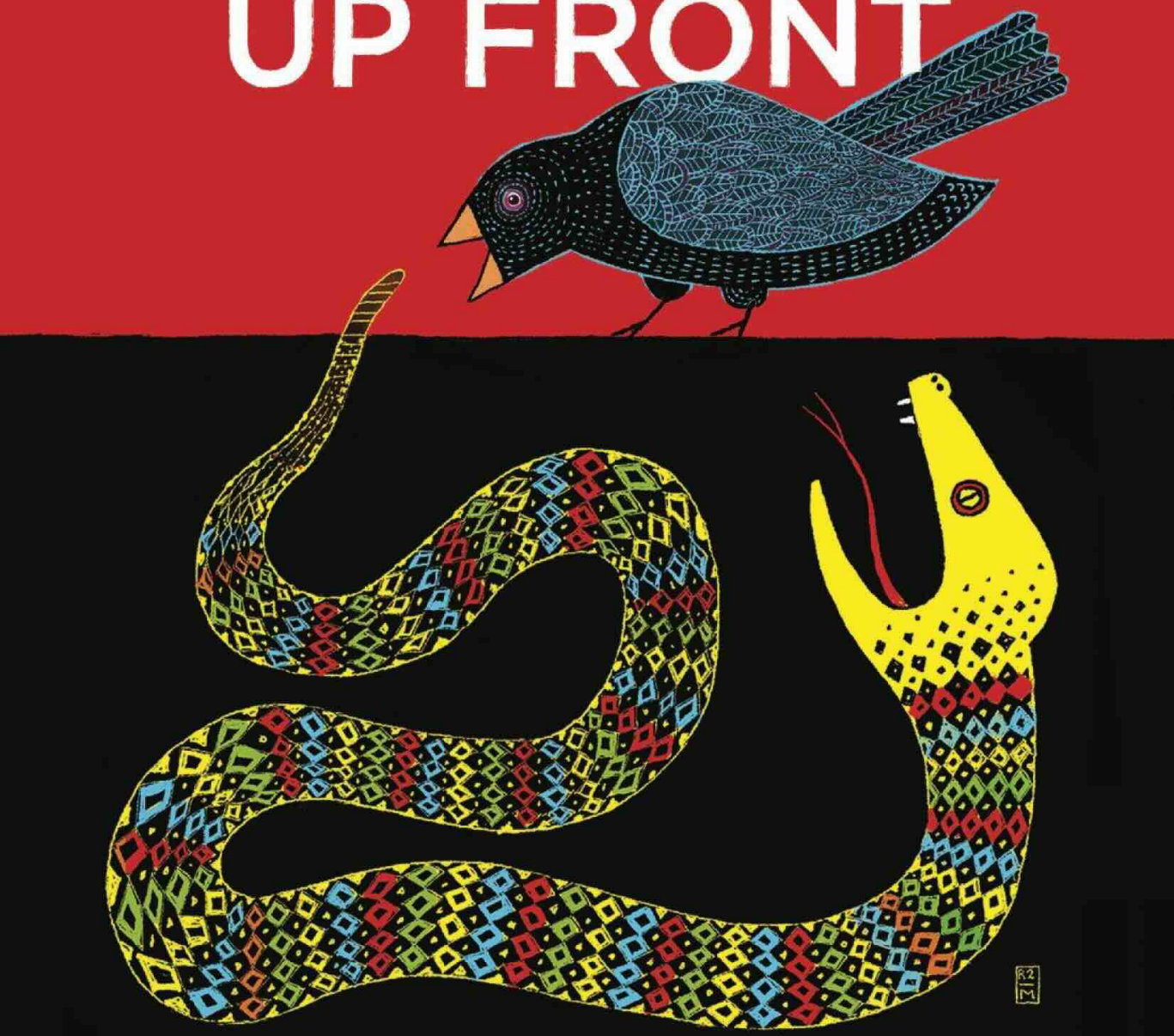
"We use Risk Up Front to get projects done on time. It works."
—R. MARTIN CHAVEZ, CFO, GOLDMAN SACHS

MANAGING PROJECTS IN A COMPLEX WORLD

RISK UP FRONT



ADAM JOSEPHS AND BRAD RUBENSTEIN

The ability to relentlessly identify and mitigate risk—that is the key to high-performance project teams.

