

To Be Undecided

The problems we face, in government and in companies, are getting more complex, more entangled, and more diversely influenced every day.

The information we bring to these issues is rarely matched to the challenge it is supposed to address. As Laurence J. Peter once said, “Some problems are so complex that you have to be highly intelligent and well informed just to be undecided about them.”

The times of single-CEO or single-company decisions are gone. To address the complex issues of today, we need something more social – more organic.

The Wickedness of Some Problems

Wicked problems include nearly all policy issues - not just ethically deplorable ones.

Horst Rittel and Melvin Webber, in a 1973 article for Policy Sciences¹, used "wicked" to describe the malignant, vicious, tricky (like a leprechaun), and aggressive problems of planning.

Problems of this kind, in government, include innovation-based investment policies R&D funding in public universities, and programs to drive regional economies. In corporations they are part of strategic plans on environment issues, developments that impact local communities, and investment options in

areas under deep public scrutiny (i.e. Oilsands developments in Alberta, Canada).

Rittel and Webber argue that it's "morally objectionable to treat a wicked problem as though it were a tame one, or to tame a wicked problem prematurely, or to refuse to recognize the inherent wickedness of social problems." We can't pretend our old analytical tools are sufficient anymore.

A new tool set

The work of Rittel and Webber started an area of analysis later picked up by consultant Jeffrey Conklin at Cognexus and professor John Camillus at the University of Pittsburgh. Rittel and Webber focus on public policy, Conklin² bridges between public policy and corporate strategy, and the Camillus piece³ is distinctly corporate.

The view of Jeffrey Conklin

In his work, Conklin defines wicked problems as having four primary characteristics:

1. The problem isn't understood until a solution is developed.
2. There are several people with something at stake in how the problem is resolved.
3. The constraints change over time.
4. The problem-solving process ends when the resources run out.

There is no definitive statement of a wicked problem. Each is an evolving set of interlocking issues and constraints. In most cases these issues and constraints are people-centric. This makes wicked problem solving a fundamentally social

process.

As the political, commercial and temporal positions of stakeholders

change so do the problem's constraints. When constraints are ever-changing, there is no definitive solution.

With all the comings and goings of issues, barriers and interests – the problem is always changing and solutions always moving – the only way the process ends is when time, money, or energy run out.

Take our work at Conoco-Philips as an example. We were asked to help the company gauge its capacity and its options to respond to the environmental challenges that face the energy business.

Conoco-Philips is a massive company with business in a wide range of energy-related, vertical industries. Just identifying the opportunities related to environmental issues is a majestic task. But it takes the work of identification to finally comprehend the challenge.

Our work revealed an inter-connected, cross-functional set of relationships that spanned regions (In Canada – the Arctic, oilsands, and more populated areas in the south), businesses (oilsands, conventional oil, and natural gas), and business units (investment, R&D, planning, and development).

When our work started (early 2008) the price of oil was high and the environment was a key issue in the news. By its end (early 2009), the economy was all we talked about – even oil was plummeting.

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We never did “solve” a problem. Our work just revealed a series of paths forward. It created a range of

options.

If we had tried to analyze the issues on a quantitative or linear basis, we could not have succeeded. Instead we simply started mining – through discussions with the executive team, management teams and various individuals scattered around the company.

From the Camillus work

In his application to corporate strategy, Camillus focuses on three more characteristics (and leaves out the characteristic of indefinite solutions). The three he adds are:

1. The issue's roots are complex and tangled.
2. The challenge has no precedent.
3. Nothing can indicate the right answer.

Because wicked problems can even arise from success (market saturation, public concerns around market dominance), it's hard to know where they come from. With that lack of clarity, an attempt to address one issue can unravel answers to others. Often the resolution of one issue means addressing the resulting suite of issues it creates.

When the threat of unraveling everything is real it usually means developing entirely new strategies (versus incremental plans). The trouble starts when unprecedented strategy means wandering into new territory. Without familiar landmarks it is

hard to know if new strategies are working.

We need to confront a more complex mass of information than we are used to dealing with.

Recently the Alberta Government has set out to renovate its innovation system. It's meant distilling down the functions of nearly 30 innovation-related institutions into the mandate of just three. Part of our work with the department of Advanced Education and Technology involved creating a framework to identify key areas for these institutions to support.

One of the challenges is the numbing complexity of the task. Everything is there for a reason – usually a good one. Pulling one piece can mean destabilizing the rest.

