



Rebecca D. Costa

Media Kit

REBECCA D. COSTA

BACKGROUND

Rebecca D. Costa is an American sociobiologist and futurist. She is the preeminent global expert on the subject of “fast adaptation” and recipient of the prestigious Edward O. Wilson Biodiversity Technology Award. Her career spans four decades of working with founders, executives and leading venture capitalists in Silicon Valley. Costa’s work has been featured in the *New York Times*, *Washington Post*, *USA Today*, *The Guardian*, and other leading publications. She presently hosts the popular news podcast, *The Costa Report*, along with 12 world renowned subject experts and also serves on the Advisory Committee for the Lifeboat Foundation along with futurist Ray Kurzweil and Nobel Laureates Daniel Kahneman, Eric S. Maskin, Richard J. Roberts and Wole Soyinka.



Costa was the founder and CEO of one of the largest technology marketing firms in California, where she developed an extensive track record of launching game-changing technologies. Her clients included industry innovators such as Hewlett-Packard, Apple Computer, Oracle, Siebel Systems, General Electric, 3M and others. She has been on the forefront of technological and scientific innovation, assisting venture capitalists and large corporations to identify, fund and launch disruptive new trends.

Retiring at the zenith of her career in Silicon Valley, Costa spent six years researching and writing the international bestseller *The Watchman’s Rattle: A Radical New Theory of Collapse*. Her follow-on book, titled *On the Verge* was introduced in 2017 to critical acclaim, shooting to the top of Amazon’s #1 New Business Releases. The success of *The Watchman’s Rattle* led to a popular weekly radio program called *The Costa Report* which was syndicated throughout the United States by the Genesis Communications Network until 2018. In 2020, *The Costa Report* radio program was converted to a subscription-only in-depth news podcast.

Owing to global pressures to respond more rapidly and efficiently to the accelerating pace of change, Costa is a popular international speaker. She brings both an evolutionary biologist and technologist’s perspective to the subject of adaptation. Costa is currently represented by the American Program Bureau and the Scott Meredith Literary Agency.

A global thinker in the mold of Alvin Toffler, Jared Diamond, Ray Kurzweil and Thomas Friedman, Costa attributes her ability to see the “big picture” to her cross-cultural education and upbringing. Raised in Tokyo, Japan, and Vientiane, Laos, during the Vietnam conflict, Costa brings a unique global perspective to the everyday challenges of work and life. Rebecca Costa is an alumnus of the University of California at Santa Barbara and currently resides in Astoria, Oregon.

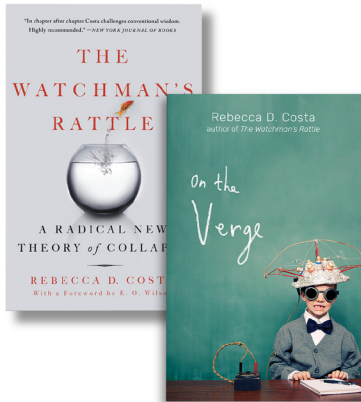
For more information about Rebecca Costa visit www.rebeccacosta.com



THE COSTA GROUP

831-521-9150 • www.rebeccacosta.com • www.facebook.com/rebeccadcosta • www.twitter.com/rebeccacosta

THE COSTA GROUP, INC.



Publishing

- International Bestseller, *The Watchman's Rattle*, released 2010
- *On the Verge*, released 2017
- Print, Audio, E-books
- Syndicated Column: THE FIX
- Represented by the Scott Meredith Literary Agency



Consulting

- Building Fast-adapting, Innovative Cultures
- Technology and Science Reconnaissance



Speaking

- Popular Public Speaker: Fortune 500 Companies, Education, Government and Nonprofit Organizations
- Represented by the American Program Bureau
- Podcast: *The Costa Report*

WELCOME TO THE COSTA GROUP

The Costa Group, Inc., was founded by sociobiologist and technology and science futurist, Rebecca D. Costa, to study the relationship between advances in technology and science, human evolution, and public policy. Costa is an award-winning, world-renowned expert on “fast adaptation” techniques in rapidly changing, complex environments.

The Costa Group, Inc., is nonpartisan – beholden to no special-interest groups or business sponsors. One hundred percent of the company’s funding is derived from the sale of books, speaking fees, consulting and the podcast program.

The organization is comprised of three business units: Publishing, Consulting, and Speaking. *Costa Publishing* oversees the print, audio and e-books authored by Rebecca Costa, as well as Costa’s syndicated column, THE FIX. *Costa Speaking* is responsible for managing the public and private appearances and podcast of Rebecca Costa. *Costa Consulting* offers assistance to small and large organizations interested in building adaptive, innovative cultures which keep pace with changing technology and science. Together, the three business units offer an international platform aimed at helping individuals and organizations stay ahead of disruptive change.