Successful projects depend more on your team's behavior than on their project tools.

This book focuses on the fundamentals: simple structures and practices, applied with rigor. These are the tools you need to avoid the late changes that kill project schedules. Underlying all of them are four principles: accountability, transparency, integrity and commitment. **Risk Up Front** is designed to turn these principles into practice.

Murphy's Law tells us, *"If anything can go wrong, it will."* With **Risk Up Front**, even risks hiding in your team's blind spot can be discovered and handled, before Murphy has a chance.

"Risk Up Front fixed our Agile process and has become a company-wide discipline. Risk conversations now extend from the conference room to the board room."
—MATT LITTLE, CHIEF PRODUCT OFFICER, PKWARE, INC.

"We started by using Risk Up Front in global engineering and product development. Now we use it everywhere, from building clean rooms to upgrading our finance systems. In all cases, the results are faster execution, stronger teamwork, and better results."
—TIM JENKS, CEO, NEOPHOTONICS CORPORATION

ABOUT THE AUTHORS: **Adam Josephs** and **Brad Rubenstein** are partners at Celerity Consulting Group. They train and coach organizations all over the world on applying Risk Up Front to accelerate product development and organizational change. Prior to Celerity, Adam managed engineering projects and product organizations at Apple, Microsoft and a variety of startups. Brad began his career building software systems in Silicon Valley. He then left to architect trading and risk infrastructure at Goldman Sachs.

www.celerityconsulting.com

Cover art by Robert Meganck | Illustrations by David Camacho

CONTENTS

CHAPTER 1

STOP MAKING LATE CHANGES

YOUR PROJECT LIVES ON A CURVE

There has been empirical research since the 1980s that demonstrates a commonsense observation about projects: it's more expensive to make changes late in the project; it is less expensive to make them early in the project. It is less costly in time, resources, materials, and risk to change a mechanical design when it is only on paper than when you have already ordered machined parts, and that is even less costly than needing to make a change after it has shipped to the customer.

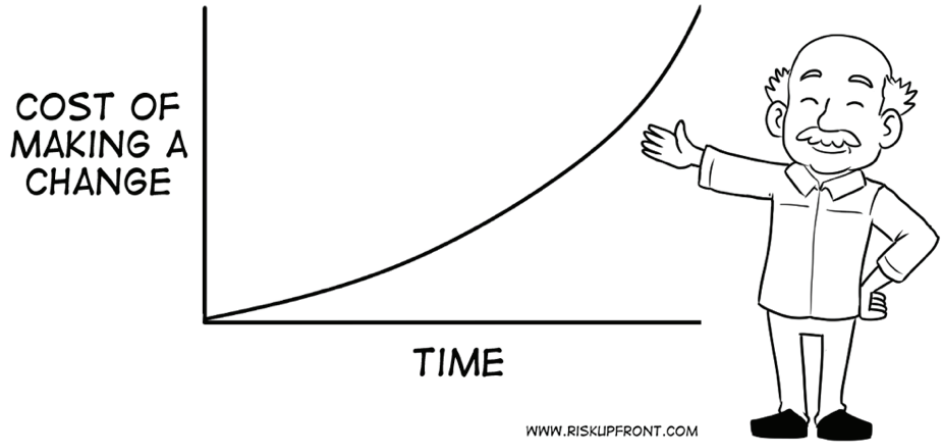


Fig. 1: Your project lives on this curve.

Being on this **cost of making a change** curve is not something that is up to you or your team. It's like gravity: it's there whether you believe in it or not. Even approaches that emphasize responsiveness to changing customer requirements, such as Agile, benefit from activities that reduce the probability of late changes.

Last-minute changes to architecture or performance requirements are all expensive. These costs can arise in the form of money, labor, added risk, market delays, or losing customer trust.

