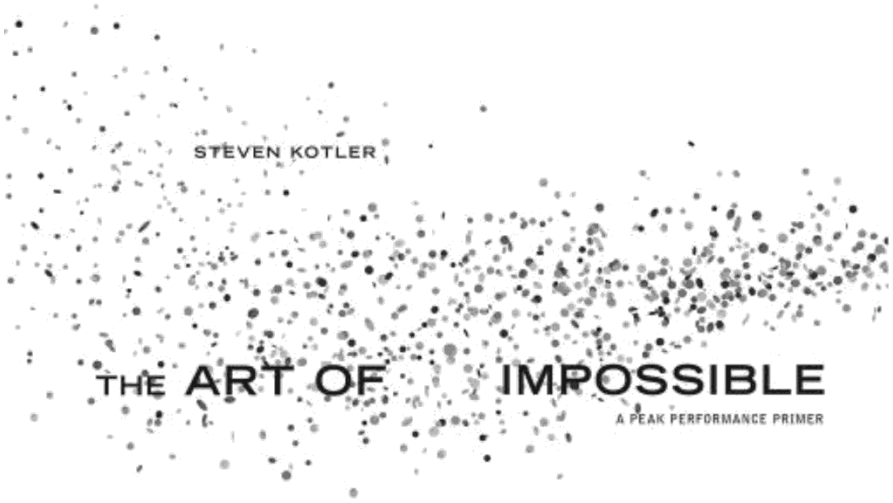

STEVEN KOTLER

THE ART OF IMPOSSIBLE

A PEAK PERFORMANCE PRIMER

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EXTREME INNOVATION

This is a book about what it takes to do the impossible. In a very real sense, it's a practical playbook for impractical people. It's designed specifically for those of us with completely irrational standards for our own performance and totally unreasonable expectations for our lives.

Definitions are helpful.

Impossible, as I'm using the word here, is a kind of extreme innovation. Those who tackle the impossible are not just innovating in matter but also in mind. As a category, impossible is all the stuff that has never been done before and, most believe, will never be done. These are the feats that exceed both our capabilities and our imagination. They lie beyond our wildest dreams in the most literal sense. Paradigm-shifting breakthroughs. Four-minute miles. Moonshots. Call this category capital *I* Impossible.

But there's also a lowercase *i* impossible. The same rules apply, as this is still the stuff beyond our capabilities and our imagination, just on a different scale. Lowercase *i* impossibles are those things that we believe are impossible for us. They're the feats that no one, including ourselves, at least for a while, ever

imagined we'd be capable of accomplishing.

Growing up in Cleveland, Ohio, my desire to become a writer was a lowercase *i* impossible. Other than putting pen to paper on a daily basis, I had no clue how to proceed. I didn't know any writers. I didn't know anyone who even wanted to be a writer. There was no discernible path from A to B. No internet, few books, no one to ask. It was my own private impossible.

Along these lines, figuring out how to get paid to do what you love is another lowercase *i* impossible. As is rising out of poverty; overcoming deep trauma; becoming a successful entrepreneur, CEO, artist, musician, comedian, or athlete, or generally world-class at what you do. What's the common thread among these accomplishments? There is no clear path between points and, statistically, very poor odds of success.

Yet, there's no secret secret. After decades spent researching this subject and training people to overcome those odds, I've repeatedly learned the same lesson: if you devote your life to accomplishing lowercase *i* impossibles, you can sometimes end up accomplishing a capital *I* impossible along the way.

So while this is a book based on lessons learned from people who have accomplished capital *I* Impossible, it's meant to be used by anyone interested in accomplishing lowercase *i* impossibles. That said, lowercase *i* impossible is probably not for everyone.

There's a substantial difference between personal improvement and stalking the impossible. The latter can be significantly more dangerous and a lot less fun. As far as I can tell, the only thing more difficult than the emotional toil of pursuing true excellence is the emotional toil of not pursuing true excellence. And, to be clear, this isn't a book about happy or sad. There are plenty of other books that cover those topics but, for our purposes, happy or sad is just what happens on the way to accomplishing the impossible or not accomplishing the impossible. *More meaningful* does not typically mean *more pleasant*.

