

SIX

SOCIETAL CHALLENGES

Constantly shifting policy and markets, personnel churn and turnover, fast-moving technological change, ever more regulations and new reliability requirements, and ramifying interdependencies make for more mess and ever greater demands for reliability. Much has been written about this state of affairs, but here I address three societal pressures working against better management that have not gotten the attention they deserve: problematic cycles of mess and reliability; poisonous macro design and micro operations; and the future as today's major policy mess, including its persisting politics of higher volatility and fewer options. Chapter 7 discusses the professional challenges facing managers and operators in the middle as they respond to the wider societal pressures discussed here.

Problematic Cycles of Mess and Reliability

We saw at the beginning of chapter 2 that stability in the financial markets was said to have led to more risk taking and eventually to the financial mess. We're now in a position to be specific about that process. Below I summarize a cycle of mutually reinforcing mess and reliability in five rough and interrelated propositions. They derive from my reading of the dynamic between mess and reliability in those cases where single resources, such as electricity (or water, telecommunications, or a car), end up having to provide multiple services under increasing reliability mandates. Note here only that the drive to transform single resources into multiple services, and reliably so, can be found in a variety of forms today, embracing as it does one-stop shopping and service centers, multistrategy funds, biodiversity hot spots, multichannel TV screens, and dual-use biotechnologies, among many others.

Proposition 1: The more services demanded from a single resource, the greater the demand for reliability in each service and the messier it becomes to ensure reliability (where that reliability remains the safe

and continuous provision of a vital service). The more you rely on the hospital, the more services you demand from it. The same is true for firefighting services. First, crews responded to fires; then they had to respond to virtually any emergency call. Our power lines are expected to carry not just electricity but now also broadband for Internet access. Banks originally provided accounts and loans; then we required all kinds of financial services from them. In such periods of expansion, reliability mandates and service provision suffer growing pains; their management becomes overstretched, however temporarily, as managers maneuver across their four performance modes. Management gets messy.

Proposition 2: The messier it is to provide multiple reliable services from a single resource, the more the services are provided reliably only in real time—if at all—when the performance standards are clearest. Police now respond immediately only to 911 calls of activity in progress. The hospital focuses on the inpatient emergency room and the intensive care unit, leaving much of the rest to outpatient services. The bank shifts from waiting lines in front of few tellers, to many ATMs, with the emphasis on the A for automatic. Why? Because performance criteria and foregone alternatives (opportunity costs) are clearer in real time: Did the police come at once, did you get your emergency care, and is the cash actually there?

Proposition 3: The more the services are reliably provided in real time, the more likely it is that there will be demand for new services from that multiple-service resource, and the messier it will be to ensure that any of those services is reliably provided, right now. This looks to be a variant of Proposition 1, but managers find themselves now limited to cycling between high-volatility performance modes only, what they call the “real-time” reliability of just on time or just for now. To see how, go back to your ATM. Before, it provided cash and deposit services; then it became a single stop for various transactions, such as the purchase of postage stamps (Kingson 2006). A new mess confronts you when the multipurpose ATM and others nearby are all out of order, and none of these expanded services are available. It’s the same with your cellphone: “Imagine a magical device that could boost entrepreneurship and economic activity, provide an alternative to bad roads and unreliable postal services, widen farmers’ access to markets, and allow swift and secure transfers of money. Now stop imagining: the device in question is the mobile phone” (*Economist* 2005).¹ But what happens when reception drops, as the stakes are now so much higher?

Consider also the once humble car. The more congested our roads

became and the more time spent stuck in traffic, the more pressure there was to turn the automobile into a multiple-service resource, with the addition of all manner of real-time services to the vehicle: cell-phone and charger, USB port to install new software, DVD player in the back, GPS up front, and a great stereo system throughout. Having added services—why not learn a new language while you’re stuck in traffic?—we now have the problem of preventing cross-system failures in the vehicle as a whole, including attention deficits and pressures to multitask for the drivers.² As John Plender phrased an argument with respect to financial systems before the mess, “the longer the market’s superstructure proves reliant, the more reliance will be placed on it, even though it has not been tested in really difficult times” (2006, 13).

Proposition 4: The more the services are reliable only in real-time and the messier their reliability management, the greater the pressure to decouple one or more services from the resource, and the more likely a new resource will eventually be found or created to provide the decoupled service reliably. Banks ceased to be the only source of multiple financial services; all manner of major financial transactions have ended up being provided elsewhere, such as through hedge funds. “Credit derivatives,” we once thought, “permit risks to be unbundled and transferred to those players in the financial markets best able to absorb them” (Plender 2005). Among the responses to the financial mess have been recommendations that firms be managed in ways that make it easier to decouple their services: “The key requirement is that assets that are needed for the continued provision of these [critical] services can be quickly separated from the organizations engaged in their supply. The businesses involved must be required to operate in such a way that such a separation is possible” (Kay 2009c). “If regulators want to protect against another financial crisis, it seems they’d be better off trying to decouple executive pay from the expansion of financial empires” (based on research discussed in *Wilson Quarterly* 2012, 64). Examples of easier decoupling are proposed “living wills” to enable financial institutions, presently “too big to fail,” to unwind business without a severe disruption to finance and banking as a whole. That, however, depends on there being a new resource, in this case, new regulations and methods with which to reliably determine and govern “systemically important financial institutions.”

