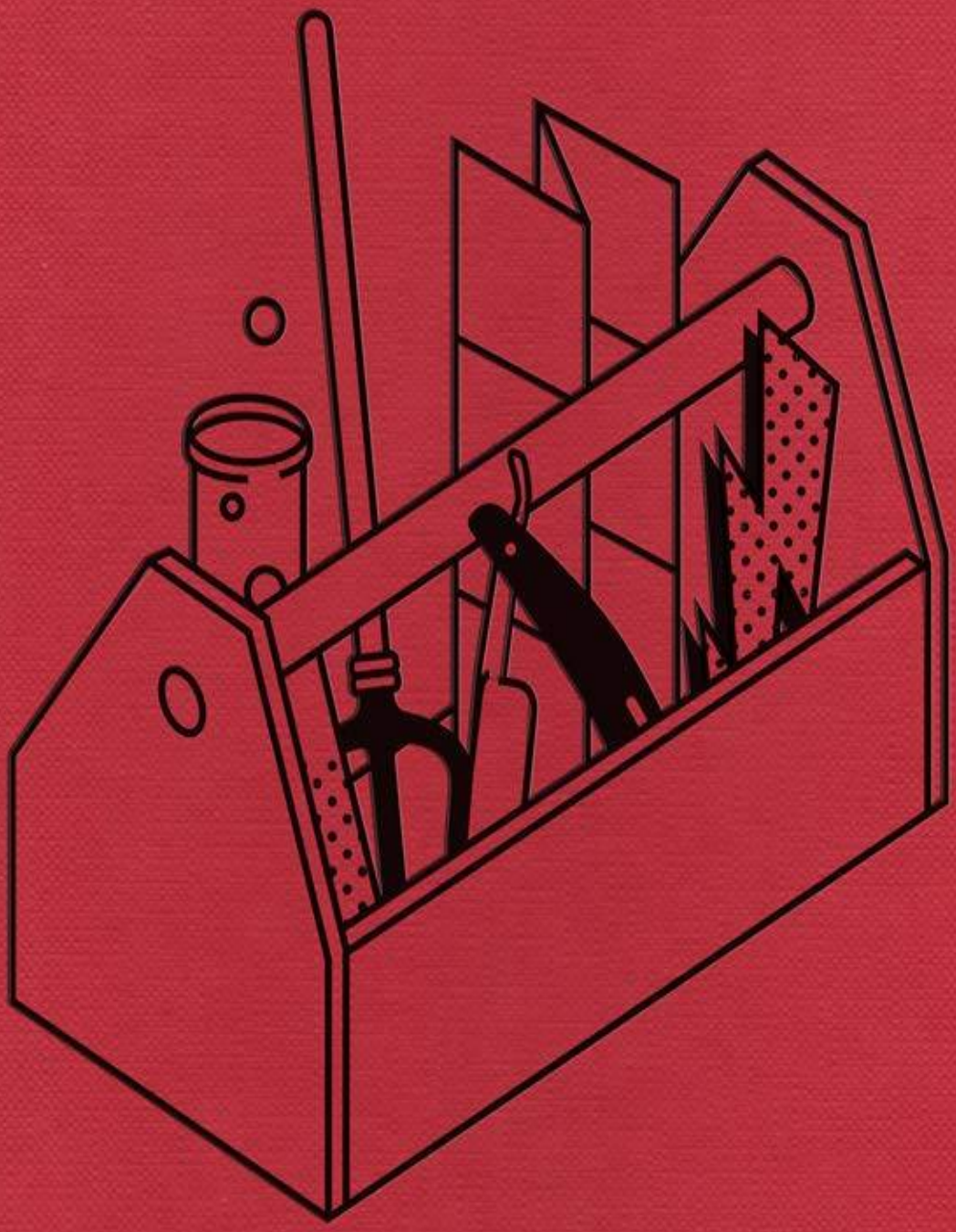
The Great Mental Models

Vol.1



General Thinking Concepts

Farnam Street

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Farnam Street

Farnam Street is devoted to helping you develop an understanding of how the world really works, make better decisions, and live a better life. We address such topics as mental models, decision-making, learning, reading, and the art of living.

In a world full of noise, Farnam Street is a place where you can step back and think about time-tested ideas while asking yourself questions that lead to meaningful understanding. We cover ideas from science and the humanities that will not only expand your intellectual horizons but also help you connect ideas, think in multidisciplinary ways, and explore meaning.

Headquartered in Ottawa, Canada, and run by Shane Parrish, we operate around the globe and have helped millions of people master the best of what other people have already figured out.

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The quality of your thinking depends on the models that are in your head.

This is a statement we strongly believe in at Farnam Street. This conviction drives much of what we do.

