Chapter 8
Heuristics and Meta-heuristics for Coping with Messes

Given the importance of Wicked Messes, we need to say more about ways of dealing with them. In a series of publications, we and our colleagues have developed a number of Heuristics for Coping with Messes.[1] If the underlying conditions are met, there is every reason to believe that they will accomplish their intended job. Nonetheless, they are only Heuristics, i.e., approximate rules of thumb. As such, they do not guarantee that we'll be able to cope successfully with a Mess. Worst of all, they can even backfire such that instead of making Messes more manageable, they can make them worse, thus producing the exact opposite of what's intended. Still, they're all that we have. Nonetheless, by not looking at their potential downsides, the inescapable conclusion is that some of the most important aspects of Messes have not been given the serious consideration they demand.

A strong qualification is in order. In many cases, as part of their original formulation, many of the Heuristics openly express their limitations and pitfalls. Thus, we're not saying that no attention whatsoever has been given to the issue. However, we are saying that the discussion needs to be expanded—as well as updated—to include all of them. In short, they need to be examined Dialectically.

The following is a list of the Heuristics as they've been originally formulated. Each is then followed by a brief commentary, or rejoinder, of what's required to make them work, and how they can not only fail, but can actually make things worse.

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[1] Vincent P. Barabba, and Ian I. Mitroff, Business Strategies For A Messy World, Tolls for Systemic Problem-Solving, Palgrave Macmillan, New York, 2014; Ian I. Mitroff, Can M. Alpaslan, and Ellen O'Connor, Op Cit, 2014; Ian I. Mitroff and Lindan B. Hill and Can M. Alpaslan, Rethinking The Education Mess, A Systems Approach to Education Reform, Palgrave Macmillan, New York, 2013.

This article is based primarily on Chap. 6 of Ian I. Mitroff, Can M. Alpaslan, and Ellen O'Connor, Everybody's Business, Reclaiming True Management Skills in Business Higher Education, Palgrave Macmillan, New York, 2014.

In effect, the commentaries constitute Meta-Heuristics, i.e., Heuristics for managing Heuristics. Without them, any discussion of Messes is seriously incomplete.

In terms of the Jungian Framework, in their original formulation, the Heuristics are mainly NT. Thus, they not only urge us to expand our thinking, but adopt novel, unorthodox ways of looking at Messes. In sharp contrast, many of the commentaries raise NF and SF concerns. They urge us to proceed with caution to avoid having the original Heuristics backfire.

8.1   Key Heuristics for Coping with Messes

Preconditions

1. First, not only recognize, but accept that everything needs to be treated as a Mess in its own right or as an important part of a Mess.

   Commentary: While we have no doubt whatsoever as to the truth of this Heuristic, it fails to account for the fact that how a Mess is initially presented and by whom is a big factor in its acceptance and subsequent treatment. One of the most prominent examples is a diagram which appeared on the front page of the Tuesday, April 27, 2010, edition of *The New York Times*. It featured a complex power point slide that was prepared by the Junior US Officers in Afghanistan showing the full array of factors that were involved in fighting and winning the Afghan War. Thus, it not only displayed the Military, but the multitude of Cultural, Political, and Social factors that needed to be addressed as well, especially how they interacted. For instance, if for any reason Afghan farmers were prevented from growing opium poppies, it would produce fierce opposition to the US war effort. Thus, while it gave an exacting overview of the full situation, the power point was so complicated that General Stanley McChrystal, the Supreme Commander of Afghan troops, said, "When we understand this diagram, we'll have won the War!" The point is that the basic acceptance that something is a Mess is complicated by how it's presented. In other words, the presentation of a Mess is an integral part of the Mess. Indeed, everything related to a Mess is part of it.

2. Recognize and accept that treating problems with a Machine Age Mindset only makes Systems Age problems worse. One cannot even begin, let alone proceed, without these first two preconditions.

   Commentary: One of the key defining characteristics of the Machine Age was that Aesthetics, Epistemology, and Ethics were separate and distinct. Therefore, because they essentially existed in separate realms, they could be dealt with independently of one another. This is not true in the Systems Age where the Aesthetic, Epistemic, and Ethical components of problems are inseparable. Indeed, the Machine Age had its own largely unrecognized and underlying Aesthetic In effect, it believed that there was one and only way to represent all problems, namely, in terms of their technical or ST components alone. In this sense, it was always more than just an Epistemic Stance alone.

The power point slide of all the factors involved in fighting and winning the Afghan Ware shows in no uncertain terms the importance of Aesthetics.

