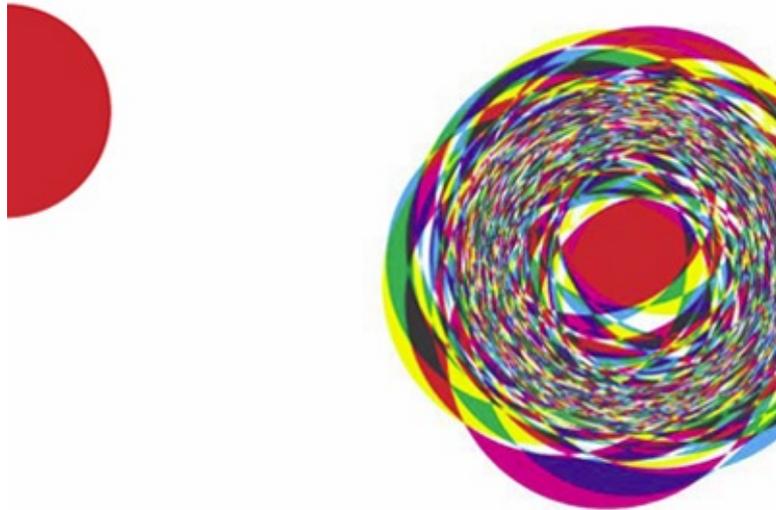


THE LAWS OF
SIMPLICITY

DESIGN, TECHNOLOGY, BUSINESS, LIFE



John Maeda

"Maeda is the Master of Simplicity."

—Andrea Ragnetti BOARD OF MANAGEMENT, ROYAL PHILIPS ELECTRONICS



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John Maeda

DESIGN, TECHNOLOGY, BUSINESS, LIFE

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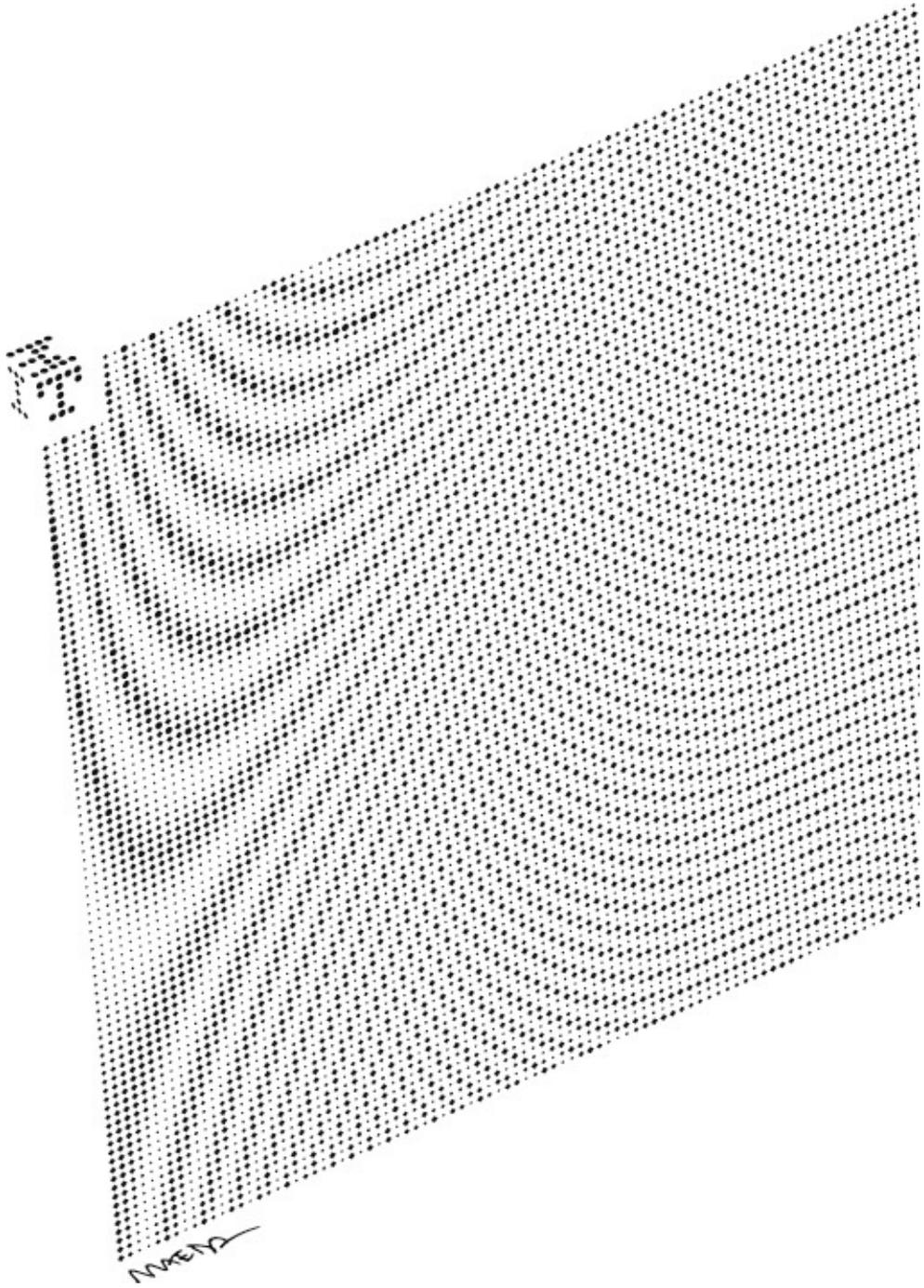
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For Kris
I promise to love you more, and never less.

