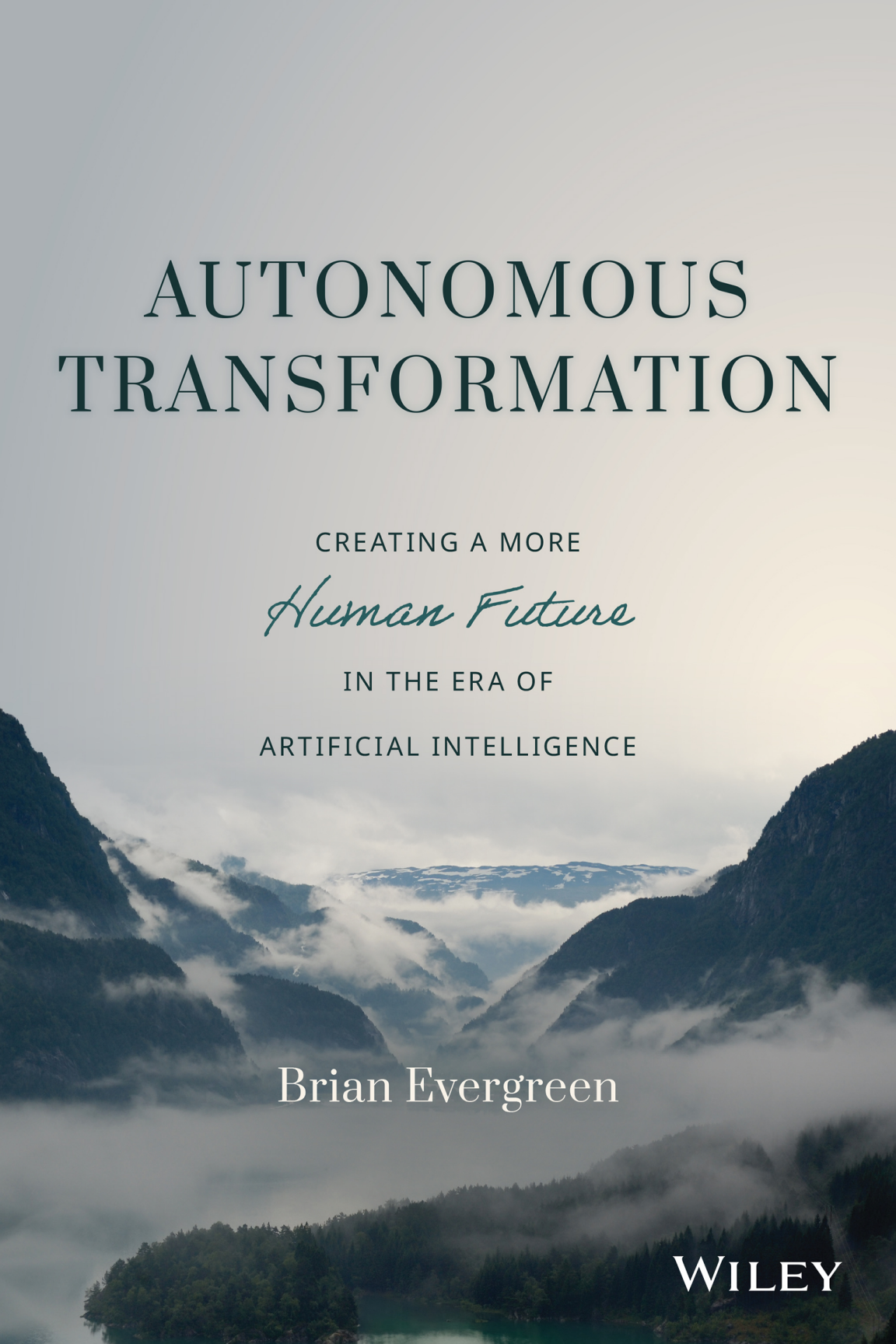
AUTONOMOUS TRANSFORMATION

CREATING A MORE

Human Future

IN THE ERA OF

ARTIFICIAL INTELLIGENCE



Brian Evergreen

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Published by John Wiley & Sons, Inc., Hoboken, New Jersey.
Published simultaneously in Canada.

