White Paper Writing Guide

How to achieve marketing goals by explaining technical ideas

Al Kemp

This book uses the names of fictitious organizations (Acme Company, NewOffice Company), products (ElectroWork-Flow), and periodicals (*The Office Automation Report*). Any resemblance between these organizations, products, and periodicals and any real organization, product, or periodical with the same name is purely coincidental.

CONTENTS

INTRODUCTION

A white paper is – in its broadest definition – a detailed and authoritative report. The traditional goal of a white paper has been to educate readers about a complicated political or scientific subject.

In contrast, product brochures and other marketing collateral persuade readers to make purchases. This approach works well for commodities like furniture, personal computers, and motor vehicles. Basic performance is warranted, and prospective customers can compare products in showrooms to evaluate the capabilities that distinguish one product from another. But companies selling new products and services based on complicated advances in information technology are finding that traditional marketing collateral do not persuade prospective customers to make purchases. Prospects are wary that products and services may not live up to the marketing hyperbole. A prospect may not be able to evaluate an expensive enterprise software product before it has been purchased, customized for the client, and put into production. Purchasing mistakes are costly and time-consuming at best. Prospects must be convinced that these products and services deliver the business value that their vendors claim in the marketing literature.

To market new products and services based on complicated advances in information technology, companies have taken the traditional white paper and modified it to fit their needs. The new breed of white paper achieves marketing goals by educating readers about technical subjects. It combines a large amount of education with a smaller amount of persuasion. For example, a white paper may educate its readers about technological innovations and show how those innovations are creating a market for new products and services. A white paper may explain how a new technology solves business problems, and it may demonstrate how a new product implements the technology. A white paper may explain how a new methodology works, and it may document cost savings at organizations that have adopted the methodology.

For the purposes of this guide, a white paper is any business document that achieves its goals by educating its readers. Four common goals are:

- Selling a product or service
- Promoting a technology
- Funding a project
- Establishing a reputation for expertise

There are many valid goals for writing a white paper. Goals drive content decisions but do not determine whether a business document is a white paper. Education is the key. Elaborate product brochures may be called white papers, but if they persuade without educating, they are white papers in name only. In contrast, many educational business documents that meet my definition of a white paper have other titles: technical overview, position paper, case study, and so on.

Corporate decision-makers, business analysts, and technical specialists increasingly rely on white papers for information to evaluate new technologies as well as products and services based on those technologies. A well-written educational white paper exerts tremendous influence on its readers.

This guide explains how to write educational white papers that achieve marketing goals. Many principles, tips, and techniques apply to any business-to-business communication that requires a clear explanation of technical ideas to achieve its goals.

White-Paper Pitfalls

While researching the material for this book, I read hundreds of white papers. I spent a day examining white papers voted the year's best by a white-paper repository on the Web. If those were the year's best, the year's worst must have given new meaning to the word *inadequate.* Frankly, many publications with "white paper" in the title are not white papers at all by my definition because they make no attempt to educate their readers. They market with a vengeance. They proclaim everything and explain nothing.

A step up from the rambling, overly long product brochure is the template white paper. During my research, I found many content templates: generic outlines for writing white papers. The people who develop these templates desperately want all white papers to fit into one mold. But the contents of effective white papers, like the contents of other types of writing, do not fit into one generic outline. With compatible subject matter and a bit of luck, a template may yield a decent white paper.

But what if the subject matter is new or the approach you want to take is new? What if you are competing against a large company that can produce an endless supply of template-based white papers? What if "decent" is not good enough?

Good writing that explains new ideas in creative new ways is powerful. Harnessing that power need not be a time-consuming process. But if you don't want to waste time, don't wait for a brilliant burst of inspiration. It may never come. Follow a process that uses your time productively. A creative white-paper development process helps you achieve your goals by acquiring the right content and organizing it into the most effective presentation you can make to your audience.

The White-Paper Development Process

This book describes a process that helps writers think "outside the box." The process encourages discovery: finding powerful new ways to present ideas. You may miss the discoveries if you simply create an outline and expand it into text.

The process has nine phases:

1. Assess needs
2. Plan
3. Acquire information
4. Organize content
5. Design the look & feel
6. Write
7. Illustrate
8. Review, revise, & approve
9. Publish

If you must write a white paper quickly, you may be tempted to skip several of the phases. Don't do it! You must assess needs, plan, acquire information, and organize content. If you skip any of those phases, your white paper will most likely fail to achieve its goals. To make matters worse, you will run into stumbling blocks while writing. Those stumbling blocks may cost you more time than you would have spent in the phases you skipped. As a guideline, spend 20-33% of your time on the first four phases.

Although I highly recommend this process, it is not the only one that produces effective white papers. For example, some processes put designing the look and feel after the writing phase. That works, although you may miss opportunities to strengthen the connection between content and design. Any logical writing process yields better results than blindly following a content template or – even worse – following no template at all!

PHASE 1: ASSESS NEEDS

In Phase 1, you define the goals that you want the white paper to achieve and the audience that must read the white paper for you to achieve those goals. You analyze the audience in detail and describe the white paper's subject matter at a high level. Finally, you develop strategies to achieve your goals.

The output of Phase 1 consists of:
- Needs Assessment Worksheet
- Audience analysis
- High-level description of the subject matter
- List of strategies to achieve goals

This phase establishes the scope of the white-paper project. Phase 1 – although short – is critical to the white paper's success. The goals and audience drive all the content decisions you make throughout the project. If you discover two or more ways to organize content, choose the organization that best achieves your goals. While working with content, you may question whether you should include certain information. The answer is simple: include information if it helps you achieve your goals.

Whatever you do, don't skip this phase. Sometimes writers think the goals and audience are obvious, and they skip the needs assessment. That is always a big mistake. One goal may be obvious, but other, more subtle goals may also exist. The same advice applies to the audience. One type of audience member may be obvious, but other types may also exist. What do the audience members know about the white paper's subject? Writers who skip the needs assessment are much less likely to develop strategies to achieve goals. Defining strategies makes working with content much easier. Finally, the needs assessment helps you avoid the five myths about white papers (see page 69).

Define the Goals

Write down all the goals (sometimes called objectives) that you want the white paper to accomplish.

The assignment to write the white paper may include one or more goals. The existence of these goals does not justify skipping the goal definition process. Management may have documented the most important goals but left other goals undocumented. A comprehensive set of goals provides comprehensive guidance for content development.

Define both *overt goals* (goals that you mention in the white paper) and *covert goals* (goals that you do not mention).

A common overt goal is to demonstrate that a high-tech product solves problems. Other overt goals might be to enable an audience to understand a technology on which a product is based, to build a company's reputation for expertise within its industry, or to procure venture-capital funding.

A common covert goal is to sell a product. The goal might be covert because an audience would be less likely to read a sales-oriented white paper. In some situations, selling may be an overt goal. An audience may not object to selling if a white paper educates and avoids marketing hyperbole. Another covert goal might be to create doubts about the capabilities of competing products.

Here is an example of a goal analysis. The Acme Company wants a white paper about a new office automation technology. The Acme Company manufactures a product, called ElectroWorkFlow, built on the new technology. Acme's sales staff is having

trouble closing sales because prospective customers don't understand how the office automation technology works. They doubt that ElectroWorkFlow delivers the business value presented in the product literature. The Acme Company wants to demonstrate that ElectroWorkFlow solves office automation problems. That's an overt goal. The Acme Company also wants to help the sales staff sell ElectroWorkFlow by showing that it is a good investment. In this instance, selling ElectroWorkFlow is an overt goal. The Acme Company wants to show that ElectroWorkFlow is superior to competing office automation products. That's a third overt goal. In particular, Acme wants to show that ElectroWorkFlow is superior to an office automation product by their major competitor, NewOffice Company. That's a fourth goal, but it is covert because Acme does not want to compare ElectroWorkFlow directly with NewOffice Company's product.

I received a mission statement for the white paper. Does that take the place of the goals?

A mission statement is a marketing-oriented approach to needs analysis. The mission statement may be a combination of one or more goals and strategies to achieve the goals. Here is an example: "The mission of the white paper is to demonstrate that ElectroWorkFlow is the most secure and cost-effective solution to office automation problems."

I recommend breaking down a mission statement into its component parts. The example above appears to contain one goal and two strategies. The goal is to demonstrate that ElectroWorkFlow is the solution to office automation problems. Two strategies to achieve that goal are to demonstrate that ElectroWorkFlow is the most secure solution and the most cost-effective solution. Once you have broken down the mission statement, continue with the goal definition process.

Tip! A goal in one situation may be a strategy in another situation. A goal is what you want to accomplish. A strategy is a means to accomplish a goal. The mission statement above might contain two goals and no strategies. The goals would be to demonstrate that ElectroWorkFlow is 1) the most secure solution and 2) the most cost-effective solution to office automation problems. In this case, the white paper should focus on security and cost-effectiveness. In the other case, the white paper should not limit itself to security and cost-effectiveness. You won't know which case is correct unless you discuss the goals with the people who commissioned the white paper.

Define the Audience

The audience for your white paper is, of course, the people for whom you are writing the white paper – the people who must acquire knowledge or perform actions (such as purchasing a product or service) to achieve your goals.

Write down all the different types of audience members. When you define the audience, be specific. If your audience is prospective customers for a product or service, don't define the audience simply as "prospects." Your prospects may consist of several different types of audience members. Identify your prospects by their job titles or job functions. A few examples are venture capitalist, industry analyst, senior executive, R&D director, engineer, business analyst, service technician, purchasing agent, and shop supervisor.

Let's define the audience for the white paper on ElectroWorkFlow office automation technology. The goals are to 1) demonstrate that ElectroWorkFlow solves office automation problems, 2) sell ElectroWorkFlow, 3) show that ElectroWorkFlow is superior to competing products, and 4) show

that ElectroWorkFlow is superior to NewOffice Company's office automation product.

Prospective customers for ElectroWorkFlow work in companies that will benefit from office automation. If we can demonstrate the benefits of office automation to office managers and if we can show them that ElectroWorkFlow solves the problems associated with implementing office automation, then office managers will want to purchase ElectroWorkFlow.

But are office managers the only prospective customers? If purchasing ElectroWorkFlow involves substantial costs, then senior executives and financial managers most likely must approve the purchase. In addition, office managers may be reluctant to make the purchase unless office workers will be willing to learn new procedures. For example, office managers may have read about office automation installations that failed because office workers refused to change their work habits.

In the example above, we have identified four different types of audience members:
- Office managers
- Financial managers
- Senior executives
- Office workers

We are not sure whether office workers will read the white paper, but we know that we should address their needs.

Once you have defined the audience for your white paper, connect the goals to the audience. For each type of audience member, write down the goals that you want the white paper to accomplish.

Analyze the Audience

The audience analysis drives major content decisions such as what information to include in the white paper; how to organize the information; and how technical to make definitions of terms, explanations of concepts, and illustrations.

Document the characteristics of each type of audience member. Concentrate on characteristics that will influence how you write the white paper and how the audience members respond to the white paper.

Here are some examples of general information about your audience:
- Education
- Training, experience, and skills
- Technical knowledge

Here are some examples of information specific to the white paper's subject:
- Reason why the audience is reading the white paper
- Knowledge about the white paper's subject
- Level of interest in the white paper's subject
- Problems understanding information in the white paper
- Reasons why the audience might be reluctant to agree with the white paper's conclusions

Analyze how each type of audience member relates to the white paper's subject. For example, executives and managers often read white papers to make purchasing decisions. They want to learn about return on investment and benefits like reduced costs. The technical staff often reads white papers to learn about new technologies and to decide whether they want a product or service that a white paper promotes. If they do, they will recommend the product or service to management.

The technical staff is interested in capabilities as well as benefits like productivity boosts and process improvements. Users often read white papers to find out whether a product or service will help them with their jobs. They are interested in how easy the product or service is to learn and use. You may need to explain to all the members of the audience how a technology, product, or service works so that they will believe you when you tell them about its capabilities and benefits.

The best way to analyze each type of audience member is to interview members of the audience. If you can't do that, interview salespeople who sell products and services related to the white paper. Salespeople often know a great deal about audience members because they work with them during the sales process.

Different types of audience members have different levels of knowledge and expertise. Writing for audiences with widely varying levels of knowledge and expertise is a big challenge. Throughout this guide I will discuss techniques that help you meet the challenge. For example, if executives and financial managers have a different level of knowledge and expertise than the technical staff, you can target the overview at executives and financial managers and the detailed contents at the technical staff. If you haven't analyzed your audience thoroughly, you won't know that differing levels of knowledge and expertise are a problem. White-paper writers who ignore the characteristics of their audience often fail to achieve their goals.

The best solution for different types of audience members may be separate white papers. For example, you might write one white paper for executives and another white paper for the technical staff. The appropriate place to make this decision is in *Phase 2: Plan* when you identify sales processes.

For our white paper on ElectroWorkFlow office automation technology, the audience analysis tells us that:

- General technical knowledge is limited to the operation of personal computers and office equipment.
- Senior executives and financial managers will be reluctant to spend time reading the white paper.
- Office managers, office workers, and senior executives may question productivity gains.
- Office workers may doubt the ease of training.
- Financial managers may want a demonstration of return on investment.
- Office workers may have trouble understanding the technical concepts involved in office automation.

Describe the Subject Matter

Describe the white paper's subject matter at a high level. Start with the purpose of the technological innovation or industry development. List important points and key concepts that you must discuss in the white paper.