When you learn to see the world as it is, and not as you want it to be, everything changes. The solution to any problem becomes more apparent when you can view it through more than one lens. You'll be able to spot opportunities you couldn't see before, avoid costly mistakes that may be holding you back, and begin to make meaningful progress in your life.

That's the power of mental models. And that's why we created the Great Mental Models project.

The Great Mental Models Project is a labor of love to help equalize opportunity in the world by making a high-quality, multidisciplinary, interconnected education free and available to everyone. That's a big ambition. To get there, we're starting with five reference books that cover core mental models from major disciplines: Biology, Physics, Chemistry, Economics, Systems and more. We have gathered these timeless individual ideas into a coherent whole.

Along with the books, we're developing additional tools and resources to help readers more readily connect the models in their heads, so their use becomes second nature. By purchasing this book, you make it possible for us to continue our efforts and see this initiative through to completion. We're grateful for your support. If you'd like to learn more about the Great Mental Models project, please visit FS.blog/tgmm

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While every effort has been made to contact copyright holders, if we have overlooked anything please let us know. This book wouldn’t be possible without the insights of others. The goal of FS is to master the best of what other people have figured out. True to this mission, everything in here began with someone else.

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The Great Mental Models Vol.1

General Thinking Concepts

Contents

Preface

Acquiring Wisdom

General Thinking Concepts:

The Map is not the Territory

Circle of Competence

First Principles Thinking

Thought Experiment

Second-Order Thinking

Probabilistic Thinking

Inversion

Occam’s Razor

Hanlon’s Razor

Supporting Ideas:

Falsifiability

Necessity and Sufficiency

Causation vs. Correlation

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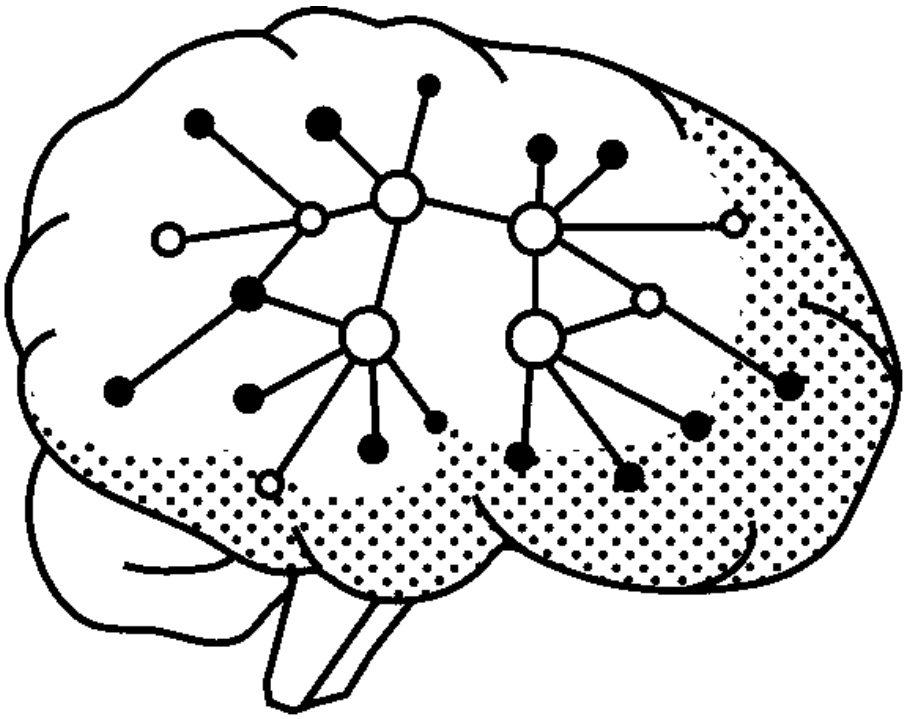

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The key to better understanding the world is to build a latticework of mental models.

The People Who Appear in the Preface

Munger, Charlie (Charles),
1924 - American investor, businessman and philanthropist. Vice-Chairman of Berkshire Hathaway. Avid proponent that elementary, worldly wisdom and high ethical standards are required in business.

Buffett, Warren,
1930 - American investor, businessman and philanthropist. Chairman and CEO of Berkshire Hathaway. Often referred to as “the Oracle of Omaha”, he is considered one of the most successful investors in the world.

Preface

Education doesn't prepare you for the real world. At least, it didn't prepare me. I was two weeks into my job at an intelligence agency on September 11, 2001 when the world suddenly changed. The job I had been hired to do was no longer the one that was needed. I had a computer science degree; I came from a world of 1s and 0s, not people, families, and interpersonal dynamics. I was thrust into a series of promotions for which I had received no guidance, that came with responsibilities I had no idea how to navigate. Now I found that my decisions affected not only my employees but their families. Not only my country, but other countries. The only problem? I had no idea how to make decisions. I only knew I had an obligation to make the best decisions I could.