Library of Congress Cataloging-in-Publication Data is Available:

ISBN 9781119985297 (Cloth)
ISBN 9781119985310 (ePDF)
ISBN 9781119985303 (epub)

Cover Design: Wiley
Cover Image: © Dmitry Vinogradov/Shutterstock
Author photo: © Marissa Siebert

For Audrey—you are all the gardens I have ever gazed at, longing.
For Leo, my golden sun and the brightest morning.
For Aila, my moon and stars.

CONTENTS

Introduction: We Can Create a More Human Future

Since the invention of the Internet, technology has been one of, if not the most powerful change agent in existence. We have all borne witness to the changes, for better and for worse, that technology has had on society, our nations, our cities, the nature of work, and the human experience. In the era of artificial intelligence, together with its adjacent technologies, the rate of change is accelerating, and the impacts are yet to be determined.

This is a book for people who want to create a better future within this context of change. Some may have picked up this book hoping it will answer the question of why so few artificial intelligence initiatives succeed and provide a better way. Others may be interested in creating a better future for the front-line workers in their organization through the implementation of technology, empowering them with the latest tools and technologies, improving the experience of their work, and increasing job security and compensation. Others may be looking to lead a full-scale Autonomous Transformation across their organization to reimagine their organization's function in the broader market and communities they serve and are intrigued at the seemingly counterintuitive prospect of creating a more human future through the implementation of the latest technologies. Others may be starting their career or still trying to determine the right career trajectory, and hope this book can inform that process. Others might be reading this book to learn more about a loved one who works in technology or because they find technology interesting and want to hear about what shape the future might take.

If you are looking at this book for any of those reasons, you are in the right place. The principles, frameworks, and methods in these pages have been designed from experience across industries and geographies and at the highest levels of organizations, sharpened and given color through discussions and stories shared by leaders across the private and public sectors, academia, and research institutes as means of directing purposeful change in the face of technological upheavals in the context of systems that were built to be maintained—not changed (more on that later).

This journey began with a series of questions: Why do only 13% of data science initiatives make it into production?[1] Why do domain experts, technologists, and business leaders seem to be consistently embattled internally when they share common goals? Does that have anything to do with the social divides in society? If corporate leaders are greedy capitalists, why are so many trying to make the world a better place? And why are so many of those efforts and investments failing? Everyone keeps talking about machines taking jobs; is that happening? If so, where and how should we react as leaders and as a society? If not, why is it such a key theme discussed in our culture?

The answers to these questions led to more questions but also a thread of seemingly disconnected answers, which I pulled as hard as I could, like the thread of a sweater. This book is a collection of what I found in the unravelings, combined with my own experience leading and advising Digital Transformation initiatives for some of the world's most valuable companies and trying to solve systemic challenges together, using the best and latest technologies paired with immense resources. I have translated these findings into the principles, frameworks, and methods with which organizational leaders can create a more human future in this era of change.

What Is a More Human Future?

If this book succeeds in its aim of equipping you with the process by which you might influence or even create the future in the context of technological upheaval, there remains the question of what future you will create.

If your goal is similar to mine, in that you want to create a more human future and have a positive impact on humanity or even simply on the humans around you, it will be important to start with a shared understanding and definition of what a more human future could look like and what kind of future impacts would be positive for humankind so that you can communicate that goal effectively with others and measure your impacts against that goal.

This definition will inevitably vary across geographic and cultural backgrounds, but the following posits a starting point from which individuals or organizational leaders can build a vision for their definition of a more human future:

For me, a more human future is one in which future generations have the capability to be safe and healthy, to have access to rich educational experiences, to connect meaningfully with other people from all over the world, to make and purchase ethically sourced goods, to have dignity through both the access and the ability to create value in the world and be compensated fairly, to look forward to the future with hope, to feel empowered to create a better future for their future generations, to delight in the vastness of the

human experience across cultures and history, to deeply understand and feel empowered to make ethical choices without the presence of bias, implicit or otherwise, and to harness their uniquely human potential to do or be or create something that is meaningful to them.