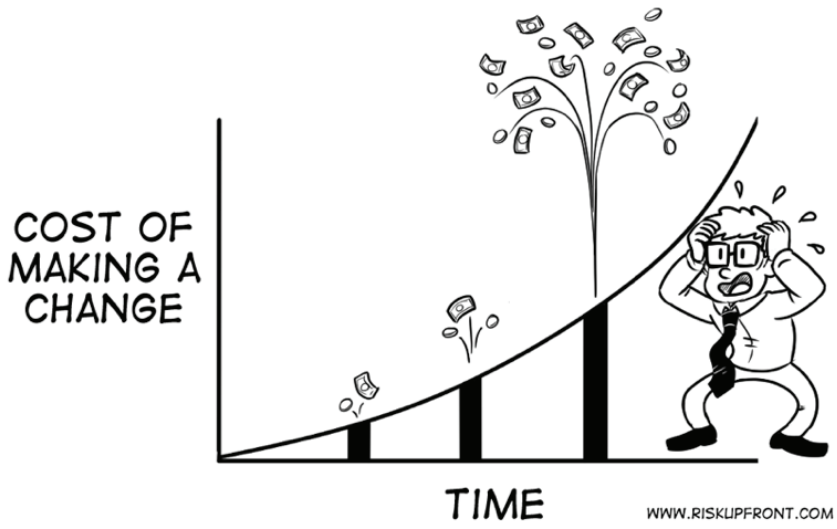


Fig. 2: Late changes are expensive.

Given this curve, it follows that we should avoid expensive late changes. And yet, many projects with talented teams and experienced leaders often find themselves addressing changes late in the game. Just ask the NASA team we introduced in the prologue.

Why does this happen?

PEOPLE ARE OPTIMISTIC PROCRASTINATORS

Consider a simple project that roughly breaks down into three sequential phases:

- Build it.
- Test it.
- Deploy it.

To cover those activities, the team for such a project consists of members from Development, Quality Assurance, and Operations.

The project manager wants to tell management how long this will take, so she builds a schedule. Naturally, she needs to ask, "How long will testing take?" The Quality Assurance team looks at what's being built, and they might create some test plans or testing infrastructure, and so on. The project manager asks the question, "How long will it take?" and after some analysis, she gets an answer, say, "One week."

Optimistic procrastination: The natural, default, human tendency to behave as if everything will go smoothly, and because we're busy now, we'll deal with potential problems and risks later, when we have time.

Urgency: The focus, resourcing and issue resolution that is often delayed due to circumstances and **optimistic procrastination.**

However, we know that human beings are optimistic procrastinators. This means the underlying assumption, when you ask them to estimate what's going to happen, is, "If all goes well…" That's the optimism. A sophisticated project manager, aware of this natural tendency, might ask a follow-up question:

"Well, what if all does not go well?" At that point, we often find the team is simply not sure what to say. Who knows what might go wrong? So effectively, the team throws up its hands and says, "We have so many hard things to do right now, we'll cross that bridge when we come to it." That's what we mean by procrastination.

Optimistic procrastination is a consequence of, and exacerbated by, how teams naturally feel urgency on their projects. You may have experienced it this way: A project starts with a few people gathered together, because their manager said, "This seems like an interesting opportunity. What can we build to exploit it?" You brainstorm and bat around some ideas in parallel with all the other work you're doing. It seems worth pursuing, so you draft a rough schedule and notice it's going to involve a few more people, who are not currently available.

Eventually, you add those people, learn more, make some changes, and then build a prototype. People get excited, and a salesperson mentions to a customer it's coming down the pike. Suddenly, the team is being asked, "Can you deliver it sooner and with this one new feature?" One of the team members, now promoted to project manager, does some scheduling to see what it would take and when they can credibly promise to deliver. The team gets to work, with increasing concern as the deadline approaches. Finally, on a death march right before the deadline, the team generates a frenzy of activity and gets it all done, often late. Applause all around.

As in the above example, you can see the urgency of the team

typically tracks the **cost of making a change** curve. As the stakes get higher, the team finally learns what it needs to learn, gets the resources it always needed, and makes the hard decisions that should have been made earlier.