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SIMPLICITY=SANITY

Technology has made our lives more full, yet at the same time we've become uncomfortably "full."

I watched the process whereby my daughters gleefully got their first email accounts. It began as a tiny drop—emails sent among themselves. It grew to a slow drip as their friends joined the flow of communication. Today it is a waterfall of messages, e-cards, and hyperlinks that showers upon them daily.

I urge them to resist the temptation to check their email throughout the day. As adults, I tell them, they will have ample opportunity to swim in the ocean of information. “Stay away!” I warn, because even as an Olympic-class technologist, I find myself barely keeping afloat. I know that I’m not alone in this feeling of constantly drowning—many of us regularly engage (or don’t) in hundreds of email conversations a day. But I feel somewhat responsible.

My early computer art experiments led to the dynamic graphics common on websites today. You know what I’m talking about—all that stuff flying around on the computer screen while you’re trying to concentrate—that’s me. I am partially to blame for the unrelenting stream of “eye candy” littering the information landscape. I am sorry, and for a long while I have wished to do something about it.

Achieving simplicity in the digital age became a personal mission, and a focus of my research at MIT. There, I straddle the fields of design, technology, and business as both educator and practitioner. Early in my ruminations I had the simple observation that the letters “M,” “I,” and “T”—the letters by which my university is known—occur in natural sequence in the word SIMPLICITY. In fact, the same can be said of the word COMPLEXITY. Given that the “T” in M-I-T stands for “technology”—which is the very source of much of our feeling over-whelmed today—I felt doubly responsible that someone at MIT should take a lead in correcting the situation.

In 2004, I started the MIT SIMPLICITY Consortium at the Media Lab, comprised of roughly ten corporate partners that include AARP, Lego, Toshiba, and Time. Our mission is to define the business value of simplicity in communication, healthcare, and play. Together we design and create prototype systems and technologies that point to directions where simplicity-driven products can lead to market success. By the publication date of this book, a novel networked digital photo playback product co-developed with Samsung will serve as an important commercial data point to test the validity of the Consortium’s stance on simplicity.

When the blogosphere began to emerge, I responded and created a blog about my evolving thoughts on simplicity. I set out to find a set of “laws” of simplicity and targeted sixteen principles as my goal. Like most blogs, it has been a place where I have shared unedited thoughts that represent my personal opinions on a topic about which I am passionate. And although the theme of the blog began just along the lines of design, technology, and business I discovered that the readership resonated with the topic that underlies it all: my struggle to understand the meaning of life as a humanist technologist.

Through my ongoing journey I’ve discovered how complex a topic simplicity really is, and I don’t pretend to have solved the puzzle. Having recently spoken to an 85-year old MIT linguistics professor who has been working on the same problem his entire life, I am inspired to grapple with this puzzle for many more years. My blog led me to

the fact that there aren't sixteen laws, but rather the ten published in this volume. Like all man-made "laws" they do not exist in the absolute sense—to break them is no sin. However you may find them useful in your own search for simplicity (and sanity) in design, technology, business, and life.