How Do We Create This More Human Future?

In the absence of a design and purposeful direction to create a better, more human future by leaders (like you), technological change will follow the path of the existing systems and processes in the world. The relationship between humans and machines, strained as it is, will become more strained. Work that has been dehumanized will become less human or be replaced entirely by mechanized systems. The most advanced technologies, capable of immense positive impact on the world, will continue to be nearly impossible to implement, and therefore only be available to those who have a significant amount of capital, and then only because its use has been justified as a means of generating more profit. This is not a disparagement of the people who lead the organizations that shape our world and our day-to-day experience; rather, it is pointing at train tracks and suggesting that, without a significant degree of effect and redesign of those tracks, the inbound train will follow the same trajectory, regardless of who is at the helm.

These challenges can be daunting. If any of them were simple to fix, they would already have been resolved. The investments in executives and their teams discussing partnership, brainstorming, and developing charters and proposing initiatives to resolve these challenges that have subsequently not moved forward, paired with the low rate of success for technological initiatives leveraging artificial intelligence and its adjacent emerging technologies, paints a bleak picture.

Fortunately, these challenges can be addressed, with positive impacts to our organizations, the people working within them, the communities they serve and in which they operate, and to society. How? By replacing the way that we approach solving problems.

This is one of the surprising findings that has led to writing this book. Eighty-seven percent of organizational leaders who have applied the best processes (or approaches to solving problems) available to them to implement machine learning, a subdiscipline of artificial intelligence, have been unsuccessful. *The best processes available to them*. We have inherited and optimized processes and systems designed in the Industrial Revolution that have been instrumental in architecting and solving twentieth-century challenges. Unfortunately, however, with the dramatic increase of complexity in the twenty-first century, these processes are no longer effective at leveraging the newest technologies.

These challenges with how we approach technology and the issues we face as a society are more intertwined than would appear at the surface, which will be demonstrated throughout this book. For now, I will share the blueprint this book will endeavor to provide leaders with to create a more human future through the successful implementation of artificial intelligence and the other technologies (Internet of Things, digital twins/simulations, robotics, and mixed reality) that comprise Autonomous Transformation.

The process of Autonomous Transformation to create a more human future is shown in Figure I.1.

Creating a more human future is not a proposed end product or byproduct of this process, nor is it a lofty aspiration. Rather, it is a practical element applied in each step of the above process, as will be examined in each section of the book.

In other words, if you have picked up this book in hopes of finding practical insights about applying artificial intelligence and its connected technologies and think the idea of creating a more human future sounds like, for lack of a better word, "fluff," this is still the book for you, and the important point I want to share with you is that creating a more human future is a practical component of *how* we implement artificial intelligence and its connected technologies—it is not an outcome at the end of the process, but integral to every step, as I will demonstrate throughout the book.

The first component of this is Profitable Good.