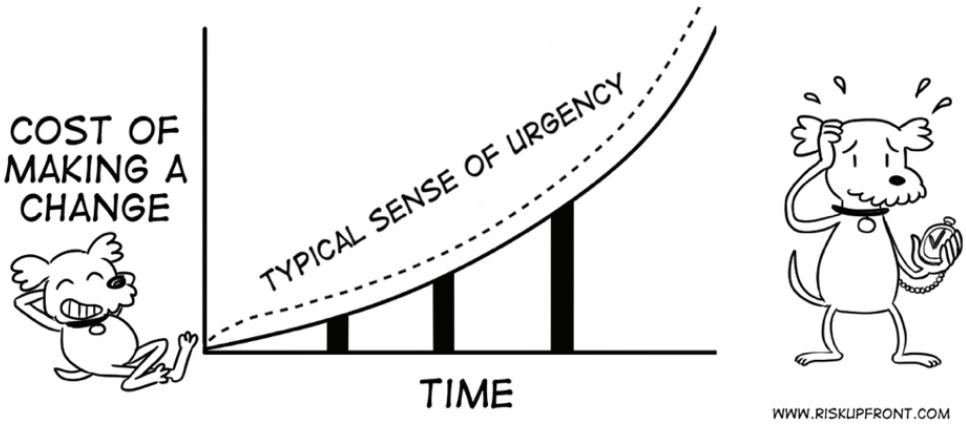


Fig. 3: Urgency typically starts low and increases as deadlines approach.

Delayed urgency and optimistic procrastination go hand in hand. When the deadline is far away, teams feel like they have plenty of time to solve problems later. But this is just an invitation to be thrown off schedule when issues arise late in the project—as they inevitably do.

Our goal is to transform this causal chain where optimistic procrastination and delayed urgency lead teams to defer tough decisions and rigorous risk mitigation, leaving projects derailed by too many late changes.

Risk Up Front is focused on shifting the sense of urgency to the front of the project in order to force issues to be identified and addressed early—when it is less expensive.

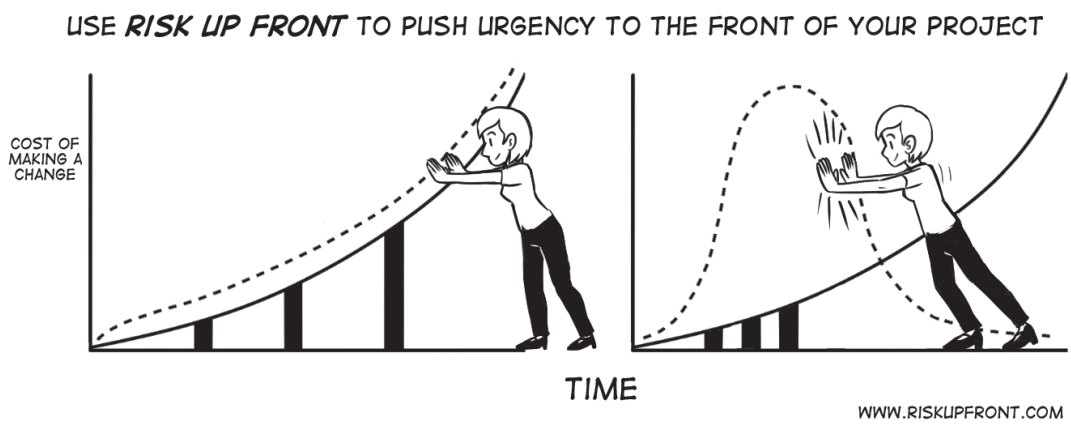


Fig. 4: RUF shifts urgency to the front; teams identify changes early.

Cost of being late: Pushing urgency to the front of your project is not free. It costs money. You spend this money in order to avoid the substantial costs of missing your schedule or missing your market window.

Making the cost of being late transparent to the team increases urgency and allows the team to make better decisions about how and when they will spend money to accelerate their schedule and mitigate risks.

