Break* is the important part of *breakthrough*.
  - 6 Doing something *isn't* always better than doing nothing.

## Law #1: What *isn't* there can often trump what is.



The white circles you see in the grid pictured here do not exist, yet they are the most interesting part of the illustration.

The reason it's so interesting isn't just that you see the white circles and diagonals, it's that everyone does. And even if you try to focus only on the drawn lines and completely ignore the space between them, your brain will override the order. So will everyone else's.

Harvard psychologist Daniel Gilbert refers to this as a mistake. “The errors that optical illusions induce in our perceptions are lawful, regular, and systematic,” he says in his book *Stumbling on Happiness*. “They are not dumb mistakes but smart mistakes—mistakes that allow those who understand them to glimpse the elegant design and inner workings of the visual system.”

FedEx used this approach to dramatically change their image and create one of the most indelible logos ever designed—one that helped breathe new life into an already strong brand and simultaneously signaled the world that the company was going places. (Do you see the hidden white arrow that appears in the white space between the “e” and “x”?)





Designers of the automotive youth brand Scion essentially used this strategy in creating the fast-selling and highly profitable xB model, a small and boxy vehicle made intentionally spare by leaving out hundreds of standard features in order to appeal to the Gen Y buyers who wanted to make a personal statement by customizing their cars with trendy options. Buyers would commonly invest an amount equal to the \$15,000 purchase price to outfit their xB with flat panel screens, carbon fiber interior elements, and high-end audio equipment. It wasn't about the car. It was about what was left out of it.

## 2: The simplest rules create the most effective experience.

Visitors to the 2012 Olympic Games enjoyed the “shared space” redesign of London’s cultural mecca, Exhibition Road.

In shared space design, motor vehicles, pedestrians, and cyclists all share the road equally, with the only rule being “all due respect to the most vulnerable.”

Shared space design is void of nearly all traditional traffic controls, signs and lights. Curbs have been removed, asphalt replaced with red brick, and there are fountains and trees and café

seating right where you think you should drive. It's completely ambiguous. You have no choice but to slow down and think, but keep moving.

Result? Twice the fun and flow with half the accidents.



*Exhibition Road, London  
Before redesign*



*After redesign*

What about *no* rules? As Daniel Pink pointed out in a 2010 column for *The Telegraph*, the vacation policy employed by Netflix, the streaming video and DVD-by-mail company based in Silicon Valley, “is audaciously simple and simply audacious. Salaried employees can take as much time off as they’d like, whenever they want to take it. Nobody—not employees themselves, not managers—tracks vacation days. In other words, Netflix’s holiday policy is to have no policy at all.”

It hasn’t always been so. In 2004, Netflix treated holidays the conventional way: everyone gets a set number of days each year, and could use them or work the system to get paid for time not taken.

“But eventually some employees recognized that this arrangement was at odds with how they really did their jobs,” says Pink. “After all, they were responding to emails on weekends, they were solving problems online at home at night. Since Netflix wasn’t tracking how many hours people were logging each work day, these employees wondered, why should it track how many holidays people were taking each work year? Fair point, said management. So the company scrapped its formal plan.”

“Rules and policies and regulations and stipulations are innovation killers. People do their best work when they’re unencumbered,” says Pink, quoting Steve Swasey, Netflix’s vice-president for corporate communications. “If you’re spending a lot of time accounting for the time you’re spending, that’s time you’re not innovating.”

### 3: Limiting information engages the imagination.

Each year over 125,000 people attend Comic Con, the premier event for comic book passionistas, manga mavens, and graphic novel aficionados. The global market is huge, yet the art form is as ancient as crude hieroglyphics on cave walls.

The magic of comics is not contained within the panels. Rather, it is the white space between the frames that holds the secret.



There is nothing in the space between. Yet, it is here where the real action occurs. It's here that the reader is drawn in. It's here that the reader is engaged, because it is here that the story is left open to interpretation. It's here that attention is focused, here that the imagination is sparked. And it is here that the real story takes place.

The true art is invisible. As Scott McCloud, author of *Understanding Comics*, puts it:

“The artist may have drawn the ax being raised, he's not the one who let it drip or decided how hard the blow, or who screamed or why ... that is the special crime of the reader, each committing in his or her own style. It's the space between the panels ... the gutter as aficionados call it ... that plays host to the magic and mystery that are at the very heart of comics. In that nothingness, that limbo, human imagination takes two separate images and transforms them into a single idea.”

The best innovators know what neuroscientists know: there is nothing more powerful than the ability of the human mind to create meaning from missing information.

## 4: Creativity thrives under intelligent constraints.

In the mid 1990s, the Mars Pathfinder team at Jet Propulsion Laboratories in Pasadena, California, had to respond to the new NASA mandate of “faster, better, cheaper” by launching a reliable, low-cost alternative to traditional space exploration.

Their challenge: create a rover that could efficiently return new engineering and scientific data on Mars, and do it in less than one-tenth the typical cost for a space mission, in less than half the time.



Mission: Impossible.

Approach: Change everything.

Results: Spectacular.

The entire project from concept to touchdown was completed in 44 months, less than half the time of the previous Viking mission to Mars. The project was accomplished with only 300 team members, versus the over 2000 assigned to the preceding mission, and resulted in dozens of resourceful innovations.

