

Technical Writing - Systems Problem Solving Approach

I started as a technical writer mostly in the engineering environment and with a technical publishing company working on military projects. Before that, I was an electronic technician in the U.S. Navy and later as a civilian with the responsibility for maintaining electronic systems and large scale computer systems. I also worked in applied research where I was responsible for building and testing prototype systems as well as designing circuits. This background has always caused me to take a system problem-solving approach in my work and I apply this approach to writing bullet proof documentation. Refer to Figure 1 below.

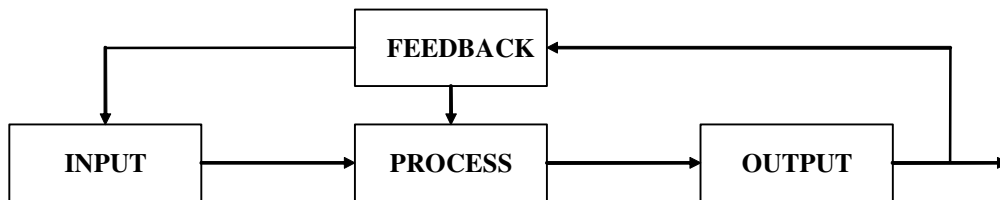


Figure 1. Systems Problem Solving Diagram

The approach to solving a problem is to first define the problem. Once the problem is defined, consider the **inputs** available to the system, the **outputs** required from the system, and the **processing** required of the inputs in order to produce the specified outputs. The **feedback** from the output is used to make adjustments to the inputs and the processing in order to modify the outputs until required specifications are met.

This is also a consideration for information systems design or the design of any system for that matter. When I consider the system for writing a technical manual, I basically apply the same type of thinking that I used as an electronic technician.

Systems Problem Solving Approach for Technical Manuals

The problem-solving approach I take in writing technical manuals is illustrated in the block diagram of Figure 2 below:

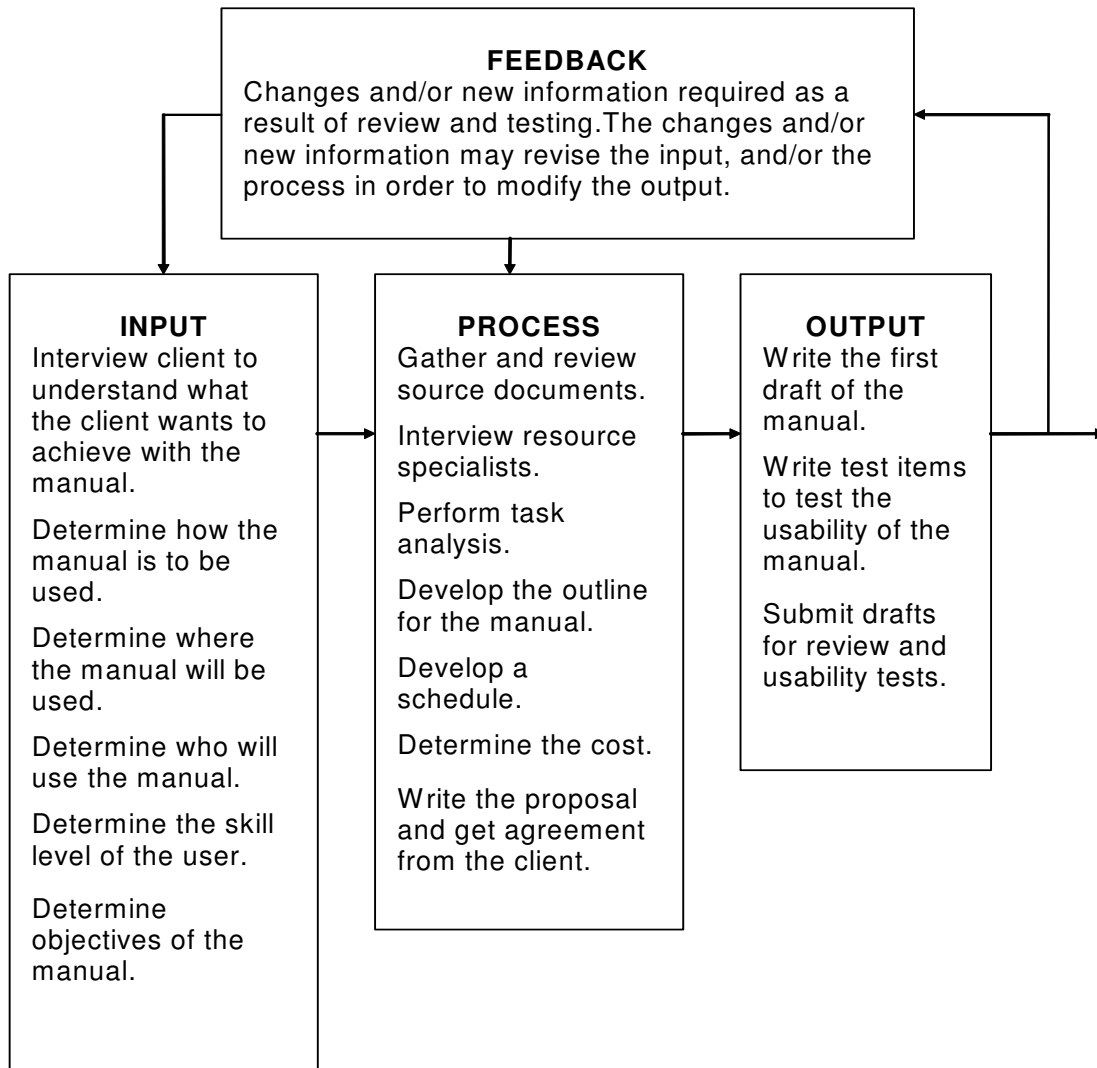


Figure 2. System Problem-Solving Approach for the Manual

The most convenient example I can use is to consider the first assignment I was given by Motorola. I applied for a position as a technical writer and was asked to analyze and write the theory of operation of a television receiver. The assignment was designed to