THE COSTA GROUP

831-521-9150 • www.rebeccacosta.com • www.facebook.com/rebeccadcosta • www.twitter.com/rebeccacosta

RAVE REVIEWS FOR REBECCA COSTA

From Fortune 500 companies to government agencies, non-profit organizations and universities, Costa is consistently ranked as one of the top speakers in the nation.

"Important, Formidable and Absolutely Essential"

"Engaging, Humorous and Thought-provoking"

"Provocative and Entertaining"

"The presentation was outstanding and we received rave reviews—the attendees wished your session could have been longer!"

- Alison Keller, National Association of State Chief Information Officers (NASCIO)

"Rebecca hit the mark! She helped us gain new perspectives on how we can better deal with the growing complexity businesses face today."

- K. Hansen, Senior Vice President, Dole Food Company

"After being in the industry for almost 40 years, I attend a lot of presentations. Normally I attend, I listen and leave and nothing changes. Your presentation was different. It really made me stop and think about our business in a different light."

- John Landgraf, Executive Vice President, Abbott Nutrition

"We had more feedback from your seminar than from any of our previous sessions. Thank you for kicking some doors in."

- James Cameron, Vice President, Walmart

"Rebecca Costa blew us away with her socio-biological explanation of how our complex environment drives humans into gridlock and indecision. She artfully connects the dots from genetics to complexity to evolution to gridlock."

- T. G. Lewis, Executive Director, Center for Homeland Defense and Security

"Throughout her presentation she linked scientific data to the day-to-day challenges communities face and then led us to practical solutions. Her style of presentation was engaging, humorous and thought-provoking."

- P. Kestner, President, Council of Community Services



THE COSTA GROUP

831-521-9150 • www.rebeccacosta.com • www.facebook.com/rebeccacosta • www.twitter.com/rebeccacosta

PRESS HIGHLIGHTS

American sociobiologist, Rebecca D. Costa, has been featured in USA Today, The New York Times, The Washington Post, The Wall Street Journal and other acclaimed periodicals and is a frequent radio and television guest.

The New York Times

"Who Will Be Oprah's Last Star?"

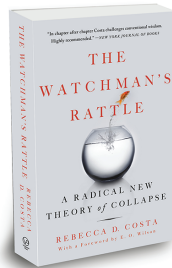
"Like most authors, Rebecca D. Costa - who wrote *The Watchman's Rattle, A New Theory of Radical Collapse*' (Vanguard Press, October 2010) - wants to get her book into Ms. Winfrey's hands. So far Ms. Costa, a sociobiologist in San Francisco, has received testimonials from other bigwigs including Donald J. Trump, Trudie Styler, the actress and wife of Sting; Tina Brown, the founder of *The Daily Beast* and former editor of magazines including *Vanity Fair* and *Talk*; the former senator Bill Bradley; and Sir Richard Branson, the billionaire founder of the Virgin Group."



"Like Jared Diamond and Malcolm Gladwell, Rebecca Costa attacks her subject from multiple angles, using research from unexpected sources to present a compelling argument with memorable examples."



October 19, 2010, "Pick of the Week"
The Watchman's Rattle
by Rebecca D. Costa



"One of the most fascinating books I've had come across my desk in a long time - a book a whole lot of people are talking about."—Tavis Smiley

guardian.co.uk

"Costa offers an unexpectedly hopeful conclusion: we may never really understand how to get what we want, or stave off the very worst - yet we may manage it anyway."

new york journal of books

"This is an excellent book, rich with challenging thoughts as well as perceptive solutions. Highly recommended."

The Harvard Crimson

The Watchman's Rattle explores current problems plaguing society - from economic recession to global warming - and why we seem unable to resolve them."



THE COSTA GROUP

831-521-9150 • www.rebeccacosta.com • www.facebook.com/rebeccadcosta • www.twitter.com/rebeccacosta

CONSULTING

What emerging technologies and scientific breakthroughs are headed your way?
Preparing to disrupt your current business and future plans?



Few organizations have a dedicated reconnaissance function responsible for searching and vetting emerging breakthroughs in science and technology. As a result, by the time game-changing innovations hit their radar they are reacting rather than taking advantage of disruption.

The idea of outsourcing innovation reconnaissance is new, but not unproven. Increasingly, organizations from Google, Boeing, Walmart, Dole and Abbott Labs, to venture capital firms, government organizations and start-ups, have been turning to futurists to get in front of discoveries which are not yet in the public domain, but imminent.

World renowned futurist, Rebecca Costa, leads an elite research team in Portland, Oregon, which specializes in science and technology recon. *The Costa Group* is the first of its kind, working on an exclusive, non-disclosure basis for select clients. The research team combs the world's universities, research laboratories, venture capital companies, scientific and tech journals, new patents, industry trade shows and conferences, etc., for breakthroughs which can accelerate an organization's objectives. Working closely with boards and key executives, *The Costa Group* assists leaders to get the jump on new opportunities.