SIMPLICITY AND THE MARKETPLACE

The marketplace abounds with promises of simplicity. Citibank has a "simplicity" credit card, Ford has "keep it simple pricing," and Lexmark vows to "uncomplicate" the consumer experience. Widespread calls for simplicity formed a trend that was inevitable, given the structure of the technology business around selling the same thing "new and improved" where often "improved" simply means more. Imagine a world in which software companies simplified their programs every year by shipping with 10% fewer features at 10% higher cost due to the expense of simplification. For the consumer to get less and pay more seems to contradict sound economic principles. Offer to share a cookie with a child and which half will the child want?

Yet in spite of the logic of demand, "simplicity sells" as espoused by *New York Times* columnist David Pogue in a presentation at the 2006 annual TED Conference in Monterey. The undeniable commercial success of the Apple iPod—a device that does less but costs more than other digital music players—is a key supporting example of this trend. Another example is the deceptively spare interface of the powerful Google search engine, which is so popular that "googling" has become short-hand for "searching the Web." People not only buy, but more importantly love, designs that can make their lives simpler. For the foreseeable future, complicated technologies will continue to invade our homes and workplaces, thus simplicity is bound to be a growth industry.

Simplicity is a quality that not only evokes passionate loyalty for a product design, but also has become a key strategic tool for businesses to confront their own intrinsic complexities. Dutch conglomerate Philips leads in this area with its utter devotion to realizing "sense and simplicity." In 2002 I was invited by Board of Management Member Andrea Ragnetti to join Philips' "Simplicity Advisory Board (SAB)." I initially thought that "sense and simplicity" was merely a branding effort, but when I met in Amsterdam with Ragnetti and his CEO Gerard Kleisterlee at the first meeting of the SAB I saw the greater ambition. Philips plan to reorganize not only all of their product lines, but also their entire set of business practices around simplicity. When I tell this story to industry leaders the consistent feedback I get is that Philips is not alone in the quest to reduce the complexities of doing business. The hunt is on for simpler, more efficient ways to move the economy forward.

WHOM IS THIS BOOK FOR?

As an artist, I'd like to say that I wrote this book for myself in the spirit of climbing a mountain "because it's there." But the reality is that I wrote it in response to the many voices of encouragement—either by email or in person—from people that wish to better understand *simplicity*. I've heard from bio-chemists, production engineers,

digital artists, homemakers, technology entrepreneurs, road construction administrators, fiction writers, realtors, and office workers, and the interest just seems to keep on growing. With support there is always discouragement: some worry about the negative connotations of simplicity where it can lead to a simplistic and “dumbed-down” world. You will see in the latter part of this book that I position complexity and simplicity as having importance relative to each other as necessary rivals. Thus I realize that although the idea of ridding the earth of complexity might seem the shortest path to universal simplicity, it may not be what we truly desire.

I originally conceived this book as a sort of Simplicity 101, to give readers an understanding of the foundation of simplicity as it relates to design, technology, business, and life. But now I see that a foundation can wait until I’m 85 like my professor friend, and for now a framework will suffice which you now hold in your hands. Also, in the course of completing my MBA, I found that the majority of books on innovation and business are published by a single authority. I have been mellowed by many sobering events in my otherwise extremely fortunate life, so I was looking for something that was more heartfelt than a book specifically aimed at the technology or business market.

My good friends at the MIT Press were supportive of a softer and more creative approach to the developing arena of simplicity and here you have the first step in such a series. The price-point and design of these books were carefully targeted for the distinguishing reader that is looking for something new and different. At the heart of the series is a focus on the business of technology, grounded in an expert’s knowledge of design, and with a light touch of curiosity about life. I welcome you to this creative experience.

HOW-TO USE THIS BOOK

The ten Laws outlined in the body of this book are generally independent of each other and can be used together or alone. There are three flavors of simplicity discussed here, where the successive set of three Laws (1 to 3, 4 to 6, and 7 to 9) correspond to increasingly complicated conditions of simplicity: basic, intermediate, and deep. Of the three clusters, basic simplicity (1 to 3) is immediately applicable to thinking about the design of a product or the layout of your living room. On the other hand, intermediate simplicity (4 to 6) is more subtle in meaning, and deep simplicity (7 to 9) ventures into thoughts that are still ripening on the vine. If you wish to save time (in accordance with the third Law of TIME), I suggest you start with basic simplicity (1 to 3) and then skip to the tenth Law of THE ONE which sums up the entire set.