Proposition 5: The more reliably the service is provided from the new resource, the greater the pressure will be to demand more services from that resource . . . and so the dynamic continues. To stay with the financial mess, not only did the volume of credit derivatives increase, but so did derivatives for other purposes and other types of risk. Yet we saw

this news proved to be far from good. As early as 2007, a fixed-income manager lamented: “The fact that the risk was diversified was a good thing. Now everyone is panicking because they don’t know where it is” (quoted in Tett 2007a).³ In case it needs saying, it is not obvious what new resources, if any (including better regulations), will emerge from efforts to decouple systems to prevent cross-system failure. Nor is there anything inevitable about the dynamic. True, we have seen decoupling and emerging new resources in the road transportation sector—the advent of private toll roads separated from the more congested public freeways—but this does not imply that such activity will happen everywhere.⁴ Nor is the implication that the dynamic in each and every case is as mess-inducing as it has been in the financial sector, where what was thought to be decoupling (unbundling risk) turned out to be concealed recoupling (aggregating and correlating risks in unperceived ways).

Nor, finally, is there anything stopping decisionmakers from intervening and precipitating more mess. Consider California’s electricity deregulation in the late 1990s. Was it an example of premature intervention by politicians or the expected decoupling of an over-mandated service reliability? The dynamic leads us to expect that at some point electricity as a service could have so many competing mandates that new or different structures would evolve to handle these mandates more reliably or less messily. Witness the proposals for a smarter grid circulating at the time of writing. Yet, not once have I come across anyone arguing that the integrated utilities were deregulated because they were not reliable enough. The rationale for deregulation was just the opposite. The integrated utilities were said to be overly expensive because they were *too* reliable. What a waste it was to have those utilities ensuring “six-nines reliability” (99.9999 percent)—or so we were told before the crisis (Roe and Schulman 2008). In this instance, the political intervention was clearly precipitate, and we ended up with a new policy mess to manage—which it must be pointed out was managed more reliably in the electricity control rooms than most people realized (Roe and Schulman 2008, chapter 1).

Mess and reliability professionals always face society’s pressure to turn resources into “critical” resources, each of which is expected to provide more and different reliable services. The demands for mess and reliability management must be expected to increase, and with them, I argue, the difficulties just mentioned. New resources emerge at different rates across different, but interconnected, critical service systems; often, interventions by others outside their respective domains of competence turn out to be counterproductive for those inside. The middle-domain professionals can also be expected to try to cobble

together and recouple the disparate resources and services in order to ensure some measure of “good enough reliability” (good enough because managers are fast enough with just enough, knowing full well this is never enough all the time). Consequently, we can and should expect professionals to move increasingly to the edge of their capabilities across all performance modes as their task requirements accelerate. Already, many reliable mess managers are at the limits of know-how and competence in their networks.

Poisonous Macro Design and Micro Operations

Let us return to figure 3 (see chapter 3), where the arrows in the mess and reliability space point from macro design to localized scenario formulation and from reactive micro operations to systemwide pattern recognition, as professionals navigate to service reliability. Those arrows reverse when the following happens: (1) policymakers come to think that the only scenario they confront is the need for more macro design to correct (2) the only pattern they think they now confront—namely, major human error at the micro-operator level. Decisionmakers now believe they have no choice but to macro design better micro operations directly. When this happens, “management” defaults to the faith-based macro-to-micro shortcuts discussed in chapter 4.

The difficulty here is not only that the learning and expertise of mess and reliability professionals are bypassed in the leap from designing macro solutions to addressing micro-operator behavior. Worse, there may no longer be much of a middle to bypass. We saw how professionals in securitized finance were forced to work outside their domain of competence, thereby making them more error prone without patterns or scenarios to use in appraising and assessing multiple performance-based risks. But the process of disorientation needn't stop there. Even where a domain of competence survives, prolonged just-for-now performance can erode it. The longer a mismatch persists between the skills that managers and operators have and the task requirements they face, the less competent these professionals become.

The mismatch poisons management in two ways. First, the domain of mess and reliability professionals shrinks due to the deprofessionalization of management expertise. If the unstable conditions persist with their firefighting, band-aids, and quick fixes, then what mess managers can handle reliably—the domain in which their cognitive skills match the tasks required of them—constricts. Patterns and sce-

narios that were of use in other performance conditions fall into disuse, since the conditions and related practices that matter are continually just for now.

This leads to the second lethal predicament. What was known before is no longer “known.” Professionals are expected to perform reliably in areas where they no longer manage but still operate. Either way, mess managers are expected to rely on their judgment in new settings exactly where that judgment is now least reliable and learning most difficult. Here again they don’t manage; they have to cope—and there are times when they cannot even do that. The Financial Crisis Inquiry Commission (2011) repeats the term “too little, too late” to describe such conditions. One could even say that a key characteristic of the part of the financial sector that went into meltdown was its “too-little-too-late reliability.” For example, a leading (not lagging) indicator of increasing financial distress may well have been the tightening (not relaxing) of bank-lending practices beforehand (see Carlson, King, and Lewis 2011).