"We use *The Costa Group* to perform a sort of tech 'matchmaking' service. They took the time to become immersed in our R&D program and understand our short and long-term strategic plans. Based on that information, they began hosting an annual series of meetings with five to eight select innovators. In almost every case, this has led to partnering, acquiring or working with them."

"If you want to know what's around the corner, ask *The Costa Group*. These brainiacs were talking to us about AI, drones, blockchain, self-driving cars and home genomic testing kits before anyone heard of these things."

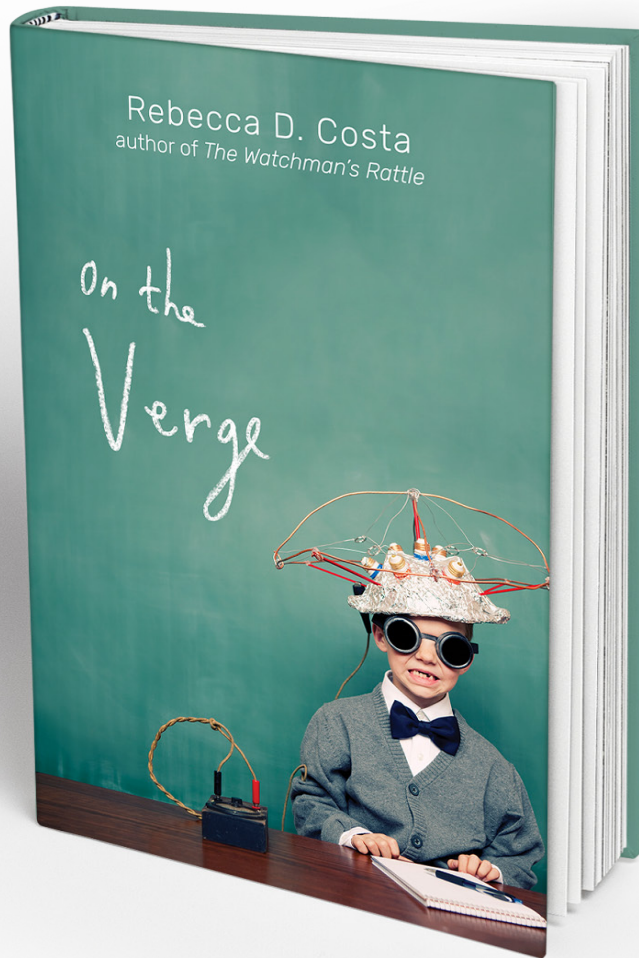
"*The Costa Group* leaves no stone unturned. They have access to research we can't begin to dedicate resources to."



THE COSTA GROUP

831-521-9150 • www.rebeccacosta.com • www.facebook.com/rebeccadcosta • www.twitter.com/rebeccacosta

“There can be no greater advantage than certainty of the future. Not in nature. Not in business. Not in governance.”



So begins Rebecca Costa's much awaited exploration of *foresight*: "the crowning achievement of human ambition." According to Costa, never before has the information needed to avert danger, get the jump ahead of others, or prepare for the inevitable been so clearly within grasp. Advances in Big Data, predictive analytics, genomics, artificial intelligence, and other technologies have made it possible to pinpoint future results with mind-blowing accuracy—cracking the door to what Costa calls *predaptation*: *the ability to adapt before the fact*.

Through fascinating real-life examples, Costa reveals how technology has brought nations, businesses, and individuals to the edge of clairvoyance. Yet, our ability to *act* on foreknowledge often falls short—causing leaders to squander the advantage of preemption. To counteract this failure, Costa illuminates 12 principles of adaptation, and *predaptation*, used to succeed in fast-moving environments.

On sale at all major book stores.

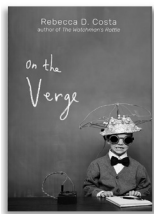
Rebecca D. Costa is a world-renowned sociobiologist and futurist. Her first book, *The Watchman's Rattle: A Radical New Theory of Collapse*, was an international bestseller. Her work has been featured in the *New York Times*, *Washington Post*, *USA Today*, *The Guardian*, and other leading publications. For more information about the author and book, visit www.rebeccacosta.com.



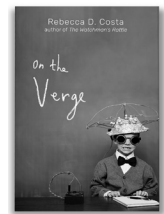
RosettaBooks®



www.rebeccacosta.com



Praise for *On the Verge*



"From the beginning of recorded history, humankind has tried to predict, control and change the future. It is a daunting task fraught with risks and rewards. Read this book if you want to be ready for the future. "

ALAN DERSHOWITZ,
lawyer, legal scholar
and bestselling author

"Rebecca Costa has a talent to tell stories that illustrate her keen observations and explain important cultural implications as new innovations touch our lives. The future can be manipulated. Some want their creations to adapt to the world.

Others like Steve Jobs wanted the world to adapt to them. If you have an insatiable curiosity about the impact of innovation on our world ahead and how the future can be manipulated you will love this book."

