

ONE Introducing Policy Messes

1. On the search for narratives to make sense of the financial mess, see Yergin 2009 and Crook 2010.

2. A “wicked” problem has features that render it intractable to conventional policy analysis (see, for example, Rittel and Webber 1973). First, there is no definitive formulation of a problem and thus no definitive solution. Each wicked problem is a symptom of other wicked problems and is therefore difficult to parse and explain. Accordingly, the boundaries of problems and solutions are under dispute, because the problems are so interrelated and unpredictably so. Whatever solutions the decisionmaker generates are produced in the absence of any clear test to determine if they are really feasible or effective over time. The financial meltdown has been termed a wicked problem (see, for example, Stapleton 2010).

3. When Kingdon writes of the “messiness” of public policy and agendas, he allies it with “accident, fortuitous coupling and dumb luck” (1995, 206). Similarly, Stone writes, “Politics is ‘messy,’ ‘unpredictable,’ an ‘obstacle course’ for policy, and ‘a hostile environment’ for policy analysis” (2002, 376). Management experts refer to the “messy process of experimentation, failure and feedback” (London 2003).

4. Although not concerned with policy messes, Abrahamson and Freedman (2006, chapters 3 and 5) list many kinds of mess and messy people found in daily life (for another popular view, see Rigby 2008).

5. “Far from promoting ‘dispersion’ or ‘diversification’ [financial] innovation has ended up producing *concentrations* of risk, plagued with deadly correlations” (Tett 2009d).

6. Martin Feldstein, a Harvard economist and advocate of competitive markets, wrote about the issue of pricing toxic assets associated with the subprime mortgage crisis: “The Treasury’s preliminary idea was to use a ‘reverse auction,’ a method that works well when used to buy a single homogeneous security (like a firm buying back its own shares). But that is not feasible for buying the impaired securities, because of the enormous variety of underlying mortgages and of the almost limitless number of different derivatives based on those mortgages. The buyback will therefore involve a large number of arbitrary valuation decisions by the Treasury staff and their investment-banker advisers” (2008).

7. The 2008 financial mess and its sequelae have done little to dampen Shiller’s promotion of financialization and innovation (Shiller 2012).

8. A very different kind of leader, U.S. General David Petraeus, said we should be content with a “messy, sloppy status quo” in Iraq (quoted in Dombey and Savastopulo 2009).

9. Mitroff, Alpaslan, and Green suggest that problems in crisis management are, in part, “*relatively structured messes* that have been extracted from potentially highly *unstructured messes* for the purpose of *better managing* current and future messes” (italics in the original; 2004, 177).

10. Those wishing to pursue Ackoff’s insights on mess in business and related fields can start with Ackoff 1999 and Ackoff and Rovin 2003. Those interested in the role of mess in other fields should begin with mess theory in literary criticism (Trotter 2000), rubbish theory in anthropology (Thompson 1979), or the heap paradox in philosophy (that is, at what point does, say, a heap of sand cease to be a heap, as grains of sand are removed one by one? See Williamson 1994).

TWO When Reliability Is Mess Management

1. “There is no agreed [on] definition of financial stability, except perhaps to identify it with the stability of the banking system, itself sometimes defined simply as the lack of collapsing banks” (McDonald 2009).

2. It appears that bust and burst are to be expected from economic booms, as happened with export-driven growth in Asia and Latin America (Klein and Cukier 2009; Rodrigues et al. 2009).

3. Contrast this state of affairs with the earlier stability that led to, well, stability. By ensuring stability, the integrated utilities for pre-deregulation electricity and telecommunications—and banks—actually continued to be reliable. No wonder a nostalgia for banks as utilities, divorced from their latter-day casinos, has grown (see, for example, Wolf 2008b).

4. This section builds on research reported in Roe and Schulman (2008) with revisions in light of subsequent work.

5. One former head of a major private banking unit argued that “all utilities need in-built redundancy and careful balancing. Without that margin of safety in electricity, for example, the lights may constantly go off. Redundancy and balance are . . . exactly what the promoters of [the Basel II Capital Security Accords] removed from the financial system” (quoted in Plender 2009a). So, too, for European capital rules, hammered out after the failure of the Basel Accords during the financial meltdown: “But the real risk . . . is that people start to believe too much [in these new models and rules] and drive out redundancy, or margin for error,” said one financial analyst (quoted in P. Davies 2009). However, some banks increased reserve margins above what regulators required to ensure positive redundancy: “The traditional ‘Swiss finish’ whereby the authorities added 20 per cent to whatever number the Basel calculations delivered for their big banks, has been replaced by a doubling of the Basel number. This might be characterised as the ‘think of a

number and double it' approach to setting capital, but may be none the worse for that" (H. Davies 2009).

6. For a popular account of how experts rapidly sort through a great deal of clutter to discern patterns that matter, see Gladwell 2005. The ability to assemble an option or response through different pathways may be a cognitive feature of the brain (see, for example, Edelman 2007, 1105).

7. The presence in financial markets and on trading floors of what I am calling here just-on-time performance has been well documented (see Knorr Cetina and Bruegger 2002). Zaloom reports one trader saying: "Just at the right time, I mean literally it was within a second, a split second. I literally caught a little pause in his offer where he was just kind of looking in all directions. I just happened to jump and bid and scream at him literally—I mean I'm not even going to say tenths of a second—I'm going to say hundredths. . . . If I didn't jump a foot and a half off the ground and bid fours at that guy just as I did and the way I did it, he wouldn't have seen me" (2006, 150). Other cases of just-on-time performance can be sedate by comparison: "It's day by day, hour by hour," said one participant in a case study of public-private collaboration in regulating derivatives (Faerman, McCaffrey, and Van Slyke 2001, 378).