Increased errors are inevitable when the skills-tasks mismatch persists indefinitely. As mentioned in a preceding chapter, infrastructure operators reported that they committed one kind of reliability violation in order to prevent other more serious violations from occurring, so they wouldn’t back themselves into a corner they couldn’t get out of during just-for-now performance conditions. As forced errors increase, the calls for systemwide redesign to eliminate the errors can be expected to increase as well. After a point, when managers are having to operate for longer and longer periods outside of their domain of competence, there is no longer a resilient and anticipatory middle domain to even bypass in making the macro-to-micro leap. Instead of starting from macro design and micro operations and moving to the middle, policymakers end up with macro design as the single standpoint from which to address micro errors at the operator level. By this time, poison has spread through the organization that is managing for reliability.

The point, however, is that no amount of macro design can directly correct for inadequate operator skills, especially capabilities that are poisoned in the two ways just described. The more macro design, the greater the human error when it comes to reliability management, for reasons already outlined in chapter 3’s discussion of why it is necessary to tack to reliability, in the sense of moving indirectly across and through the mess and reliability space. It is very important for the reader to understand how dangerous this attack on manager competence can be. Here is an extended example of how it can occur.

On March 8, 2004, control room operators in CAISO, the major manager of California's electrical grid, were taken to have contributed to a major load-shedding event. Blackouts occurred in Southern California, with an internal CAISO review finding fault with the two generation ("gen") dispatchers in its control room during the incident. According to a CAISO press release, "Preliminary California ISO Internal Investigation Finds Operator-Error Contributed to 20-Minute Outage in Southern California." Our research discussions with participants in the incident found that the two gen dispatchers were managing to an edge they felt was part of what had become normal grid operations under persisting conditions of high volatility. In contrast, the crew's shift manager and the control room's reliability coordinator felt that the morning's load increase required clear and timely actions to keep the system from moving over the edge and into a corner out of which the control room could no longer manage for reliability purposes. In our terminology, the gen dispatchers saw themselves in just-on-time performance mode, where they were managing a highly volatile system with many options. The shift manager and reliability coordinator, on the other hand, saw the dispatchers in just-for-now performance, where there were far fewer options under such persisting conditions. The dividing line between the two modes was no longer clear or agreed-on by the professionals concerned (see figure 5).

In effect, the gen dispatchers tried to minimize Type II error (shedding load unnecessarily), while the shift manager and reliability coordinator saw Type I error (not shedding leading to major outages) increasing dangerously as a result.⁵ In my view, the difference in perceptions arose because control room operators had to spend more and more time in the most difficult mode for any mess and reliability professional: just-for-now performance. In this view, the gen dispatchers' perspective that they were in just-on-time mode was wrong. But prolonged just-for-now conditions are exactly those that give rise to such differences in how micro operations are perceived among operators and managers.

This conclusion, however, hinges on there being a correct decision. In this view, the operators were or were not in a given performance mode; whatever performance mode they were in, there was a proper decision to be taken warranted by those prevailing conditions. Yet it can be argued that in the March 8 disturbance, the determination of what was the correct decision was precisely what was being disagreed about, as if persisting just-for-now conditions had already pushed the gen dispatchers into unknown terrain. It is not possible to determine if that actually happened (for reasons that become clear below), which makes the incident more troublesome.

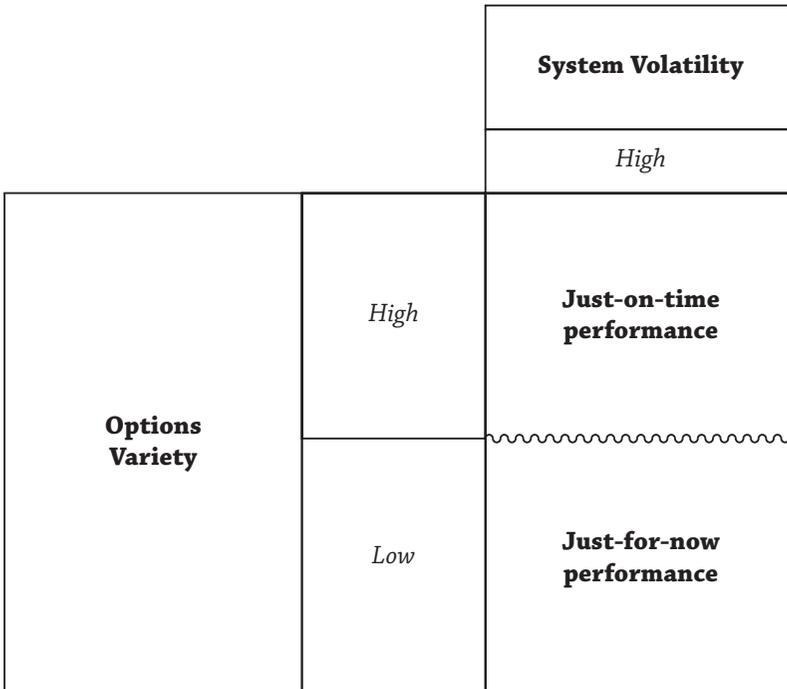


Figure 5. Differing perceptions of the March 8, 2004, disturbance in the CAISO control room

