

Problems with Uncertainties

One of the 8 problem types defined on www.problemsolving2.com,
a website created by Jerry L. Talley.

These pages outline the essential nature of the problem and the best process for addressing it.

Definition	<p>Problems in which future unknowns and uncertainties create a range of possible futures or an unstable and fluid context. It becomes impossible to act in the present since the immediate or even long-range future that would justify those actions is uncertain.</p> <p>It becomes important to consider multiple scenarios, live with ambiguity, and make mid-course corrections as the future unfolds.</p> <p>Problems with uncertainties require an on-going engagement with the problem to make sure the right scenario is being activated. The problem solvers cannot simply walk away from the task once they have generated a range of solutions.</p>
Examples	<ul style="list-style-type: none">● Deciding whether to build a gas cracking plant (which takes a decade to build) in the face of fluctuating foreign oil prices, uncertain access to coal deposits, regulatory policies, and shifting public opinion● Project planning (will all our suppliers come through? will someone get sick? will it rain?)● Long range strategic planning (will customers change their preferences? will our competitor beat us to market? will regulatory agencies assert themselves more forcefully?)● A surgical procedure● Family planning ("I want a boy and a girl about 2 years apart".)
Challenges	<ul style="list-style-type: none">● Determining the nature or level of uncertainty● Artistry of selecting useful scenarios● Creating consensus around possible and probable futures● Managing frustration and discomfort with ambiguity; resisting the pressure for premature closure or over-simplification● Translating peoples' fears into discussable scenarios
Definition of Good Outcome	<p>Alternative but relevant futures are defined richly enough that solutions can be defined within each possibility. There is a plan for tracking the unfolding of circumstances and for making adjustments in the solution being implemented. The problem solvers agree to meet over time to track the evolution of different scenarios and make adjustments in their solution(s).</p>
False Solutions	<p>Focusing on only a single program under the false assumption that "we can tell what's going to happen"; being intolerant of the genuine ambiguity in the situation.</p>
Typical Identification Errors	<ul style="list-style-type: none">● Problems with Uncertainties are missed most often because we simply do not want to admit to the ambiguities in our future. We prefer to make our "best guess" and then pretend the world will follow only one path. Failures are attributed to poor implementation rather than taken as indications of another scenario for which there is no plan in place.● Sometimes there is uncertainty <i>in the observer</i>, but not necessarily <i>in the world</i>. The simple fact that we are confused or anxious does not mean the world is uncertain. It may simply be unknown to us as of yet. The best response is to observe and learn rather than assume the world is unpredictable or chaotic. In true <i>Problems with Uncertainties</i> the ambiguity remains despite the intimate knowledge of the problem solvers.

When to Exit

- The situation shows signs of extreme instability or chaos.
 - There are scenarios where failure is quite likely, and likely to be fatal.
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Process For Problems with Uncertainties

Leader / Sponsor	Individual Contributors	Neutral Party
		A Facilitator may help the group manage the frustration of uncertainty.
Exploring the Problem	This phase has two key components: <ul style="list-style-type: none">● Defining the problem● Determining the level of uncertainty (see the notes below for definitions of different levels of uncertainty)	
Considering Options	<ul style="list-style-type: none">● Defining the relevant scenarios to explore, within which there may be unique solutions <p>While classical problem solving approaches work in this problem class, the additional consideration of scenarios makes it more difficult. The group is virtually required to consider multiple problems and solutions. Each scenario will probably require its own exploration.</p> <p>Within each scenario, the essential problem may require application of another problem type entirely. For example, for one scenario the company may be facing a powerful Dilemma, while in another scenario the dominant issue is a Puzzle.</p>	<p>One strategy is to assign separate groups to the different scenarios for separate treatment.</p> <p>Soliciting expert opinions on the integrity of different scenarios may help the group manage the uncertainty.</p>

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Implementing Solutions	<p>As the scenarios are identified, the organization needs to bring attention to future options into its normal decision making, especially at the highest levels. The leader may be called upon to shepherd the group's work into the executive boardroom to ensure the success of their efforts.</p>	<ul style="list-style-type: none"> Defining the indicators that will provide the clearest and earliest indication of how things will unfold <p>Implementation is complicated by having to track the emergence of different scenarios as well as the progress against plan of the currently selected scenario. As unpredicted futures emerge, the implementation has to shift to different strategies. The group is required to maintain a role in analyzing the problem as the future unfolds.</p> <p>In cases of high uncertainty (Level 3 and 4), the process for tracking becomes more important than the solutions identified. The group may be called upon to consider a fresh and unforeseen development.</p>	<p>The natural tendency is to focus in on single solutions. The Facilitator can help greatly by keeping the group's attention on the full complexity of its task and scheduling the needed reviews.</p>

The levels of uncertainty are well defined by Hugh Courtney's book *20/20 Foresight*:

- Level One:** A spot forecast in a key variable has a range of outcomes, but the overall situation can be well specified. For example, estimating elementary school enrollment figures for the next few years.
- Level Two:** There is a mutually exclusive and exhaustive set of future scenarios. For example, regulatory agencies will either have a Democratic or a Republican President setting policy.
- Level Three:** There are alternative scenarios, but it is impossible to provide an exhaustive list; we are limited to providing illustrative possibilities. For example, anticipating the role of the Internet in shaping the Real Estate industry.
- Level Four:** The situation is so chaotic that even illustrative scenarios are largely speculative rather than illuminating. For example, companies moving into the Russian market right after the collapse of the USSR.

Each of these levels of uncertainty calls for different strategies.