# THE END OF THE W **ISJUST THE** BEGINN N MAPPING THE

Cape Tow

I.

 $\overline{U}$ 

T

COLLAPSE OF GLOBALIZATION

PETER ZEIHAN

# THE END OF THE WORLD IS JUST THE BEGINNING

Mapping the Collapse of Globalization

# PETER ZEIHAN



HARPER BUSINESS An Imprint of HarperCollinsPublishers

## Dedication

For me, dedications are difficult because I'm . . . lucky.

I was born in the right country at the right time to grow up in safety.

Simultaneously old enough and young enough to recognize the disconnects and opportunities in the shift from duck-and-cover to 5G.

I've been blessed with more mentors than I can count, something only possible because they *chose* to play the role.

I'm in my field only because of those who have come before, and I'm able to read the future only because of the questions I'm asked by those who will come after.

Without the village, my work—my *life*—would not be possible.

So thank you.

Thank you all.

## Epigraphs

This is the way the world ends Not with a bang but a whimper.

—T. S. Eliot

Should we be so lucky.

—German proverb

### Contents

Cover
Title Page
Dedication
Epigraphs

Introduction

#### Section I: The End of an Era

How the Beginning Began Enter the Accidental Superpower And Now for Something Completely Different The Story of . . . Us History Speeds Up Learning a Scary Word The End of More Messy, Messy Models The Last Bits of More A Quick Note from the Author . . . and Moscow

#### **Section II: Transport**

The Long, Long Road Breaking Free: Industrializing Transport The Americanization of Trade The Great *Un*making Harbors in the Storm

#### **Section III: Finance**

Currencies: Navigating the Road Less Traveled Adventures in Capital Disaster Is Relative The End of More, Redux: Demographics and Capital A Credit Compendium Finagling Future Financing Failures

#### **Section IV: Energy**

Harpooning Progress The Order's Order for Oil The Map of Oil: Contemporary Edition There's More to Oil than Oil Fueling the Future

#### **Section V: Industrial Materials**

Disassembling History The Essential Materials The Future Materials The Always Materials The Funky Materials The Reliable Materials This Is How the World Ends

#### **Section VI: Manufacturing**

Crafting the World We Know The Map of the Present The Map of the Future Manufacturing a New World

#### **Section VII: Agriculture**

What's at Stake The Geopolitics of Vulnerability Avoiding—or Accepting—the Worst Mitigating Famine Expanding the Diet, Shrinking the Diet Agriculture and Climate Change Feeding a New World The Long Ride of the Third Horseman

Epilogue

Acknowledgments Index About the Author Also by Peter Zeihan Copyright About the Publisher

# Introduction

The past century or so has been a bit of a blitzkrieg of progress. From horse-and-buggy to passenger trains to the family car to everyday air travel. From the abacus to adding machines to desktop calculators to smartphones. From iron to stainless steel to silicon-laced aluminum to touch-sensitive glass. From waiting for wheat to reaching for citrus to being handed chocolate to on-demand guacamole.

Our world has gotten cheaper. And certainly better. And most definitely *faster*. And in recent decades the paces of change and achievement have accelerated further. We've witnessed the release of more than thirty ever-more-sophisticated versions of the iPhone in just fifteen years. We're attempting to shift wholesale to electronic vehicles at ten times the pace we adopted traditional combustion engines. The laptop I'm tapping this down on has more memory than the combined total of *all* computers globally in the late 1960s. Not long ago I was able to refinance my home at a rate of 2.5 percent. (It was stupidly awesome.)

It isn't simply about stuff and speed and money. The human condition has similarly improved. During the past seven decades, as a percent of the population, fewer people have died in fewer wars and fewer occupations and fewer famines and fewer disease outbreaks than since the dawn of recorded history. Historically speaking, we live in an embarrassment of riches and peace. All of these evolutions and more are tightly interwoven. Inseparable. But there is a simple fact that is often overlooked.

They are artificial. We have been living in a perfect moment.

And it is passing.

The world of the past few decades has been the best it will ever be *in our lifetime*. Instead of cheap and better and faster, we're rapidly transitioning into a world that's pricier and worse and slower. Because the world—*our* world—is breaking apart.

I'm getting ahead of myself.

In many ways this book is the most quintessentially "me" project I've done. My work lands me squarely at the intersection of geopolitics and

demography. Geopolitics is the study of place, exploring how everything about us is an outcome of *where* we are. Demography is the study of population structures. Teens act different from thirty-somethings versus fifty-somethings versus seventy-somethings. I weave together these two disparate themes to forecast the future. My first three books were about nothing less than the fall and rise of nations. About exploring the "big picture" of the world to come.

