



What Are We Missing?

How to Think More Clearly Before You Decide

ZAFAR ALAM

Preface

At 9.49 p.m. on 20 April 2010, gas from the Macondo well reached the deck of the Deepwater Horizon and ignited. Eleven men were killed. The rig burned for a day and a half before it sank, and the well it left behind bled oil into the Gulf of Mexico for eighty-seven days before it was finally capped.

Hours earlier the crew had run a test designed to tell them whether the well was stable, and the readings were anomalous, but these were experienced, intelligent men working under real pressure, and they read the readings as acceptable. They had their reasons. The reasons were wrong. The anomalous test readings needed to challenge that conclusion were already in the room; not every equipment fault was known.

A presidential commission spent the better part of a year asking how it happened, and it found no villain; what it found was more uncomfortable, a chain of reasonable people, each reading the evidence the way the evidence was expected to read, inside systems that had quietly stopped asking the hard questions. The commission called it management failure. This book calls it what it was. Nobody asked what they were missing.

That night has stayed with me, because of what it was not. It was not a failure of intelligence; the people involved were among the best in their industry. It was not a failure of information; the data was on the table. It was a failure of the questions asked of the data, and of a room's willingness to ask them. What was missing was never the information. It was the question.

The most dangerous failure of the twenty-first century is not a failure of technology. It is a failure of thought: the quiet, trainable discipline by which a mind frames a problem well, reads the evidence honestly, then catches itself being wrong. Employers say critical thinking is the skill they most want and the one they least find, and schools still test the answer rather than the asking. Who teaches the asking? Into that gap has stepped a machine that will think, fluently and instantly, on our behalf. It will answer questions you never asked, in prose more confident than most experts, at a speed no colleague can match,

and it will not once ask what the answer is missing. The oldest problem in judgment has met its newest amplifier.

The shelf this book sits on is not empty; it holds fine accounts of how the mind errs, catalogues of biases, gripping autopsies of decisions that went wrong. I have learned from all of them; this book owes them its debts. But reading about error has never, by itself, prevented it. What is missing from that shelf is a working discipline - something you can run before the decision, in the meeting, at your desk, in the small hours when the answer looks obvious. This book is my attempt to build one.

It is built as one framework, not a hundred effects. The framework is called PRISM: Problem Framing, Research, Interpretation, Synthesis, with Metacognition standing over them all. The five moves every sound judgment requires, each made trainable. The record, not anecdote, carries the cases: they come from official commissions, hearing transcripts and peer-reviewed research, and where the evidence is young or contested, the text says so on its face. And the book is built for the world you decide in now, where a machine will draft your analysis, summarise your evidence, check your reasoning and offer its confidence for free. PRISM began in 2021, before AI became mainstream, and was later applied to this world.

This book will take you into rooms where a missing question is paid for in lives. On the night of 27 January 1986, in Utah, engineers who knew exactly what the cold would do to a rocket tried to make a telephone conference hear them, and when the room would not hear it, the room changed what counted as proof instead. In a hospital in California's Central Valley, a small girl's seizures, and the medicine her family trusted, met a system without a single interpreter on staff, and thinking harder could not mend what only thinking differently could. And over the Hudson river, with both engines gone and 155 people behind him, a pilot had three and a half minutes to show what judgment looks like when there's no time for it. And doctors who read scans for a living performed worse in error-enriched experiments when incorrect machine advice was supplied. Those tests are not estimates of routine clinical harm. Each of these rooms is real. Each is on the record.

I did not write this book as an academic; I'm a civil engineer by trade. I've spent my working life on major projects. On the client's side of the table, a mistake is caught on paper or it's paid for in concrete, in delays, in claims - once in a generation, in lives.