To improve my ability to make decisions, I looked around and found some mentors. I watched them carefully and learned from them. I read everything I could about making decisions. I even took some time off work to go back to school and earn my MBA, hoping that I would finally learn how to make better decisions, as if that was some end state rather than a constantly evolving journey.

My belief that the MBA program was a good use of my time was eroded fairly quickly. When I showed up to write an exam only to find out it was an open book test, I realized my expectations were entirely wrong and in need of updating. Was I in a master's program or grade school? Some days, I couldn't tell. And yet that is where everything changed for me.

I realized that I couldn't fail as long as I knew where the answers were in the books I could bring to the exams. This was actually quite liberating. I stopped putting effort into my assignments and started learning about someone who was casually mentioned in class. That person was Charlie Munger. I went from theoretical examples that were completely divorced from the real world, to the wisdom behind the achievements of one of the most successful businessmen of all time.

Munger, who you will come to know in these volumes, is the billionaire business partner of Warren Buffett at Berkshire Hathaway. He's easy to like: intelligent, witty, and irreverent. Finding Munger opened the door to unexpected intellectual pleasure. I felt like I had finally found knowledge that was useful because it was gained from someone's real effort to better understand how the world works. It was so much more satisfying to learn from someone who had tried to put many theories into practice and was willing to share his results. The fact that Munger was so professionally successful made it all the more compelling.

Munger has a way of thinking through problems using what he calls a broad latticework of mental models. These are chunks of knowledge from different disciplines that can be simplified and applied to better understand the world. The way he describes it, they help identify what information is relevant in any given situation, and the most reasonable parameters to work in. His track record shows that this doesn't just make sense in theory but is devastatingly useful in practice. I started writing about my learnings, the result being the website fs.blog. The last eight years of my life have been devoted to identifying and learning the mental models that have the greatest positive impact, and trying to understand how we think, how we update, how we learn, and how we can make better decisions.

I joke with my kids that if you want to suck up someone's brain, you should simply read a book. All the great wisdom of humanity is written down somewhere. When we were talking about mental models one day the kids asked if we had *the* mental models book. This made me pause, and I was struck with the realization that such a book didn't exist. I didn't have something I could share with my kids, and that was a problem. A very solvable problem.

This book, and the volumes which will follow, are the books I wish had existed years ago when I started learning about mental models. These are my homage to the idea that we can benefit from understanding how the world works and applying that understanding to keep us out of trouble.

The ideas in these volumes are not my own, nor do I deserve any

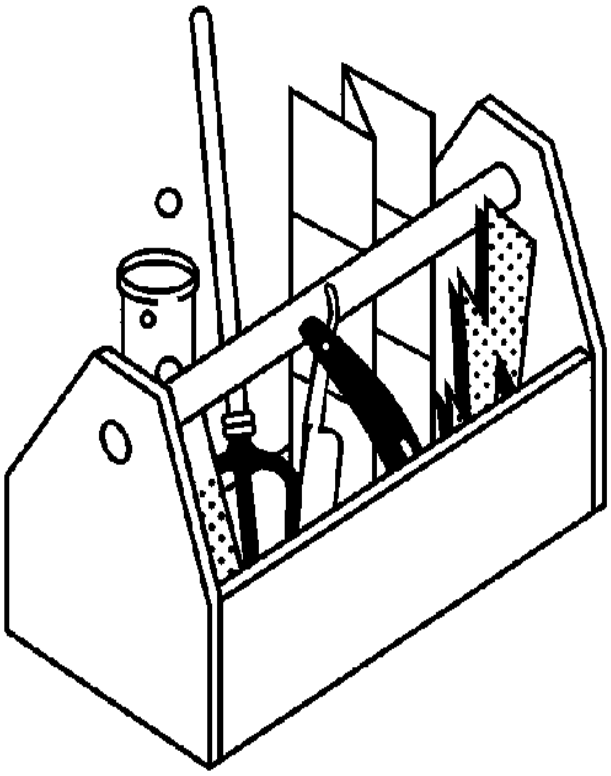
credit for them. They come from the likes of Charlie Munger, Nassim Taleb, Charles Darwin, Peter Kaufman, Peter Bevelin, Richard Feynman, Albert Einstein, and so many others. As the Roman poet Publius Terentius wrote: “Nothing has yet been said that’s not been said before.” I’ve only curated, edited, and shaped the work of others before me.

The timeless, broad ideas in these volumes are for my children and their children and their children’s children. In creating them, I hope to allow others to approach problems with clarity and confidence, helping to make their journey through life more successful and rewarding.