I learned this the hard way.

I came to the question of what it takes to do the impossible through the door of journalism. I became a journalist in the early 1990s. At the time, action and adventure sports—skiing, surfing, snowboarding, skydiving, rock climbing, and the like—were just beginning to capture the public's eye. The X Games were getting under way, the Gravity Games as well. And the national media was becoming interested in this story.

But, back then, there weren't that many journalists who knew much about these sports. This meant, if you could write and surf, or write and ski, or write and rock climb, there was work. For certain, I couldn't do any of those things very well, but I was drawn to these sports and desperate for work. So I lied to my editors and was lucky enough to spend the better portion of the next ten years chasing professional athletes around mountains and across oceans.

As it happens, if you're not a professional athlete, and you spend all your time chasing professional athletes around mountains and across oceans, you're going to break things. I broke a lot of things. Two shattered thumbs, two broken collarbones, three torn rotator cuffs, four broken ribs, both of my arms, my wrist into six pieces, each of my patellas, sixty-five fractures in my legs, my tailbone, my ego.

As I said, chasing the impossible has a cost.

But what did all of this brokenness add up to in the real world? Time off. What would happen: I'd be hanging out, snap this or that, then be forced onto the couch for a few months. But when I returned, the progress I saw was eye-popping. It was amazing. And it didn't make any sense.

Feats that were, three months earlier, considered absolutely impossible—never been done, never gonna be done—were not just being done, they were being iterated upon. "It was brain-scrambling," explains snowboarding legend Jeremy Jones.[1] "Things that were impossible in the morning were possible by the

evening. Literally. Rules that were adhered to vehemently, rules that had been in place since the beginning of [action] sports, rules like don't do this because you'll die, were changing on a daily, sometimes hourly, basis."

Surfing, for example, is an ancient activity, dating back over a thousand years. During most of that time, progress was exceptionally slow. In the millennium between the fourth century AD, when the sport was first invented, and 1996, the biggest wave anyone had ever surfed was twenty-five feet.[2] Everything above that was considered beyond the realm of human possibility. Many people thought the laws of physics prohibited surfers from paddling into waves larger than twenty-five feet.[3] Yet, today, just two and a half decades later, surfers routinely paddle into waves that are sixty feet tall and tow into waves that are over a hundred feet tall.[4]

At the start of this book, when I described the impossible as a form of *extreme innovation*, this is exactly what I meant. And when I saw this much extreme innovation pouring out of surfing and nearly every other action sport, this definitely caught my attention—but not just for the obvious reasons.

Sure, these athletes were routinely accomplishing the impossible and, absolutely, this demanded an explanation. But, more important: it was *these* athletes.

In the early 1990s, action and adventure sports athletes were an exceptionally rowdy bunch without many natural advantages. Almost all of the people I knew came from extremely difficult backgrounds. A great many came from broken homes. They had rough childhoods. They had very little education. They had almost no money. Yet, here they were, on a stunningly regular basis, stampeding their way through the impossible and, in the process, redefining the limits of our species.

"Journalism," one of my old editors liked to say, "is the

greatest job in the world because you occasionally find yourself in bed with history—and it gets pretty weird up close."

This was one of those times.

It is nearly impossible to describe what it felt like to be hanging out with your friends—you know, the ones you went out with last night, the ones who did eleven shots of tequila, smoked an ounce of weed, dropped acid, built a giant ski jump against the side of an old school bus parked in the back of the ski area parking lot, poured large quantities of gasoline over the bus, lit that sucker on fire, clicked into their skis, used somebody's old Chevy pickup to tow each other across that icy parking lot and into the jump at speeds above fifty miles per hour in an effort to win the five dollars that someone put up for the person who could throw the best naked backflip over the inferno—because, you know, making rent's not easy in a ski town.

And the next day, those same friends would head into the mountains and do something that for all of recorded history had never been done and that nobody believed ever would be done. "This is magic," wrote Thomas Pynchon.[5] "Sure—but not necessarily fantasy."