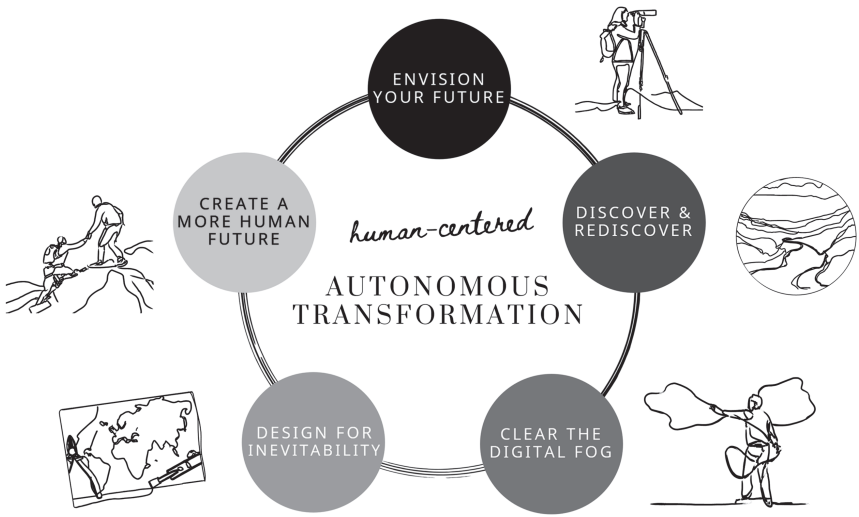

Figure I.1 The Autonomous Transformation Process

What Is Profitable Good?

Profitable Good is an equation: ***Profit + [positive human impact]***.

In this equation, profit retains its standard definition, the net difference between the cost of goods and the price at which goods are sold, and is combined with an outcome that positively impacts the human experience. The following three market signals demonstrate the strategic need for Profitable Good.

1. Talent Preferences

An organization's alignment or misalignment with people's values is affecting not only where they are willing to spend their money, but where they are willing to work. Numerous reports have demonstrated that Generation Z employees will leave an organization when its actions do not align with their values.[2]

In the twenty-first-century talent market, where the Internet has extended both awareness and access of the proliferation of available jobs, required skills, and even the ability to directly connect with people working at those companies, the ability to be more effective in hiring and retaining competitive talent is essential, and among the most effective strategies for accomplishing this is creating a dynamic where the fundamental accrual of employees' work aligns with their values.

2. Market Preference (e.g., doing good has become an economic force)

According to a recent Ernst & Young survey, 90% of global institutional investors revise investments if companies do not at least consider environmental or social responsibility within their business model.[3]

Many individuals use their spending power as a means of holding companies accountable for poor corporate practices related to these causes, while nearly half of all consumers in the United States have boycotted a company whose actions they deemed detrimental to society. Conversely, buyers also choose to reward businesses they believe are doing social or environmental good, as evidenced by a recent finding that revenue from sustainable products is growing at six times the rate of other products.[4,5]

3. Strategic Partner Preference

More and more, organizations are seeing the benefit of developing an ecosystem of strong partners, honing their core competencies, and aligning with

organizations that share the same goals. Partnerships can be formed on the basis of shared goals that are merely fiscal or focused on market–product fit, but the longevity and depth of partnerships based on goals aligned to the values of leaders and of the organizational cultures that attracted talent to those organizations in the first place are much more likely to last and to thrive.

Profitable Good is more difficult to achieve than profit alone, but will be an important differentiator for organizations in the era of Autonomous Transformation, as 87% of customers would switch from a less socially responsible brand to a more socially responsible competitor. This is evident in the success of The Honest Company, an entrant into a crowded bath, beauty, and home goods market that prices goods at a premium over competitors in exchange for socially responsible sourcing, creation, and sales of their goods. The Honest Company went public in 2021, valued at $1.4 billion.[6]

Practically, if an organization started a new initiative today to use artificial intelligence to reduce cost on the production of a product that is not good for the environment, it would face challenges related to all three of these categories: for example, data scientists (*talent*), who have a broad range of career options due to the imbalance of data scientists to organizations that wish to implement artificial intelligence, are statistically less likely to join or stay with the organization to fulfill the goal of that initiative. Even if that challenge were overcome and the initiative led to implementation and a successful reduction of cost, the outlook of return on investment is low, as increasing market awareness of how products are impacting the environment leads to boycotting products and companies, which could very likely impact this organization and product. Lastly, partnerships from technology companies and consulting firms are actively reviewed through the lens of societal good, from a perspective of both purpose as well as the return on investment, as helping a customer or client reduce cost on a product that is not good for the environment is not something that could be leveraged by the technology or consulting firm's marketing departments to demonstrate the quality of their technology or services and also poses the risk of negative press.