Your cost of being late is not a single number; It is a narrative describing a set of factors and associated costs. This includes both linear costs (For example, "For every week we are late, we lose $X profit.") and non-linear costs (For example, "If we deliver after date X, we lose customer Y altogether.").

THE COST OF BEING LATE

Why would you expend any effort or behave with any urgency to finish your project at a particular time, or to reduce the likelihood of late changes that jeopardize your promised date, if there were no cost of being late?

In other words, if your project has no cost of being late, why should you bother to be on time?

This may seem like an odd question, because teams often share a "moral" sense that they ought to honor their promises to deliver when they say they will. But with Risk Up Front, we want to make clear our concern is utterly

practical. Teams are more productive, and their companies are more profitable, if they *have what it takes* to assess when they will deliver, commit to that date, then finish when they say they will.

Therefore, as part of Risk Up Front, we insist that cross-functional project teams, from the beginning of their project, consider, articulate, discuss, and agree on their cost of being late. It is rarely a single number. Think of it as a set of considerations, with measurable consequences attached. It is, essentially, *the compelling story* that gives the team the incentive to hit their dates. Critically, it creates the context for deciding how much money to spend on ensuring the project completes on time.

Suppose your team is building a product for sale. The product is launched into the marketplace, sales ramp up (and perhaps manufacturing costs stabilize), until a steady state is reached.

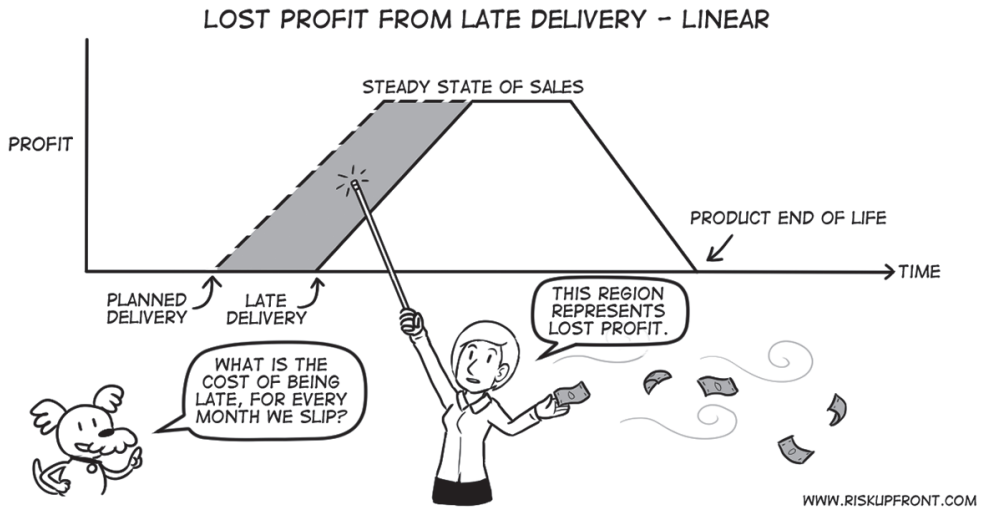


Fig. 5: The effect of late delivery on a typical product cycle.

At some point, sales decline, and it may be that sometime later, the product is no longer profitable to sell.

Why does that decline happen? You may have competitors in the marketplace, who come out with a competing product that cuts into your sales. Technology may advance, so your product is no longer competitive. Markets change, customer needs change, and so on.

It is critical for you and your team to understand that the time at which this decline occurs is not under your control. Your customers, your market, and your competition will evolve with or without you.

This means, if you launch your product late, the profit you lose is not simply the cost of moving that whole curve forward in time (the "time cost of money"). The launch ramp is later; the decline is not. The profitability you lose is the lost "steady state"—the most expensive profit to lose.

Let's look at how you answer the question, "What is our cost of being late?" For most projects, it consists of several components, which we can classify as "linear" (costs that accrue day by day) and "nonlinear" (costs, often catastrophic, that hit when a deadline is breached). Here are some linear costs:

- **Lost Profit.** If you are a month late, what is the value of a month of steady-state profit that you will lose over the product's life cycle?
- **Delayed cost savings**. If you are building something that reduces your operating costs, and you deploy it late, what is the value of those foregone savings?

