[SQUEAKING]

[RUSTLING]

[CLICKING]

RICHARD DE NEUFVILLE: So there's still the question-- we've got an upper bound, but we need to know the value to its cost. So is its expected value information from a test sufficiently greater than its cost? And so we've organized it, we've done this analysis, and is it worthwhile?

So clearly, if the cost of the test is greater than the expected value of perfect information, you can reject the test. So that's a good thing. The pragmatic rule of sum that I've seen by comparing some calculations with the results is that if the cost is greater than 50% of the expected value of perfect information, it's not worthwhile, either.

Can I document this? No. This is my take on it, but it's not improbable insofar as the real tests are not close to perfect. We know that. So we can then think about, all right, maybe we ought to reject it anyway. So we create, if you want, an area where at least it's plausible.

Now if you're in that range, and it's a big decision-- so if I was consulting to you, for example, Robert, I might say, well, look-- calculate this. It's really easy to do. See if you're in a plausible range.

If you're in a plausible range, then it might be worthwhile to go through a more detailed analysis to see if it's worthwhile. But otherwise, don't bother. So I think that you create a plausible range.

Now, you might say, well, that's too tough. Maybe it should be less than 75%, or maybe it's not tough enough. But the point is, you can use this device to show whether the proposal passes what some people call the "giggle test."

Is it in the right range, or it's just too far out? It'd be too close to being perfect information to be credible or it's beyond perfect information. So you establish a range of possibilities for which you have discussion.

And you could then augment that with more detail. But at this moment, it gives you a quick and dirty way of assessing whether or not you should even consider the argument. Defines the ballpark you can be in, and the area we can be in, and go with that. That's what I'm talking about.

Now, let me zoom out of this and think about the whole approach. So the decision to collect information is basically a decision to-- implies the decision to insert flexibility into your development strategy. In other words, the moment you say, hmm, we don't really know this. We've recognized this uncertainty, but we don't have to live with them.

We should explore them a bit, figure out what might be happening here. Should we have this test or not? And the rationale for that is, well, if we find out things are going to be different than we imagined, we should change our results.

So the value of the information is a way of valuing the flexibility that you might come up with. So the practical lesson, in a way, is we need to recognize uncertainty. That was the first message of this course, because the uncertainty shows that the value of a project is different than it would be under the deterministic fairy tale analysis, so you should recognize it.

You should recognize it because it will give you some other possibilities, and that the better design might be different from-- not just less or different from-- the calculations of deterministic numbers. It might be a different result entirely.

But you should then go further to say, well, having recognized the uncertainty in general, let's think about some ways to build into our design and management process some way of gathering information-- that can be expensive, or not so expensive, or whatever-- to see what we should do and how we should do it. And use that as part of your strategy to have a flexible strategy to respond to the situations as they develop.

So the overall takeaway, now, is that the information can increase the value significantly of a project. And you need to estimate the expected value of this information in terms of expected improved value of your optimal strategies. The expected value of perfect information is a way to establish an upper bound on this.

It is attractive because it's really very simple to do. And it tells you whether you're in the right area, the right ballpark, whether it passes the giggle test, other shorthand ways to describe it. So part of the information collection is one way to begin to insert the flexibility in a system design and development process. So that's the main takeaway.