For our white paper on ElectroWorkFlow office automation technology, our analysis of goals and audience has shown us that we need to address the following:

- What office automation involves
- How office automation and ElectroWorkFlow work
- How office automation and ElectroWorkFlow improve processes
- How the improvements increase productivity
- The training involved in implementing ElectroWorkFlow office automation
- The financial benefits
- Why ElectroWorkFlow is superior to competing products

When you are done with your high-level description, you should have a brief initial outline of the white paper's content. You will use this outline as you develop strategies in the next section and as you plan the project in Phase 2.

This is *not* your content outline. Before you develop the detailed outline that you will use to organize the content of the white paper, you must perform the steps in *Phase 3: Acquire Information*.

Develop Strategies

After you have defined the goals, analyzed the audience, and described the subject matter at a high level, you should develop strategies to achieve those goals with the audience. Strategies help you throughout the white-paper development process. they are fundamental input for both *Phase 2: Plan* and *Phase 3: Acquire Information*. You will be able to plan better because you will have a better sense of the white paper's scope. You will be able to acquire information more efficiently because you will know you need information that implements your strategies.

First, review your goals.

Next, review the audience analysis. Pay particular attention to potential problems such as:

- Difficulties that your audience may have understanding the subject matter
- Lack of interest in the subject
- Reluctance to agree with the white paper's conclusions

Now think of strategies that will help you overcome the problems. Identify both content strategies and presentation strategies. A *content strategy* might be to demonstrate work flow improvements or to quantify benefits. A *presentation strategy* might be to diagram the improved work flow or to highlight the benefits with charts.

List the content and presentation strategies for each goal.

One of the goals for our white paper on ElectroWorkFlow office automation technology is to demonstrate that ElectroWorkFlow solves office automation problems.

The content strategies are to:

- Itemize major office automation problems
- Show in detail how ElectroWorkFlow solves each problem
- Identify the components of ElectroWorkFlow responsible for each solution and explain how each component works

The presentation strategies are to:

- Use common computer terminology and define all unfamiliar terms
- Develop illustrations to 1) clarify the technology for executives and financial managers and 2) help office managers explain the technology to office workers

Another of our goals is to sell ElectroWorkFlow.

The content strategies are to:

- Show improvements in office workflow that result from office automation
- Demonstrate that the workflow improvements increase office workers' job satisfaction
- Quantify productivity gains that result from using office automation products in general and ElectroWorkFlow in particular
- Show that ElectroWorkFlow training requirements are minimal
- Show the benefits and quantify them
- Show the return on investment

The presentation strategies are to:
- Diagram the workflow improvements so that they are easy for office managers to discuss with executives and office workers
- Highlight the productivity gains, benefits analyses, and return-on-investment analysis in the executive summary for senior executives and financial managers

A third goal is to show that ElectroWorkFlow is superior to competing office automation products.

The content strategies are to:
- Show weaknesses of generic office automation products compared to ElectroWorkFlow
- Discuss design innovations that distinguish ElectroWorkFlow from the competition

The presentation strategy is to:
- Create a comparison chart that makes ElectroWorkFlow's strengths and the competition's weaknesses easy to see at a glance

A fourth goal is to show that ElectroWorkFlow is superior to NewOffice Company's product.

The content strategies are to:
- Compare ElectroWorkFlow to a generic product based on NewOffice Company's product
- Highlight ElectroWorkFlow features that NewOffice Company's product does not have

The presentation strategy is to:
- Include NewOffice Company's product as one of the "generics" in the comparison chart

Many of these content strategies (such as quantifying benefits) and presentation strategies (such as developing illustrations to help office managers explain the technology) are the subject of specific topics in *Phase 6: Write* and *Phase 7: Illustrate.*

Up to this point, we have not decided what type of white paper to write. We don't know whether it will be a technical brief, position paper, case study, benefits analysis, return-on-investment analysis, or competitive analysis. We want to keep our options open. To achieve our goals, we may write a hybrid white paper that includes elements from several types of traditional white papers.

The needs assessment has given us a great deal of information about our example white paper on ElectroWorkFlow office automation technology. Because we understand what we are trying to accomplish (the goals), who we are trying to educate and persuade (the audience), and the best ways to educate and persuade them (the strategies), we are now able to plan our white paper intelligently, acquire the information we need, and organize it into effective content.

Appendix A on page 69 discusses five myths about white papers. The myths are obvious now that we know how to assess the need for a white paper.

Prepare the Needs Assessment Worksheet

Prepare a Needs Assessment Worksheet with the goals, types of audience members, and a cross-reference of goals for each type of audience member.

After you finish the Needs Assessment Worksheet, discuss it with the people who commissioned the white paper. You might also discuss the audience analysis and strategies, although this information may be more than the people who commissioned the white paper will want to review. In some situations, you may want to circulate the Needs Assessment Worksheet for formal review and approval.

When you receive input on the Needs Assessment Worksheet, make changes as needed.

PHASE 2: PLAN

In Phase 2, you plan how to reach your audience by identifying sales processes and related marketing publications and by choosing delivery media. You identify personnel resources and assemble a team, and you choose tools for writing, illustrating, and publishing the white paper. Finally, you estimate costs and prepare a schedule.

The output of Phase 2 is a Project Plan.

I have placed assessing needs ahead of planning because planning is difficult until you know what you need to accomplish. In particular, cost estimates and schedules are often unrealistic when they are prepared prior to assessing needs. If you are under a great deal of pressure to estimate costs and prepare a schedule quickly, the best strategy is to perform Phases 1 and 2 iteratively. Do a quick needs analysis and use that information in Phase 2. When you have the initial cost estimate and schedule, go back and do a thorough needs analysis.

Identify Sales Processes & Related Marketing Publications

Find out how the white paper will fit into sales processes. The white paper might be posted on a Web site for prospective customers to read, or a sales representative might give the white paper to prospects at a specific point in the sales process. For example, a sales rep might give the white paper to prospects after sending them a product brochure and making a sales contact. If the white paper is part of a sales process, you should take the process into account as you develop the white paper.

If the sales process is different for different types of audience members, document each process.

If a white paper fits into the sales process at two or more places, you may need multiple white papers. For example, sales people may want the white paper to explain the technology behind a product when they contact new prospects, and they may want the white paper to explain detailed product functions and benefits when prospects are deciding whether to purchase the product. In this situation, two smaller white papers – one on the technology and another on functions and benefits – will be more effective than one big white paper.

You may need multiple white papers for different types of audience members. If sales people have one process for selling a product to technical specialists and another process for selling the product to executives, a separate white paper for each audience may make a stronger impression. Before you create separate versions of a white paper, make sure that each version will reach its intended audience. For example, an executive reads an executive-level white paper and then passes it along to a technical specialist, who reads the executive version of the white paper but not the technical version. If this situation is likely to occur, one white paper written for both executives and technical specialists may be the better choice.

As you identify sales processes, you identify most of the related marketing publications because they are part of the process. For example, a product brochure might be a related publication. Take the content of related marketing publications into account as you develop the white paper.

Marketing collateral encourage prospective customers to act in a certain way, for example, to take the next step in the sales process. The part of a

marketing collateral that encourages prospects to act is the *call to action.* A white paper may have a call to action, too. For example, a white paper may encourage readers to request a product demonstration. Document the call to action. It should complement one or more goals.

Choose Delivery Media

The sales process should determine the delivery media.

If the sales process involves delivering the white paper to the audience, then you should print the white paper or create an electronic document for distribution in an e-mail message or on a compact disc. For example, sales representatives might hand the white paper to prospective customers during sales visits or mail it to them after sales calls.

If the audience will seek out the white paper on its own, then you should put the white paper on a Web site as an electronic document or a series of Web pages. For example, prospective customers might look for information on the organization's Web site, search the Internet for information, or go to a repository of white papers on the Web. If you are going to put the white paper on a Web site, are prospects most likely to print it or read it online? You may need to account for both types of usage.

Print Document

Print is the time-honored standard for content that readers study in detail. A well-designed print white paper commands respect in a way that electronic media can't match. The high-resolution type and graphics in print documents make reading a white paper a pleasant experience and encourage the audience to spend the time necessary to become acquainted with the contents.

Printed text has many times the resolution of text displayed on a computer screen. Computer screens render text at around 100 dots per inch, laser printers render text at 600 to 1200 dots per inch, and professional offset printing renders text at 2400 to 4800 dots per inch. No wonder people don't like to read text on a computer screen! It has 8% to 16% of the resolution provided by laser printers and 2% to 4% of the resolution provided by offset printing.

Electronic Document

An electronic document is a hybrid medium: readers can view it on their computer screens or print the file. Electronic documents are versatile: you can deliver them via e-mail or on compact discs to prospective customers, or you can place them on an organization's Web site so that people throughout the world can obtain them. Your audience can read an electronic document in a variety of a ways. They can browse the document on their computer screens. If the content interests them, they can print the document and read it in its entirety. They can search the electronic file to find information.

This versatility brings with it serious challenges. In many situations, you can't be sure whether your audience will view the document on their computer screens, print it, or both. For that reason, you want good readability when the document is viewed on a computer screen as well as when it is printed on a laser or inkjet printer.

One strategy to deal with uncertainty about how your audience will read an electronic document is to provide two versions of the white paper: one for viewing and one for printing.

Web Pages

A series of pages on a Web site is economical: there are no costs to produce printed copies or compact discs. Information on a Web site is available whenever the audience wants to read it. Most audience members will read a Web-page white paper on their computer screens.

When you put information on the Web, you must deal both with low display resolution (anywhere from 16% to 2% of a printed document) and a tendency of users to surf around rather than stay on one Web page and read an in-depth analysis. One strategy you can use to overcome these problems is to post the overview as a series of Web pages and offer the complete white paper as an electronic document to download and print. You may have to rewrite the overview in short paragraphs with simple sentences. Long paragraphs and complex sentences are especially forbidding to read when they appear on Web pages.

Identify Personnel Needs & Assemble a Team

Writing a successful white paper requires in-depth knowledge of:

- The white paper's subject
- Techniques for communicating technical information to an audience that does not have an in-depth knowledge of the white paper's subject
- Techniques for communicating ideas visually and designing page layouts that make white papers enjoyable to read

The best white papers are often developed by a team with one or more subject matter experts, a writer, and an illustrator. Depending on the white paper's medium, you may need experts in Web design, multimedia, and so on.

Subject Matter Expert

A subject matter expert (SME) is critical to any white paper. A group of SMEs is often better than a single person at identifying and explaining the ideas that go into an effective white paper. In a typical high-tech company, recruit SMEs from sales, marketing, and product development.

Writer

You need both marketing and technical writing skills. Adding a professional writer to the team – whether a staff writer or a consultant – stimulates the subject matter experts to come up with ideas. The SMEs see how the writer organizes, explains, and highlights ideas to communicate them effectively. This leads to new ideas and fresh approaches to present the information to the audience.

Sometimes one of the subject matter experts is also the writer. This is not an ideal situation. While SMEs have an in-depth knowledge of the white paper's subject matter, they may not understand how to organize the ideas into a logical and compelling communication for a less knowledgeable audience.

Should the author of a white paper be a recognized expert in the field?

Recognized experts may be either organizations or individuals. Individuals may be employees or consultants (industry analysts, research scientists, and so on). If a white paper's authorship is attributed to a person rather than an organization, that person may be a subject matter expert. Another person may actually write the white paper. Writing skills are critical when educating an audience.

Illustrator

You need both illustration and graphic design skills. I recommend a *technical* illustrator because most technical illustrators are capable non-technical illustrators and graphic artists. Technical illustrators usually create conservative designs that are appropriate for white papers. Marketing goals may drive the development of a white paper, but it should not look like a glossy marketing brochure!

Identify Reviewers

Identify as many reviewers as possible. When you receive the assignment to write the white paper, you may receive a list of reviewers. If you do, make sure the list is complete.

You need two sets of reviewers:

- One set includes your subject matter experts and others with whom you will be working closely. They will review the needs assessment, project plan, content outline, storyboard, and first drafts. Some or all of these reviewers may review the final drafts.
- The other set will review the final drafts. These reviewers may consist of senior management including the heads of sales, marketing, and product development.

You may need a review by the legal department and, if the white paper contains financial information, a review by financial management.

Choose Desktop Publishing Tools

Once you have assembled your team and identified reviewers, you are ready to choose your desktop publishing tools. Your choice may impact the time required for the project by as much as 20%. Desktop publishing software programs are usually better than word processing software programs. If possible, choose illustration software programs rather than drawing editors in word processing programs. The capabilities of drawing editors are too limited for high-quality illustration work.

Choose tools that can output the white paper in your delivery media without a great deal of additional work.

Estimate Costs

The basic costs involved in developing a white paper are labor, tools, and publication.

Labor

Include labor costs for the people (writer, illustrator, and so on) who will develop the white paper. Some organizations may want to include time contributed by subject matter experts. If other people are responsible for preparing the white paper for publication (for example, a Web development team), you may need to include time for them.

To estimate labor costs, you must know roughly how long and complicated the white paper will be. You also must know whether achieving your goals will involve major challenges. Your needs assessment should have given you a sense of the challenges involved. Start with the high-level description of the subject matter that you prepared in Phase 1 and guesstimate the amount of information you must communicate on key concepts and important points to achieve your goals. To make this estimate, take into account:

- Difficulties that your audience may have understanding the subject matter
- Obstacles to achieving your goals

A white paper's complexity and communication challenges impact labor costs at least as much as its length does.