- **Additional project expense.** What is the cost of paying the team to work on this project for an additional month?

Often, the nonlinear costs are more important. Here are some examples:

- **Breach of contract.** The project delivery date may be written into a contract with your customer. That contract may have specific penalties for late delivery.
- **Lost market share.** Even worse than losing a chunk of time at your steady-state profit level, that level may go down as late delivery runs into higher competition or your customers may turn to other solutions to solve their problems. The entire profitability curve will be lower.
- **Failure of business processes.** Suppose you are building a system that allows your existing business processes to keep up with your company's growth. If that system is late, at what point do your current systems simply fail? What is the cost to the company of that failure? It could be catastrophic.
- **Damage to customer relationships.** What is the value of permanently lost business from a customer who decides, based on your late delivery, that you are an unreliable partner?
- **Impact on valuation.** What does the company lose, as its ability to raise financing at favorable terms is degraded? Investors watch the results of the team, as they compare their results to the financial models on which they base their investment decisions.

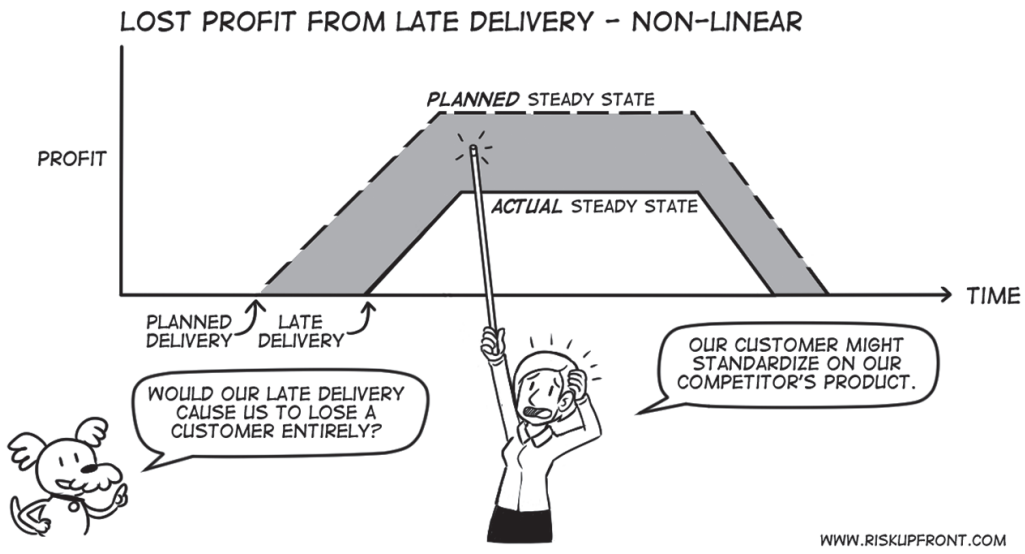


Fig. 6: The non-linear costs of being late.

The key to making your "cost of being late" useful is to make it measurable. Reduce all the impacts to actual amounts of profit lost or savings forgone. Be accurate where you can, but even a round number or a best guess, widely understood throughout the team, will change the way you deploy resources and mitigate risks.

The practices you put in place when you use Risk Up Front are designed to force a conversation about the cost of being late for your specific project from the start. Involving the entire cross-functional project team in this conversation is important, for two main reasons.

First, in the course of these conversations, the team will discover costs of being late they didn't know they had. For example, the team will discover a customer promise or contract provision they didn't know the company had made, or they may discover that their project is using people whom a later, critical project will need.

Second, the team will finally have a rational way to spend money to reduce risks that impact on-time delivery. For example, we've been in project meetings where a junior engineer *assumes* they don't have time to do a second round of testing on their next-generation software product, and the team discusses how to mitigate that risk. At the tail end of a long meeting, the manager reviews the cost of being late, and the junior engineer then volunteers that buying two additional test machines would allow for the extra testing and mitigate the risk. The manager asked, "Why didn't you suggest that before?" and the engineer replied, "I just assumed management would never approve such a substantial unbudgeted expense, and I would have to live with the equipment we have in the lab. But when I realized the cost of being late was so much larger than the cost of the equipment, requisitioning it was a no-brainer."

