CHAPTER

1

PLANNING THE DOCUMENT

There are a number of different kinds of documents, including technical (and other) subject papers, proposals, articles, and books, to name a few. So, if we are going to work our way through document planning within a single chapter in a little book, we had better find some common ground. What is the common factor among all documents? Yes, I know they are printed (or at least portrayed as such on a screen). Nice try—but that's not it. The common denominator among all documents is that they each tell a story.

I once made this point to a group I was addressing, and one individual in the crowd became quite confrontational:

"That's not right," he said, "I can think of lots of documents that do not tell a story." "Such as?" I queried.

"Such as technical specifications, or product descriptions," he replied.

"Really," I responded. "Why don't you describe some of the details of these 'storyless' documents? Maybe we can find a story hidden within the details."

"Well, I can't really recall the details," he admitted.

Right, and that's the whole point. You can indeed create a storyless document, and it will have precisely the ef-

fect on its readers as the one my friend in the audience remembered (or actually didn't remember): nobody will recall its contents. Storyless documents are like seedless fruit—for immediate consumption but nothing more beyond that. They are shallow, boring, useless, meaningless drivel—and that is being polite about it.

Given, then, that good documents tell stories, what do we know about a story, especially one that is effective, memorable, and convincing? The answer is easy: it has a beginning and an end, which are connected by a smoothly flowing rhetoric that is well supported by necessary facts and details. Well what do you know—connection, flow, and reinforcement! Now where have we heard about these principles before?

These principles are especially important in document planning, because the document must stand on its own. Unlike a presentation or discussion, the author will not be there to clarify or elaborate—unless it is such a brilliant piece of work that he or she gets to go on tour and autograph it at bookstores. What's there is there, and that's it. Now let's look at our three principles in more detail, in the context of document planning.

MAKING THE CONNECTION

Making the connection is paramount, and I cannot overemphasize this point. It is the basis for all other activities in planning or preparing the document. Making the connection is to a written document (or any form of communication) what glue is to a model airplane: without it everything will fall apart.

So how do we make the communication connection in planning our document? The answer is simple: we must understand our readers and what we want to tell them. Half of this notion is sometimes lost on us as technologists. We certainly understand our subject and want to tell someone about it, but we often fail to discern what

readers may find interesting in the subject. This can result in writing that is both incomplete and confusing to readers, and approaches the whole issue from the wrong direction.

When making the connection, we do not start with our subject and then decide how to connect it to our readers. Rather, we start with our readers' needs or desires and decide how to connect our subject to them. This requires additional effort. We have to understand the readers' needs to decide how our subject may be properly connected. This means we may have to research our intended readership before deciding on the connection. It is always worthwhile. I have seen countless business, technical, book, and article proposals (including my own) turned down because they failed to make the connection. Editors and publishers know the importance of this connection, and that is why we have to describe our target audience when we write a proposal to publish something. Many writers do not know this, but now that you do, we can proceed with more particulars of the connection.

Given that we do our research and have a connection firmly in mind, how should we plan to present it? For example, let's say we are going to submit a technical paper to a medical symposium on immunization deficiency disorders, and we know that the medical professionals are simply dying to get their hands on anything that will strengthen patients' immune systems. Let's also assume that we have devised a genetic technique that we know will provide such strengthening, because we have absolutely tested it to death; we are microbiologists engaged in genome research and simply adore finding new things to do with genes.