« You only think you know, as a matter of fact. And most of your actions are based on incomplete knowledge and you really don’t know what it is all about, or what the purpose of the world is, or know a great deal of other things. It is possible to live and not know. »

Richard Feynman [1]

Acquiring Wisdom



You're only as good as your tools.

I believe in the discipline of mastering the best of what other people have figured out.

Charlie Munger[1]

The People Who Appear in this Chapter

Galilei, Galileo.
1564-1642 - Italian polymath. He made significant contributions to astronomy, physics, and engineering and is thought of by many as the father of modern science. His brilliance continues to inspire and references to him can be found in many places, including songs by Queen and the Indigo Girls.

Introduction: Acquiring Wisdom

In life and business, the person with the fewest blind spots wins. Removing blind spots means we see, interact with, and move closer to understanding reality. We think better. And thinking better is about finding simple processes that help us work through problems from multiple dimensions and perspectives, allowing us to better choose solutions that fit what matters to us. The skill for finding the right solutions for the right problems is one form of wisdom.

This book is about the pursuit of that wisdom, the pursuit of uncovering how things work, the pursuit of going to bed smarter than when we woke up. It is a book about getting out of our own way so we can understand how the world really is. Decisions based on improved understanding will be better than ones based on ignorance. While we can't predict which problems will inevitably crop up in life, we can learn time-tested ideas that help us prepare for whatever the world throws at us.

Perhaps more importantly, this book is about *avoiding* problems. This often comes down to understanding a problem accurately and seeing the secondary and subsequent consequences of any proposed action. The author and explorer of mental models, Peter Bevelin, put it best: "I don't want to be a great problem solver. I want to avoid problems—prevent them from happening and doing it right from the beginning." [2]

How can we do things right from the beginning?

We must understand how the world works and adjust our behavior accordingly. Contrary to what we're led to believe, thinking better isn't about being a genius. It is about the processes we use to uncover reality and the choices we make once we do.

How this book can help you

This is the first of a series of volumes aimed at defining and exploring the Great Mental Models—those that have the broadest utility across our lives. Mental models describe the way the world works. They shape how we

think, how we understand, and how we form beliefs. Largely subconscious, mental models operate below the surface. We're not generally aware of them and yet they're the reason when we look at a problem we consider some factors relevant and others irrelevant. They are how we infer causality, match patterns, and draw analogies. They are how we think and reason.

A mental model is simply a representation of how something works. We cannot keep all of the details of the world in our brains, so we use models to simplify the complex into understandable and organizable chunks. Whether we realize it or not, we then use these models every day to think, decide, and understand our world. While there are millions of mental models, some true and some false, these volumes will focus on the ones with the greatest utility—the all-star team of mental models.

Volume One presents the first nine models, general thinking concepts. Although these models are hiding in plain sight, they are useful tools that you were likely never directly taught. Put to proper use, they will improve your understanding of the world we live in and improve your ability to look at a situation through different lenses, each of which reveals a different layer. They can be used in a wide variety of situations and are essential to making rational decisions, even when there is no clear path. Collectively they will allow you to walk around any problem in a three-dimensional way.

Our approach to the Great Mental Models rests on the idea that the fundamentals of knowledge are available to everyone. There is no discipline that is off limits—the core ideas from all fields of study contain principles that reveal how the universe works, and are therefore essential to navigating it. Our models come from fundamental disciplines that most of us have never studied, but no prior knowledge is required—only a sharp mind with a desire to learn.

Why mental models?

There is no system that can prepare us for all risks. Factors of chance introduce a level of complexity that is not entirely predictable. But being

able to draw on a repertoire of mental models can help us minimize risk by understanding the forces that are at play. Likely consequences don't have to be a mystery.

Not having the ability to shift perspective by applying knowledge from multiple disciplines makes us vulnerable. Mistakes can become catastrophes whose effects keep compounding, creating stress and limiting our choices. Multidisciplinary thinking, learning these mental models and applying them across our lives, creates less stress and more freedom. The more we can draw on the diverse knowledge contained in these models, the more solutions will present themselves.

Understanding reality

Understanding reality is a vague phrase, one you've already encountered as you've read this book. Of course we want to understand reality, but how? And why is it important?

In order to see a problem for what it is, we must first break it down into its substantive parts so the interconnections can reveal themselves. This bottom-up perspective allows us to expose what we believe to be the causal relationships and how they will govern the situation both now and in the future. Being able to accurately describe the full scope of a situation is the first step to understanding it.

Using the lenses of our mental models helps us illuminate these interconnections. The more lenses used on a given problem, the more of reality reveals itself. The more of reality we see, the more we understand. The more we understand, the more we know what to do.