The following table shows a labor estimate for an eight-page white paper (300 words per page) on a challenging technical subject.

Table 1: Labor Estimate

Phase	Hrs. per Unit	Total Hrs.
1: Assess Needs	not applicable	8
2: Plan	n/a	8
3: Acquire Information	2 hrs./pg.	16
4: Organize Content	2 hrs./pg.	16
5: Design the Look & Feel	n/a	8
6: Write	6 hrs./pg.	48
7: Illustrate		
Charts (2)	2 hrs./chart	4
Illustrations (4)	3 hrs./illustr.	12
8: Review, Revise, & Approve	2.5 hrs./pg.	20
9: Publish	n/a	4
Total		**144**

Use this table as a starting point for your labor estimate. I would like to give you a formula for computing the cost of a white paper, but there are far too many variables.

All white papers are different. Some may require extensive audience analysis. Others may require extensive research. Some may pose a major writing challenge. Others may require elaborate illustrations. Some organizations may have elaborate procedures for review and approval.

When you write a white paper, track the labor costs for each phase. That will help you estimate the cost of the next white paper more accurately.

Tools

Often, the people on the white-paper team already have the software tools they are going to use. If they don't, you need to budget for tool costs.

Here is a quick list:

- Desktop publishing program
- Word processor, if needed, for input to desktop publishing program
- Illustration programs for vector graphics (line drawings) and raster graphics (screen captures and photographs)
- Fonts (see "Make Typographical Decisions" on page 34 for reasons why you shouldn't settle for ubiquitous fonts like Arial and Times New Roman)
- If needed, an application-independent program like Adobe® Acrobat® for generating electronic documents
- If needed, a Web-site design program

Publication

Publication costs include offset printing, quick printing, compact disc duplication, and so on. If you are going to use offset printing, get an estimate from your printer as soon as possible. Decisions on page size, colors, print runs, and so on have a big effect on the cost of offset printing. Your printer will give you suggestions to minimize your costs.

If you don't have a preferred vendor, get estimates from several printers. Different vendors have different types of presses, and presses are optimized for different sizes of paper and different types of print jobs. You may find a wide variation in the estimates you receive. Ask each printing company what production services (if any) they provide. If you are using color, you may need help preparing the white paper for printing. The most economical

printing companies may not help you fix problems in the electronic files you give them.

You should also get an estimate if you are going to use a compact disc duplication service.

Prepare a Schedule

To prepare a schedule, start with your estimated hours for each of the nine development phases. Phases 4 and 5 overlap. The illustrator can work on the look and feel while you organize content. Phases 6 and 7 also overlap. The illustrator can work on illustrations while you write.

Add a day or two for your reviewers to review the needs assessment and project plan and another day or two for review of the content outline and storyboard. Add time for the review of each white-paper draft. The time needed to review a draft depends on the complexity of the subject matter, the number of reviewers, and the speed at which reviewers complete the review. Some organizations review white papers quickly; others take much longer. Add at least 3-5 days per review.

Account for any time required to publish the white paper: offset printing time (usually several weeks), Web development time, and so on.

Table 2 shows a sample schedule for writing an eight-page white paper. This schedule contains two reviews: first draft and final draft. The whole process takes 25 business days: five weeks. This schedule is optimistic. If you are must wait for input at any point, the process can extend well beyond the projected schedule.

Table 2: Schedule

Phase or Review	Time	Elapsed Days
1: Assess Needs	8 hours	1
2: Plan	8 hours	2
Review: needs assessment & plan	1 day	3
3: Acquire Information	16 hours	5
4: Organize Content 5: Design the Look & Feel	16 hours 8 hours	7
Review: outline & storyboard	1 day	8
6: Write 7: Illustrate	48 hours 16 hours	14
8: Review: first draft	4 days	18
8: Revise	20 hours	21
8: Approve: final draft	3 days	24
9: Publish	4 hours	25

When you write a white paper, track the time required for each phase and each review. That will help you estimate the schedule for the next white paper more accurately.

Prepare the Project Plan

The output of Phase 2 is a Project Plan that documents strategies, sales processes and related marketing publications, delivery media, team members, reviewers, production tools, costs, and schedules.

After you have finished the project plan, circulate it for review. Make changes as needed.

PHASE 3: ACQUIRE INFORMATION

In Phase 3, you gather information and analyze it to understand how all the ideas relate to each other. When you are done, you should have the information you need to organize the content of your white paper.

The output of Phase 3 is notes from interviews, brainstorming sessions, research, and analysis; diagrams from function and process analysis; and an optional concept map.

Gather Information

The best way to gather information is to talk with subject matter experts (SME)s. These may include an organization's sales and marketing people, product developers, and perhaps senior executives. You might also talk with industry and technology experts outside the organization.

Sales people know the audience and the obstacles you must overcome to achieve sales-oriented white-paper goals. Sales people deal with similar obstacles each time that they make a sales contact.

Product developers know how technologies work and understand how products and services implement technologies. Senior developers and system architects can explain underlying theory. They can refer you to important scientific and educational articles related to the white paper's subject.

Marketing people know marketing goals, processes, and communications, and they have excellent general knowledge of sales and product development. They can refer you to important articles in trade journals as well as publications by partners and competitors.

Two common ways to talk with SMEs are one-on-one interviews and group "brainstorming" sessions. You can also gather information on your own by researching the white paper's subject.

Don't rely exclusively on your own expertise. Even if you are both SME and writer, one of the best ways to stimulate ideas is to interview other SMEs.

Tip! If you have trouble gathering information in this phase, review your goals, audience, and strategies. You want information that helps you achieve your goals with your audience by means of your strategies.

Interviews

Whenever possible, interview people in person. If you can't do that, interview them over the phone. Don't substitute e-mail for interviews until you know subject matter experts' writing skills and the speed with which they answer e-mail.

Be prepared for the interview. Don't expect the interviewee to tell you what you need to know as soon as you mention the white paper's subject. Start with an extensive list of questions based on your knowledge of the goals, audience, and strategies. A thorough needs assessment provides a solid foundation to build upon in this phase.

One of the content strategies for the white paper on ElectroWorkFlow office automation technology is to itemize major office automation problems. We might ask a subject matter expert to discuss the problems. Once we learn that the problems include data security, data redundancy, and turnaround time, we might ask how ElectroWorkFlow

solves each problem. We might then ask about the benefits gained by solving the problems. Once we learn that the benefits include reduced loss of proprietary information, elimination of data redundancy, and reduced turn-around times, we might ask about sources of data to document the benefits.

Another ElectroWorkFlow white-paper goal is to demonstrate that the workflow improvements increase office workers' job satisfaction. When we ask about this, we might find that the workflow improvements eliminate repetitive, mundane tasks. Knowing that, we might ask about sources of data to document those improvements.

The people who are most familiar with a technology, product, or service often talk in a features and benefits jargon. They mention features like "standards-based" and "modular, reusable code" without explaining how the features work and how they provide business value to customers. Ask questions that clarify how a technology, product, or service works. For example:

- "This product is standards-based. What are the specific standards? What does this product do that proprietary products can't do?"
- "One of the product's benefits is reusable software code. How has the reusable code been implemented?"

Ask questions that establish the underlying business value. For example:

- "What are the benefits of using the standards you've just mentioned?"
- "Why is reusable software code a benefit?"
- "Will the audience understand that software reusability is a benefit?"

Ask the interviewee to explain the basis for claims made about a technology, product, or service. Also ask for quantitative support. For example:

- "Why is this product better than competing products?"
- "Do you have any data to back up the claim?"
- "How quickly does the product achieve a full return on investment?"

Harner and Zimmerman[1] suggest concluding an interview with an open-ended question like "Is there anything you would like me to include that we have not talked about?" The goal is to get your interviewees to provide you with information that you did not think to ask or that they thought about but did not mention during the interview.

Brainstorming Sessions

Brainstorming sessions involve meeting with two or more people – often from different departments like sales, marketing, and product development – to explore ideas about the white paper's subject. Capture as many ideas as you can. Spend as little time as possible elaborating the ideas, and avoid judging them. Encourage participants to build on each other's ideas. Whenever possible, note which people contributed each idea so you can follow up on helpful ideas by interviewing the people who contributed them.

Encourage the people who are talking to write on a whiteboard or flipchart. At the end of the meeting, write down the information on the white board or tear off the sheets from the flipchart and take them with you.

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1. Sandra W. Harner and Tom G. Zimmerman, *Technical Marketing Communication* (New York: Longman, 2002), p. 30. This book has helpful information about technical marketing communication including needs analysis, audience analysis, strategy development, and creativity.

Research

Ask your subject matter experts for technical documents on the subject of the white paper: scientific research papers, design specifications, product development documents, and so on.

Ask the marketing department to supply you with current marketing materials as well as sales presentations on the subject of the white paper. Review the organization's Web site.

Don't forget the competition! Ask about marketing materials or other documents by competitors that would be useful for you to examine. Review competitors' Web sites.

Ask about magazine, trade journal, newsletter, and newspaper articles on the white paper's subject.

Research the white paper's subject matter. Use an Internet search engine. Go to the library.

Analyze Information

After you have gathered information, analyze it. You can perform general analysis, function analysis, process analysis, and concept mapping.

General Analysis

Review your input from interviews, brainstorming sessions, and research. Analyze how the information supports your goals and strategies.

For each major technology, product, and service to be discussed in the white paper, make sure you have this basic information:

- Definition
- Explanation of how it works
- Business value that it provides

You may also want information about how a technology, product, or service compares with competing technologies, products, or services.

Analyzing information is an iterative process. When you put information you have gathered into your own words, you realize you don't understand some of it. You ask more questions and analyze the answers. When you organize content, you realize you don't understand some ideas as well as you thought you did. You ask another round of questions and analyze the answers. When you write the first draft, you have questions about ideas you thought you understood. You ask another round of questions and analyze the answers. When you submit the first draft for review, you get the first round of review comments. That sets off another round of questions. When you submit the second draft for review, you get another round of review comments, and you realize that you still don't understand a few ideas as well as you should. Don't be surprised if you find yourself asking questions and analyzing the answers throughout the white-paper development process.

Function Analysis

Analyze the functions of each technology, product, or service: identify its purposes and the results of using it. Functions provide value. Identify that value. Analyze how each function works, that is, how the purpose of the function and the result of using it provide value. This analysis enables you to demonstrate business value.

Break primary functions up into components and analyze the sequence in which someone would use the components to perform tasks. This task analysis helps you clarify for your audience how a technology, product, or service works.

If a technology, product, or service is part of a bigger entity, describe its function within the bigger entity. If an understanding of the part requires an understanding of the bigger entity, analyze the functions of the bigger entity.

Process Analysis

If using a technology, product, or service involves performing a process, use a flow chart to diagram the steps in the process.

If a technology, product, or service is part of a bigger process, describe how it fits into the bigger process. For our ElectroWorkFlow white paper, we might describe how office automation products fit into work procedures at a typical office.

Concept Mapping

Sometimes the ideas in a white paper fall into place right away. The white paper has one logical order, and it is clear as soon as you start to analyze the information. If you have one of those projects, congratulations! Go to *Phase 4: Organize Content.*

On the other hand, if your interviewing, brainstorming, research, and analysis have given you many ideas, and they are all sloshing around in your head without any clear structural shape, try concept mapping.

Concept mapping, also known as mind mapping, is a technique that explores the relationships between ideas.[1] It encourages creative thinking and helps you build upon the ideas you acquired though interviewing, brainstorming, and research. You take the main idea you are working with and put it in the center of a big sheet of unlined paper (or a white board). Then you add ideas related to the main idea by radiating them out in all directions. A good place to start is to list the white paper's goals and then the strategies to achieve those goals.

Figure 1 shows an initial concept map for the white paper on ElectroWorkFlow office automation technology. The concept map includes the four goals (marked with stars) and the content and presentation strategies discussed in *Phase 1: Assess Needs*.

After you have recorded the white paper's goals and strategies, add the information that you acquired in your interviewing, brainstorming, research, and analysis.

Go wherever your ideas take you. If you see new ideas or new relationships between ideas, add them to the concept map as you think of them. When your inspiration stops, you can easily add more of the information you acquired in Phase 3.

While you are developing the concept map, don't worry about capturing all the ideas one level out from the main idea, and then capturing all the ideas two levels out from the main idea. Work on ideas that generate more ideas. You can always go back later and add ideas to any level.

Don't spend time evaluating the merits of ideas or editing what you have written. Keep jotting down the ideas that pop into your head. Whatever you do, don't think of concept mapping as a graphical way to create an outline. The goal is to stimulate creative, non-linear thinking.

1. For more information about concept mapping, enter "concept mapping" or "mind mapping" in an Internet search engine. Or read *The Mind Map Book* by Tony Buzan with Barry Buzan (New York: Plume, 1996).