The two dispatchers and the shift manager and reliability coordinator insisted that they had not erred. For the gen dispatchers, the error was the decision of the shift manager and reliability coordinator to second-guess the dispatchers' decision and end up shedding load when it was not shown to their—the dispatchers'—satisfaction that this was necessary. The shift manager and reliability coordinator saw it as their role to shed load when conditions required it, whether or not gen dispatcher error was involved. This difference points to a potentially major source of errors that can arise with reversing the arrows in the mess and reliability space. Not only are there differences in perception as to what performance mode the professionals are operating in, but also—and more fundamentally—professionals may end up disagreeing about just what the knowledge is within which they are managing and the scale at which management is taking place. They begin by disagreeing over what the patterns and scenarios are, but they end up disagreeing over what are in effect the very dimensions of the space in which reliability and mess are to be managed: the scope of the issue and the knowledge about what to do. Just when conditions are at the most

urgent and require a proper decision, the event itself raises questions about just what is the correct decision when issues of knowledge and scope are no longer stable. As one of the gen dispatchers involved told us, “It wasn’t ever explained to me whether it would have been better had we not shed load.” In other words, that these professionals could see the fundamentals so differently may have indicated a more serious erosion of team situational awareness than initially thought existed. We will never know whether that happened, if only because that requires the same knowledge that those involved had then, but which they may have been questioning in ways they didn’t even realize.

This is the poisonous nature of such developments wherever they occur: What looks to be the macro designing of better micro operations can turn out to be nothing less than the attempt to macro design the entire mess and reliability space, so as “to get rid of all that mess” in operator error and error-prone micro operations. What else can we do, the senior executives and boards tell themselves, when our entire business is on the line? We have to reinvent ourselves; we have to risk failure in order to succeed. However—and here is the challenge—when upper management seeks to implement these risk-taking changes in critical service provision, they rely on middle-level professionals, who, when they take risks, do so only in order to *reduce the chances of failure*. How else can they manage a policy mess reliably? To reliability-seeking professionals, the risk-taking activities of upper management or officialdom look like a form of suicide motivated by fear of death. It’s a cognitive flip into an empty pool.

Such organizational suicide can be seen at work in events leading up to and during the financial mess. Before the mess, good bank practice was to hold capital as a cushion against *unexpected* losses; new capital security accords then mandated that banks hold capital against losses that must be *expected* because of their high-risk lending (Silverman 2003). Before the mess, mortgage brokers made money on the performance and quality of their mortgages, once finalized; but the standard compensation package changed to one based on the volume of loans originated and passed on (FCIC 2011, 7, 89). We know from the literature that such reversal of important decision rules can lead to organizational failure on a wide scale (for the *Challenger* accident example, see Roe 1989). Requiring cognitive flips on the part of managers and operators that reverse what their skills tell them to do is a sure way to dissolve the mess and reliability space into uncharted waters.

The double dose of poison—erode manager competence and then send managers into conditions they don’t know or no longer have the

skills to deal with—was also evident in other ways in the financial meltdown. One important feature of the mess was how illiquid (unpriceable or unmarketable) novel financial instruments became over an extended period. As we saw in chapter 2, liquidity has a great deal to do with having the flexibility and added options of just-on-time performance in banking and finance. Illiquidity can be seen as the drying up of flexibility and options, when the ability to assemble options and maneuver creatively under the pressure of time dissipates.⁶ Yet, at some points, illiquidity in the financial mess may also have indicated something altogether worse, more akin to the March 8 episode described above. The financial mess became a crisis exactly when professionals and others could no longer trust the knowledge base from which they were managing or the scope of the “problem” before them. A well-known economist said of the financial upheaval that “the problem became huge because ‘policy innovations’ had been racing ahead of comprehension. The securitisation of mortgages was an innovation that led unwittingly to what Wall Street calls ‘betting the company’” (Bhagwati 2008). This turned into a world where CEOs’ road maps to exploiting modern finance and their materially misleading statements about their companies’ financial health were matched by their cognitive inability to see their financial death or near miss coming when and how it did (see Eisinger 2012). It was an economy in which many experienced professionals could not cognitively distinguish asset illiquidity from institutional insolvency.⁷ Once managers are in conditions that neither they nor the rest of us can comprehend, why should it be surprising to them or us that what indicated success before—lower mortgage rates, smaller down payments, rising income from housing sales—ended up indicating something unimaginably bad instead? We’re told at the beginning of 2012 that the “leaders of the pack” in the S&P 500 “are still . . . technology, healthcare and financials” (Rosenberg 2012, 20)—as if this is on net a positive rather than negative development?

The Future as Today’s Major Policy Mess

For the Wharton School’s Russell Ackoff, and Sheldon Rovin, “mess is the future we are now in, barring any change” (2003, 97). Many of today’s plans and projections assume a future that cannot happen, and yet it is this seeming impossibility that we have to manage today. Our biggest policy mess, in this view,

is the future implied by our current practices and behavior and the changes we expect in our environment. Such an implied future of every institution would show how it is on a path to self-destruction because it failed to adapt to (even expected) changes in its environment. . . . For example, the mess the Federal Reserve Bank formulated in the 1970s showed that if nothing new were done the bank would eventually require more check clearers in the United States than there were people. It was the awareness of such a crisis that led to development and propagation of the electronic funds transfer system. A more current example is in health care. At the current rate of increase of gross domestic product . . . about 100 percent will be devoted to health care by the next century. Of course, this is absurd! We can't and we won't spend all our nation's money on health care. But knowing where we are headed without significant intervention might help us make the appropriate changes. (97–98)