But you can only speak at Langley so many times. To pay the bills I do something else.

My *real* job is a sort of hybrid public speaker/consultant (the fancy marketing term is geopolitical strategist).

When groups bring me in, it's rare that they want to ruminate over the future of Angola or Uzbekistan. Their needs and questions are closer to home and their pocketbooks, wrapped up in a series of economic questions about trade and markets and access. What I do is apply geopolitics and demography to *their* problems. Their dreams. Their fears. I peel out the appropriate parts of my "big picture" and apply them to questions of electricity demand in the Southeast, or precision manufacturing in Wisconsin, or financial liquidity in South Africa, or the nexus of security and trade in the Mexico border region, or transport options in the Midwest, or energy policy during the turn of American administrations, or heavy industry in Korea, or tree fruits in Washington State.

This book is all that and more. So much more. I'm once again using my trusty tools of geopolitics and demography to forecast the future of global economic structures, or, to be more accurate, their soon-to-be lack thereof. To showcase the shape of the world just past the horizon.

The crux of the problem we all face is that, geopolitically and demographically speaking, for most of the last seventy-five years we have been living in that perfect moment.

At the end of World War II, the Americans created history's greatest military alliance to arrest, contain, and beat back the Soviet Union. That we know. That's no surprise. What is often forgotten, however, is that this alliance was only half the plan. In order to cement their new coalition, the Americans also fostered an environment of global security so that any partner could go anywhere, *anytime*, interface with anyone, in any economic manner, participate in any supply chain and access any material input—all without needing a military escort. This butter side of the Americans' guns-*and*-butter deal created what we today recognize as free trade. Globalization.

Globalization brought development and industrialization to a wide

swath of the planet for the first time, generating the mass consumption societies and the blizzard of trade and the juggernaut of technological progress we all find so familiar. And *that* reshaped global demographics. Mass development and industrialization extended life spans, while simultaneously encouraging urbanization. For decades that meant more and more workers and consumers, the people who give economies some serious *go*. One outcome among many was the fastest economic growth humanity has ever seen. *Decades* of it.

The Americans' postwar Order triggered a change in condition. By shifting the rules of the game, economics transformed on a global basis. A national basis. A *local* basis. *Every* local basis. That change of condition generated the world that we know. The world of advanced transport and finance, of ever-present food and energy, of never-ending improvements and mind-bending speed.

But all things must pass. We now face a new change in condition.

Thirty years on from the Cold War's end, the Americans have gone home. No one else has the military capacity to support global security, and from that, global trade. The American-led Order is giving way to Disorder. Global aging didn't stop once we reached that perfect moment of growth. Aging continued. It's still continuing. The global worker and consumer base is aging into mass retirement. In our rush to urbanize, no replacement generation was ever born.

Since 1945 the world has been the best it has *ever* been. The best it will *ever* be. Which is a poetic way of saying this era, this world—*our* world—is doomed. The 2020s will see a collapse of consumption *and* production *and* investment *and* trade almost *everywhere*. Globalization will shatter into pieces. Some regional. Some national. Some smaller. It will be costly. It will make life slower. And above all, worse. No economic system yet imagined can function in the sort of future we face.

This devolution will be jarring, to say the least. It's taken us decades of peace to suss out this world of ours. To think that we will adapt easily or quickly to such titanic unravelings is to showcase more optimism than I'm capable of generating.

But that's not the same as saying I don't have a few guideposts.

First comes something I call the "Geography of Success." Place matters. Hugely. The Egyptian cities are where they are because they had the perfect mix of water and desert buffer for the preindustrial age. Somewhat similarly, the Spanish and Portuguese rose to dominance not simply because of their early mastery of deepwater technologies, but because their location on a peninsula somewhat freed them from the general melee of the European continent.

Toss industrial technologies into the mix and the story shifts. Applying coal and concrete and railways and rebar en masse takes a *lot* of money, and the only places that could self-fund were those with a plethora of capital-generating navigable waterways. Germany has more than anyone in Europe, making the German rise inevitable. But the Americans have more than anyone in the world—than *everyone* else in the world—making the German *fall* just as inevitable.

