Managing Catastrophic Risk in a Dynamic World

System Logic’s mission is to help organizations reduce their exposure to the potentially catastrophic risks that stem from the interaction of human, organizational, and systemic vulnerabilities.

We do this in two independent and parallel ways. We develop customized training for leaders and teams on decision making, biases, and risk. The trainings provide practical techniques that can be used both to manage risk and to make better decisions. Research shows that these techniques not only reduce risks but can also foster agile organizations and encourage innovation.

In addition, we use a proprietary, research-based methodology to help managers identify hidden risks within their organizations. We then leverage the organization’s own risk-management expertise to formulate actionable mitigation strategies.

The following reading list introduces leaders to practical advice that they can use to overcome common human, organizational, and systemic challenges. While based on rigorous research, most of the following articles are specifically targeted to practitioners. As much as possible, we have chosen content that is open and accessible. Finally, we have included a selection of works that delve into the root causes of catastrophic failures so that interested readers may engage with the ideas that have inspired our own practice.
I. MANAGING TO AVOID BIASES

A 12-question checklist that can reveal the cognitive biases in teams

The premortem: A technique to unearth hidden risks

Six common mistakes to avoid when thinking about risk in organizations

II. BUILDING RESILIENT SYSTEMS AND ORGANIZATIONS

Build a better mousetrap: how to design a resilient technology platform for your organization

Overcome overregulation in finance

Predict the future: how to foresee the next catastrophe

How paying attention to failure can pay dividends

Building resilient organizations that effectively manage unexpected crises

Cognitive biases—fundamental limitations in human thinking—can result in decisions that are systematically and predictably flawed. These readings help leaders understand how to recognize and overcome the biases that teams and individuals bring to the table.

The way a system is built and the way an organization is structured can profoundly affect how resilient each is to unexpected shocks. From the role of redundant technology to the benefits of communication and learning from failures, these articles and books explore how a considered approach to systemic and organizational features can increase robustness.
III. THE BIG PICTURE: THE ROOT CAUSES OF CATASTROPHIC FAILURE

The root causes of catastrophic failure are human, systemic, and organizational. These works go beyond applications relevant for practitioners. They provide in-depth case studies and lay the theoretical foundation for many of the insights on systemic failures that form the basis of our work.

A systemic view: The role of complex interactions and tight coupling

What can mountain climbing teach us about air crashes and nuclear meltdowns?

Ideas in Practice: A tour of the nuclear weapons “sausage factory”

How small errors combine into major catastrophes
System Logic: Manage Complexity

Our methods are driven by sophisticated research, and our analysis, whether submitted as Congressional testimony, published in Harvard Business Review, or delivered directly to the boardroom, provides actionable insight on complex topics. We work with clients to identify and mitigate risks, especially those that arise from complex operations, and train leaders to effectively overcome cognitive and organizational biases to make effective decisions in increasingly competitive, complex, and risky environments.

Chris Clearfield is a principal at System Logic. Before starting System Logic, he worked as a derivatives trader at a prestigious proprietary trading firm. After years as a trader in New York, Tokyo, and Hong Kong, his role matured to analyzing the financial and regulatory risks inherent in technologically complex systems and to devising policies for mitigating those risks. He holds an A.B. from Harvard College, where he studied physics and biology, and is a licensed pilot.

Benjamin A. Berman is the former Chief of the Major Investigations Division of the U.S. National Transportation Safety Board (NTSB), where he managed the investigations of air carrier accidents. As a Senior Research Associate for NASA, he has studied and written about the role of psychology and human factors in safety, including numerous articles and the book The Limits of Expertise: Rethinking Pilot Error and the Causes of Airline Accidents. Berman is qualified as a Captain for a major U.S. airline in worldwide operations, and has served as expert commentator on CNN, PBS, NPR, and in the New York Times, Washington Post, and USA Today. He holds an A.B. in economics from Harvard College.

András Tilcsik (Director of Research) is an Assistant Professor of Strategic Management and a fellow at the Lee-Chin Institute at the Rotman School of Management at the University of Toronto. He is a co-founder of System Logic and guides the firm’s research projects. He holds a Ph.D. in organizational behavior from Harvard University, where he also earned an A.B. in economics and an A.M. in sociology. His research explores how rules and institutional policies shape organizational practices, including the handling of risk and uncertainty. At the University of Toronto, he teaches an award-winning MBA course on Catastrophic Failure in Organizations.