A big site runs on many hands, and in my years on the client's side I managed six or seven subcontractors at once, each with its own crews, its own programme, its own contract to protect. All of them competent. All of them reasonable. And the failures rarely came from any of them. They grew in the gaps where one trade ended and the next began. A drawing that three trades read three ways. A concrete pour with the trucks already booked, so the answer got guessed at the gate. A meeting of twelve intelligent people where each defended a scope and nobody defended the decision, and the wrong call walked out of the room with every signature behind it, minuted, agreed, and wrong. If you have sat in that meeting, in any industry, you know it. The question that stayed with me was never whether these people were smart. It was this: why do smart people, together, so often fail to decide what is plainly best - for the project, for themselves, for the future they say they want?

Away from the sites, the pattern didn't change. I watched people struggle: first to find a job, then to keep it, then to progress in it, and then - hardest of all - to become someone better than the job had made them. And I watched a habit thin out, year by year: the habit of taking a problem apart. A difficulty arrives looking like a wall, solid and total, and the analytical move - break it down, ask what it's actually made of - never gets made. The wall stands because nobody asks what it's built from.

Critical thinking has been my own way through. I've always wanted to learn. I've spent my life studying people who build and testing what I learned from them against my own decisions. The thought that became this book arrived in 2020: that the gap between how carefully we engineer things and how carelessly we engineer decisions can be closed, and that closing it can be taught, so I began writing in 2021, in the hours a working life leaves behind. I wrote first to make my own thinking better, then to make something that would outlast me. The question on the cover is the one I still ask every day.

The book moves in three widening circles. The first is inside your own head: the machinery of thought, how fast it runs and where it goes wrong - and why it so rarely notices any of this in time. The second is the room where you decide with other people, and the organisations deciding around you. The third circle belongs to the newest voice in the room, the machine. What does thinking mean once thinking can be outsourced? Cases return rather than accumulate: you'll meet the same rig and the same shuttle more than once, each time at a larger scale, because a lesson is learned only when it survives a change of level. Every chapter closes in protocols, small deliberate practices, because understanding a failure has never prevented one. Practice does.

It is written for people whose decisions carry weight: the manager before the hire, the doctor before the diagnosis, the founder before the signature, the parent before the answer. Anyone whose wrong call is paid for by someone else.

Two promises about the text. The record and my reading of it are kept separate; you'll always know which of the two you're being given. And nothing in these pages asks to be taken on faith. The sources are printed with the book. Check them. That is what they are for.

I cannot promise this book will make you certain. Certainty is the one product honest thinking never sells. What I can promise is a discipline: a way to ask, before the decision is made and cannot be called back, what you might be missing, and the practice to make the asking a habit. The rest is yours.

Turn the page. The rig is waiting.

The Foundations of Critical Thinking

1. The Cost of Analytical Failure

On the evening of 20 April 2010, the Deepwater Horizon was finishing a well in the Gulf of Mexico, off the Louisiana coast¹. By 9.49 p.m. that night the rig was on fire and its crew were fighting for their lives (Figure 1.1). Eleven of them never came home. The full story of that night comes first, because no modern case shows more clearly what critical thinking is worth. Then we take the failure apart.

The Rig, the Well and the Crew.

The Deepwater Horizon was a Transocean semisubmersible drilling rig, 33,000 tons, built for \$350 million, its derrick rising more than twenty storeys above the top deck². It had been under contract to BP since its maiden voyage to the Gulf in 2001. That spring it was stationed over Mississippi Canyon Block 252, in 4,992 feet of water, completing BP's Macondo well.

Macondo had been in trouble for months. The well was budgeted at \$96.2 million and 51 days of work; by 20 April it was almost six weeks behind schedule and more than \$58 million over budget³. The crew called it "the well from hell"⁴. A week earlier, BP engineer Brian Morel had e-mailed a colleague: "this has been [a] nightmare well which has everyone all over the place."³

About 126 people were aboard, roughly 80 of them Transocean employees, working twelve-hour shifts, three weeks on and three weeks off⁵. Jimmy Harrell, the offshore installation manager, was in charge while the rig was