8. For a different case, see Wood 2009. For more on bank nationalization and beyond, see Boyarchenko and Levendorskii 2009.

9. Legal reservations have been expressed about other developments in the financial crisis, such as then-Secretary of the Treasury Henry Paulson's requirement that the CEOs of nine major financial institutions sign a document permitting government equity participation in their firms (see Poole 2008). Even less salubrious examples may include the 2012 LIBOR scandal, which raised issues of "underreporting of rates" with respect to the London Interbank Offered Rate during 2007–8 (see Plender 2012 for what could be some just-for-now features). Other legal questions have been raised, for example, concerning specific Federal Reserve interventions (Hubbard, Scott, and Thornton 2009). Even judges were accused of not following foreclosure law due to the exigencies of the financial crisis (see, for example, Efrati 2009).

10. "A clearing house stands between two parties to a trade, guaranteeing that a transaction is completed even if one party defaults. The lack of such a mechanism in most of the OTC [over the counter] markets prior to the Lehman Brothers default was one reason why shockwaves were sent through the financial system" (Grant 2009d).

11. To put this in perspective, "financial services account for 8 percent of [U.K.] gross domestic product, which is similar to the US and much less than Singapore or Hong Kong" (Plender 2009b). Others put U.K. financial services at about 12 percent of its GNP (Brittan 2008); banking assets are a considerably higher percentage of GDP or GNP, however (see, for example, Wolf 2010). As for the United States and using a different measure, Benjamin Friedman reports that the "share of the 'finance' sector in total corporate profits rose from 10

percent on average from the 1950s through the 1980s, to 22 percent in the 1990s, and an astonishing 34 percent in the first half of this decade” (2009, 42).

12. Note again the importance of electricity and telecom in a cross-infrastructure perspective. According to the TNO summary: “The energy sector initiates more cascades than it receives. Interdependencies occur very infrequently. . . . Fixed telecom disruptions affect ATMs and electronic payments (financial sector), . . . governmental services, and internet and telecom services. Within the energy sector, most dependencies (61) occur between power generation, transmission and distribution” (Luijff et al. 2008). Using an earlier and different database, Zimmerman (2004) also found that disruptions in electricity and gas, water, and roads are more likely to generate cascades in other infrastructures.

THREE The Wider Framework for Managing Mess

1. The term “reliable mess manager” is shorthand for the more formally termed “mess and reliability professionals.” They are those reliability-seeking managers and operators as described by James Q. Wilson (see Wilson 1989 for a fuller discussion of the latter categories). For our purposes, these managers are those who specifically provide reliable critical services in ways that require them to manage messes in the process.

2. I thank Paul Schulman for the basic framework here, though he is not responsible for my adaptations and extensions. This section’s discussion builds on earlier research work in Roe and Schulman 2008, but with some substantial revisions. For a review of the research on which this section is based, see Auerswald et al. 2005, Roe et al. 2002 and 2005, Roe and Schulman 2008, and Schulman et al. 2004.

3. The focus is on the mix of knowledge, as there is no single gradient between deduction and induction. Such intermixed knowledge used in managing reliably is related to the familiar topic known as “the reliability of knowledge.” The degree to which information is reliable depends on how uncertain, complex, incomplete, and disputed it is; in other words, just how messy is that information. Some critical services, including those in finance and banking, are so knotted together with the reliability of information that the two are difficult to untangle.

4. See Schell 2008 (231).

5. In the presence of large amounts of data and detected signals, Sull and Bryant ask: “How can managers make sense of this deluge of information? The task is primarily one of pattern recognition” (2006). In case it needs saying, pattern recognition as well as scenario formulation proceed both consciously and unconsciously (for a fascinating discussion on the importance of non-conscious human processing of pattern recognition, see Grigsby and Stevens 2000, chapter 12).

6. Recognizing patterns and formulating scenarios are rooted in the evolu-

tion of the human brain. What some psychologists call contextual memory, for instance, is an evolved responsiveness both to site-specific cues and to the piecing together of those and other cues (Marcus 2008, 18–39).

7. Speaking of the better coordination of anticorruption investigations and regulation, one observer concludes: “Officials know each other’s phone numbers, they talk and meet frequently . . . I see [a recent statement on antibribery investigations] as a formal acceptance of many of the previously informal techniques and thus as a sign of convergence” (quoted in Chung 2009).

8. The real-time nature of the translation exercise has been long understood (see, for example, Hayek 1945). I thank Paul Schulman for pointing out this work to me.

9. In the words of the finance economist Avinash Persaud: “Many politicians and watchdogs think of risk as a single fixed thing inherent in instruments. . . . But risk is a chameleon: it changes depending on who is holding it. Declaring something safe can make it risky and vice versa” (2009, 9).

10. Street-level workers “do not tell stories about efficiently implementing public policy; they tell stories about using policy and the system to serve individuals” (Maynard-Moody and Musheno 2003, 49).

11. An earlier version of the following discussion appeared in Roe 2007. This section represents a considerable rethinking of that earlier case study.

12. The well-known ecologist Stuart Pimm and his colleague Jeff Harvey criticized Bjørn Lomborg’s *The Skeptical Environmentalist* as follows: “The text employs the strategy of those who, for example, argue that . . . Jews weren’t singled out by the Nazis for extermination” (quoted in Brander 2002, 973).

13. There are also regional differences in other areas with respect to global climate change. “In Europe, governments are implementing the Kyoto Protocol on climate change by customizing it to local and regional needs,” reports an informed observer. “Meanwhile, governments elsewhere are also developing their own locally tailored trading systems. The authors of the Kyoto Protocol [in contrast] envisioned a single global trading system with a single price” (Victor 2006, 100).

