

Alternatives and Climate Change with Case Study

Welcome back. Now we're ready to talk about generating alternatives. Structured decision-making emphasizes the active construction of alternatives. That's one thing that sets it apart from some other decision-making frameworks that you may be familiar with. They may generate one alternative and then do a sensitivity analysis. Say, OK, let's increase this action by 10% or decrease it by 10%. And there, viola, you have three alternatives.

Well, we think you can do more. And structured decision-making uses what you learn about the nature of the problem, the context specific objectives, those measurable attributes that you develop, and then you compare a suite of alternatives. So it really helps once you have those objectives to develop and compare the alternatives.

And alternative generation involves a closed investigation of what the different people who are involved in that decision think about how those actions will affect their fundamental objectives, the things that they care about. So there's a lot of learning that goes on by generating and exploring and discussing ideas. You're able to propose different and hopefully better actions that can then help you to arrive at solutions to do a better job of achieving those fundamental objectives.

We often don't know what we have until we can have more of that, or until it's taken away. So this is another area where the iterative nature of structured decision-making shows us we need to go back and say, well, maybe there's another objective that we hadn't identified in the last step. Let's add it in now, and then generate more alternatives to address that objective as well.

So what's a good alternative in light of climate change? Well, there's a couple ways to look at it. You can look at it from the outcome and say, well, a good alternative is one that achieves a meaningful solution to the decision at hand. From a process perspective, a good alternative is one that allows you to assess the consequences of that alternative and to learn and to gain clarity about the nature of the trade offs around the things that you care about.

And the structured decision-making text they highlight several principles for good alternatives. And we can apply those to the context of climate change as well. They mention that good alternatives should be complete and comparable, meaning all of the alternatives address the same aspects of the problem over the same time period, and they make the same underlying assumptions about principles and effects that are outside of the decision context.

So if there are events or conditions that are going on that may affect those alternatives, you want to make the same assumptions about those events across all alternatives. Second, they should be values focused. This is another area where we get back to the value side through structured decision-making. We recognize that the alternatives are explicitly designed to address the objectives, the things that you care about.

Third, they should be fully specified. This is a place where we often have to work in quite a lot of detail, because ambiguity around these alternatives can be a key area of confusion. Then when we go on to assess the consequences of those if we find out that one person is interpreting this

action to mean something else than another person. So it's important when you're generating these alternatives to make sure that everyone has a clear understanding of what's meant by all the components of that alternative.

Next, they should be internally coherent, meaning they should make sense. You don't want to have an alternative with a couple different factions that wouldn't make sense to do together.

And finally, each of the alternatives should be distinct, meaning you're offering decision-makers a real choice. It exposes the trade offs and the values behind those trade offs. So alternatives should either represent very different ways to achieve the objectives or different levels of performance across those objectives. So one of the key points about alternatives is that the generation of these is iterative.

We talk about the process as a whole being iterative. Well, generating alternatives is very iterative in that in the first round, you may just create these book end alternatives that say, well, we'll try and achieve the highest we can on this objective or on that objective. And then as you go through and you do a preliminary consequence assessment, you recognize that there are some trade offs and some values associated with those. So you modify those. You create some hybrid alternatives, or you recognize where there can be those synergistic win-win moments that happen between these alternatives.

So it often goes through two and three rounds of refining and modifying these alternative once we see the consequences of them. And it's important to recognize the uncertainty associated with the implementation of these alternatives as well and have a way to account for that when you're doing the consequence assessment.

So you may be thinking, well, how does this help me with climate change? There's so much uncertainty, and we're not really sure whether or not this could work or that could work. And we're not really aware of a way to optimize across all of these different objectives that we have.

There are several approaches that are recommended in the structured decision-making text. One is precautionary approaches. Unfortunately, you can't apply this equally across all objectives, but you can do it for a few objectives if you have competing objectives. You're developing alternatives with different degrees of precaution, and you're comparing the implication across these objectives.

Second, there's adaptive approaches. These encourage learning and are flexible enough to respond to that, learning and improve their performance over time. Third, there's robust approaches. So these are moving away from trying to select an optimal plan of action, and they identify alternatives that perform reasonably well over a range of uncertainties and plausible future conditions.

From the business world, we also learn about some of the strategies that they would mention when faced with severe uncertainty, such as leaving the door open, or keeping your foot in the game. And we can think of those as kind of hybrids between an adaptive approach and a robust approach. So maybe you take a subset of action that allows you to then follow on with the full

suite of action or to modify your approach if you've learned something that's critical to the success of that alternative.

It's very important to recognize that each of these approaches also contain some trade offs around things like timing, expense, the ability to learn, the risk of loss. And the loss and expected return if you're not selecting the optimal course of action. So as you design these alternatives, and you think of the different approaches that you can take in designing them, also be aware of the trade offs inherent in those approaches.

So how do you know when to stop? The point of structured decision-making is to clarify and decompose the decision into the parts so that then you can see how to best achieve what it is that you care about, maybe through problem framing and clarification of objectives. Once, you generate alternatives you can see very clearly the action that you need to take, because you can predict implicitly the consequences of those actions, and you can see the trade offs and you can recognize the course of action that's best to achieve what you want.

Well, maybe it's more complicated than that, and you can't predict consequences in your head of the different alternatives that you have on the table. And you can make those trade offs if you don't even know the consequences of those. So there maybe a couple more steps that you want to take. So we'll talk about those in the next modules.

Let's go back to the mountains. So we have an initial framing of the decision. We have an objective. And we have an idea of some of the potential options that [INAUDIBLE] may be considering. Let's take a look at the alternatives.

One might be to keep the herd as it is, right. There is always the status quo alternative. Another one might be to buy yet more yaks from his neighbors that sell them. Another might be to sell some or all of the yaks. There might be some more things we would need to fill in with that. If he does sell them, who does he sell them to and when?

Maybe sell all of his livestock and try for another source of income. Another alternative might be to keep all of his livestock and try to find supplements for the yaks, some sort of immunizations or ways to increase the winter fodder to improve the health of the yaks, so looking at ways to supplement the health of the yaks.

Another one might be to keep the herd as it is, but change the timing of moving up and down the mountains. So if there's a sense that the warmer temperatures in the early spring months before he goes up the mountain are really high down in the valley, then maybe he would want to move up the mountain sooner to reduce the exposure to that higher temperature. So there are multiple alternatives and ways to think of different actions that [INAUDIBLE] can take.