A really great place to make the connection is the title of the work. That's pretty logical isn't it? It's the first thing someone will read. So what is a good title? Consider this:

"ADVANCED GENETIC RESEARCH: THE KEY TO IMPROVING HUMAN IMMUNITY"

Oh no, a titling disaster! But it made the connection between immunity and genetic research, so what's the big deal? The big deal is that it did *not* make the connection *from* immunity *to* genetic research. The review panel takes one look at this title and says, "Terrific, another bunch of genome zealots trying to shove their stuff down our throats." A much better title would be

"IMPROVING HUMAN IMMUNITY
THROUGH GENETIC RESEARCH"

Now this is better. This title gets the job done because it begins with the readers' interest (human immunity) and follows to the idea we are presenting (genetic methods). But this title is a little dull—sort of passive-voicey and not much of an attention-getter. We really need to think of something that catches the readers' interest as well as makes the connection. Consider this one:

"IMMUNITY ADVANCEMENTS
THROUGH GENETICS (IMAGEN)"

Nifty—a veritable *coup d'état* in titling. We start with the needs (immunity), connect to the idea (genetics), even assert the benefit (advancements), and also form the acronym *IMAGEN* with some of the letters of the key words (IMmunity Advancements through GENetics). What more could we ask for? We made the connection and got ourselves an acronym that implies something will be achieved that one can only "imagine" (IMAGEN—we don't have to be too fussy about spelling things correctly when crafting an acronym). The acronym is helpful because we will be able to refer to the technique simply as IMAGEN throughout the work, thus avoiding repetitions of a long, boring description, and giving the technique a hopeful and optimistic flavor. The important point is that we made the connection *from* the readers' interest *to* our idea, and not the other way around.

ESTABLISHING THE FLOW

Where else do we make the connection in a document? All over the place, such as in prefaces, introductions, or summary remarks in sections or chapters, but we do this in a logical, flowing manner. The purpose of the flow is to implement the connection. As I said earlier, it is the mechanism of the connection. Documents do differ in format, and some, such as proposals, may have a very rigid format to which we must adhere. So what? Flow is not format. Rather, flow is the way we achieve the connection, using a format as the structural framework.

Let's consider an example of flow planning. In a technical paper or maybe a proposal, we would generally follow a sequence of stating the problem, describing our research objectives, discussing our approach, presenting the actual or expected results, and giving a summary. Given this general format, the flow among major sections of the document would look something like this:

1. *The Problem*—We assert the readers' needs or interest, add sufficient details to convince readers we understand the problem, and briefly summarize the benefit of our solution. This tells the readers we are interested in and knowledgable of their needs and have something of value to offer. Note the immediate presentation of the connection (*from* their problem *to* our solution)? This will stimulate readers to continue reading for more details.
2. *Research Objectives*—We describe our objectives and explain how they will serve to solve the problem. Do you see the beginnings of a flow here? (Achieve the objectives to solve the problem.)
3. *Approach*—We describe how our approach (tasks, techniques, and results) was designed to achieve the objectives. The flow continues. (The approach was designed to produce results to achieve the objectives to solve the problem.)

4. *Results*—We elaborate on our results, making sure we "close the loop." That is, we describe how these results pertain to solving the problem. "Flow, flow, flow your boat. . . ." (Results from the approach *did* or *should* achieve the objectives to solve the problem.)
5. *Summary*—We simply remind readers that our understanding of the problem led to the proper objectives and that we (1) designed an approach to (2) produce results to (3) achieve those objectives. *Return of the flow*—the sequel.

If we look at the entire notion of flow, presented in the context of this example, we see that everything works to-