Greed, Profit, and Altruism

The naming convention of Profitable Good raises questions regarding the merit of profit, particularly in the current environment, in which *profit* is used interchangeably, or at least in the same breath, as *greed*.

Profit is not the same thing as altruism, and it is also not the same as greed.

Political economists have been working for years to reimagine our economic systems, but as it stands, the organizations that wield the greatest potential to create a better, more human future are reliant on profit.

This includes not only the obvious, such as for-profit organizations, but also nonprofit organizations, governments, academic institutions, and research institutions—every organization is reliant on profit.

This is admittedly a polarizing statement. In the contemporary global discourse, profit has become synonymous with greed, but incorrectly so. Profit and greed can and do coexist, but they are not the same.

For those who require evidence to support the claim that every organization is reliant on profit: nonprofit organizations are funded, through donations, by for-profit organizations, the people who work for them, and government grants. Governments are funded primarily by taxes and tariffs (e.g., 97% of the United States' federal revenue in 2022),[7] paid by for-profit organizations and people who work for them. Academic institutions are funded largely by governments and by tuition paid for by families who work for for-profit organizations or by nonprofit organizations, which are funded by for-profit organizations, by governmental agencies, which are funded by for-profit organizations and the people who work for them, and so on.

Ergo, if all for-profit organizations and the people who worked for them left the United States overnight, the nation would have a fixed date by which no new initiatives could be funded—no streets would be repaired, no students would be able to attend college, and no new funding would flow into nonprofits or research institutes—not to mention the inevitable shortage of food and goods.

This is a symbiotic interdependency, as without governments, academic institutions, research institutions, or nonprofit organizations, for-profit organizations would not be able to exist or thrive, as they would lack the necessary infrastructure, protection, talent, and underlying technological and scientific breakthroughs, to name a few. This is made evident by an examination of the concentration of successful startups in technology around the world, in which there is a correlation found between the number of successful startups and the governmental and education context in which they are founded.

The technical definition of profit is the net difference between the cost of goods and the price at which goods are sold.

Taxes are included in the cost of goods, so when examining profit through the lens of the function it serves in the broader system, it is the post-tax incentive for creating something deemed valuable enough by someone else that they chose to purchase it at that price.

At the individual level, that incentive can outweigh the risk of starting something new, and is a key driving element for innovation and gainful employment.

At the manager or director level, the ability to contribute more value to the organization than the cost of the team and its spend in a given year can determine whether a team grows or is subject to restructuring or layoffs.

At the organizational level, organizations are like ecosystems, and profit is the water that nourishes the organization. If you remove water from an ecosystem, it will no longer be able to sustain life. Likewise, if an organization is no longer profitable, it will need to either be funded by other organizations that have remained profitable, funded by government bailouts, or it will need to close its doors, eliminating jobs as well as its ability to create value.

Profitable Good, in the context of greed, profit, and altruism, can be examined in Figure I.2. This visualization illustrates the neutrality of profit, which is inherently neither greedy nor altruistic. There are organizations in which money is pursued at any cost, the cost of which is usually humanity, that fall on the greed end of the scale. Likewise, there are organizations in which good is pursued at any cost, the cost of which is money, and therefore are reliant on charitable donations from for-profit organizations and from individuals who have a surplus of funds they or their predecessors have accumulated through profit.

Examination of this scale begs two questions: Should all organizations be designed for altruism? And if not, why not design all organizations for profitable good?

The answer lay in the function the organization serves in the market and society, and the two simplest determining factors are whether the need is ongoing, and whether there is a natural path to generating a profit. If the need is short-term, such as a natural disaster, there is not a logical path to creating profit that also serves the mission of aiding in disaster relief. In the case of starting a company that creates compostable packaging that could be sold to consumer packaged goods companies, however, the need is ongoing, and there is a natural space in which to generate a profit.