I needed to understand why this was happening, how this was happening, and—possibly without the burning school buses—if it could happen for me or you. In other words, I was desperate for the formula. I was also pretty convinced there was a formula. And I felt this way because, even though these feats were mind-bending, this wasn't the first time my mind had been bent.

MY LITTLE BROTHER WASN'T MAGIC

The first time I saw the impossible I was nine years old. This was 1976, the year of the Bicentennial, and the purveyor of impossible was my younger brother. He was seven.

It was late afternoon. My brother had come home from a friend's house, said hello to Mom, and produced a bright red sponge ball from the pocket of his mud-spattered jeans. It was about an inch in diameter and the color of a fire truck.

Holding the ball in the fingertips of his right hand, he calmly placed it in his left, balled his fist around it, and held up the now-closed appendage for all to see. Someone—maybe me, maybe Mom—was asked to blow on it. Mom did the honors. And then my brother opened his fingers and blew my mind. The ball was gone. I mean poof. Gone.

My brother, I was pretty sure, had just done the impossible.

Now, of course, for many, a vanishing sponge ball isn't that neat of a trick. But I was nine years old and had never seen prestidigitation before. Under these conditions, "Now you see it, now you don't" was a truly baffling experience.

And baffling on two fronts.

First, the obvious: that damn ball was gone. Second, the slightly less obvious: my little brother wasn't magic.

Of this, I was certain. In our seven overlapping years of coexistence, nothing he'd yet done defied the laws of physics. There had been no accidental levitations and no one, when Dad's favorite coffee cup went missing, accused my brother of teleporting it to other dimensions. So even though he'd accomplished the impossible, if my brother wasn't magic, there had to be an explanation. Perhaps a skill set. Maybe a process.

This was a startling realization. It meant that impossible had a formula. And more than anything I had ever wanted, I wanted to know that formula. Which explains a great deal about what happened next. . . .

I started studying prestidigitation. Card tricks, coin tricks, even those damn sponge balls. By the time I was eleven, I was essentially living at Pandora's Box, the local magic shop. And I saw plenty of impossible at Pandora's Box.

Back in the 1970s, magic was having a heyday. Top magicians would routinely go on tour and, for reasons beyond my understanding, stop in Cleveland, Ohio—which is where all this went down. This was ridiculous good luck. It meant that, sooner or later, everybody who was anybody in that world made their way to my world. As a result, I got to see the impossible, up close and all the time.

The major lesson of those years was that, no matter how mind-bendingly improbable a trick looked on the front end, there was always an understandable logic on the back end. The impossible always had a formula and—the weirder part—if I applied myself, sometimes I could learn that formula. As one of my first mentors in magic liked to say: "Very little is impossible with ten years' practice."

This same mentor liked to point out that history is littered with the impossible. Our past is a graveyard for ideas that have held this title. Human flight is an ancient dream. It took us five thousand years to go from the first winged human cave drawing to the Wright brothers putting their Kitty Hawk launch into the record books—yet we didn't stop there. Next it was transatlantic flight, then space flight, then the first lunar landing. In each case, impossible became possible because someone figured out the formula. "Sure," said my mentor, "if you don't know the formula, it looks like magic. But now you know better."

One way or another, these ideas never left me.

Thus, when action sports athletes started performing impossible feats on a regular basis, I assumed there was a formula. I also assumed it was learnable. Of course, I paid for this assumption in broken bones and hospital bills. In fact, long before I figured out how these athletes were pulling off the impossible, I came to the sobering realization that if I didn't stop chasing these athletes around while trying to figure out how they were pulling off the impossible, I wasn't going to live very long.

So I took my obsession with this question into other domains. In the arts, sciences, technology, culture, business—pretty much every area imaginable—I went hunting for the formula. What does it take for individuals, organizations, even institutions, to significantly level up their game? What does it take to achieve paradigm-shifting breakthroughs? And, in a phrase, if we can get past the hyperbole and unearth the practicality, what does it take to accomplish the impossible?

