

Design for Real Estate and Infrastructure Development (11.434, 15.428, ESD.712)
Spring 2010

Assignment: “Roadmap” for your project, & Excel model of uncertainties

Due date: Lecture 7

Part 1: “Roadmap”

What we want you to do in this part of the assignment is to develop both a narrative (text) and formal model of the process and decision dynamics that you perceive your project will face. That is, describe explicitly the stages and decisions that must or will likely unfold as your project moves from inception to and through completion and operation. Pay particular attention to types of uncertainties that are relevant at each stage or for each decision, and to the sources and targets of flexibility. Try to make your description sufficiently detailed to be useful, but not so detailed and complex as to be more confusing than helpful. Try to distinguish the most important stages and decision elements.

In addition to a text narrative of probably 2-4 pages (single-spaced), this part of the assignment should also include a “formal” model, by which we mean a graphical representation with some degree of quantification. While you are free to use whatever formal model you prefer, we encourage you to employ lessons from the DSM lecture, including to attempt a first-cut simplified DSM for your project (probably with no more than 5 to 10 elements, corresponding to the major stages or “decision gates” in your project’s inception, design, development, and operation). Alternatively, or as a supplement, you may wish to construct a decision tree model (e.g., as described in the lectures last week).

Part 2: Excel model of your project’s major uncertainties

As a follow-on to above, and as a lead-in to the analysis that we will do with Spreadsheets, construct an Excel model that shows the project costs and benefits. We encourage you to use the model we have used for the Garage Case, because it has all kinds of tools already set up for you. Using our model, you will be able to avoid annoying programming and debugging and can focus on the content. To do use the model, you essentially have to re-label columns and rows, add or delete, etc.

The essential point is that we want you to think about the costs and benefits over your project over time and set up the basis for an analysis. We will then show you how to simulate possible futures, and how to introduce the use of options and evaluate their value analytically.

Turn in: your basic spreadsheet (no need the analytic tabs included in the download, that comes later). You should justify the choices you have made for revenues and costs (initial, developmental, maintenance) with a brief justification of why these are reasonable estimates.

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