Increase the Diversity of Perspectives

3. View a Mess from as many different perspectives as possible. For example, look at whatever Financial Mess we are experiencing not only from a Financial or Economic perspective, but also from a Psychological, Sociological, Anthropological, Historical, Moral, Political, Technological, and even Spiritual perspective. In each one, find at least one Producer of the Mess. (A "Producer" is a necessary factor for the "production" of a Mess, but by itself is not sufficient to cause it. In other words, a "Producer" is one of many "Co-Producers." For example, planting an acorn is necessary to "Produce" an oak tree—an end "Product"—but other Co-Producers such as air and water are also necessary. A "Producer-Product" relationship thus stands in sharp contrast to a "Cause-Effect" relationship where a prior "Cause" is both necessary and sufficient for an end "Effect.") Accordingly, human Cognitive Biases (Psychological), the Culture of Wall Street (Anthropological), the Political Swings between Capitalism and Socialism during the process of Globalization (Political), and so on all play an integral part in the constitution of every Mess. In general, the Producers never fall clearly and neatly under a single Scientific Discipline or Profession. Next look at the Consequences, and ask, "What are, and what will be, the Consequences of The Current Financial Mess?" Again, don't focus on the Financial Consequences alone, but also on the Psychological, Sociological, Anthropological, Moral, Political, Technological, Spiritual, and Historical Consequences as well.

   Commentary: While absolutely true and necessary, it neglects the fact that a diversity of perspectives and the sheer number of factors is more likely than not to overwhelm and confuse those who have not been trained to think and to act Systemically. To tolerate, let alone appreciate a diversity of perspectives, requires Interdisciplinary Thinking and, even more, Transdisciplinary Thinking and Practice. In other words, a diversity of perspectives requires the intense cooperation between a diversity of different experts. As such, they do not appear magically on their own. For this very reason, Kilmann has developed the notion of the Problem Management Organization or PMO.[2] One of the key defining properties of a PMO is its explicit inclusion of different experts on whatever the topic of importance. One of its primary purposes is to facilitate a deep sense of collaboration between different experts. We say much more about PMOs in the last chapter.

   In sum, increasing perspectives challenges one's Comfort and Tolerance Zones. And, the two are definitively not the same. One can often tolerate that for which one is moderately uncomfortable, but not be comfortable with that for which one has low tolerance. The point is that Psychology plays a central role in the treatment of Messes.

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[2] Kilmann, R. H. Quantum Organizations: A New Paradigm for Achieving Organizational Success and Personal Meaning, Newport Coast, CA: Kilmann Diagnostics, 2011.

4. Never ever trust a single formulation of a Mess. Seek out and sweep in the analyses of experts who are skilled at making connections between different fields. Get different Stakeholders from different professions to formulate a Mess. For instance, long before 9/11, the artist Mark Lombardi developed intricate and elaborate ways of uncovering and tracing complex webs of international corruption. Part Investigative Reporter, Postmodernist Art Historian, and Graphic Artist Lombardi showed that by turning to public sources of information, he could demonstrate convincingly that the bin Laden and the Bush families were connected through complex and nefarious Financial dealings. In short, Lombardi developed a new art form that showed pictorially how disparate and powerful global actors were interconnected. In effect, he showed the seamy side of the Global Economy. As a result of his work, Lombardi was one of the few, if only, artists to be accorded the dubious distinction of having his work examined by an FBI agent—in a museum no less—in order to gain clues into the terrorist financing of 9/11.

   Commentary: This is one of the most powerful examples on the role of Aesthetics in the formulation of and Coping with Messes. It also reinforces the need for PMOs. The point is that a PMO is an explicit model for bringing together different experts in ways such that they can interact productively.

Examine and Challenge Taken-for-Granted Assumptions and Beliefs

5. In particular, using the various schools of Psychoanalytic thought among which we discussed in Chap. 1, examine the deep and thereby often unconscious assumptions that are made about different Stakeholders. It is not that Stakeholders are "completely irrational." They are just not "perfectly rational." This Heuristic thus increases the diversity of an Inquiry by forcing us to put ourselves in the shoes of different Stakeholders. Because no Stakeholder is ever perfectly rational or irrational, every Stakeholder's perspective is at least partially rational. By analogy, formal systems based on pure Logic alone are either incomplete or inconsistent.

   Commentary: We couldn't agree more with the spirit of this particular Heuristic. Nonetheless, it poses one of the greatest challenges to our current Educational System. To our detriment, many Disciplines and Professions regard Psychology, let alone Psychoanalysis, as "irredeemably soft" and thereby not to be taken seriously. The point is that before a field can be utilized, we are first required to take them earnestly. But this necessitates that we've tackled previous Messes such as the Education Mess. To reiterate, all Messes are part of one another. In sum, Psychology is an integral part of every PMO.

