Homework 1: Document Experience
IDS.332 and IDS.333

Concept of this assignment

The purpose of this assignment is to help you appreciate the range of differences that exist between anticipated futures and what actually occurs. You are to document this by comparing historical forecasts (statements about the future) with actual situations that developed. These observations provide a first-order estimate of the uncertainty that you can anticipate for forecasts made today for the examples you choose.

Details of Assignment

1. <u>Choose a system or topic that interests you.</u> This could concern a specific project, some manufactured product, a national or international program. You are likely to find the assignment more meaningful professionally if you are already familiar with this system. If your choice concerns an actual or prospective research project or thesis, this exercise may contribute to that effort.

2. <u>Identify a forecastable performance factor relevant to the system or topic:</u> The factor is to be "contingent" rather than absolute (as for the speed of light, the pull of gravity, etc.) This factor can have several forms such as:

   a. Demand for a product – sales volume, market share
   b. Price of a product or input – price of oil, copper, band-width, construction steel…
   c. Program definition – such as design or functionality of a product, the "requirements" for a military project, the "master plan" for an infrastructure development, the missions that NASA expects to carry out, etc.
   d. Regulatory requirements – such as requirements on emissions for renewable energy, product safety, domestic content, etc.

Example topics: "number of SUVs sold in US"; "international cost of rubber"; Covid statistics …

If you have a question about whether the factor you have in mind is suitable, ask! Post question on the course Slack site. Prof, de Neufville will answer promptly.

3. <u>Look up previous forecasts or anticipations of the chosen factor.</u> You should go back far enough to cover at least 1 design cycle for the system of interest. This might be only a few years for electronic equipment (such as smart phones), as long as decades for Infrastructure projects (such as high-speed railroads).
    a. Note that, as a general rule, institutions do not conveniently keep track of how previous plans/forecasts/requirements compare with current ones (it's generally embarrassing). Finding forecasts may thus requires some digging, and is likely to take most of your time for this exercise.
    b. You may find it easiest to compare any kind of Covid statistics….
4. <u>Compare previous forecasts with current situation.</u>
5. <u>Prepare a brief report on what you have found</u>.
    a. Plot the results, actual compared to forecast;
    b. Evaluate and discuss critically the differences that you have found;
    c. To the extent possible, characterize the deviations statistically (for example, forecasts were off plus or minus 20%)

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