IE 361 Module 2
Process Identification and Analysis

Reading: Section 1.3 *Statistical Methods for Quality Assurance*

ISU and Analytics Iowa LLC
A first step in improving a process is almost always to "map" that process, i.e. to understand how that process works or should work. Sometimes simply laying out "the way things are" and comparing them to "the way things are supposed to be" is adequate to identify what needs immediate attention. Even when this is not the case, conducting a logical process analysis serves to show one where data are needed for complete understanding, and to identify potential sources of variation/unquality.

Two simple tools that are useful in this preliminary process analysis are fishbone/Ishikawa diagrams and process flow charts. For sake of illustration, consider using these in the context of "mapping" the process of delivering a "quality" airline flight. Here first is a partial fishbone diagram that might be made by a corporate analyst concerned with airline customer satisfaction.
Logical Analysis of How a Process Should Work

Figure: A Partial Cause-and-Effect/Ishikawa/Fishbone Diagram

(ISU and Analytics Iowa LLC)
A process flow diagram can help illuminate interconnections between elements of how something is done. When one makes such a diagram there are two dimensions available for representing the process. One (say top-to-bottom) is typically used to at least roughly represent time order of the various elements. The other (say left-to-right) can usefully indicate some other important variable like physical location or departmental responsibility.

Here is a partial process flow diagram for an airline flight, made from the point of view of a passenger.
Logical Analysis of How a Process Should Work

Figure: A Partial Flowchart for an Airline Flight
Logical Analysis of How a Process Should Work

Without simple organizational tools like cause-and-effect diagrams and flowcharts, one has little hope of even naming all of the important elements of a complicated process, let alone seeing where attention might be needed.