JOHN SCULLEY,
former CEO of Apple and
President of Pepsi-Cola

"*On the Verge* is a terrific jackpot of a book. It is both page-turner entertaining and think-trigger serious about how we—meaning all of us—can get ahead of the many curves out there in our varied lives, liberties and pursuits of happiness. Read it and smile. But mostly read it and plan."

JIM LEHRER,
Executive Editor and
anchor PBS NewsHour



"The world is experiencing extraordinary and transformational change. Technology and big data have empowered humankind to reach new and epoch-making achievements.

Rebecca Costa has brilliantly prescribed how we can harness our newfound empowerment with foresight to literally change the course of our collective future."

TOM DASCHLE,
former U.S. Senate Majority Leader

"*On the Verge* presents a useful view of how we can look ahead, and invent our own future, often by predapting to possible futures. If you want to get ready for change you see coming, *On the Verge* can help you get the job done."

CRAIG NEWMARK,
founder of Craigslist,
entrepreneur

"This is a dazzling book—a can't-put-down, easily understandable exploration of the potential (no, near-certainty) that Big Data and developing technologies will give mankind the ability to anticipate and solve every problem from disease to terrorism to accidents to crime. But Ms. Costa is also not blind to dilemmas our vast new power creates, fundamentally centered in human nature.

Must-read for everyone!"

MORTON KONDRACKE,
political journalist and commentator for
The McLaughlin Group, The Beltway Boys,
Roll Call, Capitol Hill, Fox News.



THE COSTA GROUP

831-521-9150 • www.rebeccacosta.com • www.facebook.com/rebeccadcosta • www.twitter.com/rebeccacosta



About the Book

An interview with Rebecca D. Costa
author of *On the Verge*

Q: Your new book, *On the Verge*, is about foreknowledge and leadership. Why foreknowledge?

A: The short answer is that foreknowledge is having a profound impact on how leaders lead. It's no longer enough to be nimble, innovative, and quick—not enough to rack up 10,000 hours of experience, master the 7 habits of successful people, or transform ourselves into 1-Minute managers. These skills are no match for the ability to foresee and manipulate future outcomes, events, and trends to our advantage—which is what Big Data, predictive analytics, and artificial intelligence have equipped leaders to do.

When you stop and think about it, we have more information—more empirical data—about the future than at any other time in human history. We know when a hurricane, tornado, or tsunami is en route; when a country's currency is on the verge of collapse; which automobiles are the safest in an accident; when and where the risk of a terrorist attack is high. We know whether a person is predisposed to opioid addiction long before a doctor writes the first prescription; when a country is on the brink of producing a nuclear weapon; whether we're programmed to suffer from breast cancer, Alzheimer's, baldness, obesity, depression, or cardiovascular disease. We can anticipate food, rare earth mineral, oil, and nursing shortages; whether a company will meet their quarterly earnings; when an airplane, nuclear power plant, and toaster will reach the end of its life cycle. On every front, our knowledge about events that have yet to occur grows more precise. And with foreknowledge comes the opportunity to act *before the fact*.

Q: What do you mean by “*act before the fact*”?

A: I mean that we are approaching a time when *all future outcomes and events will be known*. So, leaders can avert undesirable results and manipulate the social and physical environment to their advantage. Those who master predictive analytics and other advanced technologies aimed at anticipating future outcomes, events, and trends will have the upper hand. Others will find themselves adapting to an environment where the odds are stacked against them. The more precise our predictions become, the worse things get for those with limited resources.

Q: In your book, you talk about leaders who *predapt*. What is *predaptation*?

A: Predaptation means proactively altering the environment to which we will adapt. In biology, adaptation refers to the physical evolution that occurs as *a result of* changes in an organism’s habitat. Similarly, when changes occur in the business, social, and political environments—such as the proliferation of the internet, or new laws and regulations—individuals and organizations must also adapt. That said, for more than 150 years, our views on adaptation have remained largely unchanged. We treat adaptation as some random roll of the dice, over which we have little or no control. But our growing stockpile of foreknowledge is changing that. Foreknowledge makes it possible to adapt *before the fact*.

Q: Can you give us an example of predaptation at work?

A: Several years ago, when the cost of gasoline began rising, it was only a matter of time before packaged food makers were going to have to raise their prices. According to the principles that govern modern economics, this would decrease the overall number of units sold. But thanks to foresight, these manufacturers predapted. Instead of raising prices, they opted to keep the price and package size of everyday consumables (like cereal and chips) as-is and decrease the contents instead. In this way, consumers *felt* as if they were getting the same value. And since perception is reality, food makers were able to cover the additional transportation costs with very little disruption to sales. By predapting to what they could foresee was coming, they were able to alter the future to which they, and the public, would adapt.

Now that’s a simple example of using foreknowledge to shape future outcomes to our advantage. So now let’s take a more complicated example such as genetic testing. Thanks to the human genome project we are approaching a time when diseases we are genetically predisposed to—diseases such as cancer, depression, and so on—will be treated by gene therapy before we experience the first symptom. In this way, healthcare is predapting: using foreknowledge to change our future.