Second, and you may have figured this out for yourself already, Geographies of Success are *not* immutable. As technologies evolve, the lists of winners and losers shift with them. Advances in harnessing water and wind eroded what made Egypt special into history, providing room for a new slate of major powers. The Industrial Revolution reduced Spain to a backwater, while heralding the beginning of the English Imperium. The coming global Disorder and demographic collapse will do more than condemn a multitude of countries to the past; it will herald the rise of others.

Third, shifting the parameters of the possible impacts . . . pretty much everything. Our globalized world is, well, global. A globalized world has one economic geography: the geography of the whole. Regardless of trade or product, nearly every process crosses at least one international border. Some of the more complex cross *thousands*. In the world we are (d)evolving into, that is relentlessly unwise. A deglobalized world doesn't simply have a different economic geography, it has *thousands* of different and *separate* geographies. Economically speaking, the whole was stronger for the inclusion of all its parts. It is where we have gotten our wealth and pace of improvement and speed. Now the parts will be weaker for their separation.

Fourth, not only despite the global churn and degradation, but also in many cases *because of it*, the United States will largely escape the carnage to come. That probably triggered your BS detector. How can I assert that the United States will waltz through something this tumultuous? What with its ever-rising economic inequality, ever-fraying social fabric, and ever-more bitter and self-destructive political scene?

I understand the reflexive disbelief. I grew up during the age of duckand-cover. I find it galling that issues such as "safe spaces" in colleges devoid of divergent viewpoints, transgender bathroom policy, and vaccine benefits have even crossed into the proverbial town square, much less all but crowded-out issues such as nuclear proliferation or America's place in the world. Sometimes it feels as though American policy is pasted together from the random thoughts of the four-year-old product of a biker rally tryst between Bernie Sanders and Marjorie Taylor Greene.

My answer? That's easy: it isn't about *them*. It has never been about them. And by "them" I don't simply mean the unfettered wackadoos of contemporary America's radicalized Left and Right, I mean America's political players in general. The 2020s are not the first time the United States has gone through a complete restructuring of its political system. This is round seven for those of you with minds of historical bents. Americans survived and thrived before because their geography is insulated from, while their demographic profile is starkly younger than, the bulk of the world. They will survive and thrive now and into the future for similar reasons. America's strengths allow her debates to be petty, while those debates barely affect her strengths.

Perhaps the oddest thing of our soon-to-be present is that while the Americans revel in their petty, internal squabbles, they will barely notice that elsewhere *the world is ending*!!! Lights will flicker and go dark. Famine's leathery claws will dig deep and hold tight. Access to the inputs —financial and material and labor—that define the modern world will cease existing in sufficient quantity to make modernity possible. The story will be different everywhere, but the overarching theme will be unmistakable: the last seventy-five years long will be remembered as a golden age, and one that didn't last nearly long enough at that.

The center point of this book is not simply about the depth and breadth of changes in store for every aspect of every economic sector that makes our world our world. It is not simply about history once again lurching forward. It is not simply about how our world ends. The *real* focus is to map out what everything looks like on the other side of this change in condition. What are the new parameters of the possible? In a world deglobalized, what are the *new* Geographies of Success?

What comes *next*?

After all, the end of the world really *is* just the beginning. So, it's best if we start there.

At the beginning.

Section I: The End of an Era

# How the Beginning Began

In the beginning we were wanderers.

We didn't wander because we were trying to find ourselves; we wandered because we were *HONGRY*. We wandered with the seasons to places with more abundant roots, nuts, and berries. We wandered up and down elevation bands to forage for different plants. We followed the animal migrations because that's where the steaks were. What passed for shelter was what you could find when you needed it. Typically, we would not stay in the same place for more than a few weeks because we'd forage and hunt the yard to nothing in no time. Our stomachs would force us to start wandering anew.

The limitations of it all were pretty, well, limiting. The only power source an unaided human has are muscles, first our own and later that of the handful of animals that we could tame. Starvation, disease, and injury were common and had the unfortunately high likelihood of proving lethal. And any provided-by-nature root or rabbit that you ate was one that someone else would *not* be eating. So, sure, we lived in "harmony with nature" . . . which is another way of saying we tended to beat the crap out of our neighbors whenever we saw them.

Odds are, whoever won the fight ate the loser.

Pretty exciting, eh?

Then, one miraculous day, we started something new and wondrous that made life less violent and less precarious and our world fundamentally changed:

We started gardening in our poo.