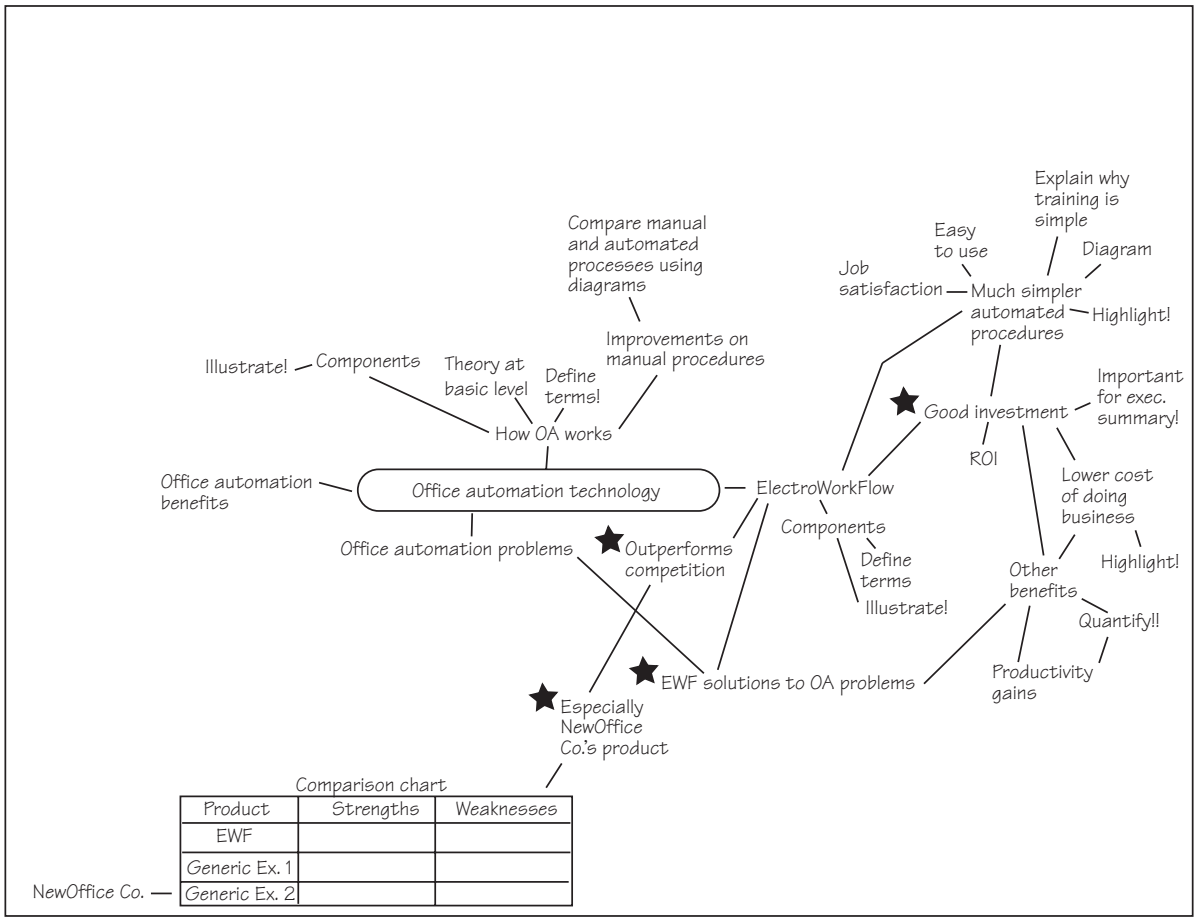

Figure 1: Initial concept map with goals and strategies

The finished concept map is a graphical representation of the ideas in your white paper. The map shows the relationships between the ideas. You can see big ideas – they're got several levels of ideas branching off from them – and smaller ideas. The size of each idea is a clue to the importance it will have in the white paper. The biggest parts of the map usually turn out to be your major topics.

When you feel that you've captured all your ideas, go over the ideas in the notes you took while interviewing, brainstorming, and conducting research. Make sure you have accounted for all of them. If an idea does not fit into the concept map, it most likely does not belong in the white paper.

Note all the new ideas on the concept map for which you have not gathered information. Acquire information to support those ideas by performing another iteration of Phase 3.

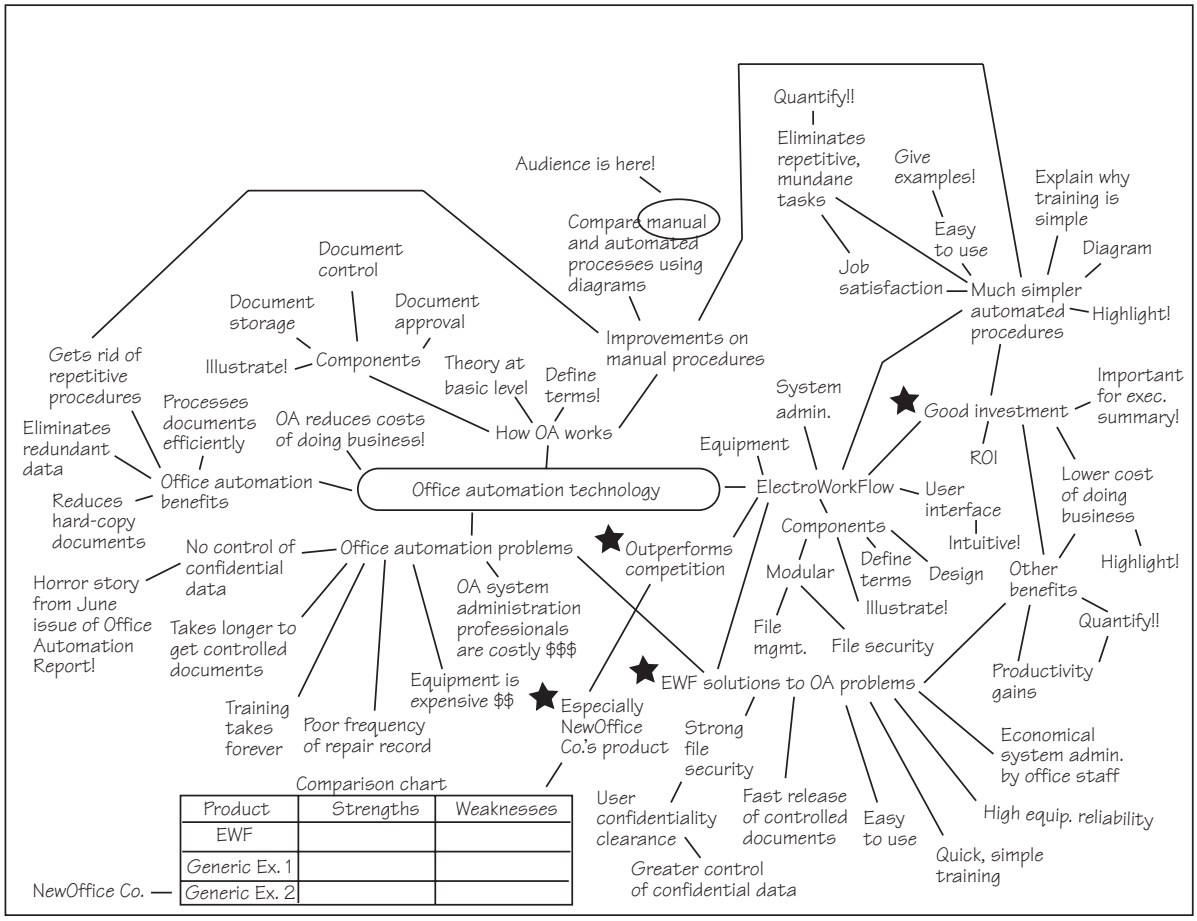

Figure 2: Detailed concept map

Figure 2 shows an example of a detailed concept map for the white paper on ElectroWorkFlow office automation technology. It includes all the information acquired in Phase 3. Although this concept map does not show any new revelations about the subject matter, it does show clusters of ideas and the relationships between them. The white paper's organization should complement the clusters of ideas.

Disclaimer: When we reach Phase 9, we won't have a finished white paper on ElectroWorkFlow office automation technology. I am using the office automation and ElectroWorkFlow examples to illustrate concepts and techniques. Trying to fit all the concepts and techniques into one white paper would be a daunting task! For examples of actual white papers, see "Appendix C: Seven Excellent White Papers" on page 73.

PHASE 4: ORGANIZE CONTENT

In Phase 4, you organize the information that you have acquired into content that achieves your goals with your audience. You have two basic tools: outlines and storyboards.

The output of Phase 4 consists of the outline and storyboard.

This phase is critical. If you don't organize your content into an effective structure, the white paper will be weak and ineffective no matter how cleverly you write the actual text.

Create an Outline

Create an outline that organizes the information you gathered and analyzed in Phase 3. Creating the outline involves three basic steps:

1. Choose major groups of information
2. Choose subgroups within each group
3. Balance the length of all major groups

The white-paper outline is like a table of contents. It is not an exhaustive formal outline that captures everything from major topics down to minuscule detail. The purpose of the white-paper outline is to establish the major topics and give them a preliminary order. At that point, we will turn the outline into a storyboard. As we tell the white paper's story, we will add the detail. We want to make sure the detail does not interfere with the presentation of the major topics.

Remember: major topics are much more important than details. Mistakes in selecting and ordering major topics may be disastrous. You may fail to achieve your goals. Mistakes in selecting and ordering details are usually much less serious.

Tip! If you want to create a detailed outline, do so. But use an outline that shows only the major topics and their subtopics while you are organizing content. Hide the lower levels until *Phase 6: Write*.

Choose Major Groups of Information

Go over your analysis and identify major groups of information. Your concept map shows the major groups of information graphically. For example, in Figure 2 on page 24 there are seven major groups of information. Listed counter-clockwise from the upper center of the map, the major groups are:

- How office automation works
- Office automation benefits
- Office automation problems
- ElectroWorkFlow – outperforms competitors
- ElectroWorkFlow solutions to office automation problems
- ElectroWorkFlow – how it works
- ElectroWorkFlow – a good investment

What about annotating an outline and turning the annotations into text?

I don't recommend annotating an outline, although some professional writers achieve remarkable results using that technique. I suggest that you keep your content outline simple and clear. Instead of annotating the outline, turn it into a storyboard. After you have a storyboard, you can annotate it as much as you want. Writers who turn outlines into text without telling a story sometimes end up with content weaknesses like out-of-sequence ideas and repetitive text. Outlines are a good tool for itemizing, ranking, and leveling information. They are not nearly as good as storyboards at connecting information in a logical flow.

If you did not create a concept map, use your goals as a guide while you organize the information you gathered and analyzed into major groups.

I highly recommend concept mapping. While a concept map is helping you to think creatively, it is also capturing your major groups of information.

Now that you have your major groups of information, assign each major group a heading appropriate to a white-paper table of contents and give the groups a preliminary order. Don't worry about choosing the final order. We will do that when we create the storyboard.

Here are the seven headings for the white paper on ElectroWorkFlow office automation technology:

- How office automation works
- Office automation benefits
- Office automation problems
- How ElectroWorkFlow works
- EWF solutions to office automation problems
- EWF return on investment
- EWF comparison with other office automation products

Choose Subgroups within Each Group

For each major group, choose subgroups based on your concept map or analysis. Use one or two levels of subgroups. Avoid three or more levels. Readers often have trouble following the organization of information when top-level headings have more than one or two levels of sub-headings. If you feel compelled to use three or more levels of subheadings, stop right there! Look for ways to move the lowest level subgroups up the hierarchy and assign them a higher-level heading.

Using the information in the concept map on page 24, we might create an outline like this:

How Office Automation Works
- Basic theory
- Components
  - Document storage
  - Document control
  - Document approval
- Procedures
  - Manual procs replaced by OA
  - New automated procs

Office Automation Benefits
- Reduction in hard-copy documents
- Elimination of redundant data
- Efficient document processing
- Elimination of repetitive, mundane procedures

Office Automation Problems
- Extensive training requirements
- High cost of system administration staff
- High cost to purchase equipment
- High cost to maintain equipment
- Length of time to obtain controlled documents may be greater than in non-automated office
- No control of confidential data after release

How ElectroWorkFlow Works
- Modules
  - File security
  - File management
- User interface
- Automated procedures
- System administration
- Equipment

ElectroWorkFlow Solutions to OA Problems
- Fast release of controlled documents
- Control of confidential data
- Easy to use
- Simple training
- Simple system administration by office staff
- Reliable, maintenance-free equipment

- ElectroWorkFlow Return on Investment
  - Hardware and software purchase cost
  - Maintenance cost
  - System administration cost
  - Training cost
  - Productivity gains

- EWF Comparison with Other OA Products
  - Introduction
  - Product Design Approaches
  - Comparison chart (advantages & disadvantages)
    - ElectroWorkFlow
    - Generic Product #1
    - Generic Product #2 (NewOffice)

This outline is an indented list, not a formal outline with I, II, III, A, B, C, and 1, 2, 3. You may create a formal outline if you want, but an indented list is sufficient to shape the ideas for use in the storyboard.

Balance the Length of All Major Groups

To make the information in your white paper easier for readers to absorb, divide the content into major groups that do not vary widely in size. As a guideline, the largest group should be no more than three times the size of the smallest group. A white paper with one extremely long section and several small sections is less likely to be effective than a white paper with sections that are all roughly the same size. Readers often bog down in the long section.

If your major groups vary widely in size, look for ways to break down large sections into several smaller sections and ways to combine smaller sections into a single large section. For example, if you have a section on benefits that is much bigger than the other sections, you might create several smaller sections by separating the benefits into groups and giving each group a major heading.

If you choose your major headings based on the large groups of information in the concept map, you should not have a problem with sections that vary widely in size.

Create a Storyboard

A *storyboard* is a sequence of sketches that tell a story. Storyboards are used to sketch films and dramas. The storyboard technique can be used to tell many different kinds of stories. When you write a white paper, you are telling a story to persuade your audience to accomplish your goals.