Q: In *On the Verge* you demonstrate how 12 principles used to adapt in nature can be used by businesses, governments, and organizations to predapt. How did you come up with the 12 principles?

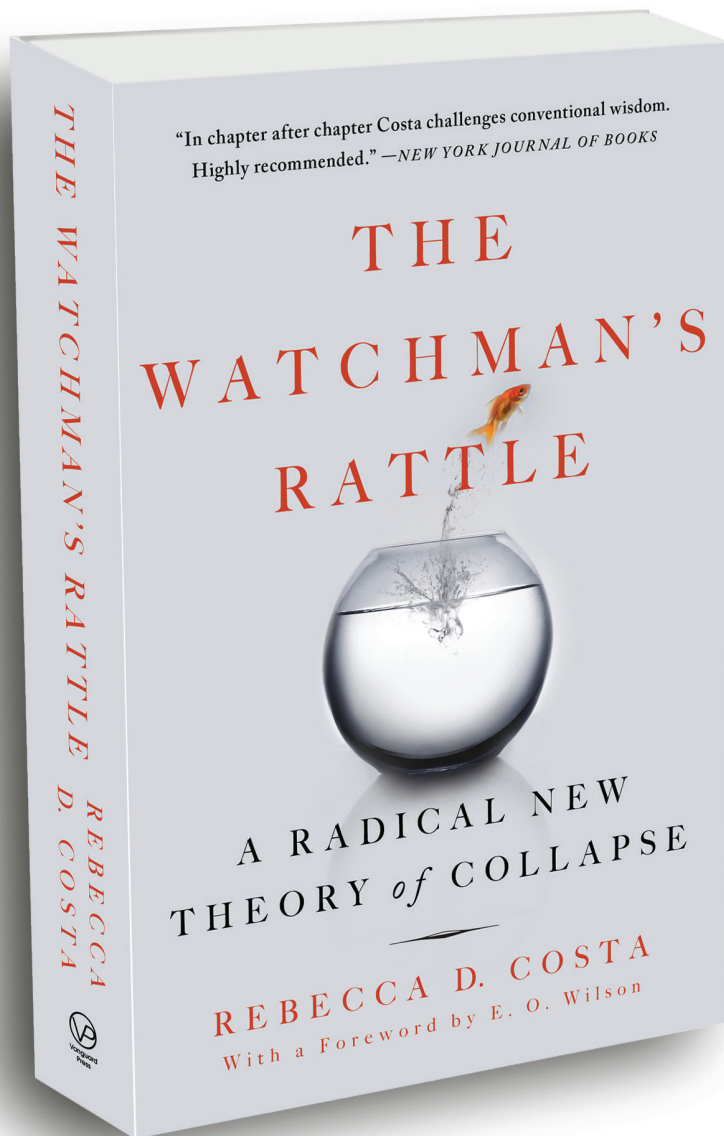
A: As a sociobiologist, my perspective is skewed by what I observe in nature. But that's nothing new. In the 1800s, one of the fathers of modern economics, Alfred Marshall, observed parallel forces in evolution and economics. He drew from Charles Darwin's work to explain gradualism in financial markets. Similarly, many of the ideas forwarded by Joseph Schumpeter, Thomas Jefferson, Karl Marx and others were derived from the natural world.

The 12 principles of adaptation I describe in *On the Verge* are those that have been tested and proven and have endured for millions of years—and that successful leaders use to adapt and predapt today.

Q: Which brings us to the book title—why *On the Verge*?

A: When it comes to foreseeing future outcomes, events, and trends, we are rapidly moving from guesswork to absolute certainty. Big Data computing, predictive analytics, and artificial intelligence are making it possible to string together extremely elaborate, complex algorithms capable of assessing what's coming our way with unprecedented precision. And while we are not quite there yet, there is no doubt that foreknowledge will be the next big disruptor. From how we wage war, invest, and remain healthy to how we manage and lead, foreknowledge changes everything. We are “on the verge.”

“One of the Most Critically Acclaimed Books of the Decade”



Why can't we solve our problems anymore? Why do threats such as an intractable global recession, terrorism, climate change, pandemic viruses, and illegal immigration suddenly seem unstoppable? Are there limits to the kind of problems that humans can solve?

Rebecca Costa confronts and offers a solution to these questions in this page-turning book that traces a recurring pattern of gridlock, from the Mayan, Khmer and Roman civilizations to headlines ripped from today's news.

The Watchman's Rattle offers a riveting look at why leaders, corporations and nations eventually stumble, and what we must do to kick-start progress again.

If you read only one book this year, make this the one.



Gridlock



Evolutionary Obstacles



Leadership

On sale NOW at all major book stores.

www.rebeccacosta.com

 Vanguard Press
A Member of the Perseus Books Group



PRAISE FOR THE WATCHMAN'S RATTLE

"A riveting examination of our world's most dire and complex issues. A must read!"

