ESD.71 / 1.146 / 3.56 / 16.861 Engineering Systems Analysis for Design
Fall 2008

Application Portfolio Assignment 2

Congratulations! Reading your first assignments, you're off to a good start!

General Comments: these apply pretty generally, but not to everyone:
- To carry out the application as part of the class, you will need a numerical model. It does not have to be sophisticated (I am not an expert in your specialties). It should however be able to define the consequences of the various design and management decisions that could be taken.
- Don't be too ambitious! You will be exercising the model in many ways, and – unless the work is also part of research or another project – is expected to be done in the context of a normal course. You're defining your own workload here, be reasonable!

Assignment 2 -- Defining the Salient Uncertainties

Define the major uncertainties that exist over the life span of your system, and that will to some degree be resolved as time passes (for example: demand for product, NASA mission, market competitors, performance of new technology, cost of key inputs, etc.). In carrying out this assignment, you should
- Identify precisely what the 2 or 3 top uncertainties you will focus on for the Application
- Describe which measures you would use to characterize these uncertainties (range of possible outcomes, expected values, standard deviation, shape of distribution are possibilities)
- Identify sources from with you will gain evidence about the metrics you have chosen
- Present and justify the actual numbers for these metrics – presumably drawn from above.

In preparing this exercise, refer to the homework problem about defining uncertainties that you have just completed. The categories of uncertainly suggested there (and in Application Portfolio Assignment 1) should help you think about possible uncertainties.

Note that in many cases you will not be able to measure probabilities of future states that have not happened (for example, of the change in NASA mission to Mars). However, you should be able to find evidence in the record of how much, or how frequently NASA missions have changed. In short, you should be able to reason by analogy – "the record shows that situations of this kind have the following kind of uncertainty…"

Presentation and Turn-in Instructions: As for AP1 (use footers with name, pagination, assignment). Thank you!