#### THE SEDENTARY FARMING REVOLUTION

Human poo is an odd thing. Since humans are omnivores, their poo boasts among the densest concentrations of nutrients in the natural world. Since humans know where their poo gets, er, deposited . . . let's call it "inventorying" and "securing fresh supplies" was a simple process.<sup>\*</sup>

Human poo proved to be one of the best fertilizer and growth mediums not just in the pre-civilized world, but right up until the mass introduction of chemical fertilizers in the mid-nineteenth century—and in some parts of the world, even today. Managing poo introduced us to some of our first class-based distinctions. After all, no one really *wanted* to gather and inventory and distribute and . . . apply the stuff. It is part of why India's Untouchables were/are so . . . untouchable—they did the messy work of collecting and distributing "night soil."<sup>\*</sup>

The Great Poo Breakthrough—more commonly referred to as humanity's first true technological suite, sedentary agriculture—also introduced humans to the first rule of geopolitics: location matters, and which locations matter *more* changes with the technology of the day.

The first Geography of Success, that of the hunter/gatherer era, was all about range and variety. Good nutrition meant being able to tap multiple types of plants and animals. No one likes moving house, so we wouldn't relocate until an area had been picked clean. Since we tended to clear out an area pretty quickly, and because hunger would mercilessly nudge us to greener pastures, we needed to be able to easily relocate. We tended to concentrate, therefore, in areas with a great deal of climatic variety in a fairly dense footprint. Mountain foothills proved particularly popular because we could access several different climatic zones in a relatively short amount of horizontal distance. Another popular choice was where the tropics bled into the savanna so we could tap game-rich savannas in the wet season, and the plant-rich rain forests in the dry.

Ethiopia was particularly favored by hunter/gatherers as it blended savanna, rain forest, and vertical striations into a single neat package. But that was utter crap for (poo) farming.

Getting all the food you needed from one place required a single largeish chunk of flattish ground—not the sort of spread or variety that could sustain hunter/gatherers. The seasonality of movement of the hunter/gatherer diet was largely incompatible with the constant attention requirements of crops, while the seasonal nature of harvesting crops was largely incompatible with the needs of humans' desires to eat year-round. And just because *you* were staying put and farming didn't mean your neighbors were. Without proper disincentives, they'd tend to forage right through your garden and you'd be out months of work and back into starvation mode. Many tribes started farming only to abandon it as unworkable.

Squaring these particular circles not only required that we learn a different way of feeding ourselves, it also forced us to find a different sort of geography from which we could source the food.

We needed a climate with a sufficient *lack* of seasonality so crops could be grown and harvested year-round, thus eliminating the starving season. We needed consistent water flows so that those crops could be relied upon to sustain us year-in, year-out. We needed places where nature provided good, sturdy natural fences so that the neighbors couldn't just walk in and help themselves to our labor-fruits. We needed a different Geography of Success.

#### THE WATER REVOLUTION

The only places on Earth that sport all three criteria are rivers that flow through *low-latitude* and *low-altitude* deserts.

Some parts of this are obvious.

- » As any farmer or gardener knows, if it doesn't rain, you're screwed. Yet if you set up shop on the banks of a river, you'll never run out of water for irrigation unless some bearded dude starts writing a Bible.
- » Low-latitude regions get long, sun-filled days all year; the lack of seasonal variation enables multi-cropping. More crops at more times means less hunger, and hunger sucks.
- » High-elevation rivers flow fast and straight and cut canyons in the landscape as they go. In contrast, low-altitude rivers are more likely to meander through flat zones, bringing their water into contact with more potential farmland. As an added bonus, when a braided river overflows its banks with the spring floods, it leaves behind a nice thick layer of nutrient-rich sediment. Silt is a *great* poo enhancer.
- » Being in a desert region keeps those pesky foraging neighbors at bay. No sane hunter/gatherer is going to get to the edge of a desert, gaze into the endless mass of heat ripples, and dreamily opine, "I bet there are some awesome rabbits and rutabagas that-a-way." Especially in an era when loose sandals were the most durable footwear available.

Rivers also hold a couple of less obvious advantages that are just as critical.