DONALD TRUMP,
real estate developer, entrepreneur,
and television personality

"One of those rare books that one picks up, and then knows within the first few pages, is extremely important... brave, spirited and well-informed."

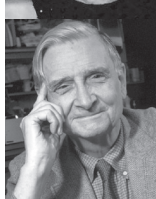
SIR RICHARD BRANSON,
adventurist and Founder/CEO
of the Virgin Group.

"Understanding this book is a big step toward becoming the master of our own destiny."

SENATOR BILL BRADLEY,
three-term United States Senator,
Rhodes Scholar, Hall of Fame basketball
player and author.

"One of the most fascinating books I've had come across my desk in a long time – a book a whole lot of people are talking about."

TAVIS SMILEY,
host of PBS Tavis Smiley Show and
The Tavis Smiley Radio Show.



"Problems eventually become too complex for the average intelligence - in *The Watchman's Rattle*, Rebecca Costa depicts the challenges this presents."

DR. JAMES WATSON,
Nobel Laureate discovered the
double helix structure of DNA.

"Costa has pointed a way forward for all of us."

TINA BROWN,
Editor-In-Chief of
The Daily Beast, columnist, talk show
host, and former editor of Vanity Fair
and The New Yorker.

"A salutary warning against inaction, lazy thinking and partisan politics, *The Watchman's Rattle* should be compulsory reading for world leaders at this crisis point in our existence."

TRUDIE STYLER,
actress, producer, founder of
The Rainforest Fund and
wife of musician, Sting.

"I'm on the side of Rebecca Costa ... In *The Watchman's Rattle*, she presents a view of the parlous human condition with which I completely agree."

DR. EDWARD O. WILSON,
world-acclaimed naturalist, two-time
Pulitzer Prize winner, and heralded as one
of *Time Magazine's* 25 most influential
people in America.

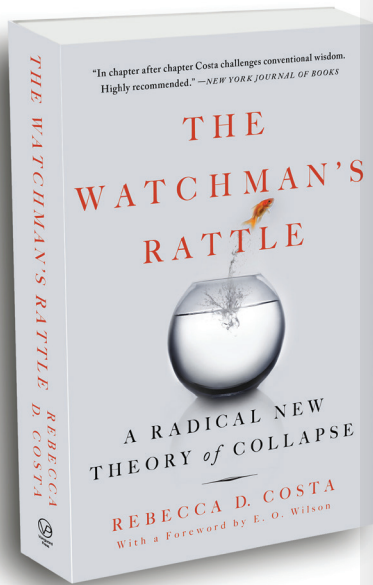


THE COSTA GROUP

831-521-9150 • www.rebeccacosta.com • www.facebook.com/rebeccacosta • www.twitter.com/rebeccacosta

HIGHLIGHTS

AMERICAN SOCIOBIOLOGIST, AUTHOR AND HOST OF THE COSTA REPORT



THE WATCHMAN'S RATTLE: A RADICAL NEW THEORY OF COLLAPSE

"One of those rare books that one picks up, and then knows within the first few pages, is extremely important... brave, spirited and well-informed."

SIR RICHARD BRANSON, founder/CEO of the Virgin Group

"Understanding this book is a big step toward becoming the master of our own destiny."

SENATOR BILL BRADLEY, three-term United States Senator, Rhodes Scholar, Hall of Fame basketball player and author.

"Best book I have read identifying depth of global, national, and cultural changes needed is Rebecca Costa's The Watchman's Rattle. I recommend it to everyone."

JOHN ZOGBY, founder of the Zogby Poll, pollster and analyst of America's political and cultural landscape.

"I'm on the side of Rebecca Costa... We need to grasp the increasing complexity of our social and political arrangements and reach solutions. Ms. Costa urges us to do so by employing the better instruments of our genetic nature."

E.O. WILSON of Harvard University, two-time Pulitzer Prize winner and world acclaimed naturalist.

Rebecca D. Costa is the first expert to confront the widening gap between the rapid pace of change – in every aspect of our lives – and the rate at which humans can adapt. According to the author, every institution and civilization reaches a point where the complexity it must manage outstrips our ability to cope. This reoccurring condition produces 3 symptoms prior to unilateral collapse.

The first symptom is gridlock. Though problems are understood, and solutions exist, we fail to act. The second, according to Costa, is the most dangerous sign: a confusion between facts and unproven beliefs. When facts can no longer be distinguished from conjecture and mysticism the third, and final, symptom appears: irrational policy. Costa shows how great empires have followed this pattern – witness the Roman, the Khmer Empire in Asia, the great Mayan civilization. And global corporations as well – witness Lehman Brothers, Enron, World Bank.