HOW DOES RISK UP FRONT WORK?

RUF is, for the most part, indifferent to both the type of product or service being developed and the specific project-management process being deployed. This has allowed RUF to be used in a range of industries, from software to semiconductors to ice machines, and with many methodologies, including Stage Gate, Six Sigma, Agile, and Lean.

Risk Up Front focuses on creating a foundation that allows industry and project-specific tools to be properly leveraged. For example, if a team does not have a foundation in **integrity**, then a project schedule is just one more promise that won't be kept.

Integrity is one of the four principles at the heart of Risk Up Front. These principles live in the conversations of the team, so it is important to define them in language. Here are the core definitions of RUF's four principles:

- **Accountability:** "Singular ownership of a result."
- **Transparency:** "Team-wide clarity of what is so."
- **Integrity:** "Do what you say."
- **Commitment:** "It will be so, even in the face of circumstances."

You may be thinking these principles are wonderful abstract concepts, but how can we make them show up reliably in practice? Much of the rest of this book is concerned with techniques that take these ideas out of the realm of "aspirational posters on the wall" and engineer them into the day-to-day work of your team.

Risk Up Front depends on four levers to drive change. The four principles are reflected in **language**, because they are concepts that live in the conversations of the team. Another example is the risk language of **cause**, **effect**, and **impact** (CEI) that we use to turn concerns and complaints into action.

Language is one of the four levers Risk Up Front uses to shift behavior and culture. Here are the four levers:

- **Language,** driving values through conversation;
- **Structures,** including how you spend money and deploy resources;

- **Practices,** reliably repeated or triggered activities and tools;
- **Metrics,** the results you choose to measure.

These levers make possible many types of changes in an organization's culture, not just Risk Up Front. We will discuss them in depth in chapter 3. Then we will describe in chapter 4 how they allow you to integrate accountability, transparency, integrity, and commitment into your day-to-day work. Chapter 5 then goes into the shift in language for communicating and causing action on risks.

Risk Up Front is different from most methodologies. It is not simply a series of steps or processes. RUF's effectiveness comes from the holistic and ongoing use of these levers *throughout* the project. For example, the full cross-functional project team is deployed to identify hidden risks pervasively, not just at a "risk meeting" in the planning phase.

The tools of Risk Up Front are intended to be used together. The RUF **project statement** looks like a relatively simple project charter document, but when combined with rigorous transparency and the **definition meeting**, it becomes a powerful tool for early risk identification and team commitment. This really is a case where "the whole is greater than the sum of its parts."

If this is sounding a bit poetic, and perhaps confusing, that's OK. We are asking you to make a significant shift in how you think about running projects and creating high-performing teams. The rest of the book will clarify these concepts and discuss how to effectively deploy them on your teams.