Each section is a collection of micro-essays that cluster around the main topic presented. Rarely do I have answers, but instead I have a lot of questions just like you. Every Law begins with an icon of my design that represents the basic concepts I present. The images are not a literal explanation of the contents, but may help you to better appreciate each of the Laws. There is also associated Web content at lawsofsimplicity.com where you can download the artwork as desktop patterns in case that will help to motivate you.

In addition to the ten Laws, I offer three Keys to achieving simplicity in the technology domain. Think of them as areas in which to invest R&D resources, or simply to keep an eye on. How these Keys, and the Laws, connect to market valuation is a new hobby of mine. Those experiments and further predictions of simplifying technology trends are visible as a free service on lawsofsimplicity.com as well.

I intentionally capped the total page count at 100 pages in accordance with the time-saving third Law—which is truly dear to my heart. Thus the entire book can be read during your lunch break or else on a short flight. But please don't feel pressured to rush through this book. When I first set out with youthful zeal to attack the simplicity question, I felt that complexity was destroying our world and had to be stopped! At a conference where I later spoke, a 73-year old artist took me aside and said, "The world's *always* been falling apart. So relax." He's probably right. So take his advice and try to LEAN BACK while you read this book, if you can.

ACKNOWLEDGMENTS

I would like to thank Ellen Faran and Robert Prior of the MIT Press for shepherding the process of publishing this book at a speed unlike any other. The appropriateness of simplicity as a concept coming from MIT made immediate sense to both of them from the beginning. Given the support I've experienced from the MIT Press, I know that their enthusiasm was infectious in a way that made a normally complex task get executed more simply. Of course I would not wish it any other way;-).

The inspirations for this book are many, and most of them are evident throughout the discussion of the Laws. I don't take inspiration lightly—it sits squarely in the middle of my BRAIN, as presented in the fourth Law of LEARN I continue to look to inspiration from my brilliant graduate students, energetic undergraduates, incredible staff, and unparalleled colleagues at MIT, especially at the Media Lab.

My texts were tuned and simplified by the masterful literary mind of Jessie Scanlon. I've known Jessie since her *Wired Magazine* days and always look to her for the latest information on breaking trends in design. Jessie was my writing Master in this process, and I appreciate her time and patience.

A final pass of meticulous edits was executed by my students Burak Arikan, Annie Ding, Brent Fitzgerald, Amber Frid-Jimenez, Kelly Norton, and Danny Shen. Thank you guys!

Finally, I thank my wife Kris and our daughters for keeping my life both wonderfully complex, yet infinitely simple.

TEN LAWS

1 REDUCE The simplest way to achieve simplicity is through thoughtful reduction.

2 ORGANIZE Organization makes a system of many appear fewer.

3 TIME Savings in time feel like simplicity.

4 LEARN Knowledge makes everything simpler.

5 DIFFERENCES Simplicity and complexity need each other.

6 CONTEXT What lies in the periphery of simplicity is definitely not peripheral.

7 EMOTION More emotions are better than less.

8 TRUST In simplicity we trust.

9 FAILURE Some things can never be made simple.

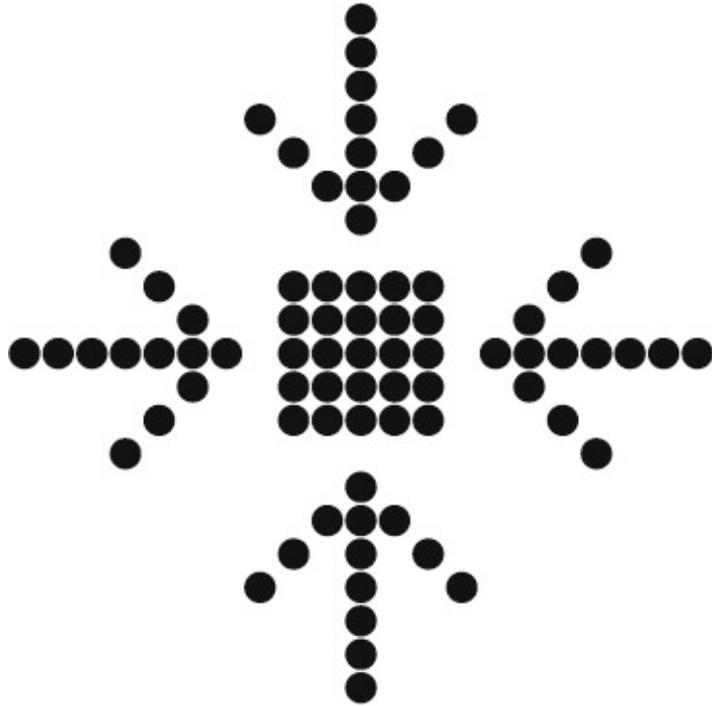
10 THE ONE Simplicity is about subtracting the obvious, and adding the meaningful.