6. Monitor different Stakeholder assumptions over time so that as the assumptions change, one can show the corresponding changes in how various Messes are conceived and represented. If Messes are the new Reality, then assumptions are the building blocks of Messes, and hence, of Reality. As assumptions change, different perspectives on Reality emerge. In this sense, Reality is constantly being constructed and reconstructed over time. Also, a crisis occurs when all or nearly all of one's basic, taken-for-granted assumptions collapse. Thus, what

assumptions are most vulnerable? Which ones are believed to be invulnerable? What are an individual's, an organization's, an institution's, or a society's crisis plans, if any, for what to do in the case where its major assumptions collapse?

Commentary: This Heuristic requires that Assumptional Analysis not only be taught, but reinforced throughout our entire Educational System. It also requires that people be rewarded for uncovering, monitoring, and challenging assumptions in virtually every organization, institution, setting, and aspect of their lives. The sad fact of the matter is that at the current time, people are not trained or rewarded for doing challenging assumptions. Indeed, they're often punished for merely raising the mere possibility that our assumptions may be faulty.

Even worse, what safeguards are there against the misuse of Assumptional Analysis? Suppose one rigs the Evidence to "prove" that one's assumptions are still valid? Or that all of them have been completely surfaced and correctly identified? In short, in order to be effective, it requires safeguards in the form of Dialectical Thinking. That is, what assumptions are we making when we act on the belief that we can correctly identify and track our basic assumptions?

Visit/Examine Extremes; Perturb the Ordinary/Conventional

7. Imagine/Design the Impossible. Ackoff's notion of Idealized Design frees us from constraints. Imagining and designing the impossible not only frees us, but it also forces us to question our deepest assumptions. (An Idealized Design embodies as many of the features we would like to see realized. An Ideal System is not Utopian. One of the key properties of any Idealized Design is that it must be capable of being implemented. That is, it must include an implementation plan as an integral part of its basic design.)

   Commentary: All of the previous challenges and considerations apply here as well. In particular, what ensures that we have in fact questioned our deepest assumptions? At a minimum, it requires Dialectical Inquiry.

8. Ask "Smart-Dumb" Questions. Never accept conventional, traditional constraints or boundaries. Always have someone play the Devil's Advocate. Even more important, construct a Dialectical opposite to the Inquiry System in use.

   Commentary: Once again, we agree. But all of the previous considerations apply here as well.

9. Pay special attention to outliers. An outlier is an observation "that appears to deviate markedly from the other members of a sample in which it occurs[3]. Alternately, it's "a person or thing situated away or detached from the main body or System." Because what we observe is a function of our theories, outliers often inform us more than what we expect to observe. For instance, if we find too many outliers, then this may indicate that our perspectives are too narrow, for instance, by putting different things/people in too few or the same categories. Thus, one needs to sweep in more perspectives to make sense of outliers and messes.

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[3] Grubbs, F. E.: 1969, Procedures for detecting outlying observations in samples. Technometrics 11, 1–21.

   Commentary: Again, what if instead of informing us the different perspectives confuse and overwhelm us all the more? What if they cause us to dig in our heels and become even more attached to our pet theories and perspectives? What then do we do? Carefully, reduce their number? Put more effort into educating ourselves with regard to the need for PMOs?

10. Use "random interventions." These are deliberate strategies designed to understand the "noise" in any system. Noise is that which one cannot make sense of. Noise may include outliers and more. Another way to view it is "A Mess is misunderstood order, and order is a misunderstood Mess." That is, in every order is a Mess waiting to be surfaced and thereby discovered. Conversely, Messes are not totally devoid of order, but are a different kind of order. Understanding or making sense of the "noise" in a system requires a great number and variety of different perspectives. What is noise according to one perspective may as well be order according to another. In fact, Messes and order are opposite sides of the same coin, i.e., Reality.

   Commentary: All of the previous considerations apply here with equal force.

   Investigate/Understand the Complexity of Interactions; Examine Improbable Interactions and Stakeholders

11. Ask at least two questions: (1) "What are some of the problems and Messes that 'Produce' a particular Mess?" (2) "What are some of the problems and messes that a particular Mess 'Produces'?" In other words, go forward or backward in time to connect problems and Messes. The key point is that, in Systems terms, problems are co-produced by other problems. It's absolutely vital to assume that all problems or Messes are linked with other problems. Therefore, no problem can be solved or formulated in isolation from other problems or Messes. For example, the Financial problems of a corporation or a country cannot be formulated, let alone be solved, in complete isolation from other problems. To repeat, the "Co-Producers" of a problem (which are themselves problems produced by other problems) are necessary, but by themselves, are not sufficient to result in a Mess.