14. The long-term horizon has in fact been key to the comparative success of investing in timberland (Boyde 2011).

15. The complexity of international and regional globalization should not distract one from the sheer complexity found at lower scales of analysis. In the mess and reliability space, the “system” could as well be a corporation or organization that operates transnationally. For example, Citigroup, damaged in the financial mess, had 16,000 offices across some 140 countries in 2009 (A. Lee 2009). At the time of its collapse, AIG was an organization of more than 4,300 legal entities with 116,000 employees and operations in 130 countries (Felsted and Guerrero 2008; Morgenson 2008). Its collapse is said to have started within just one of those entities, a 377-person unit in London (Morgenson 2008). So too elsewhere: “At Royal Bank of Scotland, with 170,000 employees around the world, the business was crippled by activities that more than 169,000 of them

did not know about and were not engaged in” (Kay 2009b). Nor is any of this new. In 1998 the collapse of a single hedge fund firm, Long-Term Capital Management, nearly brought a good deal of the U.S. economy down with it. In the words of a senior *New York Times* financial columnist, “the notion that a private hedge fund with but 16 partners and fewer than 200 employees could cause lasting harm was never truly examined” (Lowenstein 2008).

16. Alexander Hamilton, the first Secretary of the U.S. Treasury, argued that government executives had to fulfill duties that were so numerous and engaged so many other people that these tasks could never be fully specified in any legislation. Because his explanation closely approximates what I have described as networked professionals, I quote at length from a letter by Hamilton to William Heth, dated June 23, 1791: “My opinion is that there is and necessarily must be a great number of undefined particulars incident to the general duty of every officer, for the requiring of which no special warrant is to be found in any law. . . . If it be said the law should then require this [or that], I answer that the detail would be endless. And surely it would not answer in respect to any officer that to say he must do *whatever* he is required to do. And if all that he is to do is to be defined the Statutes of the United States must be more voluminous than those of any Country in the world. . . . Consult, my Dear Sir, the Code of any nation whatever and examine the practice in relation to the point in question and you will find there is no law providing for a thousandth part of the duties which each officer performs in the great political machine & which unless performed would arrest its motions” (Hamilton 1965, 499–500).

17. Nonacademic summaries of the unique knowledge, however, are many. A good one that overlaps with points made here is McPhee 2006 (57).

18. Let us start with some statistics about the mess in which African American men find themselves in the United States:

- “Black Americans, a mere 13 percent of the population, constitute half of this country’s prisoners. A tenth of all black men between ages 20 and 35 are in jail or prison” (O. Patterson 2007, 13).
- “Something like one third of our young African American men between 18 and 25 are now connected to the juvenile justice system or the federal justice system. They’re on probation, they’re in jail, they’re under indictment or they’re incarcerated” (Benjamin Barber in “Afro-America at the start of a new century,” 2002, 100).
- “[Based on recent national statistics,] the most striking thing is the high portion of black men with zero *reported* income: about 18 percent of black men, compared to about 7 percent for whites and Hispanics” (Besharov 2007, 45).
- “After declining throughout the 1980s, employment rates of young, less-educated white and Latino men remained flat during the 1990s. Among black men aged 16 through 24, employment rates actually dropped. In

fact, this group's employment declined more during the 1990s (when it fell from 59 percent to 52 percent) than during the preceding decade" (Holzer and Offner 2004, 74–75).

- “The most dramatic, the most unfortunate of the several disastrous outcomes is the high rate of paternal abandonment of children[:] 60% of Afro-American children are being brought up without the emotional, economic or social support of their fathers” (Orlando Patterson in “Afro-America at the start of a new century,” 2002, 91).

If the figures about male African-Americans are true, then would we—that is, those of us who are tasked with managing this—not want to touch base with the nine-tenths who were not in prison, the two-thirds who were not connected with the criminal justice system, the four-fifths who did not have zero income, the nearly half who were employed, and the two-fifths who had not abandoned their children, in order to find out what they are doing right, so the rest of us could do things better?

FOUR Bad Mess Management

1. This may be one reason why the exercise of presidential prerogative in the face of unforeseen emergencies has never really been sufficient to establish precedent for future executive or legal action (Fatovic 2009, 56, 66).

2. In high reliability organizations, it is said that professionals are as reliable as their last case (Roe and Schulman 2008). So too for this example: Forensic science “is a business where you’re as good as your last case,” according to a former president of the American Academy of Forensic Sciences (quoted in Hamill 2008; for a book-length review of the issues, see Fisher 2008).

3. “Today, more than 30 per cent of all stock transactions in the US do not occur on regulated exchanges. Dark pools, less regulated trading venues that match anonymous buyers and sellers without displaying prices publicly, and other alternative trading platforms can play an important role by enhancing liquidity for certain investors, but these benefits come at the cost of less overall transparency and price discovery across the marketplace,” reports the CEO of NYSE Euronext (Niederauer 2010). By mid-2012, Niederauer had revised the figures upward: “Today, approximately 50 dark pools in the US operate largely outside regulatory oversight and, along with equally opaque internal trading operations by major brokers, handle nearly 40 per cent of daily trading volume. For more than 1,200 widely held equities, more than 50 per cent of trades now occur ‘in the dark’—nearly a 150 per cent increase over the past two years” (2012).

4. Nor is this the sole example of a sometimes messy reliability management under way in the midst of a crisis. As of this writing, the money market mutual funds have been stabilized through one of the Treasury’s bailout programs (Anand 2009).

5. Similarly, “Carl Linnaeus published the first edition of his classification of living things, the *Systema Naturae*, in 1735. Shortly thereafter, while having lunch with a colleague at the University of Leiden, he was in the middle of explaining the nature of his classification system, when the colleague stopped him in mid-explanation. A beetle had crawled onto the table, and the colleague wanted to know where this particular type of beetle fit into the classification system. Linnaeus examined the bug carefully, and frowned. Then he squished the bug with a thumb, flicked it from the table, and asked, “What beetle?” (Trickett, Schunn, and Trafton 2005, 97).

