

Wicked Problems: A Discussion Note

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1 The concept of “wicked problems”

“Wicked problems” are complex societal issues which resist solution. Such problems clearly exist, and the concept has been widely adopted and discussed. The definition of “wicked problem” is (deliberately) permissive: problems as diverse as corporate strategy, software design, urban poverty, and climate change have been described as wicked problems. Climate change has also been described as “super wicked” because of the added urgency and weakness/absence of the relevant decision maker.

The idea was introduced by Rittel and Webber in 1973 and emerged from a city planning and urban design context. The set of problems being compared thus includes social policy questions and various engineering and design problems associated with urban planning. Wicked problems are counterposed with relatively simple or “tame” problems which admit of solutions via the application of the emerging decision science and professional decision analysis of the 1960s.

There are two problems with the concept as defined by Rittel, Webber, and those who draw from them, which undermine its value in the analysis of social policy. First, their characterisation of wicked problems is founded on a crude and false picture of science (cf. Turnbull and Hoppe 2019). Second, it is so vague that on an expansive reading all social problems are wicked problems while on a restrictive reading almost none are. This makes it hard to understand what any particular description of a problem as “wicked” means and undermines various uses the concept could have.

To illustrate, consider these characteristic features of wicked problems. (There are various formulations of what it means for something to be a wicked problem, but these ten features introduced by Rittel and Webber (1973) are often cited.)

1. Wicked problems have no definitive formulation.
2. Wicked problems have no stopping rule.

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3. Solutions to wicked problems are not true-or-false, but good-or-bad. There is no idealized end state to arrive at, and so approaches to wicked problems should be tractable ways to *improve* a situation rather than solve it.
4. There is no immediate and no ultimate test of a solution to a wicked problem. For tame-problems one can determine on the spot how good a solution-attempt has been.
5. Every solution to a wicked problem is a "one-shot operation"; because there is no opportunity to learn by trial-and-error, every attempt counts significantly.
6. Wicked problems do not have an enumerable (or an exhaustively describable) set of potential solutions, nor is there a well-described set of permissible operations that may be incorporated into the plan. There are no criteria which enable one to prove that all solutions to a wicked problem have been identified and considered.
7. Every wicked problem is essentially unique. There are no classes of wicked problems in the sense that principles of solution can be developed to fit all members of a class.
8. Every wicked problem can be considered to be a symptom of another problem.
9. The existence of a discrepancy representing a wicked problem can be explained in numerous ways. The choice of explanation determines the nature of the problem's resolution.
10. The planner has no right to be wrong. Planners are liable for the consequences of the actions they generate; the effects can matter a great deal to those people that are touched by those actions.

For these reasons, they write, “the classical paradigm of science and engineering—the paradigm that has underlain modern professionalism—is not applicable to the problems of open societal systems” (Rittel and Webber 1973, 160).

Note that the assumed default is an abstract, computational form of problem solving in which problems are neatly defined and fall into categories, and candidate solutions are identifiable and denumerable. Problems are to be analysed first, and then a solution put in place. Solution procedures have “stopping rules” and resolve the problem completely. This highlights that the relevant contrast for Rittel and Webber was a simplified model of problem-solving in engineering which they saw embodied in the emerging decision science of the 1960s (this is what “modern professionalism” refers to in the above quote).

But this is a peculiar starting point for social policy, and ill-suited to a discussion of major policy problems in the 2020s. Rittel and Webber seem to elide this crude engineering/decision science view of problem solving with “science”. On one hand, this is wrong because problems in the natural sciences are more complex than the stereotype of the tame problem: natural scientific problem-solving is also social, political, multiply connected. On the other hand, Rittel and Webber seem to completely neglect the role of the social sciences as systematic forms of inquiry, for example when they write that “the search for scientific bases for confronting problems of social policy is bound to fail, because of the nature of these problems.” We have decades of careful social science which investigates both the causes of social problems and the causal efficacy of policy interventions. In addition, we have seen the development of systems thinking and complexity theory, integrated into social

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sciences and policy. If the world of policy analysis was ever as Rittel and Webber conceived of it, it is no longer.

The concept of “wicked problem” is also poorly specified. Are these criteria, or their counterparts in the literature, all necessary conditions for being wicked? Or is some vague subset of them sufficient? As there is little agreement on this, or on the interpretation of some of the vaguer conditions, we see a very wide disagreement over which problems are wicked. On one reading, *all* social policy problems are wicked problems. As CW Churchman said in response to Rittel’s introduction of the term: “Just how extensive are the wicked problems, he did not tell us, but one was led to conclude from the discussion that the membership in the class of nonwicked problems is restricted to the arena of play: nursery school, academia and the like” (Churchman 1967). Certainly characteristics 1, 3, 4, 6, and 8 seem pretty much universal in social policy. On another reading, “relatively few problems facing governments in 2015 and thereafter actually are actually wicked problems in the full conceptual meaning of the term”, and “describing these policy problems as wicked problems has become a fad in the academic literature” (Peters 2017).