   Commentary: To reiterate, what if the problems that constitute a Mess grow faster than our Cognitive and Emotional abilities to make sense of them, let alone grabble with them? What then do we do? What are the kinds of preparations that one needs to undertake Psychologically to be able to approach any Mess? Psychology is not only a key part of any Mess, but it's a fundamental part of our ability to tolerate a Mess.

   Once again, every Mess poses enormous challenges to our Comfort and Tolerance Zones.

12. In messes, the interactions between the parts (problems, emotions, etc.), not the parts themselves, are the fundamental topics of investigation. Therefore, design specific scenarios that deliberately probe for difficult interactions.

(a) Give special attention to the most improbable interactions, whether they seem important or not. These are the ones most likely to cause major crises. In fact, every major crisis has been shown to be the result of two or more assumptions, factors, and interactions that were assumed to be unlikely and inconsequential.

(b) Look at what seem to be least important interactions. These deserve special attention for these are the ones that come back to haunt us.

(c) Look at the most damaging interactions.

(d) Pay special attention to counterintuitive, paradoxical, and unintended interactions and relationships. For example, in *Republic, Lost*, Harvard Law School Professor Lawrence Lessig notes that the US tax system is not only a direct and intended source of revenue for the US government, but it is also an indirect and unintended source of campaign funds for Congressional candidates. The link and thereby unintended interaction is as follows: Congressional candidates have a direct stake in keeping the US tax code complex and tax rates high for the wealthy. By promising to work for lowering tax rates, Congressional candidates have a never-ending source of campaign funds. Despite all the talk of flat taxes, candidates in both parties stand to lose greatly if it were actually enacted. No wonder that they are really opposed to the idea even though they can't say it because it would inflict enormous political damage on themselves. One cannot hope to understand, let alone reform, the tax code unless the entire system of campaign finance is understood and reformed.[4]

Commentary: Once again, what if the interactions grow faster, become more complex, and thereby overwhelm our abilities to make sense and thus tolerate them? Are cross-disciplinary teams and PMOs that can both support and challenge one another therefore better equipped to address Messes? If so, how should they be constituted? What are the kinds of education and training they require such that they are able to face the situation where the interactions grow faster and thereby beyond the capabilities of any single expert to grapple with them?

13. Keep timelines of different Messes over time and how they interact and are "parts" of one another. Again, the Financial Mess and The Health Care Mess are integral to one another. As such, they do more than just "interact."

Commentary: Once again, we need Epidemiologists who have a deep understanding of Economics, and Economists who have a deep understanding of Epidemiology. And this is only a bare minimum of the barriers between the different academic disciplines and specialties that need to be torn down. Interdisciplinary and Transdisciplinary thinking are essential.

14. Bear in mind that every proposed "solution" becomes an integral part of the Mess to which it is attempting to respond. Every proposed solution spawns its own set of problems. Ideally, the new problems are "better" than the old ones in

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[4] Lessig, Lawrence, Republic, Lost, Twelve, New York, 2011.

the sense that they are more easily resolved. The only way to assure this is to examine explicitly the consequences of different proposed solutions.

Commentary: To do this requires that one be well versed and comfortable with Systems Thinking.

15. Carefully examine different "wild-card Stakeholders." These are the "seemingly insignificant Stakeholders" like Rosa Parks who spark a revolution (the Civil Rights Movement). Or, Mohamed Bouazizi who burned himself to death, thereby setting off the Tunisian Revolution, which morphed into the Arab Spring. These are the ones who "can't and won't take 'it' anymore." Wild-card Stakeholders may themselves seem insignificant, but when the whole System/Society is at the edge of chaos, even the most insignificant Stakeholders, events, or interactions can trigger a chain reaction of events and interactions that can lead to major crises.

Commentary: In short, this requires people who can Think the Unthinkable. It requires that we take seriously how our most basic assumptions can be invalid.

16. Who are the known and unknown Stakeholders that stand to gain the most/least? How will the most vulnerable fare versus the most well-off? How will the poor and disadvantaged be affected?

Commentary: In short, high degrees of Emotional Intelligence are required to manage Messes. Not only will Cognitive Intelligence alone not suffice, but by itself, it makes things worse. Empathy is critical.

