MANAGING CATASTROPHIC RISK IN A DYNAMIC WORLD

Should you wish to discuss training or implementation strategies for any of the ideas covered below, we would love to help. Get in touch by email (contact@system-logic.com), or phone (646-543-4250). For research, practical tips, and more information on our services, visit www.system-logic.com

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.

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.

I. MANAGING TO AVOID BIASES

A 12-question checklist that can reveal the cognitive biases in teams
Kahneman, D., D. Lovallo, and O. Sibony. 2011. "Before you Make that Big Decision." Harvard Business Review, 89(6): 50-60. http://bit.ly/1Ql9hN7

The premortem: A technique to unearth hidden risks
Klein, G. 2007. "Performing a Project Premortem." Harvard Business Review, 85 (9): 18-19. http://bit.ly/1JdPc9z

Six common mistakes to avoid when thinking about risk in organizations
Taleb, N. N., D. G. Goldstein, and M. W. Spitznagel. 2009. "The Six Mistakes Executives Make in Risk Management." Harvard Business Review, 87(10): 78-81. http://bit.ly/1JdPhKC

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.

II. BUILDING RESILIENT SYSTEMS AND ORGANIZATIONS

Build a better mousetrap: how to design a resilient technology platform for your organization
"Black Swan in the Server Room: Avoiding Disaster in Disaster Planning." System Logic White Paper, 2014. http://bit.ly/1yRzEVw

Overcome overregulation in finance
Clearfield, C., Tilcsik, A., and Berman, B. 2015. "Preventing Crashes: Lessons for the SEC from the Airline Industry." Harvard Kennedy School Review. http://bit.ly/1OfBaI7

Predict the future: how to foresee the next catastrophe
Watkins, M. D., and M. H. Bazerman. 2003. "Predictable Surprises: The Disasters You Should Have Seen Coming." Harvard Business Review, 81(3): 72-85. http://bit.ly/1yRyUzv

How paying attention to failure can pay dividends
Tinsley, C. H., R. L. Dillon, and P. M. Madsen. 2011. "How to Avoid Catastrophe." Harvard Business Review, 89(4): 90-97. http://bit.ly/1HWqPf7

Building resilient organizations that effectively manage unexpected crises
Weick, K. E., & Sutcliffe, K. M. 2007. Managing the Unexpected: Resilient Performance in an Age of Uncertainty. John Wiley & Sons. http://amzn.to/1JvMR6A

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
Perrow, C. 2011. Normal Accidents: Living with High Risk Technologies. Princeton University Press. http://amzn.to/1JdQQrK

What can mountain climbing teach us about air crashes and nuclear meltdowns?
Roberto, M. A. 2002. "Lessons from Everest: The Interaction of Cognitive Bias, Psychological Safety, and System Complexity." California Management Review, 45(1): 136-158. http://bit.ly/1HWshOw

Ideas in Practice: A tour of the nuclear weapons "sausage factory"
Schlosser, E. 2013. Command and Control: Nuclear Weapons, the Damascus Accident, and the Illusion of Safety. Penguin Group US. http://amzn.to/1OfHb7q

How small errors combine into major catastrophes
Weick, K. E. 1990. "The Vulnerable System: An Analysis of the Tenerife Air Disaster." Journal of Management, 16(3): 571-593. http://bit.ly/1OI6tpR

System Logic: Manage Complexity

System Logic is a boutique research and consulting firm focusing on issues of risk and 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.

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