Perhaps “wickedness” is better understood as coming in degrees, and the different items on the list above can be seen as a rough measure of the degree of wickedness along the lines that the more of these that problem satisfy, the more wicked the problem is. Identifying the degree of wickedness a social problem contains could then have two useful functions. One is to discourage the bold promises of soundbite-oriented politicians, who are incentivised to present problems as resulting from simple causal chains and to make bold claims about their resolution. A high degree of wickedness implies that the problem is unlikely to be definitively solved by single policy interventions. Instead, the required work involves constant amelioration and adjustment. But to secure this benefit, we would need some agreement on the scale of wickedness.

2 Managing complexity and uncertainty in policy problem-solving

Setting aside the critique of the concept, let us examine one important aspect of complex policy problem-solving which has been salient in the Covid-19 pandemic. Such complex problems lie across many domains of expertise. One appealing but dangerous approach is to allocate a problem to one domain and anointing a set of experts as authoritative over it. This might look like an instance of a potentially successful strategy for “taming” wickedness: transferring authority to a small number of stakeholders, in order to manage complexity and reduce disagreement (this is advocated by Roberts (2000) in cases where the other stakeholders agree to cede their authority). But when the authority is epistemic, handing the problem over to a small, agile committee can lead to major blind spots and one-dimensional solutions.

The caricature in the pandemic case is that Covid-19 is a purely *epidemiological problem* and so the relevant expert body is the Swedish Public Health Authority, or a SAGE panel

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constituted by epidemiologists, virologists, and public health experts. But the effects of the pandemic and policy responses to it go far beyond the physical health detriments of the disease, and these effects cannot be identified and responded to individually. The pandemic affected people economically and socially, as did the various policy responses to it. Mental health effects, though part of the remit of the Public Health Authority, were arguably not given due consideration in Sweden and minutes from early SAGE meetings show no substantial discussion of mental health.

What policy interventions (ought to) target is something like population wellbeing. Individual wellbeing has multiple constituents, and population wellbeing may depend in important ways on the distributional features of individual wellbeing. Policy choices optimised for one constituent of individual wellbeing will have consequential effects elsewhere which can be far from optimal.

For example, lockdowns were an effective policy for controlling the spread of infection, but their initial justification focussed excessively on the immediate physical health effects of Covid-19. Lockdowns led to isolation, and this in turn to a wave of mental health detriments. Isolated, depressed children achieved poorer educational outcomes, with potential knock-on effects for years. Poverty and food insecurity increased. Whatever the official guidance, poor and financially precarious people are likely to risk infection (and infecting others) by going out to work to retain income. In addition, there is a temporal aspect: how to weigh the suffering and death that can be avoided now against the measures having negative consequences in the future with regard to suffering, death and deteriorating quality of life. It is well known in the economic and sociological literature that recessions have negative effects on individuals into the far future, for example through poorer nutrition, poorer educational opportunities, later entry into the labour market and more, so-called "economic scarring" (see, e.g., Irons 2009 for an overview). All these effects lead to loss of wellbeing, including death.

Policy analysis may also be limited in scope, either by focusing on short-term outcomes or by neglecting feedbacks. For example, some lockdown opponents neglected the economic harms of illness, and self-initiated decreases in economic activity due to fear of illness.

The lesson is that a policy which looks good from one scientific perspective, or one restricted scope, may be sub-optimal in the full accounting of its effects on population wellbeing. Consulting with just one group of experts, or even engaging in a series of limited consultations, risks neglecting the interactions and feedbacks between different areas of policy impact (physical health, economic, social, and psychological wellbeing). What is required is integrated policy assessment. Trade-offs need to be made when evaluating policies in terms of their comprehensive outcomes, not when comparing policies which seek to promote different constituents of wellbeing.

A crucial final point: policymaking inevitably involves both empirical and moral judgements. "Following the science" is insufficient for fixing any policy, as there is a gap between what is or will be the case and what ought to be. Sticking with the example of Covid-19, policymaking ought to have considered at least these moral considerations: (1) how to

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weigh life against life (e.g., young vs old); (2) the value of freedom, (3) the weight of economic vs other harms, (4) injustice in the form of unequal burdens (Arrhenius et al. 2021).

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