The intention we have is not uncommon: target investments as deliberately as possible. But the decisions that support this capacity have yet to be made – standardizing data, building consensus on measures, and integration of processes. The work is without precedence.

Finally, no matter how good we are, there is always the uncertainty of being right, of missing some key element, of overlooking some very good but long-forgotten earlier decision.

Where it all began

Conklin and Camillus together cover just over half the ten characteristics listed by Rittel and Webber. The original list also included these:

1. Solutions are not true/false, but good/bad.
2. Every problem is the symptom of another problem.

3. Every solution is a one-shot deal.

4. The answer cannot be wrong.

Judgments on proposed answers are likely to differ as widely as the individuals in the crowd of stakeholders. Instead of seeking true or false, it's a matter of satisficing⁴. When the space of possible solutions is too large, you stop when the solution is "good enough".

When the original problem is the symptom of a higher-level problem, there is a risk that the chain of causes rises indefinitely. A successful solution at a lower level can result in failures at higher levels. Every implemented solution is consequential. Every trial counts.

In spite of (and as a consequence of) the complexity and inter-woven nature of these issues - any implemented answer must be the right answer. The decision impacts lives. The effects matter a great deal to the people involved.

Early in our work in this area, we were involved in Canada's response to the first outbreak of BSE or Mad Cow Disease. It was a bewildering time. How to respond to the industry while maintaining our obligations to international trading partners? How to save an industry in the short-term while keeping all the doors and windows needed for the future? There were no absolute answers – only gradients.

As we got into the economic analysis it became clear how deeply integrated every issue was to a host of others. Why were renderers shutting down? Because markets for tallow were closed to BSE-related

products. But with renderers down we couldn't deal with our sick animals or, even worse, the healthy ones. Animals were left in the field, losing value and chewing up margins. Everything was related.

Conventional, orderly, and linear processes do not work ... a chaotic, opportunity-driven process is a more natural response.

But, ultimately, we had to decide. Livelihoods were at stake. The state of an industry was in jeopardy. It was do or die. And we only had one chance to get it right.

A host of examples

As the examples given surely reveal, this isn't rare. Wicked problems are commonplace. That's what makes this so important and so surprising – if common, why are wicked problem still so difficult to manage?

The Art of Wicked Management

Here's the problem: taming wicked problems is easy.

One reason wicked problems are rarely resolved is that wicked problems are readily reengineered as tame ones. Rittel and Webber say tame problems are like benign tumors; wicked problems are malignant.

Benign problems have a clear structure, enable testable hypotheses, and can be analytically resolved. Cut them out, the problem ends.

Taming a wicked problem is like misdiagnosing a malignant tumor. Simply cutting them out makes them spread.

We can't tackle wicked problems in the same way we handle benign issues. "To solve wicked problems, we need to confront a more

complex mass of information than we are used to dealing with while unleashing creativity and opportunity-driven thinking." (p.6)

Let chaos reign

Part of Conklin's work involved studying how people solve problems.

He asked several designers to create an elevator control system. All were expert designers. None had experience in elevator systems.

Each was given a one-page description of the challenge. The designers were asked to think out loud, explaining their thinking process while they work. The sessions were videotaped and analyzed⁵.

Conklin's analysis showed that the designers tackled the problem in two ways. One was to identify the requirements for the system. The other was by running mental models of potential solutions and resulting consequences.

The experiment revealed something Conklin attributes to the nature of complex or wicked problems – conventional, orderly, and linear processes do not work.

In spite of conventional wisdom that complexity demands an ordered response – the Conklin work describes a chaotic, opportunity-driven process of design.

One designer might start with trying to understand the problem. Given a glimmer of understanding, they jump to a solution. Seeing a systemic failure, they return to formulating the problem. Another might start and end in a completely different way.

Conklin likened it to watching an earthquake. It appears chaotic on the surface, but "reveals deeper forces and flows that have their own order and pattern ... It reveals that in normal problem-solving behavior we may seem to wander about, making only halting progress towards the solution. This non-linear process is not a defect, not a sign of stupidity or lack of training, but rather the mark of a natural learning process. It suggests that humans are oriented more toward learning (a process that leaves us changed) than toward problem solving (a process focused on changing our surroundings)." (p.6)

The traditional approach of gathering, processing, and analyzing data, formulating solutions, and implementing the result is an unnatural, mechanistic response to complex problems. Solving wicked problems means embracing a chaotic, opportunity-driven path.