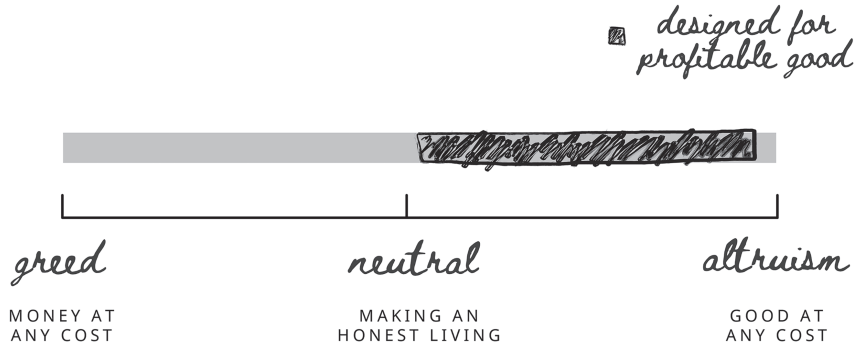

Figure I.2 Measuring Profitable Good

What About Social Purpose Corporations?

There are many different routes a corporation could take in terms of its legal structure to indicate its intention to make the world a better place. Autonomous Transformation is a vehicle for achieving those goals. For any kind of organization, Autonomous Transformation is an opportunity to create a more human future regardless of its legal status.

Profitable Good in the Real World

If a researcher at a technology company developed a method that could significantly reduce the carbon emissions of a building, that company would be incented by both profit and the prospect of doing good to invest in incubating, testing, and productizing that development. Furthermore, mutually beneficial partnerships could be formed with that organization's entire external ecosystem within that domain, such as building management system companies, systems integrators, and facilities management organizations. Every organization involved is incented to sell this solution to customers, who are incented to buy it and therefore reduce cost and emissions, and carbon emissions around the world are reduced.

A second example of Profitable Good is taking place in the United States, where research is being funded by the Advanced Robotics for Manufacturing Institute and the National Science Foundation to address technology and workforce gaps in the U.S. fishing industry. Currently, fish caught off the East Coast of the United States are shipped abroad to be thawed, processed, and chemically treated before being returned for distribution. This process is costly, time-consuming, and leads to a higher risk of contamination.

By developing a robotic system that can reliably handle seafood while working collaboratively with human workers, the profit/labor cost equation can be balanced, and these fish can be processed domestically, which is better for consumers and creates jobs back in the United States, not only for the human workers in the factories, but also for mechanical engineers and plant leadership.[8]

As a society, we are not going to stumble into a more human future, especially as we navigate technological upheaval. The prospect of the value of applying artificial intelligence and its adjacent technologies combined with the impossibility of their application without reevaluating and redesigning our organizations creates an opportunity to anchor on Profitable Good and design a more human future. This book aspires to give you all that you need to get started.

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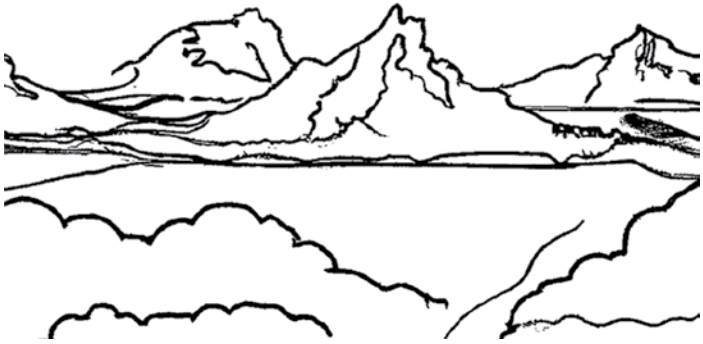
PART ONE

The Fundamentals



I believe that there is one story in the world, and only one. . . . Humans are caught—in their lives, in their thoughts, in their hungers and ambitions, in their avarice and cruelty, and in their kindness and generosity too—in a net of good and evil. . . . There is no other story. A [person], after [brushing] off the dust and chips of [. . .] life, will have left only the hard, clean questions: Was it good or was it evil? Have I done well—or ill?

—John Steinbeck, *East of Eden*