To be specific, the future with respect to almost any major sector is its own policy mess today. While something like this has always been the case (as in the fear of hell and damnation), clearly many of the messes, like the financial one we are now in, have worsened in the last decade. According to current projections, the annual interest on the U.S. government debt will eventually “rival defense expenditures . . . [and] would exceed all domestic discretionary spending, a category that includes spending on infrastructure, education, energy, and agriculture—in effect, anything other than entitlements and national security” (Altman and Haass 2010, 27). That’s only for the national debt. There are also pensions, Social Security, and Medicare. Earlier reports of the huge structural overhang in federal liabilities found that “the U.S. currently faces a future of chronic federal budget deficits totaling at least \$44,200 billion [\$44.2 trillion] in current U.S. dollars” (Despeignes 2003). Such calculations, tied to the work of the economists Kent Smetters, Jagdeesh Gokhale, and Laurence Kotlikoff, seek to estimate the net present value of U.S. federal obligations, most of which are for Social Security and Medicare, compared to forecasted revenues: “Smetters and Gokhale calculate it would take a 69 percent hike in all federal taxes or a 95 percent hike in payroll taxes to close the \$44 trillion gap” (Bernasek 2003). But this conclusion too is absurd. Raising taxes that much would destroy the political economy on which the taxes are based—and all these calculations were made before the financial mess made things worse.

The economist Martin Feldstein sums up the challenge: “What Larry [Kotlikoff] has done is to say what happens if we don’t do anything to

fill the gap. . . . That's not what will happen. Either we'll raise taxes, cut benefits, or change the way we finance the system. Or it will be some combination of all three" (quoted in Bernasek 2003). That is to say, somehow we will have to manage, but the point is we do not know now how this will happen—just what taxes will be increased, expenditure cuts made, and finances curtailed—or how it all will be sorted out. To take another example, it is easy enough to predict a major catastrophe on the Bosphorus shipping lanes (see de Waal 2008), but who is to do what about that prediction now, as you are reading this paragraph? In sum, it is as if the long run is already here and that our challenge must be "to foresee the present," as A. R. J. Turgot, the eighteenth-century French economist and statesman, put it (quoted in T. Clark 2012, 73).

The future is the mess we are in partly because present cognition about that future has its many limitations. The psychologists Daniel Gilbert and Timothy Wilson (2007) identified four kinds of errors in thinking about the future and how we experience that prospection. Our expectations of the future can be unrepresentative, because they often are based on extreme, rather than common, events that have happened to us; essentialized, because they leave out the details about how the simulated future is to be achieved; abbreviated, because we focus on a few select moments of the future, and early ones at that; and decontextualized, because the context in which we form expectations about the future may well not be the same in which they are realized, if in fact they are realized at all. Is it any wonder, then, that we make a hash of it when we think about the future on our own, and why it is so important, as discussed in chapter 5, to think within networks of professionals who adjust for these biases without the expectation that they can be eliminated? This is why current savings, and the flip-side investments, are so important: They are inevitably networked resources that enable their holders to imagine (if not anticipate) a better future now—a good-mess present in which to be, given the cognitive limitations just discussed.

These limitations were never far away in the financial mess and its aftermath. "The next pending crisis," Alan Greenspan told a U.S. government commission looking into the financial mess, "will no doubt exhibit a plethora of new assets which have unintended toxic characteristics which no one has heard of before, and which no one can forecast today" (quoted in Politi and Rappeport 2010). Yes, but that very inability to forecast is part of the mess we are in today, not just later on. Or, to put the point the other way around, the only place the future can be reliable is now, and only if we are managing our messes right now in light of our inability to predict with any great assurance.

“In the short term, the question is: how do we get out of this [financial] mess?” Gillian Tett, a respected commentator, asked (*Financial Times* 2009). The answer is that we cannot predict how, which is the mess we must be managing for. And how could it be otherwise? If government by definition is too big to fail—and if markets by definition consist of firms, no one of which should be too big to fail—then when some financial institutions become too big to fail, is it any surprise that government intervenes, if not to protect what remains of the market, then to protect what becomes of government? This is a huge policy mess, and the challenge of sorting it out must include looking for emerging sector-wide practices and adapting them locally, without hoping to clear any of the mess away once and for all.

Such better practices—emerging while evolving (sometimes serendipitously, other times not), never final and definitive as “best practice”—are important for mess management not just when they represent added options and resources for managers already working under volatile situations. That is to say, better practices are not only important because they may make the difference between having to manage reactively, just for now, rather than managing flexibly just on time. Better practices also represent learning from managers like ourselves who have managed more effectively in situations like the ones in which we find ourselves. Those managers too have political, economic, and social constraints; nonetheless, they have met a performance standard higher than we ourselves face as we grapple with the same constraints. There are 89,000 distinct governments in the United States alone, and a good number of them must have something to learn from those like themselves.