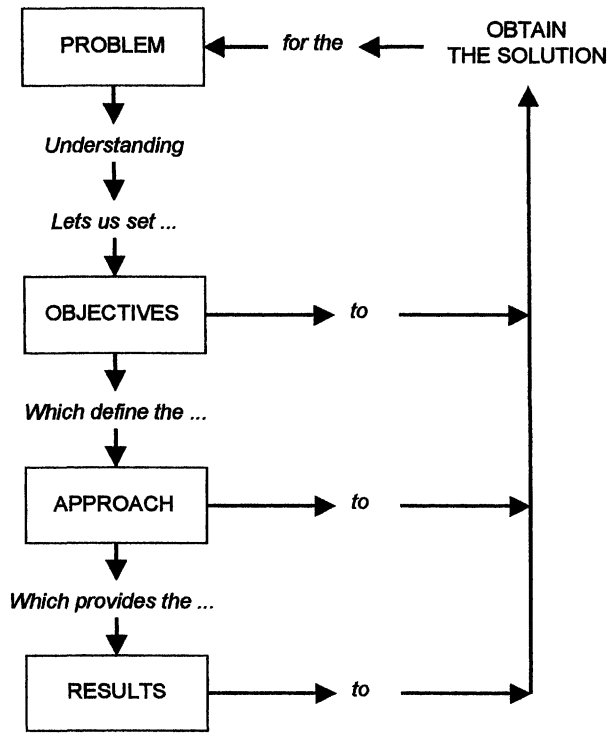

Figure 1.1 Flow in a Document.

gether to make the connection. Figure 1.1 is a type of flow chart that illustrates this concept. (If we have flow, I guess we had better be able to draw a flow chart, hadn't we?)

In our specific example, it is a *problem–solution* connection, but more generally, it is a type of *audience interest–our subject* connection we are implementing through our flow. Variations on this theme will naturally occur as a consequence of different documents, subject matter, or readership. But the fundamental principle remains constant: take the readers through the connection in an easy flowing and comfortable manner, and continually reassert the connection. In the introduction to each of the flow format sections, we would write some text that reminds the readers how that particular section relates to the connection, and probably reassert the connection in each section's summary or conclusive remarks. Now, in the context of planning, what is the best way to positively ensure a good flow?

The best way, in fact the only way, is to write a script for the document. I like to use the term *script* because, to me, it implies a more dynamic form of planning than a mere outline, such as for a play. We certainly want structure, but we also want a little action, a little life in the document. We're telling a story here, and what better way to plan it than to script it? And what is the difference between a script and an outline? The outline simply defines the structure of a document (what goes where). A script takes this structure and embellishes it with the points to be made in the connecting text to ensure the flow. It specifies precisely what we are going to write but in a more dynamic manner.

When we write a script for a document, we start with a flow diagram, such as the one in Figure 1.1, and an outline. Then we list the points we need to make in each section to make sure the flow is achieved as our first script. Next, we go ahead and actually write introductions, summaries, transitional phrases, and so forth, until we basically have all the "glue words" in place. This is our second

script, with elaborated flow points. At this juncture, the document can be tested for cohesive flow by simply reading what is there and assuming that any listed points not yet elaborated will indeed be elaborated. Let's look at an example of this progression from outline through scripts.

Assume that we are neural network experts writing a technical paper for a medical trade journal called "Medical Imaging with Neural Networks for Improved Effectiveness (MINNIE)." The title once again satisfies our criteria of connecting from the audience's needs (medical imaging) to our approach (neural networks). First of all, we'll create an outline, and then we'll develop the first script for the abstract and the first two sections of the flow format—The Problem Statement and Research Objectives—and compare them. To begin, the outline might appear as follows:

OUTLINE

Medical Imaging with Neural Networks for Improved Effectiveness (MINNIE)

Abstract

1.0 The Problem

1.1 A Critical Problem in Medical Imaging

1.2 A Potential Neural-Network Solution

1.3 Problem Summary

2.0 Research Objectives

2.1 Objective 1: Assess the Capability of Existing Neural Networks

2.2 Objective 2: Modify the Neural Networks to Enhance the Imagery—the MINNIE System

2.3 Objective 3: Test the Modified Neural Networks

2.4 Objective 4: Analyze the Results

2.5 Objectives Summary

Now there's absolutely nothing wrong with this outline. It describes what is to be written and where these parts should be. But before we actually start writing, we

must settle on what our connection is going to assert and how our flow is going to work. Now comes the first script, which embeds particular points (P1, P2, and so forth) to be made. Continuing this example, let's take a look at the first script we might prepare for the MINNIE paper:

FIRST SCRIPT

Medical Imaging with Neural Networks or Improved Effectiveness (MINNIE)

Abstract

P1: Briefly describe the problem to be solved.
P2: Preview how MINNIE will solve it.
P3: Overview the contents of the paper.
P4: Lead-in to Problem section.