The first of them is transport. Moving stuff around isn't all that easy. Assuming you have access to an asphalt or concrete road—the sort of road that didn't even exist until the early twentieth century—it takes about twelve times as much energy to move things on land as compared to water. In the early years of the first millennia BCE, when a top-notch road was *gravel*, that energy disconnect was more likely in the neighborhood of 100 to 1.<sup>\*</sup>

Having a slow-moving desert river running through the hearts of our first homelands enabled humans to relocate everything from where it was in surplus to where it was in demand. Labor distribution enabled early humans to exploit more fields and so increase plantings and food supplies, and to do so in places that didn't need to be within a short walk of where we lived. Such advantages were often the difference between spectacular success (that is, everybody doesn't starve) and equally spectacular failure (everybody *does* starve). There was also the not-even-remotely-insignificant issue of security: soldier distribution via the waterways enabled us to fend off those neighbors dumb enough to cross our desert lawns.

This transport issue, all by itself, separated the early agriculturalists from everyone else. More lands under more secure production meant more food produced, which meant larger and more stable populations, which meant more lands under more secure production, and so on. We were no longer wandering tribes, we were established communities.

The second issue rivers solve is one of . . . digestion.

Just because something is edible does not mean that it is edible right off the plant. Things like raw wheat can certainly be chewed, but they tend to be hard on every part of the digestive system, contributing to bloody mouths, bloody stomachs, and bloody poo. Not good things in any age.

Raw grains *can* be boiled to make a gruel that is disgusting in taste, appearance, and texture, but boiling both wrecks the grains' nutrient profile and anyway requires substantial fuel. Boiling might work as a supplementary food stream for a tribe that wanders from place to place and often has a supply of fresh firewood and only a few mouths to feed, but it's a complete nonstarter in a terminal desert valley. Deserts never have many trees in the first place. Where deserts and trees overlap would of course be along rivers, putting fuel sourcing in direct competition with farmlands. Anywho, the point is that successful riverine agriculture generates *big* local populations. Boiling food for a lot of people—for a community—every day simply isn't feasible in a world before coal or electricity.

Bottom line? Clearing land, digging irrigation trenches, planting seed, tending crops, and harvesting and threshing grain are the *easy* parts of early agriculture. The really brutal work is getting two pieces of rock and grinding your harvest—*a few grains at a time*—into a coarse powder that can then be prepared into easily digestible porridge (without needing heat), or, if you lived with a foodie, baked into bread. Our only available power was muscle power—both humans and our critters—and the sad physics of the grinding process required so much labor that it kept humanity in a technological rut.

Rivers helped us flush this problem. Waterwheels enabled us to transfer a bit of a river's kinetic energy to a milling apparatus. So long as

the water flowed, the wheel would turn, one big rock would grind against another, and we just needed to dump our grain into the grinding bowl. A bit later, presto! Flour.

Waterwheels were the original labor saver. At first nearly all that savings was simply folded back into the backbreaking work of irrigated agriculture, bringing more land under cultivation, enabling larger and more reliable yields. But with the farm-to-table process becoming somewhat less labor intensive, we started generating food surpluses for the first time. That too freed up a bit of labor, and we had inadvertently come up with something for them to do: manage the food surpluses. Bam! Now we have pottery and numbers. Now we need some way to store our urns and keep track of the math. Bam! Now we have basic engineering and writing. Now we need a way to distribute our stored food. Bam! Roads. All our *stuff* needed to be kept, managed, and guarded in a centralized location, while all our *skills* needed to be passed on to future generations. Bam! Urbanization and education.<sup>\*</sup>

At each stage, we pulled a bit of labor out of agriculture and into new industries that managed, leveraged, or improved the very agriculture the labor had originally come from. The steadily increasing levels of labor specialization and urbanization first gave us towns, then city-states, then kingdoms, and eventually empires. Sedentary agriculture may have given us more calories while deserts provided better security, but it took the power of rivers to put us on the road to civilization.

During these early millennia, there . . . wasn't much traffic.

River-driven agricultural systems could—and did—pop up all along the world's many rivers, but cultures enjoying that crunchy desert coating were rare birds. Our first good choices for sedentary agriculture-based civilizations were the Lower Tigris, Euphrates, and Nile, the mid-Indus (today's Pakistan), and to a lesser degree, the Upper Yellow (that's today's north-central China), and . . . that's about it.

Cultures may have been able to carve out niches—or kingdoms, or even empires—for themselves along the Missouri or Seine or Yangtze or Ganges or Kwanza—but none of them would have enough insulation from the neighbors to persevere. Other groups—whether civilized or barbarous —would wear these echo cultures down with unrelenting competition. Even the biggest and most badass of all those echo empires—the Romans —"Only" survived for five centuries in the dog-eat-dog world of early history. In contrast, Mesopotamia and Egypt both lasted multiple millennia.

The real kicker is that the next technological change didn't make