All too often more attention is given to those constraints than to the emerging better practice taking place in spite of them. Politics, dollars, and jerks—now *they* are the real source of our big policy messes, or so I am frequently told. “We can’t be confident of anything after learning of this cesspit,” said Paul Tucker, the deputy governor of the Bank of England, when asked about another allegation of widespread banking malpractices (quoted in Quirk 2012, 34). If only we had better politics; if only money didn’t drive the politics we have; if only we didn’t have to work for the jerks causing all this, then we wouldn’t be in the mess we’re in. This has certainly been offered as a major explanation of the financial meltdown by people even within the banking and finance sector. To explain the financial mess, we are told to look no further than to the banditti and politics of major financial institutions. The chief executive of a large Austrian banking group asserts the reason behind the nationalization of a major bank there as follows: “It’s a

bunch of scumbags—in terms of banking and in terms of politics—from Austria, who have [teamed] up with scumbags from central and eastern Europe and a couple of idiots from further west, and out of this came [our] huge mess” (quoted in J. Wilson 2010).

That’s one way to put it: “The System” becomes just another syndrome. The road maps to market failure profited and corrupted those who found ways to exploit market power, asymmetric information, and externalities for their own advantage. That said, blaming politics, dollars, and jerks may be true as far as it goes, but as an explanation it certainly does not go far enough when it comes to the politics actually constraining management and within which management has to work. To understand such politics from a mess and reliability perspective, we must understand the cultures and organizations in which we manage across the performance modes available to us. This large topic has not been considered in ways that illuminate the messes around us and the demand for their reliable management. In reality, a politics of higher volatility and fewer options saturates the mess and reliability space, and we need to know why, if only to understand that the search for better practices under such conditions is paramount.

This societal challenge goes well beyond pressuring mess managers to operate reliably in areas where they have few known patterns and scenarios to follow. They are not just being pushed deeper into ignorance from a shrinking domain of competence. Professionals are also being required to accommodate, if not resolve procedurally and administratively, deep cultural and organizational differences. Many professionals operate within organizational arrangements that ensure interagency conflict with respect to the outputs and outcomes of their reliability and mess management activities. Furthermore, these differing cultures and organizations generate the dimensions of this book’s performance modes and the mess and reliability space. The politics of higher volatility and fewer options is so challenging to managers because it strikes to the core of their management. Given the importance of these issues, I focus the remainder of this chapter on them.

To summarize this subsection’s argument, our knowledge bases, the scales at which we operate, and our views of what we take to be volatility and options—what we take to be mess and reliability—come from the cultures we subscribe to as well as the organizations in which we manage across different performance modes. The approaches I draw from are cultural theory, with its focus on competing hierarchist, individualist, egalitarian, and fatalist cultures; James Q. Wilson’s typology of production, craft, procedural, and coping agencies, each with a different orientation to organizational outputs and outcomes; and

the performance modes discussed in this book. The first two approaches are already familiar to a good number of academically trained policy analysts and public managers. As I show below, the four performance modes fit into each type of organization, and all four types of organization are nested in a hierarchist culture that is itself at fundamental odds with the other cultures important to managing our critical services reliably. This nesting and the differences realized along the way are the source of what I call the politics of higher volatility and fewer options. I am aware that the approaches I rely on here are abstract and can be little more than heuristics in describing what is admittedly, first to last, a messy policy world. Their great virtue, I believe, and the reason I choose to focus on them rather than others, is that their abstractions frame policy messes better than the other approaches.

Start with culture, a much-written-about topic for which we can be much more specific when it comes to mess and reliability (for a fuller discussion of cultural theory and points raised below, see Roe 1998). The cultural theory of Mary Douglas and her colleagues, especially Michael Thompson and the late Aaron Wildavsky, posits four basic cultures, which are exceptionally useful to understanding the drive to mess and reliability. The cultures are hierarchist, egalitarian, individualist, and fatalist, each one defined by where people locate themselves in terms of the degree of social constraints they face (“grid”) and the degree of group cohesion with which they act (“group”):

[Mary Douglas] argues that the variability of an individual’s involvement in social life can be adequately captured by two dimensions of sociality: group and grid. *Group* refers to the extent to which an individual is incorporated into bounded units. The greater the incorporation, the more individual choice is subject to group determination. *Grid* denotes the degree to which an individual’s life is circumscribed by externally imposed prescriptions. . . . Strong group boundaries coupled with minimal prescriptions produce social relations that are *egalitarian*. Because such groups lack (as a consequence of their low grid position) internal role differentiation, relations between group members are ambiguous. . . . When an individual’s social environment is characterized by strong group boundaries and binding prescriptions, the resulting social relations are *hierarchical*. Individuals in this social context are subject to both the control of other members in the group and the demands of socially imposed roles. . . . Individuals who are bound by neither group incorporation nor prescribed roles inhabit an *individualistic* social context. In such an environment all boundaries are provisional and subject to negotiation. . . . People who find themselves subject to binding prescrip-

tions and are excluded from group membership exemplify the *fatalistic* way of life. Fatalists are controlled from without. (Thompson, Ellis, and Wildavsky 1990, 5–7)

To give an example, many people argue that the way to achieve better policy design is to bring those street-level workers discussed earlier and their frontline knowledge directly into the planning process (M. Hill and Hupe 2002). Cultural theory asks which kind of street-level worker? Burnt-out caseworkers (fatalist)? Policy entrepreneurs able to exploit bureaucratic loopholes for their own advantage (individualist)? Advocates of grass-roots participation in the community (egalitarian)? Or those managers who know both the local and the official and how to work within the confines of each (hierarchical)?