1.0 The Problem

P1: Introduce and overview the section.

1.1 A Critical Problem in Medical Imaging

P1: Assert the critical problem—interpolating hidden details among scanned images.
P2: Define why it is critical.
P3: Describe benefits of a solution.

1.2 A Potential Neural-Network Solution

P1: Briefly overview how neural networks can solve the problem.
P2: Cite an analogous problem already solved by neural networks.

1.3 Problem Summary

P1: Summarize problem criticality and likelihood of success with this technique.
P2: Lead-in to Objectives section.

2.0 Research Objectives

P1: Introduce and overview the section.

2.1 Objective 1: Assess the Capability of Existing Neural Networks

P1: Describe particular aspects to be assessed.

2.2 Objective 2: Modify the Neural Networks to Enhance the Imagery—the MINNIE System

P1: Describe anticipated modifications to be made.
2.3 Objective 3: Test the Modified Neural Networks
P1: Describe tests to be performed.
2.4 Objective 4: Analyze the Results
P1: Describe analysis of results to be performed.
2.5 Objectives Summary
P1: Summarize in the context of objectives properly addressing the problem.
P2: Lead-in to Approach section.

As I discussed earlier, this is our nonelaborated script, containing the flow points as well as the technical points we need to make to produce the document we desire. Now, let's convert these flow points in the Abstract and Section 1.0 into text, thus creating this portion of our second script, with elaborated flow points and still unelaborated technical points. For the purpose of this example, I am making certain assumptions regarding the problem and solution purely for example's sake, which may or may not be technically correct. (This is a writing example, not a technically perfect, critically acclaimed neural-network discussion.) In this example, I indicate the points that have been elaborated in brackets.

SECOND SCRIPT

Medical Imaging with Neural Networks for Improved Effectiveness (MINNIE)

Abstract

A critical problem plaguing the medical imaging community is the inability to correctly and rapidly interpolate imagery among scanned images. Correctness is of the utmost importance, because the physician's interpretation of the imagery will guide diagnosis and subsequent treatment. Speed is also important, especially in cases in which the patient is in a life-threatening situation, and rapid, immediate diagnosis and action are required. [P1, Abstract]

Our MINNIE technique offers a unique approach to obtaining both the accuracy and speed required to satisfy the needs of the medical imaging community. In this paper, we describe how our technique can satisfy these critical, demanding, and often conflicting needs. [P2, Abstract]

This paper is a complete yet concise picture of our research and its results. We begin with a discussion of the medical imaging problem, concentrating on the aspect of critical accuracy versus speed. Next, we describe our research objectives, which were designed to focus our effort on obtaining a solution to this problem. Then, we describe our approach to achieving these objectives, which includes the systemic modification and application of existing neural-network technologies to this problem. Finally, we present our research results, in the context of solving this critical problem of accuracy versus speed of interscan interpolation in medical imaging. [P3, Abstract] Having set the stage with this overview, we will now proceed to describe the problem we tackled. [P4, Abstract]

1.0 The Problem

In this section, we describe our research problem. We begin with an overview of what makes interpolating the details among scanned images so difficult. Here, we also describe the benefits of solving this problem: why the solution is critical to the medical imaging community. Next, we briefly overview our neural-network solution, citing analogous problems already solved with this technique. Finally, we summarize, in the context of the degree of success, what we expected when we embarked on this research. [P1, Section 1.0]

1.1 A Critical Problem in Medical Imaging

P1: Assert the critical problem—interpolating hidden details among scanned images.
P2: Define why it is critical.
P3: Describe benefits of a solution.

1.2 A Potential Neural-Network Solution

P1: Briefly overview how neural networks can solve the problem.
P2: Cite an analogous problem already solved by neural networks.