THREE KEYS

1 AWAY More appears like less by simply moving it far, far away.

2 OPEN Openness simplifies complexity.

3 POWER Use less, gain more.



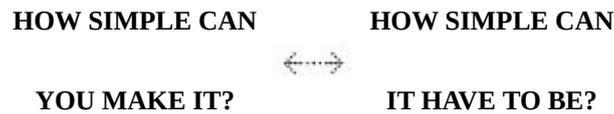
Law 1

REDUCE

The simplest way to achieve simplicity is through thoughtful reduction.

The easiest way to simplify a system is to remove functionality. Today's DVD, for instance, has too many buttons if all you want to do is play a movie. A solution could be to remove the buttons for Rewind, Forward, Eject, and so forth until only one button remains: Play.

But what if you want to replay a favorite scene? Or pause the movie while you take that all-important bathroom break? The fundamental question is, where's the balance between simplicity and complexity?



On the one hand, you want a product or service to be easy to use; on the other hand you want it to do everything that a person might want it to do.

The process of reaching an ideal state of simplicity can be truly complex, so allow me to simplify it for you. *The simplest way to achieve simplicity is through thoughtful reduction.* When in doubt, just remove. But be careful of what you remove.

SHE'S ALWAYS RIGHT

We would find it hard to remove any given button from a DVD player if forced to do so. The problem is one of choosing what deserves to live, at the sacrifice of what deserves to die. Such decisions are not easy when most of us are not trained to be despots. Our usual preference is to let live what lives: we would choose to keep all the functionality if we could.

When it is possible to reduce a system's functionality without significant penalty, true simplification is realized. When everything that can be removed is gone, a second battery of methods can be employed. I call these methods SHE: SHRINK, HIDE, EMBODY.

SHE: SHRINK

When a small, unassuming object exceeds our expectations, we are not only surprised but pleased. Our usual reaction is something like, "That little thing did all that?" Simplicity is about the unexpected pleasure derived from what is likely to be insignificant and would otherwise go unnoticed. The smaller the object, the more forgiving we can be when it misbehaves.

Making things smaller doesn't make them necessarily better, but when made so we tend to have a more forgiving attitude towards their existence. A larger-than-human-scale object demands its rightful respect, whereas a tiny object can be something that deserves our pity. When comparing a kitchen spoon to a construction bulldozer the larger scale of the vehicle instills fear, while the rounded utensil appears harmless and inconsequential. The bulldozer can run you over and end your life, but if the spoon were to fall on top of you, your life would likely be spared. Guns, mace cannisters, and little karate experts of course are the exception to this rule of "fear the large, endear the small."

Technology is SHRINK-ing. The computational power of a machine that sixty years ago weighed 60,000 pounds and occupied 1,800 square feet can now be packed onto a sliver of metal less than a tenth the size of the nail on your pinkie. Integrated circuit (IC) chip technology—commonly referred to as “computer chips”—allows far greater complexity at a much tinier scale. IC chips lie at the heart of the problem of complex devices today as they enable increasingly smaller devices to be created. A kitchen spoon and a mobile phone can share the exact same physical dimensions, yet the many IC’s embedded inside the phone make the device easily more complex than the bulldozer—so looks can be deceiving.

Thus while IC’s are a primary driver of complexity in modern day objects, they also enable the ability to shrink a frighteningly complex machine to the size of a cute little gumdrop. The smaller the object is, the lower the expectations; the more IC’s that are inside, the greater the power. In this age of wireless technology that connects the IC inside the phone with all the computers in the world, power has now become absolute. There is no turning back to the age when large objects were complex and small objects were simple.

Babies are examples of complex machines that although small, require constant attention to the point of driving most parents insane. Yet in the midst of the havoc they wreak, a precious moment can give way when their big beautiful eyes peer into your tired blariness with a look of, “Help me! Love me!” It is said that this irresistible cuteness is their key self-preservation mechanism, which I know myself works for a fact, having experienced it many times over. Fragility is an essential counteracting force to complexity because it can instill pity—which by coincidence also occurs in the word SIMPLICITY!