see how astute I was in analyzing and writing electronic theory. Rather than tell me my writing was no good they said that they needed me as an Electronic Technician more than they needed me as a Technical Writer at the time. They didn't offer me a technical writing position but they did offer me the position of Senior Electronic Technician in Applied Research. I worked in that position for almost four years where I did do some technical writing using the same basic systems problem solving approach that I used for the TV receiver as explained in the next paragraph.

Example - Systems Problem Solving Approach for TV Receiver

The television receiver is really a commonly used system that may not be thought of as a system. Before writing a technical manual for any system, the system has to be analyzed. The analysis of the TV receiver system's theory of operation can be summarized and explained by using the diagram and the table that follow: The input, process, output, and feedback used in analyzing the operation of the TV receiver is illustrated in the Figure 3 diagram that follows:

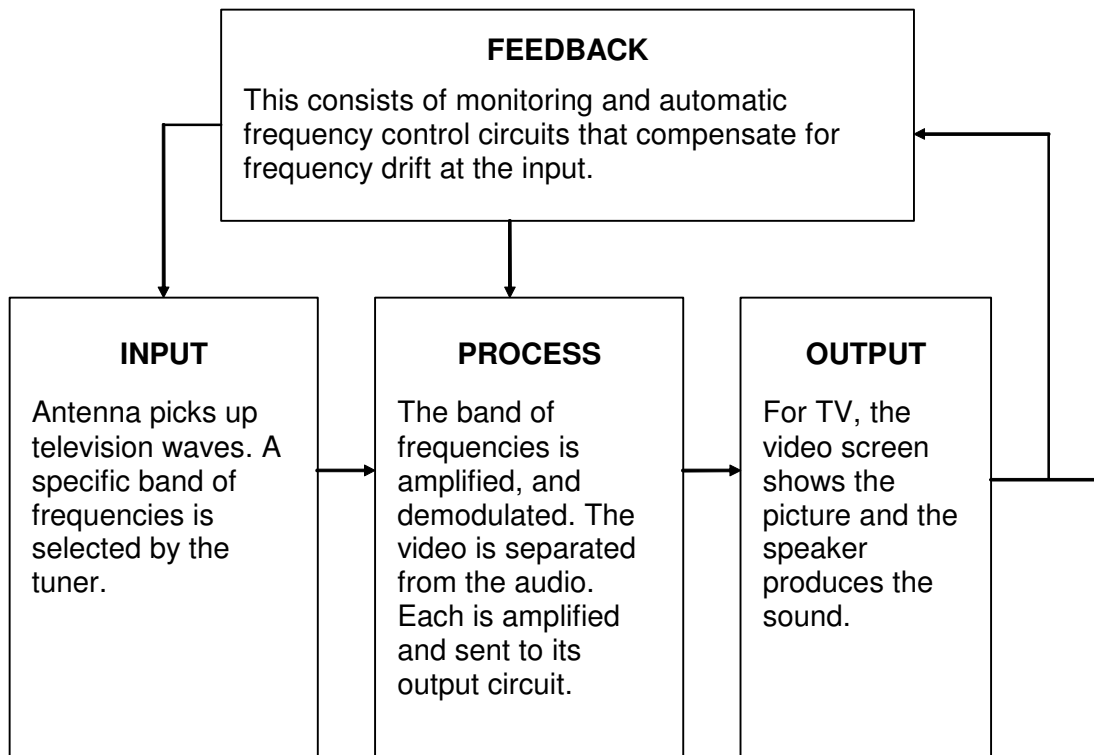


Figure 3. System Problem-Solving Approach For TV Receiver

Within a system there are sub-systems that make up the over-all system.

Therefore, the above is a simplified example. The same type of analysis applies to systems that are more complex. The more complex system is usually composed of more sub-systems. The whole system is usually easy to analyze by identifying the sub-systems and their relationships to each other within the whole.

Before writing a technical manual for a system, an analysis may be made of how the system is put together, how the system operates, and how the user uses the system. Each aspect of the analysis may be approached using the same problem-solving model as mentioned above. When starting the process of writing the technical manual, the problem that the manual must solve must be clearly defined. When the problem is clearly defined, the following questions are answered:

1. Input - What information is available for the input?
2. Process - How must the input be presented with what is known for the intended audience using text, graphics, and style?
3. Output - What must the completed manual enable the reader to do?
4. Feedback - What revisions should be made as a result of testing the manual?

Testing the manual - Usability test a technical document by selecting a representative sample of readers that will use the document. The writer monitors the participants as they perform the tasks specified in the document. The writer notes where the participant has difficulty in the instructions and considers the parts for revision. It is important that the participants understand that it is the document that is being tested and not the participants. No matter how good a document looks, only a usability test can determine if the document is as useful as intended for the intended audience.

Modification of the Problem-Solving Model

Ultimately, we can come up with an approach for any technical manual using the problem solving model in terms of input, process, output, and feedback.