The four cultures reinforce each other as a plural value system: “Each way of life needs each of its rivals, either to make up for its deficiencies, or to exploit, or to define itself against. . . . Were egalitarians to eliminate hierarchists and individualists, for instance, their lack of a target to be against would remove the justification for their strong group boundary and thus undermine their way of life” (Thompson, Ellis, and Wildavsky 1990, 4). The cultural theorist recognizes that these cultures are in important respects incommensurable and that there is no way to reconcile one entirely to another. Alliances exist but are not guaranteed to last. Wildavsky and other cultural theorists stress that the breakdown of alliances and cultural polarization characterize much of recent U.S. politics.

The incommensurability and pluralism of cultures are the armature of policy messes, as both insist on differences in the knowledge we have and in the scope over which we work, when it comes to what we differently define as mess or reliability. They also insist that the “we” are most certainly not homogeneous. But why are multiple ways of knowing and behaving possible? The answer is the same unstudied conditions that prowl around our policy messes. “There is always enough irreducible uncertainty in the world for us to be able to bias our convictions this way or that,” according to Thompson, Ellis, and Wildavsky (1990, 10). “All that cultural theory requires is that there always be some uncertainty of this kind.” Cultural theory frames how unstudied conditions serve as the initial conditions against which mess and reliability are to be defined, as well as managed.

It is important to identify the orthogonal views that the four cultures hold about how to manage needs and resources, because these views later relate to volatility and options.⁸ “Needs and resources,” Thompson, Ellis, and Wildavsky maintain, “are socially constructed” (1990, 39).⁹ Each cul-

ture has its own “need-and-resource-managing strategy” (48). To cut to the quick, fatalists believe you can manage neither your needs nor your resources; egalitarians believe you can manage your needs, but not your resources; hierarchists believe you can manage your resources, but not your needs; and individualists believe you can manage both needs and resources. When so, it is hardly surprising that mess results and that the demands for reliability differ when interactions are driven by the various management strategies of these four cultures (for details, see Thompson 1993; Thompson, Ellis, and Wildavsky 1990). We can see how the interaction of differing strategies works by returning to chapter 3’s example of overpopulation. For egalitarians, it is essential to reduce what they take to be rapid population growth and numbers. That way you reduce needs directly. They also believe that we must change what we take to be our needs, the very notions of development and growth, arguing that this is the only earth we have. Hierarchists, in contrast, believe it is essential to set limits:

In the hierarchist’s social construction, development is certainly possible but not everywhere. Development that strays outside the pocket of stability . . . will be unsustainable and will have to be identified ahead of time and guarded against. Indicators of sustainability, safe limits, thresholds, critical loads, carrying capacities, statutory assessments of the risks and benefits of new technologies, and a host of similar concepts and procedures are the means by which this vital sorting is implemented. (Thompson 1993, 24)

Mess and reliability professionals are, in terms of cultural theory, primarily hierarchists and thus unavoidably in conflict with the other three cultures’ approaches to managing needs and resources. Not only do these cultural differences influence what knowledge is and the scale at which that knowledge applies in the mess and reliability space, but they also influence the volatility in the tasks before managers and their perception of the options they have to respond to that volatility in terms of their performance modes.

Options and volatility, along with knowledge and scale, are not determined by culture alone. The organizations in which we work and those we interact with also differ in fundamental ways for reliability-seeking mess managers. The late James Q. Wilson famously identified four types of organizations in which we work (1989, 158–71). His typology has two dimensions, outputs and outcomes—each distinguished by whether or not it can be observed and monitored, and each of which is crucial for networks of mess and reliability professionals. “Outputs consist of what an agency does,” while outcomes involve “how, if at all, the world changes because of the outputs. Outcomes can be thought of

as the results of agency work” (158). For instance, the “outputs of police officers are the radio calls answered, beats walked, tickets written, accidents investigated, and arrests made. The outcomes (or results) are the changes, if any, in the level of safety, security, order, and amenity in the community” (158–59).

Outputs and outcomes vary in the degree to which they can be monitored and accounted for:

Outputs—work—may be hard to observe because what the operator does is esoteric (for example, a doctor performing a diagnosis or a physicist developing a theory) or because the operator acts out of view of the manager (for example, a police officer handling a family quarrel or a ranger supervising a forest). . . . Outcomes—results—may be hard to observe because the organization lacks a method for gathering information about the consequences of its actions (for example, a suicide-prevention agency may actually prevent suicides but it has no way of counting the number of potential suicides that did not occur); because the operator lacks a proven means to produce an outcome (for example, prison psychologists do not know how to rehabilitate criminals); because the outcome results from an unknown combination of operator behavior and other factors (for example, a child’s score on a test reflects some mix of pupil intelligence, parental influence, and teacher skill); or because the outcome appears after a long delay (for example, the penalty imposed on a criminal may lead to a reduction—or even an increase—in the offender’s behavior five years later). (159)

The two factors—outputs and outcomes—and the distinction between those that are relatively easy or difficult to observe and monitor result in four ideal types of organizations: “Agencies in which both outputs and outcomes can be observed; agencies in which outputs but not outcomes can be observed; agencies in which outcomes but not outputs can be observed; and agencies in which neither outputs nor outcomes can be observed. . . . I have called the first kind of agency a *production* organization, the second a *procedural* organization, the third a *craft* organization, and the fourth a *coping* organization” (159).