6. “It is claimed that a Dutch colonial administrator, noting the higher price achieved by mace in the 17th century global commodity market, ordained that nutmeg trees in the Moluccas—not, after all, called the spice islands for nothing—should be uprooted to make space for the much more remunerative mace trees. It is cheering to know that bureaucracy has not changed much in 400 years. Had he been better informed, he would have realised that mace and nutmeg are from the same tree” (Leigh 2006, W11).

7. Better practices need not counter an individual bad practice; instead, they can counter a combination of bad practices (Guha 2007b).

8. It appears that unregulated OTC transactions were more profitable, on the whole, than many of those that went through regulated clearinghouses. A senior official in one exchange observed that “OTC clearing in general is a utility business” adding: “Nobody will make a lot of money out of it” (quoted in Grant 2009a).

9. Distinguishing between regional and global levels of analysis and management is especially crucial in responding to global climate change. For example, a *Science* article argues that environmental false alarms do indeed happen at the global level, but they nonetheless are a useful feature of global environmental action (Pacala et al. 2003). The authors go on to point out that the optimal number of environmental alarms occurs when the marginal benefits of environmental alarms are equal to their marginal costs. We must wonder, however, if the authors and like-minded associates have been hard at work on showing how that happy equation varies within and across *multiple* regions of the world and is confirmed by a regional analysis well beyond the United States alone.

10. Such figures are highly uncertain. For a first-pass set of estimates, see the special issue of *Foreign Affairs* (“The Next Pandemic?” 2005), particularly Osterholm 2005. See also Osterholm 2007. My comments are not a blanket condemnation of quantitative modeling or its potential usefulness for real-time operations. David King, a former U.K. science advisor, tells of the importance that modeling the 2001 foot-and-mouth disease outbreak in Great Britain had for decisionmaking: “Within a few days, we were able to advise the government, on the basis of modeling, that we had come up with a new control procedure. That was the cue for the prime minister to say, ‘Fine, we’re going with this.’ And it followed through. Within a few days, we’d switched

[the virus's] exponential growth to exponential decay, and the cabinet learned in real time that science could model an extremely complex situation and provide very robust advice for action" (2007, 1862). Notice that the modeling was successful because it produced a control protocol for the case at hand.

11. The importance of translation as a middle domain function, with its focus on translation of system patterns and specific scenarios—all networked—has been highlighted in *Science*: "Broader networks could expand linkages to other like-minded organizations. . . . We believe that more frequent robust exchanges of know-how among an expanding universe of public- and private-players would accelerate innovation and expedite the translation of knowledge about diseases of the poor while also reflecting national sensitivities, changing contexts, and the concomitant desire for economic growth" (Morel et al. 2005, 403). Certainly, one factor accounting for successful microfinancing schemes among the poor has been the network-based support that individual borrowers have received. On advances and constraints in community-based health care networks, see Adams 2010.

12. For an early slant on large-scale initiatives and the case for incrementalism, see Collingridge 1992. My thanks to Paul 't Hart for the reference.

13. The adjective "wide," modifying any distribution, denotes that uncertainty includes variability in human behavior with respect to the policy messes in which people find themselves: "Variability is an inherent characteristic of a population, inasmuch as people vary substantially in their exposures and their susceptibility to potentially harmful effects. . . . Variability cannot be reduced, but it can be better characterized with improved information" (National Research Council 2009, 6).

14. The acronym CPR is also associated with "common property resources," though not all common pool resources have property status.

15. Any way the mess and reliability manager looks at development, hunger is the priority (Sanchez and Swaminathan 2005). Even economists have found positive net benefit to hunger and malnutrition programs whose benefits well outweigh their costs (see Copenhagen Consensus n.d.). No one who understands mess and reliability really believes that we must first solve poverty and inequality if we are to reduce hunger appreciably, yet poverty and inequality receive more attention.

FIVE Good Mess Management

1. Consumption turns out to have been more equal than income, at least in the United States (Johnson 2002). That is to say, "there has been a large increase in income inequality but no concurrent increase in consumption inequality in the 1990s," according to an analysis of major data sets by Fisher and Johnson (2006). "One could argue that [Americans] don't care about inequality because the poor do pretty well in America, if one looks at the measure of consumption rather than income inequality" (Glazer 2003, 111).

2. Of course, one reason for differences among the uninsured could well be that the better off are healthier or have more assets than the poorer uninsured (for example, a number of the better off are young, or they have not signed up for Medicare or the Children's Health Insurance Program, even though they are eligible to do so). The merit of that explanation, though, is an empirical question, not one that can be settled a priori by any macro designer.

3. My thanks to Ian Mitroff for the insight.

4. Assessing the possible rather than the probable is far from Reverend Bayes's updating of probabilities; it is closer to the economist G. L. S. Shackle's work on surprise and the possible. People who are serious about mess and reliability should be worried about the prominence of Bayesian analysis (see K rding 2007). The notion that the brain has evolved into an optimal Bayesian decisionmaking apparatus rather than the kluge it actually is deserves to be examined more fully (Marcus 2008).

5. "Since the international system depends on the free, reliable and orderly flow of financial resources," writes Strobe Talbott, the head of the Brookings Institution, "failure to solve the current mess will stymie progress in those other areas—trade, climate and proliferation" (2008, 11).

6. One avoidance mechanism has been regulation. "The oft-derided existing regulatory toolkit has been deployed more effectively in some jurisdictions than others," concludes the Governor of the Bank of Canada" (Guha 2009b). For a perspective on how Australia successfully weathered the financial mess, see "The World Looks on with Envy" in the *Weekend Australian Financial Review* of September 5–6, 2009.