1.3 Problem Summary

P1: Summarize problem criticality and likelihood of success with this technique.

Having described our problem, the benefits of solving it, and our research expectations when we began this effort, we set the stage for describing our research. Our next step was to assert certain, specific objectives for our investigations into MINNIE. We next present these objectives. [P2, Section 1.3]

Note the smooth transition we are achieving. As we go from outline to script to second script, we move from pure structure to unelaborated content to semielaborated content, with a powerful result. After the flow points are elaborated, the writer elaborating the technical points has two goals: to make them technically correct (as usual) and to fit them into the flow created by the script. For example, look at the introductory paragraph for Section 1.0. It defines the context of the technical points required for Sections 1.1, 1.2, and 1.3. Here, we have achieved flow and also provided instructions for the technical writers, all in the same form—no need for separate writers' instructions. This is especially useful when multiple writers are involved, because it keeps them in the flow (or keeps the train on the tracks, to return to the earlier metaphor). The integrating author or editor will find the contributions from multiple writers much easier to fit into the whole piece, which will instantly have the cohesiveness often so hard to achieve.

Now is a good time to make another important point. We can design the entire document, make the connection, establish the flow, and even produce a semielaborat-

ed document framework without inserting one single technical detail. In fact, I have found that a good writer, free from the burdens of specific technical understanding, will often produce a better script than expert technologists, who may be tempted to bend the readers' needs to suit their technology. By establishing this script and flow, the technical details are forced to fit into a proper framework, as I discuss next.

PROVIDING THE REINFORCEMENT

Once we have articulated the connection and flow, in the form of a semielaborated script, we are ready to insert the technical nuances. Now it's time to chase the cat off the large books and bring some solid technical matter into play. I call these critical technical points *reinforcement* because they are the real foundation of what we are writing. We established the connection and flow in the readers' point of view, to keep them interested. But even the most interested readers will quickly tire of a shallow and unsupported dissertation.

We plan the reinforcement by adding the particular technical points to any nonelaborated flow points left within the script. As I just mentioned, these flow points, along with the flow elaboration, serve to focus the technical writings. Using this technique, we will not have disparate, out-of-context technical dissertations. As long as the technical contributors participate in the planning, and subsequently make their points, the document will be cohesive, interesting, and to the point. It will tell the story of a connection from the readers' needs to an idea in a fluid and focused manner, making the key technical points along the way. Readers will feel fulfilled, satisfied, and even entertained if our writing skills are good. It will be a successful document, regardless of its specific subject matter.

ZERO-TIME PLANNING

Our discussions to this point speak of the essentials of document planning, assuming we have time to carry them out. But what about the panic state? In other words, how on earth do we plan a document when some sage (usually someone who has a certain degree of influence or authority over us and does not do his or her own planning very well) demands a document and there is no time for planning? My advice here is simple: tell them to take a hike (do it mentally—it will make you feel better) and then assess your situation and resources. Maybe you can derive this document from a similar one, or paste together some existing documents, providing you have the appropriate permissions to use them for this purpose. Having done the planning or scripting for these existing works, you may visualize ways to write some additional "glue words" and at least form some semblance of cohesiveness.

Above all, don't skip the planning altogether. Unplanned documents are pure chaos. You would, in most cases, be better off not producing the document at all than assembling or writing it unplanned. However, this point is almost always lost on some folks who procrastinate and then demand instant results. Schedule your time, do your best, and most important, make sure the person who requested the document on such an unrealistic schedule knows what to expect. Excellent writing is a craft. It is a communication art form not unlike painting; rushing will result in a paint-by-the-numbers effect, whereas allowing time for the planning as well as the painting itself will certainly result in a thing of beauty, and occasionally a Rembrandt. The same goes for writing.

Now that we have looked at the aspects of planning, it is time for us to start thinking about attitude, which is what a good communicator needs to cultivate before actually starting to write. We'll do just that in the next chapter.