Policy messes are inevitable when the different organizational types connect under differing reliability requirements. Evaluators recommend sophisticated monitoring, evaluation, and assessment systems for a coping agency; outsiders insist that all best practices in craft agencies be evidence-based, with measurable outputs and outcomes. Discretion that professionals had is displaced by expert systems grounded in algorithms. And what better way to create a mess for policy than ramming the round peg of a coping organization into the square hole of a production agency?

Before the financial mess, many banks were taken to be production organizations when they were not craft organizations: Among other things, they produced interest on savings accounts, which were their outputs, enabling account holders to support themselves, which was the achievable outcome. Some of the underlying financial activities were complex and sophisticated, requiring great skill, but the outcome—we used the money for our livelihoods—was by and large observable and measurable. The financial mess was in large part about how some banks and investment firms became coping organizations—the messiest of Wilson’s four categories—when not procedural in orientation. Some outputs and outcomes were not observable or measurable because the “it” involved was ambiguous. Just under what conditions are “tier one capital instruments” bank debt, equity, or something in between (see P. Davies et al. 2009)? Just what is the price of an illiquid asset—is it determined by the market, auction, model, or bureaucrat (Hughes 2008b, 2008c; Scannell 2008)?¹⁰ Just when is a credit default officially a default? One response to all the coping was the demand of decisionmakers that banks be supervised and inspected more stringently. While some banks resisted what they saw as heavy-handed, day-to-day regulation, others have been more procedurally oriented in following bailout stipulations.¹¹

Mess intensifies and amplifies because professional operating networks frequently include all four types of organizations, rendering the task environment more volatile. The network for U.S. electricity grid operations includes production organizations (for example, the private generators), craft organizations (high-reputation engineering units in distribution utilities), procedural organizations (state and federal regulators), and coping organizations (public health agencies whose systems depend on reliable electricity). The financial sector is as rich and messy in its organizational types and networks.

Now place in the midst of these cultures and organizations the performance modes, in which operators perform differently depending on the volatility of their task environment and the options they have to respond with. That is, connect how these different cultures and organizations operate in terms of managing just in case, just on time, just for now, and just this way. When the performance categories are combined along with the cultural and organizational types just mentioned, we end up with the politics of higher volatility and fewer options.

From the perspective of this book, politics is better described heuristically as the nesting of the three sets of preceding typologies, one within another. Production and coping agencies have four performance

Just-on-time performance Production	Just-in-case performance Organization	Procedural Organization (performance modes not shown)	
Just-for-now performance	Just-this-way performance		
Craft Organization (performance modes not shown)		Just-on-time performance Coping	Just-in-case performance Organization
		Just-for-now performance	Just-this-way performance

Figure 6. Types of organizations and performance modes in hierarchist culture

modes, as do the two other types of organizations. This composite of differing organizations, each with their four performance modes, fits in turn into the hierarchist culture, as that culture is the most organizational and best captures the heartland of mess and reliability professionals.¹² The resulting hierarchist culture is not homogeneous. Rather, it consists of the interaction of production, procedural, craft, and coping organizations, each of which in turn, in order to be reliable, has to have recourse to the four performance modes of just in case, just on time, just for now, and just this way, as shown in figure 6.¹³

Out of this mix come higher task environment volatility for those

involved and fewer options agreed upon by them. The nesting of modes and organizations within a culture that is itself at odds with the other three means that knowledge and scale are rendered as complex, uncertain, disputed, and/or incomplete in all the respects that matter. When it comes to the dimensions of knowledge and scope of the mess and reliability space of professional activities (figure 3), macro design will invariably be populated by multiple, conflicting, and incomplete positions; patterns and scenarios connecting outputs and outcomes will be uncertain, complex, or in conflict; and just what is happening in terms of operator error may be known only to that operator. In like fashion, the nested model in figure 6 captures the difference between the ways many people, including experts, think bureaucracies should act and the ways they actually act. For example, to revert to the academic literature, the Weberian bureaucracy is the hierarchist production agency acting just in case and just this way, while the garbage can bureaucracy is the hierarchist's coping agency acting just for now or, at best, just on time.

Because the resulting volatility is higher and the options fewer, mess and reliability professionals often find themselves limited to working only in that real-time reliability of just on time and just for now, with the major risks of misjudgment and amplification of error that those conditions entail. (This is why higher volatility and fewer options should not be equated solely with just-for-now performance.) It is important to underscore that the limitations imposed by working with others from different cultures and different organizations not only increase the volatility but also circumscribe the agreed-upon set of options professionals have in responding to the volatility they face.¹⁴

We must be careful here, however, because even as the politics persist, nothing is static or unidirectional. Some options may increase, others decrease. In terms of figure 3, learning is taking place in the form of evolving better practices; the networked professionals add or drop patterns and scenarios from their repertoires. It is altogether possible that new networks or network members bring new options. This is an empirical question that cannot be settled a priori.¹⁵ The overall societal challenge under conditions of higher volatility is thus to ensure that the "fewer" available options are sufficient enough not only to avoid prolonged stays in just-for-now performance but also to keep managing flexibly just on time. That said, let there be no doubt about the overall consequences of the politics. They are the hydraulics that make it more difficult to preserve the good messes we have and to ensure that the bad messes we face do not get worse. Margins for error

have become tighter and the complexities to be managed within them more difficult, which make the identification of better practices and their evolution all the more important. I now turn to the major implications of this societal challenge and others for the professionals managing these systems.