7. Other reliability-seeking examples merit attention: "Since 2000 banks there [in Spain] have had to make provisions for latent portfolio losses—those likely to occur but which are unrecognised by conventional accounting. This buffer takes the form of a reserve deducted from capital in good times and released in the downturn. It is calculated by comparing long-run credit growth in the economy with the current rate of credit growth. 'Dynamic provisioning' offers a better idea of profitability and solvency over time and helps prevent dividend increases in good times that might undermine banks' solvency. But the Spanish model is not compliant with global accounting standards. And it did not prevent a housing bubble as the macro-prudential approach battled a fierce monetary headwind—the European Central Bank's one-size-fits-all interest rate was lower than appropriate for a boom economy. Spain's banking system has nonetheless come through the crisis in better shape than most" (Plender 2009c). Note again that nothing is permanent about good messes, as banking complications arising out of the subsequent sovereign debt crisis in Spain indicate (Lex Column 2012).

8. Nevertheless, unless this is made easier, we can expect all manner of resistance to being your own healthcare manager—and for the same reason that it is difficult to be your own financial manager: "The idea that small savers are equipped to assess the risk associated with these [bond and invest-

ment] products by reading the small print [of their prospectuses] is absurd” (Kay 2010). Absurd it may be, but increasingly required it is.

9. The ability to consider multiple pathways and assemble options creatively appears to be a contribution of the frontopolar cortex to human cognition (see Koechlin and Hyafil 2007).

10. In addition to confirmation bias (selectively accepting and not attending to factors) and attribution error (fitting the situation into a positive or negative stereotype), any list of cognitive biases includes much more: “Most people are irrational in the ways they assess and manage risk. We overestimate the dangers of the rare and unfamiliar; we worry irrationally little about banal everyday dangers; we think situations where we have no control more dangerous than those where we think we have some, even though that is often wrong. So we worry far more about the dangers of train crashes than we do about car accidents, even though we are far more likely to die on the roads; we obsess about BSE or AIDS or other rare diseases more than we do about the prosaic killers, even though we would improve our life chances far more by giving up smoking, eating better diets and taking moderate amounts of exercise” (Honigmann 2004; see also Pronin 2008). Making cognition even more complex, “consciousness rarely has access to the actual causes of our behavior, although it is capable of creating a plausible and adaptive model of reality that is good enough for most purposes and that seems to have been good enough for natural selection” (Grigsby and Stevens 2000, 262).

11. The work and research of Gary Klein and his colleagues (1998, 2003, 2009) show that decisionmakers rarely undertake formal deliberative analysis under conditions of urgency in a classic stepwise process. This finding is especially pertinent for mess managers operating under a reliability mandate. Their alternatives and options are typically limned in the initial conditions for problem definition, and what sets experienced decisionmakers apart from the less experienced ones is the former’s ability to see these alternatives from the outset—that is, they are better able “to size up the situation . . . [by recognizing] plausible courses of action as the first ones to consider” (G. Klein 1998, 95). Much depends on the technical system(s) being managed; some systems allow for deliberation when time is available (Janne Hukkinen, personal communication). That said, one “obvious feature of many . . . settings is that decisions are made under significant time pressure. . . . This time pressure has several obvious but important implications. . . . Decision strategies that demand deliberation—for example, the extensive evaluation of multiple options recommended by many decision theorists—are simply not feasible” (Orasanu and Connolly 1993, 9).

12. This is not to be confused with the work of McDermott (2003) on real time in economics.

13. Can we say something more about better-practice economics? Imagine practitioners come together to create the Professional Society of Real-Time Economics. Its mission would be to document how economic theories are

rendered into local scenarios; what better practices, if any, exist for a given economic activity based on actual micro behavior; and how these practices are modified in light of specific contexts and local protocols, thereby updating practice. The society would also maintain an updated website with reports on these issues and bring professionals together to review, evaluate, and update practices (for example, through meta-analysis of an expanding set of case materials). The society would also have an ethical code listing the ways in which members would be accountable for their advice (see DeMartino 2005, 2011). The society could even award its own prize, where a Warren Buffett would have a better chance of winning than a Robert Shiller.

14. Some financial institutions, most notably Goldman Sachs, accent their real-time networks. Lloyd Blankfein, the chairman of Goldman, made the point this way, in remarks summarized by a respected columnist: “The firm put great emphasis on ensuring that risk concerns were constantly communicated to higher levels of management, ‘getting more fingerprints’ on potential problem risks and challenging the notion that a business group leader ought to make independent decisions on risks that affected the entire firm. There was intense accountability through a host of management committees that evaluated all aspects of risk [at Goldman]” (Plender 2007).

15. In case it needs saying, the financial mess also challenged active investors and funds that, we now know, operated entirely in unstudied conditions (see, for example, El-Erian 2007; Partnoy 2007; see also Croft 2009). “Nobody had imagined a scenario where the money markets froze up like this. It just wasn’t in the stress testing models,” said a policymaker caught up in the credit mess (quoted in Tett 2007c; for the “stress-test mess,” see the *Economist* 2009a).

16. According to the CEO of Citigroup, banking and finance have “gravitated from a hub-and-spoke world, where everything used to go through large financial institutions, to a network of millions of points of contact with each other. . . . You need a network management approach” (quoted in Jenkins, Braithwaite, and Masters 2012).

17. I had the good fortune to work with Hans de Bruijn and others at the Delft University of Technology. Part of my task was to compare two approaches to decisionmaking in dynamic environments. One was a problem-centered approach; the other was a network-centered approach, which de Bruijn and his colleagues have mapped (see, for example, de Bruijn and ten Heuvelhof 2000). What follows in the text is based on a draft of that work, though any errors in summarizing their work are mine.