Choose your Starting Point

A good story starts at a point of major interest to readers. To choose your starting point, ask yourself "Why is the audience interested in the white paper?" Your audience analysis in Phase 1 should have given you this information. Review the sales processes that you identified in Phase 2. Those processes tell you what marketing collateral, presentations, and other information the members of the audience have received by the time they read the white paper. Information about sales processes may help you choose a starting point.

If a technology solves a problem or improves on an older technology, the solution or improvement is usually a good starting point. For tips on choosing a starting point, see "Appendix B: Three Mistakes when Starting a White Paper" on page 71.

Our audience analysis for the white paper on ElectroWorkFlow office automation technology tells us that we must demonstrate the benefits of office automation to office managers and show them that

ElectroWorkFlow solves implementation problems. We should consider starting the white paper with a discussion of office automation benefits.

Order your Major Topics

After choosing your starting point, arrange your major topics in an order that tells your story effectively. You may find that the topics in your outline end up as the topics in your storyboard. On the other hand, you may reorder and rework the topics so they tell a more compelling story.

We decided to start the ElectroWorkFlow white paper with office automation benefits. Because we know that office managers don't understand how office automation works, the next section will demonstrate how office automation enables the benefits. After that we will discuss problems with office automation implementations. Now we are ready to introduce ElectroWorkFlow and show how it solves office automation problems. We will discuss ElectroWorkFlow's benefits at the same time. Next we will demonstrate ElectroWorkFlow's return on investment. Finally, we will compare ElectroWorkFlow with the competition. Here is the revised outline:

- The Benefits of Office Automation
  - Reduction in hard-copy documents
  - Elimination of redundant data
  - Efficient document processing
  - Elimination of repetitive, mundane procedures
- How Office Automation Enables the Benefits
  - Basic theory
  - Components
    - Document storage
    - Document control
    - Document approval
  - Procedures
    - Manual procs replaced by OA
    - New automated procs
- Office Automation Problems
  - Extensive training requirements
  - High cost of system administration staff
  - High cost to purchase equipment
  - High cost to maintain equipment
  - Length of time to obtain controlled documents may be greater than in non-automated office
  - No control of confidential data after release
- The Solution to Office Automation Problems
  - Introduction to ElectroWorkFlow
    - Design
    - Modules
    - Equipment
  - File management module
    - Fast release of controlled documents
  - File security module
    - Control of confidential data
  - User interface
    - Ease of use
    - Simple training
  - Automated procedures
    - Increased job satisfaction
  - System administration
    - Performed by office staff
  - Equipment
    - Reliable, maintenance-free
- ElectroWorkFlow Return on Investment
  - Hardware and software purchase cost
  - Maintenance cost
  - System administration cost
  - Training cost
  - Productivity gains
- EWF Comparison with Other OA Products
  - Introduction
  - Product Design Approaches

Comparison chart (advantages & disadvantages)
- ElectroWorkFlow
- Generic Product #1
- Generic Product #2 (NewOffice)

This is our ElectroWorkFlow office automation story. It is not the only effective story we can tell, but it may be the *best* story because we have designed it to achieve our goals.

Put your Major Topics on the Storyboard

Use your story-based outline to create a storyboard mockup. If you are creating a printed white paper that you have guesstimated at 16 pages, your mockup will have a first page, seven sets of two-page spreads, and a last page. See Figure 3 on page 30.

If you are creating a white paper that will be displayed as Web pages, your mockup will have single pages. The content may follow a traditional linear flow from page to page, and the content may also link to one or more pages at a lower level. If you have hierarchical links, the storyboard mockup should show how all the pages link together.

Put headings and subheadings on your storyboard. For a printed white paper, most of your major topics should fit on two-page spreads. You may have a topic that fits on one page or three pages, but try to tell your story in two-page spreads. That's how your readers will read a printed white paper. If a major idea expands into several sets of two-page spreads, you should consider breaking the idea into two top-level headings. If you can't do that, make sure you have second-level headings.

These one-, two-, and three-page spreads are the white paper's building blocks. You may move the blocks around, add a block, or subtract a block as you work more closely with the ideas. You can examine different ways to tell your story by rearranging the building blocks. You may need to rearrange your ideas several times before you discover how to tell your story in the best possible way.

Don't be obsessive about fitting topics onto pages. You don't want to short-change a discussion just because it takes an extra half page. Don't give layout a higher priority than content. If you keep your page breaks in mind as you work, however, you may find that a bit of tweaking gets the content to fit onto pages, and you may even improve the content while tweaking it! There is nothing wrong with leaving white space at the end of a page and starting the next major topic on a new page.

Annotate the Storyboard

Add cues that describe the major content. Think in visual terms. Avoid massive blocks of text without headings or graphics. If possible, put a graphic – illustration, chart, highlighted quotation, or sidebar – on every two-page spread. If you are creating a white paper that will be read on a computer screen, try to put a graphic on nearly every page. When you are finished, the storyboard should have headings, subheadings, content cues, and suggestions for illustrations. See Figure 3 on page 30.

Review the Storyboard

Now is a good time to let the people you are working with review your storyboard. Revise your outline based on your storyboard, and submit both the outline and the mock-up of the storyboard for review. You may be tempted to get the outline approved without a storyboard, but review comments on the storyboard will give you valuable input on your story.

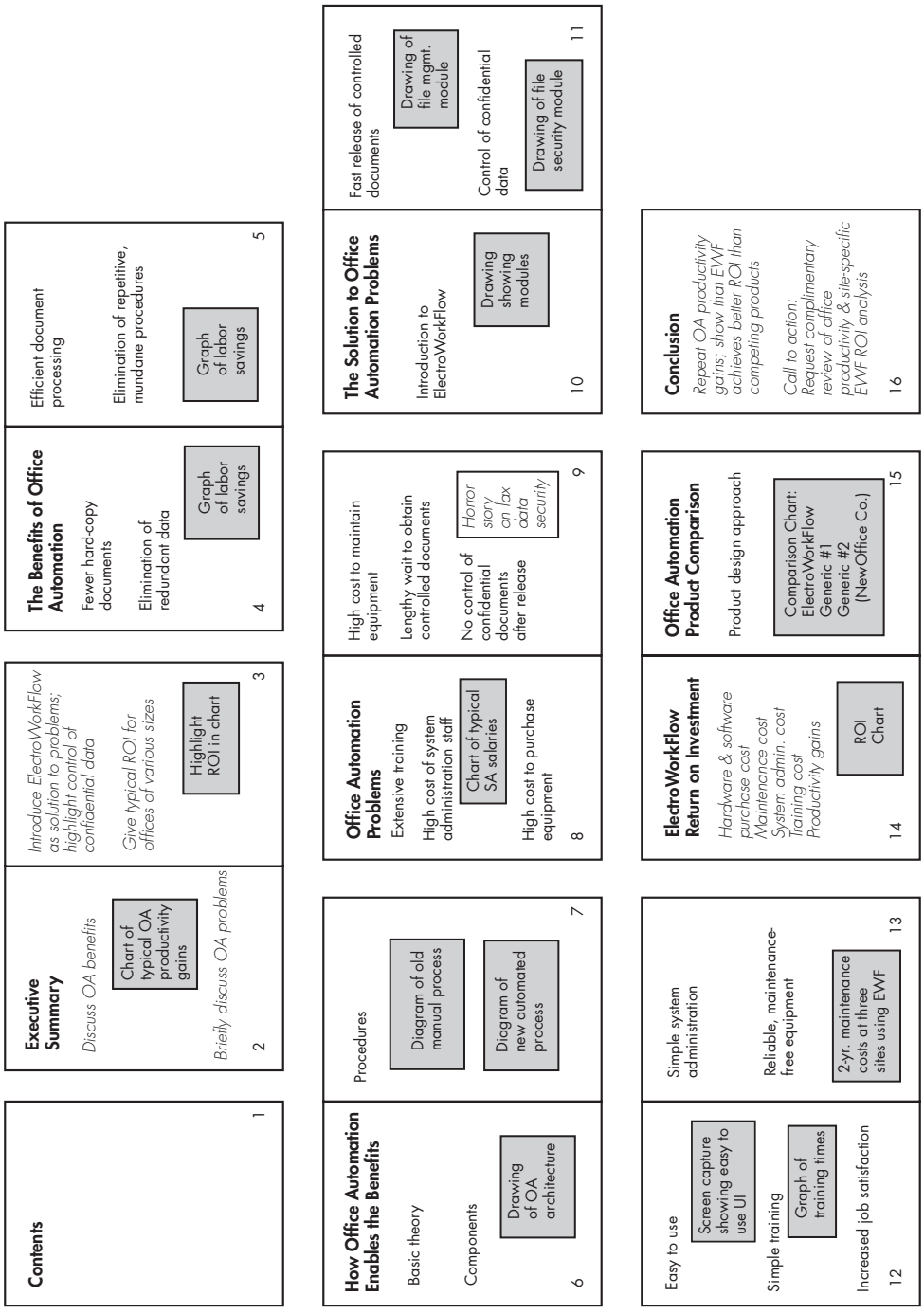

Figure 3: Annotated storyboard for a print white paper

PHASE 5: DESIGN THE LOOK & FEEL

In Phase 5, you design the look and feel of the white paper based on the story you want to tell your audience. The most important element of the look and feel is the page layout. It is the visual means through which you convey the organization of the ideas in the white paper. A strong page layout makes important ideas easy for readers to see.

The output of Phase 5 consists of a mock-up showing the look and feel of the white paper, its title page, and its cover (if you have one).

If you are working with an illustrator or graphic artist, that person will be responsible for the design of the page layout, title page, and cover based on your input as writer and the input of the organization for which you are writing the white paper.

Working with an illustrator or graphic artist, however, does not free you from involvement in this phase. You should work closely with the illustrator or graphic artist to make sure that the page layout helps you tell your story.

If you can't work with a professional, then review the page-layout templates that are packaged with many word processing and desktop publishing programs. If a template meets your needs, you can make minor modifications to it by following the advice in Phase 5. If using or adapting a layout template isn't an option, look at publications with page layouts you like, and imitate them. Don't copy them! That can get you in copyright trouble.

Whatever you do, don't settle for dreary pages crammed full of ugly type. If you do, reading your white paper will be a distasteful experience no matter how well-organized and well-written it is.

Many writers achieve impressive results with a traditional write-first, design-later approach. They produce several content drafts before designing the white paper's look and feel. I like to test the design while I write to make sure it meets my needs. At the same time, I shape the writing to take advantage of the design's strengths.

Design with your Audience in Mind

Base the design on your knowledge of the audience and how they are likely to read the white paper. If your audience finds the subject of your white paper fascinating and it will devour every word you write, your design task is easy. But more often than not, audiences are overwhelmed with information from many different sources. If you don't grab their attention and keep it, you risk losing them before they have absorbed your message.

The best way to grab the reader's attention is with a page layout that has been designed for browsing. If part of your audience will read the overview or executive summary and flip through the rest of the white paper, the content should "jump off the page" and demand to be read. If the content is hard to access – if it is buried in a sea of cramped text with dwarf margins – a significant portion of your audience will not read it.

I was told that long lines of closely-spaced type and small margins convey technical authority.

Not at all. Long lines of closely-spaced type with small margins convey disrespect for readers. Knowledgeable, intelligent, well-organized, and well-documented writing conveys technical authority.

Choose a Page Size

One of the biggest decisions involving the look and feel of the white paper is its page size. Your choice of page size depends on the delivery medium you chose in *Phase 2: Plan*.

If you are producing a print document, decide as soon as possible whether to use an 8.5 by 11 inch page. Standard letter paper is convenient for developing the white paper but less convenient for readers. Smaller page sizes are better for readers: for example, 5.5 by 8.5 inches (half a standard letter-size page), 6 by 9 inches, or 7 by 9 inches.

If you are producing an electronic document in Portable Document Format (PDF) for distribution at a Web site, via e-mail, or on a compact disc, the page size you should choose depends on whether the audience will print the document or read it on their computer screens. Refer to your analysis of delivery media in *Phase 2: Plan*.

If the audience will print the document themselves, they will print it on standard letter paper. In this case, consider two text columns (like this book's page layout) or one text column (see Figure 4) that runs roughly two-thirds of the page with another column for headings, illustrations, highlighted quotations, and so on. A layout with two text columns holds more words per page without sacrificing readability. A one-column layout with a strong design and compelling illustrations is more dramatic. A dramatic layout has a better chance of attracting a reluctant reader's attention.

If the audience will read the document on their computer screens, choose a *landscape* (horizontal) page layout. The page layout can have two text columns or one text column with a separate column for headings, illustrations, highlighted quotations, sidebars, and so on. See Figure 5 on page 33. The page layout should fit within the screen on a typical reader's computer. Readers will quickly tire of reading a displayed white paper if they have to scroll down each page. Don't forget to account for the screen space taken up by the application that displays the white paper.

If the white paper will be displayed as a series of Web pages, you may have to use the Web site's standard window size.