The science of making an object appear delicate and fragile is a skill practiced throughout the history of art. An artist is trained to evoke emotion in his fellow human being through the work he creates, whether that emotion be pity, fear, anger, or any other feeling or combination thereof. Of the many tools at the artist’s disposal to achieve enhanced smallification are lightness and thinness.

For example, the mirrored back of an Apple iPod creates the illusion that the object is only as thin as the floating white or black plastic layer because the rest of the object adapts to its surroundings. Already thin, flat-screen displays like LCD’s or plasmas are made to appear even lighter by sitting atop minimal structural supports or in the extreme case floating on an invisible Lucite platform. Another common approach to achieving thinness is seen in the Lenovo ThinkPad’s beveled clamshell as your eyes travel down and off the bottom edge of the keyboard to nothingness. A further collection of these types of designs can be browsed at lawsofsimplicity.com at your convenience.

Any design that incorporates lightness and thinness conveys the impression of being smaller, lesser, and humbler. Pity gives way to respect when much more value is delivered than originally expected. There is a steady stream of core technologies that will make things smaller, such as nanotechnology—the science of building machines that fit between your squeezed thumb and forefinger. Lessening the inevitable complicating blow of these technologies by way of shrink may seem like a form of

deception, which it is. But anything that can make the medicine of complexity go down easier is a form of simplicity, even when it is an act of deceit.

SHE: HIDE

When all features that can be removed have been, and a product has been made slim, light, and thin, it's time for the second method: HIDE the complexity through brute-force methods. A classical example of this technique is the Swiss army knife. Only the tool you wish to use is exposed, while the other blades and drivers are hidden.

With an endless array of buttons, remote controls for audio/video equipment are notoriously confusing. In the 90s, a common design solution was to hide the less-used functions, such as setting the time or date behind a hidden door, while keeping only the primary functions such as Play, Stop, and Eject exposed. This approach is no longer popular, probably due to a combination of the added production costs and the prevailing belief that visible features (i.e. buttons) attract buyers.

As style and fashion have become powerful forces in the cell phone market, handset makers have been pushed to find the balance between the elegance of simplicity and need-it-all complexity. Today, the clamshell design is the most evolved example of hiding functionality until you really need it. All buttons are sandwiched between the speaker and microphone such that when it is closed it is a simple bar of soap. Many recent designs have gone beyond the clamshell, and employ slide-away or flip-out mechanisms. Such evolutions are driven by a market that demands innovation and is willing to pay for clever ways to HIDE complexity.

But there might be no better example of the hide method than today's computer interfaces. The menu bar at the top hides the functionality of the application. And the other three sides of the screen contain other click-to-reveal menus and palettes that seem to multiply as the computer increases in power. The computer has an infinite amount of capacity to hide in order to create the illusion of simplicity. Now that computer screens are shrunken onto cell phones, microwave ovens, and every manner of consumer electronics, the power to hide incredible amounts of complexity is everywhere.

Hiding complexity through ingenious mechanical doors or tiny display screens is an overt form of deception. If the deceit feels less like malevolence, more like magic, then hidden complexities become more of a treat than a nuisance. The earcatching "click" when opening a Motorola Razr cell phone or the cinematic performance of an on-screen visual in Apple's Mac OS X creates the satisfaction of owning the power to will complexity from simplicity. Thus complexity becomes a switch that the owner can choose to flip into action on their own terms, and not by their device's will.

SHRINK-ing an object lowers expectations, and the hiding of complexities allows the owner to manage the expectations himself. Technology creates the problem of complexity, but also affords new materials and methods for the design of our relationship with complexities that shall only continue to multiply. Although instilling "pity" and choosing how to "control" it sound like draconian approaches to simplicity, they can be seen in a positive light for the feelings of enjoyment they create.

SHE: EMBODY

As features go into hiding and products shrink, it becomes ever more necessary to embed the object with a sense of the value that is lost after HIDE and SHRINK. Consumers will only be drawn to the smaller, less functional product if they perceive it to be more valuable than a bigger version of the product with more features. Thus the perception of quality becomes a critical factor when making the choice of less over more.

EMBODY-ing quality is primarily a business decision, more than one of design or technology. The quality can be actual, as embodied by better materials and craftsmanship; or the quality can be perceived, as portrayed in a thoughtful marketing campaign. Exactly where to invest—real or believed quality—to get maximum return is a question with no single definitive answer.