What happens when complexity races ahead of the brain's ability to understand it? According to Costa we come face-to-face with a "High Failure-Rate Environment" (HFRE) - a condition where the number of wrong choices outnumber correct ones. In her book, *The Watchman's Rattle*, Costa describes how the principles governing "fast adaptation" separate tomorrow's winners from losers. She offers strategies for overcoming "information overload," and describes breakthroughs in neuroscience which reveal a third form of problem solving suited for high levels of complexity. Neuroscientists have traced the source of "Aha" moments -- or "insight" – the brain's spontaneous ability to connect information in a novel way to forge inspired remedy. The bottom line? We are each as gifted as Newton, Einstein, Steve Jobs and Stephen Hawking.

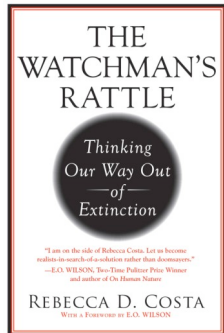
Costa is a riveting and entertaining speaker, and sought after panelist who has addressed topics ranging from breaking corporate and government gridlock, to new ways to approach intractable challenges in economics, education, energy and environmental policy.



THE COSTA GROUP

831-521-9150 • www.rebeccacosta.com • www.facebook.com/rebeccadcosta • www.twitter.com/rebeccacosta

ABOUT THE BOOK: An interview with the author of *The Watchman's Rattle*, Rebecca D. Costa



Q: First off, let's talk about why the book is called *The Watchman's Rattle*?

RC: In earlier times, the first guards and police were people known as *Watchmen*. They patrolled lighthouses, battleships and neighborhoods at night, but instead of weapons, they carried rattles designed to make a sharp, loud sound which summoned others for help. I view the book as a call for help.

Q: What do you mean by *help*?

RC: We live in a time when large, threatening problems are looming. These problems are extremely complex and we have not been able to resolve them for many generations. It does not matter if you believe our greatest threat is pandemic virus, climate change, terrorism, or nuclear proliferation. We can all agree, that eventually, one of these problems is going to have catastrophic consequences.

Q: Are you implying we're doomed to collapse?

RC: No, not at all. But when we examine earlier civilizations, such as the Mayans, Romans, Khmer, Byzantine and Ming societies, a clear pattern emerges. They all experienced gridlock when the magnitude of the problems they needed to solve exceeded their abilities. In other words, they hit some cognitive threshold where they could no longer understand or manage their biggest, most dangerous issues. They then began passing these problems from one generation to the next as the size and strength of the threats grew. But it doesn't have to go that way.

Q: What causes this to happen?

RC: I am always surprised at how people react when I point out the uneven rate of change between how slowly evolution moves and the rate at which humans create new technology, processes, institutions, laws, and make new discoveries. One requires millions of years and the other occurs in pico seconds. Eventually, there's a gap between how fast our brains can evolve new capabilities and the complexity we must process to survive.

Q: How long will it take for the brain to catch up to the rate at which we manufacture complexity?

RC: Well, the last big leap our brains made occurred about four million years ago when we discovered two-legged locomotion. Our prefrontal cortex grew quickly in order to process an avalanche of new sensory input which occurred when we could suddenly see and smell enemies miles away. Today the prefrontal cortex represents about a third of the human brain. But you have to understand that 4 million years was so fast biologists started calling this a "special event" in evolution. When you contrast that rate of change to how fast we make scientific discoveries, how fast we produce new technologies, it's obvious somewhere along the line the biological capabilities of the brain are going to fall behind the rate at which complexity is being generated.

Q: Are there signs the brain is falling behind?

RC: Good question. Well, the first symptom, as we've discussed, is gridlock. We become unable to solve our most threatening problems. We know what they are, and we have a lot of ideas on how to solve them, but we can't seem to act on what we know. So these problems become inherited by each generation. Historically, this stage of paralysis has been followed by a period when we begin substituting beliefs for knowledge.

Q: So, once we become gridlocked we start pursuing beliefs? What do you mean by *beliefs*?

RC: Since the beginning of time humans have been organisms which require BOTH beliefs and knowledge. By beliefs, I mean unproven ideas about the world. Beliefs are easy. You either accept them or you don't. But the acquisition of knowledge is pricey. You have to prove a fact is true then replicate, test, assess, interpret, process, learn, apply, etc. Put simply, when complexity makes it difficult, or impossible, to acquire facts we revert to unproven beliefs. Take the Mayans for example. They knew about drought conditions for thousands of years. It's the reason they built massive reservoirs and intricate underground cisterns for storing water. But over time, as drought conditions worsened and food shortages, disease and starvation became a reality, they stopped trying to solve their drought problems with practical measures and turned exclusively to sacrifice and rituals. There's evidence the worse the drought got, the more aggressive sacrifice became, until eventually, they began torturing women and finally, infants. Their beliefs grew so strong they thwarted any pursuit of knowledge – which in this case meant practical, man-made solutions.

Q: Do you see parallels between modern society and what happened to the Mayans?