The answers I've uncovered have been the fodder for most of my books. *Tomorrowland* was the result of a two-decade investigation into those maverick innovators who turned science fiction ideas into science fact technology, the ones who accomplished that ultimate impossible—they dreamed up the future.[6] In *Bold*, I examined upstart entrepreneurs like Elon Musk, Larry Page, Jeff Bezos, and Richard Branson, people who created impossible business empires in nearly record times, and often in domains where no one believed you could even start a business.[7] *Abundance* was about individuals and small groups tackling and solving impossible global challenges such as poverty, hunger, and water scarcity, challenges so big that just a decade earlier they'd been the sole province of large corporations and big governments.[8] And on and on.

What did I learn in all of that work? The same lesson I learned doing magic. Whenever the impossible becomes possible, there's always a formula.

Again, definitions are helpful.

I'm using the term *formula* in the same way that computer scientists talk about *algorithms*, as a sequence of steps that anyone can follow to get consistent results. And while the rest of this book is dedicated to the details of this formula, there are a couple of key questions that are worth answering up front.

Why is there a formula for impossible—that's the first question we must address.

Biology is the answer.

As humans, we have all been shaped by eons of evolution. As a result, we share the same basic machinery. At the Flow Research Collective, we study the neurobiology of human peak performance. Neurobiology is the structure and function of the nervous system—meaning the parts of the nervous system, including the brain, how those parts work, and how they work together.[9] In other words, at the Collective, we study the human nervous system when it's functioning at its absolute best. Then, we take what we've learned and use it to train a wide variety of people, from members of the US special forces to executives at Fortune 100 companies to the general public. Yet, because our trainings are based on neurobiology, they work for everyone.

Put differently, at the Collective, we have a saying: "Personality doesn't scale. Biology scales." What we mean is, in the field of peak performance, too often, someone figures out what works for them and then assumes it will work for others. It rarely does.

More often, it backfires.

The issue is that personality is extremely individual. Traits that play a critical role in peak performance—such as your risk tolerance or where you land on the introversion-to-extroversion scale—are genetically coded, neurobiologically hardwired, and difficult to change. Add in all the possible environmental influences that come from variations in cultural background, financial means, and social status, and the problem compounds. For all these reasons, what works for me is almost guaranteed not to work for you.

Personality doesn't scale.

Biology, on the other hand, scales. It is the very thing designed

by evolution to work for everyone. And this tells us something important about decoding the impossible: if we can get below the level of personality, beneath the squishy and often subjective psychology of peak performance, and decode the foundational neurobiology, then we unearth mechanism. Basic biological mechanism. Shaped by evolution, present in most mammals and all humans.

And this leads us to the next question: What's the biological formula for the impossible?

The answer is flow.

Flow is defined as "an optimal state of consciousness where we feel our best and perform our best."[10] It is the state created by evolution to enable peak performance. This is why, in every domain, whenever the impossible becomes possible, flow always plays a starring role. The neurobiology of flow is the mechanism beneath the art of impossible.

Of course, describing flow as an "optimal state of consciousness" doesn't get us very far. More specifically, the term refers to those moments of rapt attention and total absorption when you get so focused on the task at hand that everything else disappears. Action and awareness merge. Your sense of self vanishes. Time passes strangely. And performance—performance just soars.

Flow's impact on both our physical and our mental abilities is considerable.[11] On the physical side, strength, endurance, and muscle reaction times all significantly increase while our sense of pain, exertion, and exhaustion all significantly decrease.

Yet the bigger impacts are cognitive. Motivation and productivity, creativity and innovation, learning and memory, empathy and environmental awareness, and cooperation and collaboration all skyrocket—in some studies as high as 500 percent above baseline.

And this brings us to our final question: Why would evolution create a state of consciousness that amplifies all of these particular skills?

Evolution shaped the brain to enable survival. But evolution itself is driven forward by the availability of resources. Scarcity of resources is always the largest threat to our survival, making it the largest driver of evolution. And there are only two possible responses to this threat. You can fight over dwindling resources, or you can go exploring, get creative, innovative, and cooperative, and make new resources.