Rules for Intervening/Presentation

17. Carefully Manage Presentations and the Degree of Challenge They Present

   (a) Do Not Overwhelm One's Audiences: Increasing the diversity of perspectives and attempting to make sense of complexity can create high levels of anxiety and can thus be overwhelming. In a basic sense, the Junior Officers that prepared the power points on the Afghan war were fundamentally wrong. Ideally, they should have led up to the final, complicated power point in carefully orchestrated steps, and not have shown the full diagram all at once. The purpose of displaying Messes is not to confuse and overwhelm one's audience, but to help them understand and tolerate complexity. Nonetheless, there is no getting around the fact that the appreciation of Messes and the ability to handle them requires a high tolerance for ambiguity. Thus, if there are more than ten factors, which there always are, then one needs to prepare more than one diagram.

      Commentary: The "fundamental truth" of this particular Heuristic cannot be overemphasized.

   (b) Rock the Boat (or let boat keep rocking – in a sense, maintain the status quo). When there are no better options left, create/let happen series of "minor" crises in the hope that crises will shock people to their senses. Of course, a major, if not very risky, assumption is a prolonged, sustained series of minor, contained, and containable crises which is the ONLY way

in which to force people to abandon the status quo and to move off their deeply entrenched, divisive ideological positions. (In the case of the 2013 government shutdown, this wasn't true. The members of the Tea Party were just as committed to their tactics as before.) From the standpoint of Messes, the definition of a crisis is as follows: A major crisis occurs when the interactions that are seemingly the most invincible/stable break down; a Mega Crisis occurs when a substantial majority of desired, planned interactions break down. Ideally, letting the boat rock brings to surface and forces us to examine our faulty assumptions about improbable, insignificant, unimportant, easy/hard to manage, etc. interactions. The danger is of course that "minor" crises can lead to "major" ones that can spin wildly out of control.

Commentary: In other words, crises are an integral part of every Mess. Therefore, Crisis Management is an integral part of Coping with a Mess.

18. Pick Your Battles

    (a) Easy Wins: Go after the easiest to manage/understand interactions and by making headway build hope and show that it's possible to achieve change with and/or without revolution or major (mega) crises.

    (b) Magic: Court/Slay the Monster. Go after the most difficult to manage/understand interactions and by making headway show that it is possible to achieve change with and/or without revolution or major (mega) crises.

        In every complex situation, organization, institution, system, etc., there are always things (values, culture, rules, structures, friendships, pay and reward compensation, etc.) we would like to preserve or keep the Same (the status quo), and there are always things we would like to Change, sometimes radically. Similarly, there are always some things that are Easy to keep the same or change. And, there are always some that are Difficult.

        If things are Easy, then by definition, one can manage the process smoothly of either preserving or changing things. If preservation or change is Difficult, then leadership is called for.

        Because of their very nature, Messes have an abundance of issues in the Difficult to Change quadrant. That is precisely why Transformative Leadership is necessary.

        Commentary: To work on the profusion of issues that are Difficult to Change requires leaders who have achieved a proper balance between Cognitive and Emotional IQ. If the issues were easy, it wouldn't be a Mess!

19. Intervention Scale and Scope

    (a) Use Global/Macro interventions. Foster Special Interest/Worldwide Groups for Taking Charge of/Managing Messes.

    (b) Use Grassroots interventions.

        Commentary: Once again, this Heuristic reinforces the need for special Interdisciplinary and Transdisciplinary teams.

Virtually all of the preceding Heuristics urge us to expand the boundaries and the scope of our thinking. They force us to make sense of Messes in unconventional

ways. In short, they are essential. But there's a catch. First, one needs to acknowledge that everything is a Mess. To accept that the Producers of messes cannot be understood and their effects cannot be isolated is once again to recognize and accept that treating Messes with a Machine Age mindset only makes them worse.

Finally, we readily acknowledge that 19 or so Heuristics are a great deal to keep track of. Indeed, they are a Mess in themselves. But, hopefully, they become easier to manage with practice. We wouldn't expect anyone, including ourselves, to be able to remember, let alone use, all of them at once.

Nonetheless, it is important to list as many Heuristics as we can so that we can begin to "map out the territory." It also helps to set an agenda for further research to expand our knowledge of Heuristics. As opposed to the kind of research that is common in today's Business Schools, we desperately need research into the nature of Heuristics for coping with Messes.

8.2   Concluding Remarks: The Need for Meta-heuristics

In many ways, our review of Heuristics has demonstrated the need for Meta-Heuristics. Namely, what do we do when the Heuristics for Coping with Messes not only break down and thereby fail to do their intended job, but become part of the Mess, and thereby make it worse? As we've indicated throughout, we have no alternative but to monitor as carefully and systematically as we can the impacts of our Heuristics on a Mess. In effect, the Heuristics are a fundamental part of every Mess for which they are attempting to cope. In this regard, the Commentaries following each Heuristic are in effect Meta-Heuristics. They are Heuristics for managing Heuristics!