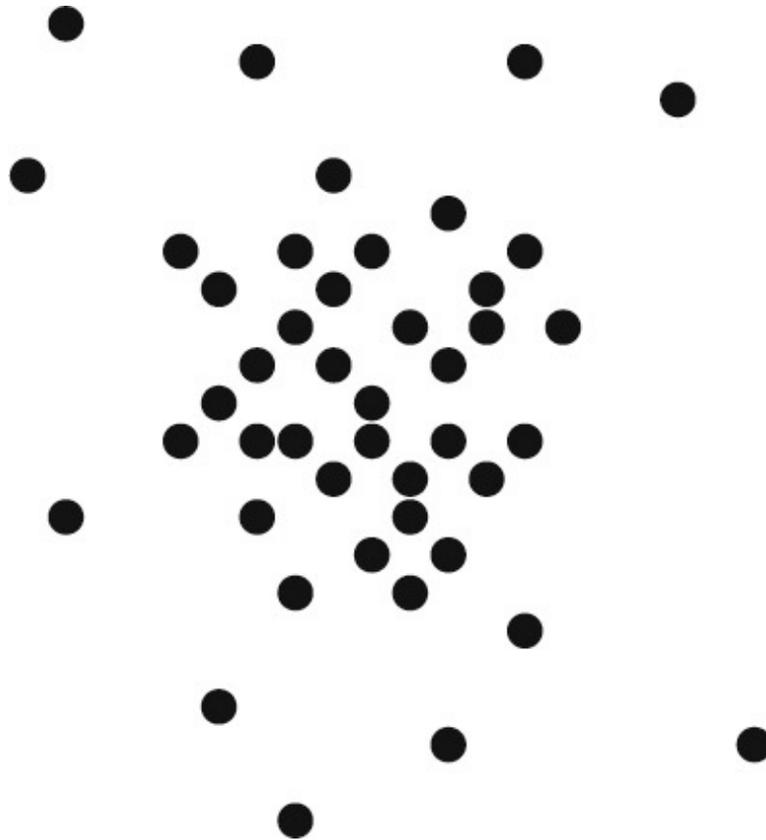
Perceived excellence can be programmed into consumers with the power of marketing. When we see a super-athlete like Michael Jordan wearing Nikes, we can't help but imbue the sneakers with some of his heroic qualities. Even without the association of a celebrity, a marketing message can be a powerful tool to increase belief in quality. For instance, although I'm usually loyal to Google, I've been recently exposed to a bevy of Microsoft live.com and Ask.com television commercials and now I find myself Google-ing much less. The power of suggestion is powerful.

Embodying an object with properties of real quality is the basis of the luxury goods industry and is rooted in their use of precious materials and exquisite craftsmanship. Relatedly, a designer of Ferrari cars once told me that a Ferrari has fewer parts than a common car, but the parts themselves are significantly better than anything else on this earth. This elegant tale of construction uses the simple philosophy that if good parts can make a great product, incredible parts can lead to a legendary one. Sometimes there are instances of overkill, such as the titanium-clad laptop I own—I'm unlikely to need titanium's strength to shield myself from a bullet. But I enjoy the personal satisfaction that a higher quality material is used instead of an inferior plastic. The upside of materialism is that the way something we own feels can change how we feel.

Sometimes mixing actual and perceived qualities works well, like in the design of the Bang & Olufsen remote control. The unit is thin and slender in composition and made with the finest materials, but is significantly (and intentionally) heavier—as a means to subtly communicate higher quality—than you would expect from its appearance. Substantive technologies, like three CCD imaging arrays inside a video camera instead of the standard single array, are usually invisible. Thus the perception needs to be made visible somehow, unfortunately in direct contradiction to HIDE. An unobtrusive sticker on the unit like “3 CCD's” or a message that appears when the unit is first turned on helps to advertise this extra hidden power. It is necessary to advertise qualities that cannot be conveyed implicitly, especially when the message of embodiment simply tells the truth.

SHE SHE'D

Lessen what you can and conceal everything else without losing the sense of inherent value. EMBODY-ing a greater sense of quality through enhanced materials and other messaging cues is an important subtle counterbalance to SHRINK-ing and HIDE-ing the directly understood aspects of a product. Design, technology, and business work in concert to realize the final decisions that will lead to how much reduction in a product is tolerable, and how much quality it will embody in spite of its reduced state of being. Small is better when SHE'd.



Law 2

ORGANIZE

Organization makes a system of many appear fewer.