



**DEMOSOPHIA**

# **WICKED PROBLEMS**

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## What Are Wicked Problems?

'Wicked problems' have been around for a long time, with the label first emerging around 50 years ago. These are the sort of social, political and planning problems that resist the traditional 'reductionist' management approach of breaking them down into component parts, and fixing each of those parts separately. These are the sort of problems faced by, and largely created by, *people*.

In 1948 **Warren Weaver** had described three categories of problem – mankind had already developed methods for solving the first two (which he labelled as problems of 'simplicity' and 'disorganised complexity'), leading to an explosion of practical science and engineering solutions (think Industrial Revolution, or getting a man to the moon and back). The third category he called "problems of **organised complexity**", those which involved "dealing simultaneously with a sizeable number of factors which are interrelated into an organic whole", such as a biological or societal system. He called for science to focus on these challenges in the latter half of the 20th century. This is the story of some people who picked up that challenge.

"These problems – and a wide range of similar problems in the biological, medical, psychological, economic, and political sciences are just too complicated to yield to the old nineteenth-century techniques which were so dramatically successful on two-, three-, or four-variable problems of simplicity. These new problems, moreover, cannot be handled with the statistical techniques so effective in describing average behavior in problems of disorganized complexity."

**Warren Weaver, 'Science & Complexity', 1948**



In the early 1970's, **Horst Rittel & Melvin Webber** formalised the term '**Wicked Problems**' in the context of planning, and described a set of defining characteristics, including:

- there is no definitive formulation of a wicked problem;
- every wicked problem is essentially unique;
- 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;
- every wicked problem can be considered to be a symptom of another problem.

"A great many barriers keep us from perfecting such a planning/governing system: theory is inadequate for decent forecasting; our intelligence is insufficient to our tasks; plurality of objectives held by pluralities of politics makes it impossible to pursue unitary aims; and so on. The difficulties attached to rationality are tenacious, and we have so far been unable to get untangled from their web. This is partly because the classical paradigm of science and engineering the paradigm that has underlain modern professionalism is not applicable to the problems of open societal systems. One reason the publics have been attacking the social professions, we believe, is that the cognitive and occupational styles of the professions-mimicking the cognitive style of science and the occupational style of engineering have just not worked on a wide array of social problems. The lay- customers are complaining because planners and other professionals have not succeeded in solving the problems they claimed they could solve. We shall want to suggest that the social professions were misled somewhere along the line into assuming they could be applied scientists- that they could solve problems in the ways scientists can solve their sorts of problems. The error has been a serious one.

The kinds of problems that planners deal with societal problems are inherently different from the problems that scientists and perhaps some classes of engineers deal with. Planning problems are inherently wicked."

**Rittel & Webber, Dilemmas in a General Theory of Planning, 1973**



**Rittel & Webber** did us a great service by bringing this type of challenge to wider attention and coining the name that has stuck. Although their work was focused on planning, the applicability to more general human challenges was clear.

Others were working in the same territory about the same time as Rittel & Webber. Russ Ackoff described what he labeled 'messes':

“Managers are not confronted with problems that are independent of each other, but with dynamic situations that consist of complex systems of changing problems that interact with each other. I call such situations messes. Problems are abstractions extracted from messes by analysis.... Managers do not solve problems; they manage messes.

**Ackoff, The Future of Operational Research is Past, 1979**

Ackoff's response to 'messes' was 'systems thinking', which he spent his life defining and describing.

**Jeff Conklin** studies collaboration and collective intelligence, especially in the context of the design of new products and systems by project teams. He makes a distinction between '**wicked problems**' and '**social complexity**', the product of which is '**fragmentation**':

“Fragmentation, for example, is when the stakeholders in a project are all convinced that their version of the problem is correct. Fragmentation can be hidden, as when stakeholders don't even realize that there are incompatible tacit assumptions about the problem, and each believes that his or her understandings are complete and shared by all.

**Conklin, Wicked Problems & Social Complexity, 2005**



Another perspective has emerged, that of Complexity and Complex Adaptive Systems. A Complex Adaptive System (CAS) is a network of interacting elements (or 'agents') where change in any one element can alter the context for all the others.

The system is dynamic (changing with time depending on what has gone before) and non-linear (with potentially disproportionate and unanticipated relationships between cause and effect). Complexity thinking takes this model as a paradigm for understanding how the world really works, and provides a new way of understanding and explaining wicked problems.

Science is struggling with these challenges as well. In 1997, Gerard De Zeeuw described three phases of science. Phase One was studying objects as independent observers – Newton's apple fell and this study could be duplicated by anyone anywhere. Phase Two occurred in the mid-20th century as scientists discovered that observations of objects that they were making were actually being influenced by the observation – blood pressure is higher when measured in a medical setting than it is when measured at home. Phase Three is where understanding of an object must come from integrated, multiple perspectives from a diversity of observers. As summarized by Ken Bausch and Tom Flanagan:



“Third phase science assumes that our many individual subjective, bodily experiences generate valid viewpoints on what we are collectively observing. Therefore, it does not accept the Cartesian assumption of a generic, detached observer of material things (first phase science). And it does not try to reduce contextual observations to some single, universally-acceptable mathematic or probabilistic essence (second phase science). Instead, it welcomes diversities of viewpoint and seeks to increase them in order to get a more complete conception.”

**Bausch & Flanagan, A Confluence of Third-Phase Science and Dialogic Design Science, 2012**

A key aspect of wicked problems is that they can't be solved in one person's head, no matter how intelligent and well informed that person is. Different perspectives need to be brought together to get the 'big picture'. However, that introduces another difficulty – how do these individuals, who by definition see the problem in different ways, collectively create this more complete conception? For that, we have the Science of Dialogic Design and the Demosophia methodology.

## **References and Acknowledgements**

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