18. Not only is the policy cycle a mess, but so is every step of the textbook policy analysis process (on the latter, see Bardach 2005). Its first step is to define the problem, but in doing so we vastly overestimate and underestimate the risks associated with important policy and management decisions. Next, assemble the evidence, but here we search out evidence that supports our positions and ignore what does not. Construct the alternatives, but they are often embedded in our initial problem definition rather than constructed

after assembling the evidence. Select the evaluative criteria, but our preferences for and predispositions toward efficiency, equity, and other benchmarks clearly vary across cultures, while attitudes and values are poor guides to what people actually do (see, for example, J. Q. Wilson 1989, 50ff.). Project the outcomes, but human beings are notoriously bad at forecasting the future, let alone predicting what will make them happy (Nisbett 2006; Oswald 2006). Assess the options and choose, but—as has been pointed out countless times—deliberation can make choosing feel like losing (Skapinker 2003). Implement and evaluate, but as Sherman, Crawford, and McConnell (2004, 151) record, we prefer choices where we never learn the outcomes of alternate selections. In this way, the conventionalized “steps in a policy analysis” end up as rather unconventional stations of the cross for the more reflective policy analyst and public manager.

19. Reliability standards were also weakened in the subprime mortgage crisis with respect to industrywide housing appraisal standards.

20. Resilience is taken to have an increasingly important role in regulation. In listing “six principles for a new regulatory order,” Lawrence Summers, in his role as an economist, maintains: “Third, regulation must be premised on the inability of institutions or their regulators to predict future market conditions with much confidence. . . . Rather than judging where and when the next crisis will occur, regulators need to try to assure the resilience of the system with respect to economic shocks or problems in any one sector or institution” (2008).

21. Policymakers assume frequently that an unprecedented event requires an unprecedented response, thereby conflating what is a mess with what is a crisis. The chair of the U.K. Financial Services Authority argues: “When you’ve been through a [financial] crisis like this, it’s rather sensible to wipe the slate clean in terms of your previous assumptions, rather than say: ‘because this has previously been my policy line, I still stick to my policy line’” (quoted in Thal Larsen 2008). This is dangerous thinking if it means pushing those operators managing the financial mess into having to “manage” a terra incognita with no known patterns and scenarios.

22. Ned Gramlich, a former governor of the Federal Reserve, warned early about the dangers of the subprime mortgage “boom and bust,” as he called it (quoted in Andrews 2007). Other Cassandras included Brooksley Born, who was a former head of the Commodity Futures Trading Commission, Paul Volcker, and others in the Bank of International Settlement (for more, see Bezemer 2009; Blackburn 2008, 81–84; Giles 2008).

23. What is not appreciated is how beguiled others in the Federal Reserve, not just Alan Greenspan, were by the allure of these new financial instruments. Roger Ferguson, former vice chair of the Fed, often “presented the official creed of the Washington financial elite—namely that financial innovation was helping to spread risk around the system in a manner that had made the 21st-century banking world more safe, vibrant and efficient than ever

before” (Tett 2009a). Don Kohn, another Fed vice chair, assured us before the meltdown that credit derivative markets “facilitate risk transfer and diversification, thus increasing the resilience of the financial system,” all of which proved to be illusionary (quoted in Guha 2007a). Randall Kroszner, a Fed governor, harmonized: “These developments have greatly enhanced the efficiency and stability of the credit markets and the broader financial system” (quoted in *ibid.*).

24. To take another example, how were derivative exchanges with central clearing able to survive the shocks of the financial turmoil in ways that some over-the-counter credit default swaps did not (see Steil 2008, 11)? “Regulated exchanges have a track record of transparency and reliability that served investors well through many periods of market disruptions,” according to the chief executive of a large exchange (Niederauer 2009).

25. If lags can function as system coolants, we might need to rethink the conventional wisdom that a system is no stronger than its weakest link. Could it be that in some system contexts or periods, a weak link or node acts as a kind of loose coupling, which—when it “fails”—forestalls wider interactivity? Alessandro Vespignani (2009, 428), a network theorist and analyst, reports that taking out a certain number of nodes or links could make the network stronger (in the sense of forestalling a full cascade).

SIX Societal Challenges

1. “Mobile phones became a God-given gift to all Somalia,” said one observer. “If you shut down the mobile phones, everything would stop” (quoted in Akam 2006).

2. Not only did the car become a single resource with multiple services, but so did other units in the supply chain around automobiles. Some vehicle insurers have had their own repair shops, and at least one insurer had its own medical clinic for accidents and injuries (Fleming 2005). Prior to the financial meltdown, Wal-Mart announced it would be opening up to four hundred walk-in health clinics in its stores (Birchall 2007).

3. “The whole credit derivatives world has exploded at such a dizzy pace that nobody is exactly sure where the loan risk has gone” (Tett 2006a; see also Tett 2005). In the absence of knowing where and how credit derivatives were dispersed, scenarios were appealed to—“in essence, the financial system looks increasingly like a giant version of Enron”—and their implications became more and more specific (in our terminology, localized): “It will also require a controversial step that groups such as the New York Federal Reserve and the UK’s Financial Services Authority are inching towards: getting unregulated entities, such as hedge funds, to supply better data to authorities” (Tett 2006a).

4. Some theories of economic growth and technological innovation center on finding new uses for novel recombinations of existing technologies and resources (see, for example, Ellerman 2005, 69; see also Edgerton 2007).