Trouble is, how does this fit in the context of government and corporate strategy? The receptive capacity of these organizations is geared to a linear process.

It must be social

The work of Rittel and Webber, Conklin, and Camillus indicate that solving wicked problems is a fundamentally social process.

Horst Rittel is also the inventor of the Issue-Based Information System (IBIS). It

helps decision-makers understand planning as a process of alternative position making. In the system, positions are associated with arguments for and against the position. When arguments raise new issues, these are treated in the same way.

The system is used to widen the coverage of a problem. It opens the process and encourages transparency. Observers and participants can trace back the decision-making process.

Of this social process Camillus writes, "It may seem trivial, but documenting assumptions, ideas, and concerns on an ongoing basis is important. It helps enterprises understand hidden assumptions and gauge the effectiveness of actions." (p.3)

Conklin agrees. "Without a system to document or capture the full range of thinking and creativity that occurs in wicked-problem solving, people have to remember to keep in existence any idea that comes out of sequence." (p.6)

The process opens the discussion to enable the breakthroughs, synergies, connections and alliances necessary for resolutions. It embraces the chaotic, opportunity-driven search for partial and early solutions. Conklin calls this rapid-prototyping.

Experiment early and often

Camillus also argues for experimentation. We should "abandon the convention of thinking through all options before choosing a single one and experiment with a number of strategies that are feasible even if unsure of the implications ... conduct experiments, launch innovative pilot

programs, test prototypes - make mistakes [you] can learn from." (p.4)

He suggests that scenarios and scanning can help identify wicked problems before they are major issues.

In another Harvard Business Review article, this one by George S. Day and Paul J.H. Schoemaker, written in 2005, called Scanning the Periphery⁶, the authors present a list of questions to help guide this enquiry.

Ask many questions, tell no lies

Day and Schoemaker have found that weak signals of emerging wicked problems can come from our past, present and future.

To learn from the past they ask:

- What are past blind spots? What is happening in those areas now?
- Is there an instructive analogy or case study from another industry?
- Who among the competition has picked up on and exploited weak signals? Who is acting ahead of everyone else?

To examine the present:

- What signals are being rationalized away?
- What does scenario planning or future mapping tell us about today's signals?
- What are the mavericks or social outliers saying?
- What are peripheral customers and competitors doing?

To envision the future, ask:

- What could really hurt us?
- How would we attack our own business?

- What technologies could change the game?
- Is there an unthinkable future?

Day and Schoemaker argue that these questions force us out of natural habits. "Without conscious intervention, the mind will naturally force fit any faint inclinations into preexisting mental models."

What to Do With Your Wicked Problem

Nothing is ever easy, but there are a few paths to move forward on wicked issues.

Schoemaker, the author cited above, is chairman of Decision Strategies International. Strategic Radar is a spin-off of this group and it sells software for managing some of the weak signal data just discussed.

Our partners in work related to these kinds of issues are Global Vision Consulting and Innovation Expedition Consulting (David Forrest is common to both firms). A tool we use to address these sorts of issues is Outcome Mapping. It's a process that allows us to record open discussions and layer in context and relationships as understanding evolves.

Finally, it was mentioned earlier that the information needed to address these issues is more complex and more massive than ever before. Fuld & Company, Decision Strategies International, and J.D. Power & Associates are well-established agencies in this space. New players include ManyWorlds and Hitwise. And there is, of course, ourselves.

If you're curious about how wicked problems apply to your business, please give us a call or send us an email.

¹ Rittel, H.W.J. and Webber, M.M. (1973) Dilemmas in a general theory of planning. *Policy Sciences*. 4: 155-169

² Conklin, J. (2006) "Dialogue Mapping: Building Shared Understanding of Wicked Problems" John Wiley and Sons, Hoboken, NJ

³ Camillus, J.C. (2008) Strategy as a wicked problem. *Harvard Business Review*. May issue.

⁴ Simon, H.A. (1969) "The Sciences of the Artificial" Second Edition, MIT Press, Cambridge, Mass.

⁵ Guindon, R. (1990) Designing the design process: exploring opportunistic thoughts. *Human-Computer Interaction*. 5: 305-344.

⁶ Day, G.S. and Schoemaker, P.J.H. (2005) Scanning the periphery. *Harvard Business Review*. November Issue.

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