RC: Yes, actually I do. I think we can all agree that we have been experiencing some kind of paralysis in terms of being able to solve our most dangerous problems. People everywhere want to know why we can't fix the global recession, a broken healthcare and education system, and whether terrorism and global warming are going to continue to grow. It's pretty obvious we have been going through the gridlock stage earlier advanced societies encountered. So the next stage we would look for is the substitution of beliefs for knowledge. My favorite example of this is Bernie Madoff. It turns out, the people who trusted Madoff with their money were really sophisticated investors. These were people familiar with finance and had been in the market for decades. But the U.S. financial system had become so complex, even sophisticated investors could no longer understand it. You had people like the heads of Citibank admitting that they no longer understood how their organizations were making money. So, when Madoff came along and said "That's okay, you don't have to understand it because I will understand it *for you*," they did what anyone overwhelmed by complexity does: they followed a false prophet.

Q: What happens after the gridlock and beliefs stage?

RC: In a word: collapse. Eventually, one of the unresolved problems inherited generation after generation catches up to us. Think about it this way: problems you don't fix don't go away and they also never stay the same size. They grow with each inheritance. Over time they become so large they cannot be stopped.

Q: Is there anything we can do?

RC: Of course! I know speaking about a pattern of collapse sounds negative but *nothing* in life is inevitable. The good news is once we become aware of a pattern we can act to avoid it. The first thing we need to do is acknowledge the gridlock and belief stages and guard against them. The second thing we can do is mitigate and buy time until our brains have a chance to catch up. The third is to cultivate evolution's cognitive gift to us: *Insight*.

Q: What's Insight and why do you call it "evolution's gift"?

RC: Insight happens when we encounter a really complex problem which exceeds the abilities of traditional left and right brain thinking. Most problem solving we do day in and day out uses left brain rational thinking or right brain synthesis. These are the methods of problem solving we have been evolving for the past four million years. But every once in a while we come across a problem which is simply too hard. Sometimes, not often, a brilliant answer seems to effortlessly drop out of thin air. We can't trace the steps leading to the answer so we have no idea how we arrived at it. Neuroscientists call this an "Aha" moment after Archimedes who discovered displacement when he climbed into a bathtub and watched the water spill over the edges. Insight is a spontaneous organization of chaos and seems to have something to do with an area of the brain called the STG which lights up like a Christmas tree when Insight is being used. Thanks to modern MRI technology we can now see Insight at work. We can even predict when it is going to be deployed about 300 milliseconds beforehand.

Insight is being used. Thanks to modern MRI technology we can now see Insight at work. We can even predict when it is going to be deployed about 300 milliseconds beforehand.

Q: Is Insight something new?

RC: Insight represents a cognitive response to complexity. Okay, so it's random and we can't control or manage this way of thinking yet – but look how long it took us to develop the prefrontal cortex to this point. Any evolutionary change in cognitive processing is going to first appear randomly and infrequently – and then, over millions of years, become just as commonplace as left and right brain problem solving is today. This is how adaptation and mutation works. Human's are developing a third way to solve highly complex problems and that method is *Insight*.

Q: Are you saying Insight can help us avoid social collapse?

RC: Remember that the stages of gridlock and relying on beliefs are *caused* by the uneven rate of change in evolution and complexity. If we can help the brain catch up to complexity, gridlock can be broken and the danger of substituting beliefs for knowledge is completely avoided. In other words, the key to avoiding collapse is to increase our brain's ability to manage complexity.

Q: Can we increase Insight? I thought Insight was evolving - are you suggesting we can make it evolve faster?

RC: Neuroscientists today are uncovering the conditions which allow Insight to thrive. For example, we know that walking on uneven surfaces gives the brain a really good workout and facilitates opportunities for Insight. We know that taking breaks, moving around, relaxation also play a big role. But the Holy Grail seems to be the early results we are seeing from brain fitness programs from people like Dr. Michael Merzenich, a leading neuroscientist at UCSF's Keck Center. It turns out, just like stretching before you start a race, the brain wants to be "tuned up" before we load it with content. This is what brain fitness does – it prepares the brain to learn.

Q: So, if I understand you correctly, half the cure is becoming aware of the discrepancy between how fast evolution moves and how fast humans generate change and how this gap leads to gridlock and beliefs. And the other half of the cure is creating conditions for Insight to flourish.

Do I have that right?

RC: Exactly. A world designed to encourage Insight, and discourage decisions based on unproven beliefs, would have juries and boards of directors of 3, 4 and 5 people – the group size most conducive for Insightful thinking. We would make certain foods which help cognitive processing like blueberries very inexpensive, or free, and high-calorie foods associated with obesity very expensive.

Q: As we learn more about Insight and how it works do you see a lot of changes in store for us?

RC: I see that we are on the cusp of the fourth great step in the evolution of the human organism. First from single cells to multiple cells. Then from water to land. Much later to two-legged locomotion and the rapid development of the frontal cortex. And now the rapid development of insight: an efficient way to solve massively complex problems and assure our survival.