Table 3. Taylor-Russell diagram of Type I and II errors

		PROPER DECISION	
		<i>Do not shed</i>	<i>Shed</i>
ACTUAL DECISION	<i>Do not shed</i>	<u>Correct decision</u> Operations and revenues maintained	<u>Type I error</u> Widespread outage occurs, with economic losses
	<i>Shed</i>	<u>Type II error</u> Unnecessary service disruption and loss of revenue	<u>Correct decision</u> Possibly cascading outage avoided

Source: Adapted from Little 2005

5. Let's assume there is a proper decision to be made with respect to actually shedding or not shedding load. In that case, Type I and II errors are defined with respect to what are incorrect decisions (see table 3 here). Trying to minimize the Type II error cell would mean pulling the dividing lines in the table to the left or down; but the more that is done, the larger the cell for Type I error on the right or above becomes (Little 2005).

6. Jean-Claude Trichet, then president of the European Central Bank, touched on this point when he counseled: "The fragility not only of global finance but of the global economy itself, is something we should reflect on. You know, there are some key intermediate inputs that are produced in only three factories in the world. This is not reliable . . . [and] which in case of a shock might make the full body of the real economy more immediately vulnerable. In the financial system we have eliminated a number of cushions and shock absorbers that we have had here and there" (quoted in Atkins and Barber 2008).

7. "The bottom line is that, given declining assets and increasing liabilities, many—perhaps most—big banks are essentially insolvent and have been for a long time," concluded Frank Partnoy, a professor of finance and law. "It is incredible that they lost so much money on derivatives but even more amazing that they have stayed alive for so long afterwards" (2009, 9). Not so if you believe in mess.

8. For a more general but highly detailed discussion on how cultural theory illuminates the field of public management, rather than just the management of needs and resources, see Hood 2000.

9. When it comes to markets, the social construction can be quite literal.

With reference to pricing credit default swaps, the head of a major financial information service provider stated: “We take data from multiple sources including 40 banks’ books of record, buy-side institutions and interdealer brokers. We then aggregate and clean the data, and in many cases discard up to 60 per cent to publish a comprehensive, high quality dataset” (quoted in van Duyn, Mackenzie, and Tett 2009; see also Whalen 2008 on the lack of definite prices in a number of asset markets).

10. The financiers who profited from the assets they created before the financial mess, assets they could not auction off during the mess without taking a loss, went on to complain that, because the value of the government warrants they received during their bailouts was not determined by the market, the amount they should pay back to the government should reflect that deficiency (Beales and Cyran 2009). The roar you hear is the gods’ laughing. Realism in contrast requires recognizing that in many cases and even in good times quoted market prices are unavailable for most assets, including those listed on exchanges, and that many assets have shallow markets with deep prices characterizing only a small portion (see Whalen 2008).

11. The report of the Group of 30—an organization of international economists and financial policymakers—whose lead author was Paul Volcker, “offered 18 recommendations that would insert government regulators into the boardrooms of financial institutions as never before” (Faiola 2009).

12. Other cultures have organizational formations as well (Flentje 2000; Hood 2000). However, nesting the composite typologies into the others—for example, the egalitarian or individualist—would only reinforce the conclusion drawn here.

13. You can think of the nesting as an increasing refinement of the dimensions of the three typologies. The hierarchist culture is calibrated in terms of how high social constraints and high group cohesion work out as activities in terms of the outputs, outcomes, and their observability. The latter are specified in terms of the options and task environment volatility associated with producing those outcomes and outputs reliably. In brief, four types of organizations, each of which has four types of performance modes, can be said to characterize hierarchist culture.

14. The literature on collaborative networks of professionals managing under time pressures is growing (see, for example, Moynihan 2005; see also de Bruijn and ten Heuvelhof 2000). On craftspeople and trust in these processes, compare the differing treatments but overlapping conclusions in Bardach 1998, Josipovici 1999, and Sennett 2008.

15. According to the sociologist Ronald Burt, changing a network can provide new opportunities for participants who are able to offer third-party assistance to other network members who remain unconnected. Burt calls such resulting gaps between people who could be interconnected, but are not, “structural holes.” Reconfigure a network, and new holes open up among network members: “People on either side of a structural hole circulate in different flows of information. Structural holes are thus an opportunity to

broker the flow of *information* between people, and *control* the projects that bring together people from the opposite sides of the hole” (2001, 35; see also Burt 1992). In this way, the set of options changes.

SEVEN Professional Challenges

1. This distinction and example are suggested by Sass 2003.

2. We must be careful here, as policy may address no-go areas for reasons other than management. Policy can be a form of bearing witness to something that people cannot change or fully comprehend. Such instances are the limiting conditions of mess and reliability management because these are the messes we cannot manage. I give considerable attention elsewhere (Roe 1998) to the role of acknowledging the unmanageable in conventional policy analysis and management.

3. Does the use of “unprecedented” here make me a believer in that other infantilizing analysis stopper: “These are unprecedented times requiring unprecedented solutions”? On the contrary, in our framework “unprecedented” denotes cognitively unstudied conditions in which people have to cope because they cannot manage or problem solve. In other words, the idea that coping mechanisms are “solutions” is risible. However, coping mechanisms in the face of crises, like better management practices in the face of messes we are examining in this book, have evolved over time. So when someone tries to short-circuit analysis by insisting “unprecedented times demand unprecedented action,” the analyst must respond, “That may be true as far as it goes, but it certainly does not go far enough.” Do they really mean to imply that, after more than 50,000 years of the evolution of the human prefrontal cortex and a population of more than 7 billion people across more than 190 countries and habitations so numerous as to defy practical calculation, there remain too few examples of “unprecedented times and responses” from which to learn how to better cope with the latest version of those seriatim “unprecedented problems”?

4. The expression “what is at hand” is crucial in setting the improviser apart from others with different orientations. Thinkers as varied as the essayist Montaigne and the sociologist Alfred Schütz distinguish what is within our reach for the purpose at hand versus what exceeds our grasp. For such thinkers, these distinctions help define one’s self and relation to a world (see, for example, Schütz 1964, 120–34; Shattuck 1996, 29; see also Stanford 2006).