Most remarkable? The use of deployable airbags as the landing method.

The Mars Pathfinder team met their fixed budget of less than \$200 million—less than it took to produce the 1997 Hollywood blockbuster movie *Titanic*.

As G.K. Chesterton once said: “Art consists of limitation.”

## 5: Break is the important part of breakthrough.

When a well-worn pattern is broken, creativity emerges. It is the broken pattern that makes us sit up, take notice, and pay attention. There are two kinds of breaks: those you make, and those you take. Law #5 concerns the first, while Law #6 the second.

When Germany’s first jet fighter planes appeared in the skies over Europe in 1943, the U.S. War Department hired Lockheed Aircraft Corporation to build a working jet fighter prototype, giving them just 180 days to do so. For The War Department, there was just one man for the job: 33-year old Clarence “Kelly” Johnson, Lockheed’s talented but eccentric Chief Engineer. Kelly Johnson ran Lockheed’s innovative Advanced Develop Programs for nearly 45 years, from its inception in 1943 to 1975.

As with the Mars Pathfinder, challenging constraints shaped the project: build a jet fighter prototype that would fly at 600 miles per hour—the edge of the speed of sound and 200 miles per hour faster than the current Lockheed P-38 propeller plane—in 180 days. The only problem was,

Lockheed was out of floor space, as the entire complex was devoted for 24/7 production of the current planes.

The jet fighter project was to be conducted with top secrecy, so Kelly decided to leverage the space constraint. He broke away from the Lockheed main operation, taking 23 of the best design engineers and 30 mechanics with him, and set up camp in a rented circus tent next to a foul-smelling plastics factory, figuring the odor would help keep nosy barkers away.



*Lockheed's secret Skunk Works building in Palmdale, California*

The whole setup reminded people of Al Capp's "Li'l Abner" comic strip and "Skonk Works," a dilapidated factory located on the remote outskirts of Capp's fictional backwoods town Dogpatch. For legal reasons, Lockheed eventually trademarked the name "Skunk Works" for their top-secret advanced development program.

Thus was born the de facto standard for running top-secret projects among the world's most innovative companies, and the model Steve Jobs used in launching the Macintosh division of Apple.

Over the years, the term Skunk Works has come to refer to any effort involving an elite special team that breaks away from the larger organization to work autonomously on an advanced or

secret project, usually tasked with breakthrough innovation on limited budgets and under aggressive timelines.

The term has become official, and is defined in the 4th edition of The American Heritage Dictionary of the English Language as “an often secret experimental laboratory or facility for producing innovative products.”

## 6: Doing something isn't always better than doing nothing.

Neuroscience now confirms that the ability to engineer creative breakthroughs hinges on the capacity to synthesize and make connections between seemingly disparate things, and a key ingredient is time away from the problem.

Boston Consulting Group (BCG) ran a multi-year experiment in which members of a dozen four- or five-member consulting teams were required to take “predictable time off” every week, defined as one uninterrupted evening free each week after 6 p.m.—no work contact whatsoever, and no Blackberrys.

The downtime was awkward for many, nerve-racking for some, and a few even fought the idea, fearful of poor performance ratings or more weekend work. The goal was to teach people that you can tune out completely for a time and still produce great work.

Within six months, internal surveys showed that these consultants were more satisfied with their jobs and work-life balance, and more likely to stay with the firm, compared to those who weren't part of the study.

In addition, BCG's clients reported that these teams turned out better work, in part due to more open dialogue, and that the improved communication also sparked new processes that enhanced the teams' ability to work effectively. The experiment worked so well that BCG has since instituted it firm-wide.

*“All men's miseries derive from the inability to sit still in a quiet room alone. — BLAISE PASCAL*

# Conclusion

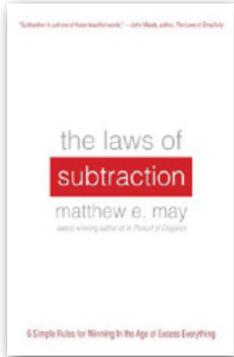
Doing nothing productively isn't easy. It takes practice and discipline to achieve the mental state of active calm needed to produce our greatest creativity. It is the quiet mind that stimulates the brain to produce strokes of genius.

Perhaps this is why so many high-performing athletes and executives meditate or use neuro-feedback training. Ford chairman William Ford, former corporate chiefs Bill George of Medtronic and Bob Shapiro of Monsanto, Phil Jackson, Tiger Woods, and Italy's 2006 World Cup champion soccer team, along with executives at GE, 3M, Google, Bloomberg Media, and Salesforce.com all designate daily time to calm and quiet the mind, to free it from thought.

These leaders realize how important is it to be able to do absolutely nothing in order to achieve maximum impact.

**They know that when you remove just the right things in just the right way, something very good happens. 🧘**

# Info



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**ABOUT THE AUTHOR** | In addition to *The Laws of Subtraction*, Matthew E. May is the author of four previous manifestos. He is also the author of three award-winning books: *The Elegant Solution*, *In Pursuit of Elegance*, and *The Shibumi Strategy*. A popular speaker, creativity coach, and close advisor on innovation and design strategy to companies such as ADP, Edmunds, Intuit, and Toyota, he is a regular contributor to the American Express OPEN Forum Idea Hub and the founder of Edit Innovation, an ideas agency based in Los Angeles.

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