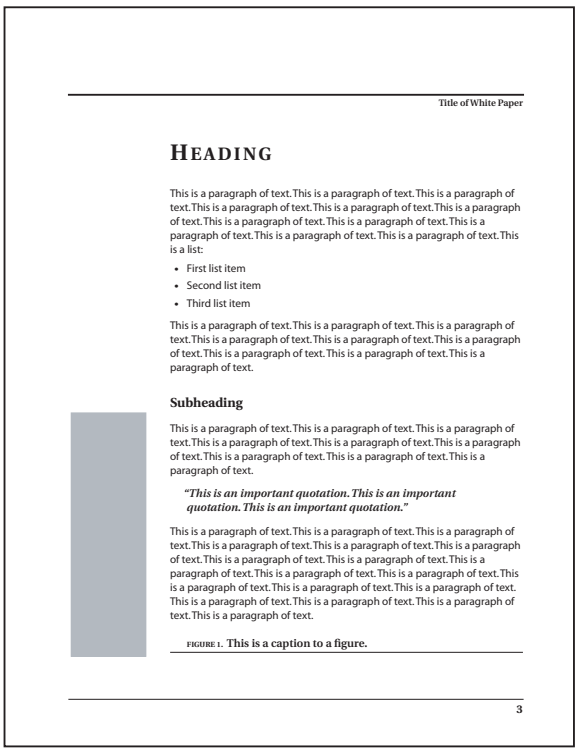

Figure 4: An 8.5 by 11 inch page layout with one text column

Typefaces: Utopia is the display typeface, and Myriad is the text typeface. For information about selecting typefaces, see "Make Typographical Decisions" on page 34.

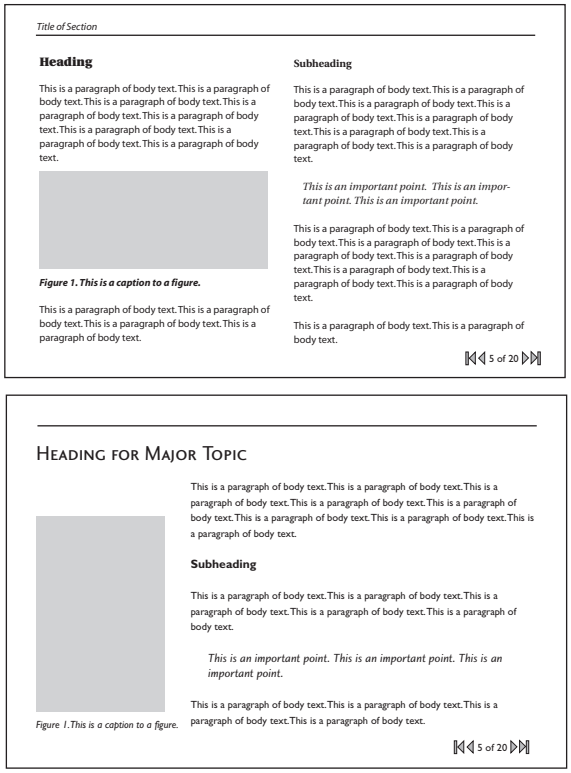

Figure 5: Two different page layouts for viewing on a computer screen

Typefaces: In the top example, Utopia is the display typeface, and Myriad is the text typeface. In the bottom example, Charlotte Sans is the display typeface, and Gill Sans is the text typeface.

If some audience members will read your white paper on their computer screens and others will download the electronic file and print it, you must either produce separate versions of the white paper for display and printing, or you must make compromises. Use an 8.5 by 11 inch *portrait* (vertical) layout if more people will print the white paper; use a screen-sized landscape layout if more people will read the white paper on their computers.

Choose Colors

Many white papers are printed in one ink color: black. But don't settle on one color without exploring your options. For a high-quality print run of 500 or more copies on an offset press, you may be able to use two ink colors at a reasonable cost.

If you will print your white paper on a color laser printer or color press – or if your white paper will be displayed on computer screens – you can use full-color photographs and screen captures. Don't create a design that uses too many colors. Your white paper will be more elegant and professional if you use two or three complementary colors for the design elements and illustrations.

Portable Document Format (PDF) files pose a challenge. If readers will display the white paper on a computer screen, you can use color. But if readers will print the white paper at the office, they may print it on a monochrome laser printer. If you don't know whether the white paper will be read in color or in black and white, use colors that provide sufficient contrast when printed as shades of gray.

The best colors for reading white papers on a computer screen are usually black type on a white background. Don't use background patterns. They make the text hard to read.

Design the Basic Page Layout

After you have chosen the page size and ink colors, the next step is to design the basic page layout. This consists of the text blocks and the headers and footers. There are many different ways to lay out text blocks and headers and footers on your page. For white papers, a conservative approach is best. You want your audience to view the white paper as an educational document. Look at well-designed

textbooks and other educational documents. They are good models for white paper layouts. This book shows some sample layouts on pages 32 and 33.

When people with no design experience create page layouts, they think in terms of text, and they usually cram far too much of it onto a page. Don't fall into this trap. *White space,* the blank space on a page, is crucial to the readability of your white paper. Effective use of white space makes any document much more inviting to readers.

Make the margins substantial. The bigger the page size is, the bigger the margins should be. Margins that provide an appropriate amount of white space on a 5.5 by 8.5 inch page look cramped on an 8.5 by 11 inch page. With two columns, you can use narrower side margins.

If you are producing a white paper that will be read on a computer screen, the rules for white space and margins still apply. Don't skimp on white space!

Never shorten a white paper by reducing the size of the margins and the typeface. This is white paper suicide. If you must shorten a white paper, shorten the content by editing and by deleting text that does not contribute to your goals and strategies.

Make sure that the header and footer don't compete for attention with the design elements in the page layout.

For a short white paper, you may need only a page number. It should be clear and easy to find. Put it on the outside edge of a header or footer. Don't make the page number too bold or too small.

For longer white papers, place the title on left-hand pages and the name of the first-level heading on the right-hand pages.

For a proprietary white paper, you may need to put a proprietary information statement in the footer. Keep it as short as possible (for example: "Confidential") and don't let it overwhelm the other design elements on the page. If you need a lengthy proprietary information statement, add it to an introductory page following the title page.

Make Typographical Decisions

The block of body text on a page strongly influences whether a document is attractive and appealing. Four typographical considerations contribute to the appearance of the body text: line lengths, typefaces, font sizes, and leading.

Line Lengths

The line lengths of many 8.5 by 11 inch white papers are much too long for comfortable reading. Experienced readers read down the page rather than across it. If the line length is too long, the reader's eyes are forced to read horizontally. Moving your eyes back and forth horizontally across a page is visually exhausting.

Robert Bringhurst[1] recommends a line length for single-column text of 45 to 75 characters (including the spaces between words). A line length of 40 to 80 characters is acceptable for printed text. For two-column text, which works well in an 8.5 by 11 inch page layout, Bringhurst recommends a line length of 40 to 50 characters for each column. For text on a computer screen, don't go beyond 55 to 60 characters.

1. Bringhurst, Robert, *The Elements of Typographic Style,* (Point Roberts, Washington: Hartley & Marks, 1996), pp. 26-27.

Typefaces

Choosing good typefaces for the text and the headings in your white paper will attract the reader's attention and make a favorable first impression. If you choose poor typefaces, your white paper will look drab and uninteresting.

Two important typographical terms are typeface and font. A *font* is a set characters in one size and style. A *typeface* is a set of fonts with the same design. Arial and Times New Roman are typefaces. Arial Regular 9-point and Times New Roman Italic 10-point are fonts.

A typical text typeface has regular, **bold,** *italic,* and ***bold italic*** fonts. Many typefaces have different font styles such as light, **medium,** and **black.**

Avoid the ubiquitous Times New Roman and Arial (or Times and Helvetica) typefaces. Through overuse, those typefaces have come to symbolize documents that are poorly written and difficult to read. White-paper audiences are no different than other audiences: they want white papers that are well-written and easy to read.

Choose typefaces that have individuality. The sample page layouts on pages 32-33 and sample headings on page 36 show examples of text and *display* typefaces (typefaces for headings) that work well together. This guide uses Futura for headings and Adobe Garamond for text. Use contrasting text and display typefaces; similar typefaces are seldom a good choice. When in doubt, check how publications you like use typefaces. For a conservative look, use different font styles and sizes in one typeface for text and display. If the marketing department has typeface specifications, consider using those typefaces. The white paper's typography will complement the organization's publications.

If you are designing a white paper that will be read on computer screens, you have additional challenges. Don't use beautiful and elegant typefaces with fine lines. Screen resolution is far too coarse to render them well. Use typefaces with little contrast between the thick and thin parts of the letters.

Font Size

Font size is measured in *points.* There are 72 points in an inch. The size of the font is based on the height of type made out of metal. That height extends from slightly above the highest letters such as b and h to slightly below the lowest letters such as g and y. Typical sizes for text fonts used in printing are 9, 10, 11, and 12 points. Some typefaces look much bigger than other typefaces at the same point size. For example, the heading "Font Size" above is in 10-point Futura Medium Oblique while this text is in 11-point Adobe Garamond.

One of the best ways to select the font size for your text is to take a sample page and set it in various sizes of your chosen typefaces. Compare the sample page with the text in a well-designed textbook.

If you are designing a white paper that will be read on computer screens, don't choose a small font size. At the low resolution of a computer screen, small text is especially difficult to read.

Leading

Leading is the space between lines of text. Leading is related to font size. At typical text font sizes from 9 to 12 points, leading adds two or three more points. If your text is in 10-point type, typical leading values would be 12 or 13 points. Good leading makes your white paper easier to read. The leading of the 11-point Adobe Garamond text in this guide is 13 points.

Here are two guidelines for leading:
- Longer line lengths need more leading.
- Large-bodied typefaces need more leading.

Letters like a, c, e, m, and n are all "body." Letters like b, d, f, g, h, and j extend beyond the body. Palatino, Utopia, and Myriad are large-bodied typefaces. Adobe Garamond is small-bodied.

If you are designing a white paper that will be read on computer screens, use plenty of leading. The low resolution of computer screens makes text difficult to read. More leading provides more white space between the lines, which makes the characters easier to identify.

Tip! The default leading for many word processing and desktop publishing software applications is set too tightly. Check the leading value and add an extra point or two if necessary.

Specify your Design Elements

The design elements in your layout – headings, captions, pull-quotes (highlighted quotations), tables, and sidebars – help you capture and hold your readers' attention.

Headings

Headings play a big part in communicating your ideas. Usually you want a forceful first-level heading. You can use a heavy, extra bold, or black typeface or a large font size. You can add lines above or below the heading that run the length of the column or the length of the heading text. Figure 6 shows examples.

Figure 6: Examples of first-level headings and combinations of text and display typefaces

Figures and Captions

Decide how to set up your figures and captions. Figures that are smaller than the width of your text column should all be left-justified, right-justified or centered. If you are using a two-column page layout, wide figures may span both columns.

Always use captions, and make sure that they are easy to read. Readers browsing through your white paper are much more likely to read the captions than the text next to them. Captions can go above or below the figures. In a two-column format with one text column, captions can go in the first column. For examples, see Figure 4 on page 32 and Figure 5 on page 33.

For captions, use another font. Don't go overboard! Use a bold, italic, or bold italic font in your text typeface or a text font in your display typeface. If your display typeface does not have a text font, you may choose a third typeface. Make sure it complements your other typefaces. If you lack experience with typefaces, use no more than two typefaces for all your design elements: headings, captions, pull-quotes, tables, and sidebars.

Pull-Quotes

Create a design element to highlight important quotations from industry experts, researchers, and so on. These highlighted quotations or *pull-quotes* should be in a different font or typeface from the text. They may includes lines separating them from the text. An example follows. For more examples, see Figure 4 on page 32 and Figure 5 on page 33.

Develop a design element that lets you highlight quotations and call attention to important statements in the text.

Tables

If your white paper will include tables of data, create a design element for them. Well-designed tables capture a reader's attention. Don't box in the table's text without any white space. Format your table with several points of white space above and below the words in each row. Table 2 on page 18 uses six points above and four points below the words. It also uses six points to the right and left of each word. The table does not have lines at the right and left sides. These lines aren't necessary. Omitting them gives the table a more open look. Be sure to give your tables titles, too. They stand out and attract the attention of readers who are browsing.

Sidebars

A *sidebar* is a short presentation on an important topic within a larger document such as a magazine article or book. Sidebars are a powerful way to highlight major points, as the example in Figure 7 shows. Sidebars are most often rectangular; they are usually placed near the text that refers to the sidebar. For maximum visual impact, a sidebar should have a heading, body text, and an illustration. The design elements for heading, body text, and caption should differ from your standard design elements. Good choices for sidebar text are an italic font from your text typeface or a text font from your display typeface.

Sometimes the sidebar may be a separate section that covers all or most of a page. This technique lets you add emphasis to important material that stands on its own, such as a case study or a demonstration of return on investment.

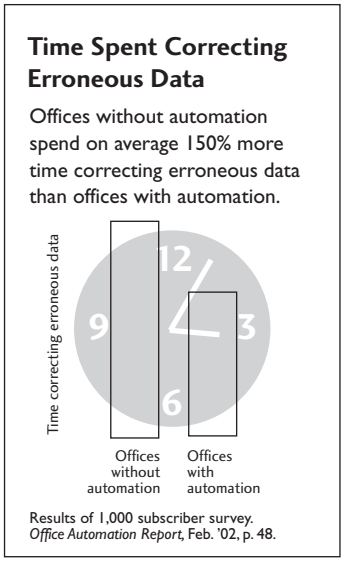

Figure 7: Example of sidebar

Design a Title Page

A good white paper deserves a good title page. Don't put the title of the white paper at the top of the first page and then start the text below it. Design a separate title page that includes the white paper's title, a subtitle (if appropriate), and the organization's name and logo. If you have an abstract, you can put it on the title page. Create a design – conservative or contemporary – that fits both the audience and the subject matter.