5. For an excellent review of organizational and network examples, see Baker and Nelson 2005; for a broader perspective on organizational bricolage, see Boxenbaum and Rouleau 2011.

6. “More than 70 percent of learning experiences in the workplace are informal or accidental, not structured or sponsored by an employer or a school. . . . This kind of learning is pervasive, continuous, and profoundly social. It happens wherever people do their work” (Thackara 2006, 158).

7. This paragraph owes much to Adam Phillips (2010).

8. George Bernard Shaw, in one of his polemics against the U.S. Constitu-

tion, counseled Americans to farm out running the place to Europeans: “Some years ago I suggested as a remedy that the American cities should be managed from Europe by committees of capable Europeans trained in municipal affairs in London, Berlin, Paris, etc. San Francisco rejected my advice and tried an earthquake instead, not altogether without success as an awakener of public conscience. But earthquakes, though much cheaper and less disastrous than municipal imbecility and corruption, are too uncertain and unpopular to come into regular use” (1907, 862).

9. The Bangladeshi claim against the British Geological Survey was eventually thrown out by the U.K. Appeals Court (Proffitt 2004).

10. Jeffrey Garten, former dean of the Yale School of Management, writes: “The truth is, the [financial] system has become too big and too complex for anyone truly to understand it, let alone know how it would perform in the next major crisis” (2006, 11).

11. My thanks to Ian Mitroff for this point.

12. Dwight D. Eisenhower, “Farewell Radio and Television Address to the American People,” January 17, 1961 (<http://www.presidency.ucsb.edu/ws/index.php?pid=12086&st=&st1=>).

EIGHT How We Know the Policy Mess Is Managed Better

1. Bernanke was not alone in this happy talk. A former Fed chair, Paul Volcker, made similar assurances in a *Wall Street Journal* op-ed, “We Have the Tools to Manage the Crisis” (2008). A Wharton School professor of finance sang from the same hymnal: “We have all the tools necessary to avoid repeating the mistakes. . . . We must not hesitate to use them” (Siegel 2008).

2. Some market inefficiencies are the price we pay for high reliability performance. Economists are right in pointing out that interventions—such as price caps—to ensure, for example, electricity reliability can entail efficiency losses. The deadweight loss resulting from such limits, however, is one measure of how much reliability matters to society.

3. Some financial specialists have also argued that clearinghouse reliability should be treated as a Veblen good: The higher the price of reliability, the more desirable it is to investors (van Duyn 2010a).

4. If operational redesign occurs entails a big “if.” Citigroup, to take a single example from many, refused to concede that it did not make full legal disclosure to weaknesses in internal controls during events leading up to the financial mess. The Sarbanes-Oxley Act required Citigroup to disclose “all significant deficiencies” and “material weaknesses” in such controls. Its regulator informed Citigroup in early 2008 that “several deficiencies . . . need to be addressed,” none of which were disclosed at the time of Citigroup’s certification of prior accounts. In 2011 and in response to the findings of the Financial Crisis Inquiry Commission, Citigroup maintained that those deficiencies actually did not constitute “material weaknesses” (Guerrera 2011).

5. That process of formal recovery has already begun (see Turner's important start, *Economics after the Crisis* [2012]). I thank Paul Schulman for his help in thinking through this material, though I absolve him of my conclusions.

6. In the words of Henry Kaufman, longtime Wall Street economist and financial consultant, a "look back over the past few decades of U.S. history does not show mainstream economics in a good light. It is hard to be optimistic that today's leading economists—whose distinguished careers have defined the status quo—will offer innovative ways of integrating economics and finance. Others must come to the fore. We urgently need economic minds with a broad analytical reach to rise to the occasion" (2010).

7. To my mind, the Hicks-Kaldor compensation principle set great mischief loose upon the political economy. Before Hicks-Kaldor, gainers *would* have to compensate losers; since Hicks-Kaldor, it's okay if the former *could in theory* compensate the latter, even if no real compensation exists.

8. Banks that emerged from the financial mess relatively unscathed understandably saw no need for such a levy, as their financial prudence had already reflected real opportunity costs (see, for example, P. Smith 2010).

9. The lack of market infrastructure for the novel securitized financial instruments was telling. Citigroup for instance was criticized by the Financial Crisis Inquiry Commission for "lack of proper infrastructure and internal control" with respect to its collateralized derivative obligations (2011, 303).

10. The last public lecture of Herbert Simon, the Nobel laureate, linked issues of productivity to what this book calls the reliability of infrastructure and its management: "Let me pose a simple question. Consider the income that you or your family now earn as members of American society (which most of you are) and compare it with the income that you would expect to earn if you were equally hardworking members of Chinese or Indian society, or the society of any other Third World nation. I expect that for most of you, the difference between the two incomes is one or more orders of magnitude, at least 10 to 1 and perhaps even more than 100 to 1.

"Now, I would like you to consider the causes for the gap between the 10 and the 1 or the 100 and the 1. How much of it do you wish to attribute to your superior energy, motivation, and application of effort as compared with your Third World counterparts? And how much do you wish to attribute to your good luck or good judgement [*sic*] in being born in, or joining, the highly productive and democratic American society?"

"If we are very generous with ourselves, I suppose we might claim that we 'earned' as much as one fifth of it. The rest is patrimony associated with being a member of an enormously productive social system, which has accumulated a vast store of physical capital, and an even larger store of intellectual capital—including knowledge, skills, and organizational know-how held by all of us—so that interaction with our equally talented fellow citizens rubs off on us both much of this knowledge and this generous allotment of unearned income" (accessed online on December 20, 2011 at <http://research.mbs.ac.uk/hsi/Aboutus/HerbertSimonsLastPublicLecture.aspx>).