This is what explains the skills that flow amplifies. This wide variety turns out to be everything you need to fight, flee, explore, or innovate. And since impossible is a form of extreme innovation, this explains why the state is always present when the impossible becomes possible. It's tautological. Flow is to extreme innovation what oxygen is to breathing—simply the biology of how it gets done.

Yet, this is a story I've explored elsewhere.

And while this primer will definitely expand on that work, its main purpose is to unpack an equally crucial idea: when it comes to tackling the impossible, flow is necessary but not sufficient.

Pulling off the impossible—or, for that matter, significantly leveling up your own game—absolutely requires flow, but it also requires training up many of the same skills that flow amplifies: motivation, learning, and creativity. This may seem confusing, even contradictory, but the road toward impossible is long, and there will be lengthy stretches that we need to navigate without flow. What's more, to handle the massive amplification the state provides, we need an exceptionally stable foundation. A car that hits a wall at ten miles per hour will dent a fender. Hit that same wall at a hundred miles per hour, and it's a hell of a lot more than a fender that's dented. The same is true for flow.

For these reasons and more, we're going to spend the rest of

this book exploring a quartet of cognitive abilities—*motivation*, *learning*, *creativity*, and *flow*. We'll come to understand why these skills are so crucial to peak performance. We'll see how they work in the brain and the body. And we'll use this information to significantly accelerate ourselves down the path toward impossible. But before we do any of this, it's worth considering these same skills from a slightly more philosophical perspective.

THE HABIT OF INFERIORITY

The philosopher James Carse uses the terms "finite games" and "infinite games" to describe the main ways we live and play here on Earth.[12] A finite game is just that—finite. It has a finite number of options and players, clearly defined winners and losers, and an established set of rules. This is chess or checkers, for sure, but it's also politics, sports, and war.

Infinite games are the opposite. They have no clear winners or losers, no established time frame for play, and no fixed rules. In infinite games, the field of play is mutable, the number of participants keeps changing, and the only goal is to keep on playing. Art, science, and love are infinite games. Most important: so is peak performance.

Peak performance isn't something we win. There are no fixed rules, no established time frame for the contest, and the field of play is as big or as small as you choose to live your life. Instead, peak performance is an infinite game—but not quite.

Peak performance is an unusual kind of infinite game. It may be unwinnable, but you can definitely lose. The brilliant Harvard psychologist William James explained it like this: "The human individual lives usually far within his limits; he possesses powers of various sorts which he habitually fails to use. He energizes below his maximum, and he behaves below his optimum. In

elementary faculty, in coordination, in power of inhibition and control, in every conceivable way, his life is contracted like the field of vision of an hysteric subject—but with less excuse, for the poor hysteric is diseased, while in the rest of us, it is only an inveterate habit—the habit of inferiority to our full self—that is bad."[13]

James's point is that the reason we're not living up to our potential is that we're not in the habit of living up to our potential. We've automatized the wrong processes. We're playing the wrong game. And it's bad.

James penned those words in the late 1800s, in the very first psychological textbook ever published. The more modern version belongs to the screenwriter Charlie Kaufman and the opening lines of the 2002 film *Confessions of a Dangerous Mind*: "When you're young, your potential is infinite. You might do anything, really. You might be Einstein. You might be DiMaggio. Then you get to an age when what you might be gives way to what you have been. You weren't Einstein. You weren't anything. That's a bad moment."[14]

What do we know for sure?

You get one shot at this life, and you're going to spend one-third of it asleep. So what do you choose to do with the remaining two-thirds? That is the only question that matters.

Does this mean you lose the infinite game if you're not a paradigm-shifting physicist or a record-breaking ballplayer? No. It means you lose by not trying to play full out, by not trying to do the impossible—whatever that is for you.

We are all capable of so much more than we know. This is the main lesson a lifetime in peak performance has taught me. Each of us, right here, right now, contains the possibility of extraordinary. Yet, this extraordinary capability is an emergent property, one that only arises when we push ourselves toward the edge of our abilities. Far beyond our comfort zone, that's where we find out

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