The inside of a print document's title page traditionally includes the copyright notice and trademarks. The page may also include a confidentiality statement, information about any restrictions to use of the white paper, and – if you do not have a back cover – contact information.

If you are producing an electronic document to be viewed on a computer screen, put the copyright notice information in small print on the title page. The trademarks can go on the last page along with the contact information.

Design a Cover

If you are printing and binding your white paper, a cover adds elegance and authority. You can use high quality paper, and you can print the cover in two or more colors even if printing the white paper's contents in multiple colors is too expensive.

The information on the title page (minus the abstract) also goes on the front cover. The front cover should be more dramatic than the title page and may include an illustration.

A well-designed back cover often includes the organization's logo and contact information: address, telephone number, e-mail address, and Web site. Don't put a marketing pitch on the back cover. Marketing pitches belong in brochures.

Tip! If you are publishing the white paper on a compact disc, put the information on the title page on the CD's label. A CD booklet containing brief highlights from the white paper will encourage your audience to put the CD in their computers!

Create a Desktop Publishing Template

After you have designed the look and feel of the white paper, create a desktop publishing template that incorporates your page layout and its design elements. These templates go by a variety of names. Most desktop publishing and word processing programs refer to the elements of the template as styles or formats. By assigning styles or formats to paragraphs as you type, you can type the white paper directly into the page layout. When you type using a template, you can easily create a mock-up of the white paper at any point in the development process. In addition, if you need to make changes to the white paper's look and feel, all you need to do is change the template.

Produce a Mock-Up

As soon as your draft page layout is ready, produce a mock-up. Your illustrator or graphic artist can prepare a mockup with generic headings and text. I recommend that you go a step further and put all your material – initial headings, notes on content, sketches for illustrations, and so on – into the layout. Leave space for the text you haven't written. The mock-up should have roughly the same page-by-page layout that you expect the final white paper will have. Use the mock-up as a prototype to evaluate how well the layout works and to spot opportunities for illustration: long stretches of text in desperate need of visual interest.

PHASE 6: WRITE

In Phase 6, you write the content of the white paper. This phase often occurs at the same time as *Phase 7: Illustrate*. As you develop your material, you identify opportunities for illustration.

The output of Phase 6 is a review draft.

The advice for this phase involves both content and writing style. The discussion of writing style applies to all white papers and technical marketing publications. Some content suggestions may not be relevant to your technical marketing project. Make your content selections based on your strategies to achieve your goals. Don't assume that certain types of content are appropriate only for certain audiences. For example, executives often prefer benefits analyses, case studies, and demonstrations of return on investment, while technical specialists often prefer analyses of architecture and design. To achieve your goals with executives, however, you may need to help them understand the importance of architecture and design. To achieve your goals with technical specialists, you may need to demonstrate business value. Don't make arbitrary content decisions! Your goals and your strategies to achieve them must drive your content decisions.

Start with the Storyboard

Write the first draft by telling the story you sketched on the white paper's storyboard. Keep your goals, audience analysis, and strategies in mind at all times. Consult your content outline and concept map for points to make as you write. Define your basic concepts.

Use content suggestions given in this phase (such as "Explain Ideas that your Audience Must Understand," "Provide Examples that Reinforce Explanations," "Show Important Processes," "Quantify Benefits," and "Prepare Case Studies") to make the story clear and compelling to your readers. Most of the content suggestions include examples. More examples are in "Appendix C: Seven Excellent White Papers" on page 73.

Write Iteratively

Writing is an iterative process. After you write and review each draft, you conduct more interviews, you analyze and organize the new information, you write and illustrate the new material, and you submit another draft for review. The more difficult the white paper's goals are to achieve, the more iterations will be required.

Using an iterative writing process helps build the relationships between ideas in your white paper. If you start at the beginning of the white paper and write polished copy straight through to the end, either you will rewrite a substantial amount of the material at the beginning based on how you handle the material that follows it or you will miss opportunities to optimize the discussion of the initial ideas based on the discussion of the ideas that follow them.

When you write iteratively, you are less likely to get stuck on a specific topic. You can put notes on the problematic topic in your draft and expand the notes on the next iteration. You are not under any pressure to write comprehensive material on a topic before you start the next topic. When writers have trouble writing about an idea (see "Writer's Block" on page 40), they may need to write about a second idea to fully understand the first idea.

Educate your Audience

A white paper written to achieve marketing goals should primarily educate its audience. Persuasion is involved, but it is persuasion through education. You persuade by making important concepts clear; showing the audience how key technologies, products, and services work; and demonstrating business value. You persuade through logical and well-supported reasoning, not unsupported assertions.

Writer's Block

We've all heard about writer's block: *the psychological inhibition that stops writers from writing. I don't believe professional writers experience writer's block. To me, writer's block is just as nonsensical as "quarterback's block" in a football game. If quarterbacks run a passing play but don't throw the ball to a receiver, the quarterbacks do not have a psychological inhibition that stops them from throwing the football. The quarterbacks don't have any open receivers or they don't see a receiver who is open or they are running from a 300-pound defensive lineman. Quarterbacks can always throw the ball. They may throw it well or they may throw it poorly, but they can always throw it.*

Writers may write well or they may write poorly, but they can always write. If writers can't write, they don't have the information they need to write.

If you are experiencing writer's block on a white paper, ask yourself whether what you are writing contributes to your goals and strategies. Examine how you organized the content based on your goals and strategies. Do you have ideas that don't belong together? Do you need to make changes to the organization? Do you need to work on information in another section of the white paper so you can better understand what to put in the section that you are having trouble writing? As soon as you understand the source of your difficulty, you will be able to write.

Don't Market

Blatant marketing tactics have no place in a white paper. They damage credibility and work against achieving your goals. Many readers are skeptical about content when writing has a pronounced marketing style. You may discuss products and services at length, but don't make unsubstantiated claims or resort to marketing hyperbole.

Don't market the organization promoting a technology, product, or service. Keep the organization in the background or mention it under a separate heading at the end of the white paper or on the back cover. Here is an example:

> The Acme Company develops and distributes ElectroWorkFlow and other office automation products for intermediate and large businesses worldwide. For more information, contact....

If you need to discuss the organization's contributions to the development of a technology, the invention of a product, or the initiation of a service, discuss the contribution in the same way you would discuss the contribution of a third party.

Use a Clear and Direct Writing Style

Keep your writing style clear, factual, and direct. Avoid long, complicated sentences that readers must think through clause by clause to understand. Use short paragraphs. Bulleted lists make items easy to see at a glance. You don't want your white paper to read like a slide presentation, but you do want it to make its points clearly and forcefully.

A clear, direct writing style is critical when a white paper will be viewed on a computer screen. Text on a computer screen is much harder to read than printed text. Avoid long, intimidating paragraphs.

Concentrate on Strong Content not Writing Style

Writing the first draft is a process of discovery. Concentrate on organizing and explaining ideas effectively, not on writing elegantly. As you work on the early drafts, you may improve the organization and explanations. When you make those improvements, you must change the text. If a brilliant sentence pops into your head, add it to the draft. But don't spend a great deal of time polishing the words before the ideas settle down.

On the first draft, clearly explain the major ideas in the white paper. If an idea is unclear, don't present it in an elegant and entertaining way. Analyze why the idea is unclear and then clarify it.

On the first draft, present data that supports the claims you make about business value. If you don't have any data, ask your subject matter experts for suggestions. Supporting your claims may involve extensive research. The people who provide you with input may not have done this critical work. If they have, you're lucky!

Sometimes ideas that appear well-organized in an outline turn out to be poorly organized in the white paper. A good way to tell whether ideas belong together is the transition test. If your ideas are well organized, you won't need elaborate transition passages to connect them. The reason why one idea follows another will be clear to readers with little explanation. On the other hand, if you have a poorly organized white paper, you may spend a great deal of time writing transition passages to hide organizational weaknesses.

If two ideas don't belong next to each other, don't write a transition passage to connect them. Instead, examine the organization. A key concept may be missing, or you may need to change the order in which you present the ideas. After you identify the problem, reorganize the white paper. Each idea should lead clearly and logically to the next idea.

Here are two ideas that don't belong together and a transition sentence that hides the problem:

> Without a strategic plan for scaling the infrastructure, companies with exponentially increasing service needs may experience system-wide failures.
>
> As executive decision-makers evaluate the risk of system-wide failures, they cannot help but feel the need for service from a single vendor. The desire for service from a single vendor is understandable, but decision-makers must evaluate all options before choosing this approach.

If readers aren't paying close attention, the repetition of "system-wide failures" and "service from a single vendor" in the transition sentence will fool them into thinking that the two paragraphs are related. They're not. Take away the transition sentence, and here is what you have:

> Without a strategic plan for scaling the infrastructure, companies with exponentially increasing service needs may experience system-wide failures.
>
> The desire for service from a single-vendor is understandable, but decision-makers must evaluate all options before choosing this approach.

There is no connection between these two ideas, as you can easily see now that I have removed the transition sentence. I took these two sentences from two different sections of a white paper. There is another section between them. Yet how easily I made them flow together with one 22-word sentence. Don't write deceptive transitions! Writing skill is no substitute for good organization.

Explain Concepts Clearly

Explaining concepts clearly is the most important part of any educational white paper. To persuade your audience through education, they must understand the subject matter.

To educate your audience about technical ideas, you must:

- Write to your audience's knowledge level
- Define each concept with one definition
- Describe each concept with the same terms
- Spell out all but the most common acronyms
- Explain ideas that your audience must understand
- Provide examples that reinforce explanations
- Show important processes
- Use analogies when appropriate

Write to your Audience's Knowledge Level

> Most intelligent people can be better influenced by persuasive, well-written text that neither baffles by its apparent complexity nor insults the reader's intelligence by its overly simplistic approach.[1]

To educate your audience, you must understand what your audience knows about the subject matter, what concepts you must communicate to them, and how you must communicate the concepts so that they can understand them. You should have captured this information when you performed your audience analysis (see page 9).

If your audience knows more than you do about the white paper's subject matter, you must "write up" to their knowledge level. If the audience knows less, you must "write down" to them. "Writing up" is especially difficult. Ask your subject matter experts to help you understand what your audience knows and what you should explain to them.

Sometimes writers feel the need to explain material that they didn't understand at the start of the project, even when they know that the audience already understands it. If you find yourself in that situation, explain the material in a separate document for your own use.

Don't assume that your readers know nothing about the white paper's subject matter unless that is the conclusion of your audience analysis. Don't tell your audience what it already knows. They may decide that the information in the white paper is trivial and stop reading before you have an opportunity to achieve your goals. For example, if you are writing a white paper exclusively for programmers on a new programming language, you should not explain the meaning of *global variable, source code, object code, compiler,* and *debugger.* Programmers know those terms.

Define Each Concept with One Definition

Choose one definition for each major concept in your white paper and use that definition exclusively. This is a fundamental point; I cannot stress it too strongly. Consult technical dictionaries. Use a Web-based search engine. Confer with your subject matter experts. You will have great difficulty explaining how a concept works if you cannot define it. New technologies, products, and services are concepts; you must define them.

Far too many technical documents use multiple definitions for the same concept. This confuses both the reader and the author. Here are four different definitions for the same product:

1. James P. Cavanagh, *Writing White Papers For the US IT Market* (The Consultant Registry, Atlanta, 2003), p. 6.

> ElectroWorkFlow is a file management and security system that represents a complete solution for the reduction of electronic office paperwork.
>
> ElectroWorkFlow is fundamentally a tool. A hallmark of this tool is the ability for customers to adjust and control the filing and security elements independently, without requiring technical knowledge beyond that of a typical office worker.
>
> Acme Company has created a tool with significant capability.
>
> ElectroWorkFlow is a modular product.

The first example contains two definitions. ElectroWorkFlow is 1) a file management and security system and 2) an electronic paperwork reduction solution. In the next two definitions, ElectroWorkFlow is a tool. In the last definition, it's a product. The first definition is best: "ElectroWorkFlow is a file management and security system."

Along with the definition, you may also want a *purpose statement.* This statement explains the purpose of a technology, product, or service in easy-to-understand words. For example:

> ElectroWorkFlow enables a typical office worker to manage shared files and control the security of confidential information.

Use important information that you did not include in the definition and purpose statement to elaborate on the concept. In the example above, reducing office paperwork is an important benefit. Add it in a separate sentence: "ElectroWorkFlow reduces office paperwork."

The concept of modularity is important, too. Introduce it without creating another definition: "ElectroWorkFlow contains two modules: file management and file security."

If you have multiple definitions for the same concept and if you are having trouble choosing the best definition, talk with your subject matter experts. If necessary, start with a provisional definition and revise it on a later draft. Don't leave multiple definitions in your first draft hoping that they will magically coalesce into a single definition by the end of the project. They won't.

Tip! When you are working with your research and analysis, use the "is" test to see if you have multiple definitions. For example, if you are writing a white paper about office automation, look for multiple occurrences of the words "office automation is" followed by a definition. The definition should always be the same.

Describe Each Concept with the Same Terms

Audiences understand complicated technical explanations much more easily when the same terms refer to the same concepts.