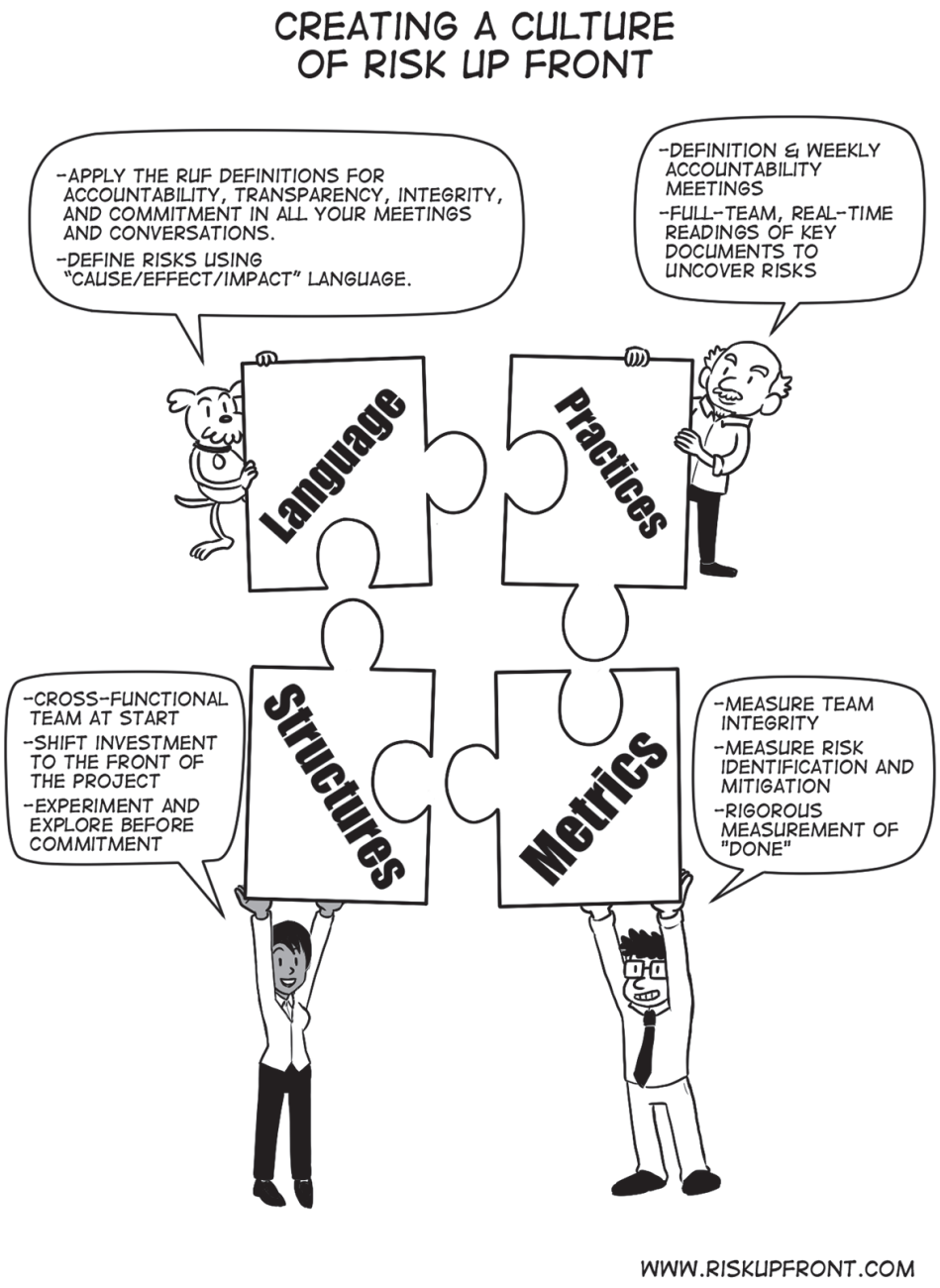


Fig. 7: Creating a culture of Risk Up Front.

Risk Up Front is, ironically, flexible with regard to many of the classic techniques of project management while being stubbornly rigorous on certain practices that are not often

explicitly discussed, such as the importance of line-by-line team review of documents and the decisive role of language. Our approach is designed for dynamic organizational environments. Teams are created, then disbanded. Project timelines are short and unforgiving. And teams must anticipate market, technical, and organizational risks. Risk Up Front is a methodology for reliably scaling complex adaptive teams.

You can see the overall picture of what it takes to create and maintain a culture of Risk Up Front on your projects. It is a multifaceted activity. The rest of this book will define each tool to explain how the different pieces fit together. We hope you will enjoy the ride.

THINGS TO REMEMBER

- Late changes on projects are expensive, and they cause projects to fail.
- People are naturally optimistic procrastinators.
- Risk Up Front creates early urgency by increasing accountability, transparency, integrity, and commitment in day-to-day activities.
- Implementing Risk Up Front involves making changes to the Language, Structures, Practices, and Metrics within your team and across your organization.