If you are discussing a file security module, don't switch your terminology and call it a "confidentiality guard" in one place, an "unauthorized file duplication monitor" in another place, and a "security manager" somewhere else. Choose one term and use it exclusively. Although you know that "security manager" is another term for the file security module, your readers – who are learning about the file security module for the first time – are likely to think that you are using different terms to distinguish between different concepts.

If you decide on a later draft that another term is better, use your writing tool's search and replace feature to update all the occurrences of the original

term. For example, if you decide on the second draft that "security manager" is a better term than "file security module," change all the occurrences of "file security module" to "security manager." It's all right to change your terms. It's not all right to leave the earlier versions of the terms scattered throughout the white paper.

Elegant variation is the stylistic device of calling the same thing by different names to avoid repetition. In most writing, elegant variation is a strength. In writing about a technical subject, however, elegant variation is a serious liability.

Spell Out Acronyms

In most instances, spell out acronyms and abbreviations when you use them the first time, even if your audience knows them. If you are writing for programmers, they know that API stands for application programming interface, but they won't be offended if the first use of API is "application programming interface (API)." Avoid clusters of acronyms: "TQM was a major factor in GUI and API development." Text with too many acronyms degenerates into meaningless jargon.

Explain Ideas that your Audience Must Understand

Your technical explanations will make or break your white paper. Often subject matter experts assume a level of understanding that non-experts don't have. When subject matter experts make these assumptions, they forget to explain important concepts. If you start with good definitions and thoroughly explain ideas that your audience must understand, you will have a solid foundation for achieving your goals.

As a general rule, explain all important concepts – including technologies, products, and services and their major components – that you are introducing to your audience. Your explanations should be at a level that the audience understands.

The definition and purpose statement for ElectroWorkFlow on page 43 introduce important ideas that require explanation. The definition states that ElectroWorkFlow is a file management and security system. We must explain how the file management and file security modules work. Here are sample explanations:

> The *file management module* stores users' files in a database on a central computer and places a shortcut icon on a user's computer. When a user clicks the icon, it automatically accesses the file from the central computer. The file management module solves the problem of redundant files on multiple users' computers while giving users instant access to the files. They don't need to track them down on the corporate computer network.

> The *file security module* monitors all outgoing employee e-mail messages for attached files containing confidential information. The security administrator assigns each employee a confidentiality clearance level. If an employee with clearance to confidential files attempts to send a confidential file to a recipient outside the company or to an employee without clearance, the file security module intercepts the message and returns it to the sender. The module reports all attempted violations of the company's confidentiality policy to the security administrator.

The purpose statement asserts that a typical office worker can manage shared files and control the security of confidential information. To support the assertion, we must explain how a typical office worker can manage files in the database on the central computer and serve as security administrator.

We will then build our discussion of ElectroWorkFlow's capabilities and business value on the foundation provided by our explanations.

Provide Examples that Reinforce Explanations

One of the best ways to explain ideas is to provide examples. In the previous section, we explained how ElectroWorkFlow's file management module works. The example below reinforces the explanation by examining what happens when an administrative assistant creates a departmental phone list.

> For example, an administrative assistant creates a spreadsheet with the names and phone numbers of all the employees in the department. When the assistant saves the spreadsheet, ElectroWorkFlow stores the spreadsheet file in the database on the central computer and places a shortcut icon on the assistant's computer. The icon resembles the icon for a spreadsheet file. The assistant then attaches the shortcut icon (not the actual spreadsheet file) to an e-mail message and distributes it throughout the department. When recipients "save the spreadsheet file" on their computers, they are saving the shortcut icon to the spreadsheet file. The spreadsheet itself stays in the database on the central computer.

Tip! Don't be reluctant to create examples for your own use. Even if you don't include them in the white paper, working through them may help you write clearer explanations.

While clarifying how a technology, product, or service works at one level, an example may raise questions about how the technology, product, or service works at another level. Answering those questions will help you understand how to explain how the technology, product, or service works in greater detail.

The example above states that employees work with the same spreadsheet file in the database on the central computer. That raises two questions: how does the file management module 1) control which employees are authorized to make changes and 2) prevent authorized employees from overwriting each other's changes? The sample explanation and example below answer those questions.

> **How the File Management Module Controls Changes**
>
> Administrators control authorization to change files. They can assign authorization to:
> - The person who created the file
> - All employees in the creator's work group
> - Any combination of users and groups
>
> When an employee changes a file, all employees who are displaying the contents of the file receive notification of the change along with an option to update the display of the file.
>
> If multiple employees are authorized to change a file, the file management module asks each employee with authorization whether they want to display the file or update it. If they select the update option, the module either lets them change the file or – if another employee is currently changing the file – puts them in a file-change queue. When the employee who is changing the file releases it, the first employee in the queue is allowed to change the file, and the other employees in the queue move up one position.
>
> For example, Juan and Mary both have authorization to change a spreadsheet file. Juan clicks the shortcut icon to the spreadsheet file and a dialog box appears: "Do you want to update the file?" Juan selects "Yes," and the system allows him to update the file. A few minutes later Mary clicks

> her shortcut icon to the spreadsheet file, and the dialog box appears. When she selects "Yes," she receives the message: "Juan is updating the file. The system will notify you when Juan is finished."

Show Important Processes

During *Phase 3: Acquire Information,* you may have identified important processes to include in the white paper. If you didn't identify any processes at that time, you may find some while you are working on your explanations and examples. Showing a process in an illustration makes the process easy to grasp and adds visual interest to the discussion. For more information, see "Use Flow Charts to Show Processes" on page 57.

I recommend that you introduce the process in the text. You may also want to describe the process in the text to help the audience understand the illustration. Regardless of whether you describe the process, always put a reference to the illustration in the text. For example: "Figure 4 shows the security approval process." Never include a process diagram without a comment. The audience may not understand the relationship of the illustration to the text.

Use Analogies when Appropriate

When a concept is difficult for your audience to understand, an analogy may work better than a complicated technical explanation. An effective analogy clarifies or emphasizes certain characteristics of the subject.

A common analogy for telecommunications *bandwidth* is the size of a pipe. The larger the diameter of the pipe, the more fluid can flow though it in a given amount of time. The larger the bandwidth of a telecommunications channel, the more data it can transmit in a given amount of time. This analogy helps nontechnical readers understand what bandwidth is. The analogy is not appropriate for telecommunications professionals. They understand the concept of bandwidth.

The following analogy compares software design to architecture. The author's goal is to show that good software requires both software engineers and software designers, just as good buildings require both construction engineers and architects.

> When you go to design a house you talk to an architect first, not an engineer. Why is this? Because the criteria for what makes a good building fall substantially outside the domain of what engineering deals with. You want the bedrooms where it will be quiet so people can sleep, and you want the dining room to be near the kitchen....
>
> Similarly, in computer programs, the selection of the various components and elements of the application must be driven by an appreciation of the overall conditions of use and user needs through a process of intelligent and conscious design. How is this to be done? By software designers.[1]

The analogy between software design and architecture does not help readers understand what software design is and how it works (the audience already knows that). Instead, it helps readers understand why software design is important.

Don't use an analogy when you can make your point by explaining the concept clearly. When you don't need an analogy, using one introduces a level of complexity that may confuse your readers.

---

1. Mitchell Kapor, "A Software Design Manifesto," in *Bringing Design to Software,* edited by Terry Winograd (New York: ACM Press, 1996), p. 4.

Demonstrate Business Value

To achieve your goals, you often must demonstrate that a technology, product, or service delivers business value. Here are six techniques:

- Analyze the benefits
- Show how capabilities enable benefits
- Quantify the benefits
- Support your statements about business value
- Show the return on investment
- Prepare case studies

Analyze Benefits

Benefits provide three basic types of business value:

- Reduced costs
- Increased revenue
- Strategic advantage over competitors

If a benefit does not do one of these three things, it is not a benefit.

Here are five examples of benefits. Each example states whether the benefit reduces costs, increases revenue, or provides strategic advantage.

- Faster time to market increases revenue
- Higher quality increases sales, which increases revenue
- Improved productivity reduces costs
- Identifying problems earlier in the development process reduces costs
- Better information for management decision-making provides strategic advantage

Marketing professionals sometimes talk about the *unique selling proposition:* the benefit that distinguishes the product or service from the competition in the target market. If you know the unique selling proposition, highlight that benefit in the white paper. But don't skip the benefits analysis. The product or service may have other benefits that together with the unique selling proposition will influence whether a prospective customer decides to take the action that achieves your goals.

Tip! I read a business case that separated benefits into two categories: Business Benefits and Technical Benefits. Don't make this mistake! If a technical benefit is not a business benefit, it is not a benefit.

Show How Capabilities Enable Benefits

When you discuss capabilities or "features," show how they provide benefits. When subject matter experts provide input for white papers, sometimes they list the capabilities of a technology, product, or service without discussing benefits, and sometimes they confuse capabilities with benefits. A system architect discussing a new application development environment might state that coding software applications in an object-oriented programming language is a benefit. It's not; it's a capability. To demonstrate that the capability provides benefits, you must explain how using the object-oriented programming language reduces costs, increases revenue, or provides strategic advantage. For example, the object-oriented programming language might allow an application's developers to reuse the source code. This reuse would reduce the cost to develop and update the application.

Watch out for statements that assert benefits without explanations or supporting data. Here is an example: "The product gives customers all the benefits of permission-based file access." A better approach includes an explanation: "ElectroWorkFlow's permission-based file access prevents one person from overwriting another person's changes to shared files. This in turn eliminates the labor required to reenter data lost when the files were overwritten and improves the accuracy of the information contained in the shared files."

Don't make unsupported assertions of business value. Don't assert that a product is "best of breed." Explain how the product's capabilities deliver business value, and document that business value. Don't assert that a product protects companies from premature obsolescence. Explain how the design of the product minimizes the risk of premature obsolescence.

If you are writing exclusively for a technical audience, you may not need to explain the benefits of a technical capability like permission-based file access. But if part of your audience is not knowledgeable about the capability, provide a clear explanation. A brief reference to benefits may not hurt an audience of technical specialists, either. They occasionally overlook the benefits that make technical capabilities valuable.

To present benefits to a mixed audience of technical novices and specialists, you can give the benefits discussion a heading like "Permission-based File Access Eliminates Data Errors from Overwriting Files." Technical specialists who understand the benefits of permission-based file access can skip the topic, while technical novices can read it to learn about the benefits.

When you explain how a capability provides benefits, don't stop short of the ultimate benefit. Here's an example from an actual white paper. I have made the example generic to protect the guilty.

> The product enables different views of the data for specific employees, allowing them to focus on the areas of their responsibility.

The capability is "different views of the data for specific employees." The benefit allows them "to focus on the areas of their responsibility." How is this a benefit? Does it reduce costs, increase revenue, or provide strategic advantage? The example is not clear. By focusing on "the areas of their responsibility," do employees perform their jobs faster? Do they deliver higher quality work? Showing how benefits reduce costs, increase revenue, or provide strategic advantage clarifies the benefits' value.

Quantify Benefits

One of the most powerful ways to describe a benefit is to quantify it: to provide data that shows how the benefit reduces costs, increases revenue, or provides strategic advantage.

While discussing how capabilities enable benefits, I suggested that allowing employees "to focus on the areas of their responsibility" might allow them to perform their jobs faster. If that is true, then the writer should document how much time is saved. If allowing employees "to focus on the areas of their responsibility" enables them to deliver higher quality work, then the writer should document how many errors are eliminated.

Providing strategic advantage can be difficult to quantify. Look for data that supports the strategic advantage. If better information for management decision-making provides strategic advantage, then look for data that shows how much better the information is. The better information might cover 100% of a customer service database instead of only 20%.

Here is an example of a benefit that has not been quantified:

> The product minimizes lost productivity by preventing service outages.

The example explains the benefit. If you don't have any data, that's all you can do. But you will make

your point far more effectively if you quantify the benefit. Ask your subject matter experts or conduct research to answer questions like these:

- How many service outages does a typical company have?
- How long do the outages last?
- How much do the outages cost the company in terms of down time, lost sales revenue, and so on?

If you substantiate your claims with compelling data, you will grab your readers' attention. No matter how much you polish the writing style of the "minimizes lost productivity" sentence, it won't grab your readers' attention like this one will:

> The product prevents service outages that cost a typical company $100,000 per year.

You might want to highlight a statement like that. (See "Highlight Key Points" on page 51.)

Support your Statements about Business Value

Quantifying benefits is one way to support your statements about business value. Other types of support include:

- Test results
- Product, service, or technology reviews
- Industry research reports
- Customer testimonials

During your research, you may find statements by experts in industry and academia that support the main points in the white paper. You may also find testimonials from customers. Put these quotations in your white paper. If they make compelling points, give them a prominent position by turning them into pull-quotes (see page 37).

Show the Return on Investment

For white papers that emphasize business value, showing prospective customers the potential return on investment (ROI) in a new technology, product, or service is often a compelling argument. You may need to work with financial management to develop a formal return-on-investment analysis.

Unsubstantiated assertions have no place in a discussion of return on investment. Here is an example from an actual white paper. I have made the example generic to protect the guilty.

> The company gained a significant return on investment through deployment of the product in their office.

The return on investment is "significant," but no value is given. If the author cannot make a rough estimate of the ROI, the author has no right to say that it was "significant."

If customers can achieve a 200% return on their investment within two years, say so. And support your assertion. Document the source of the data. Show them how you computed the 200% figure.

If you analyze the return on investment and discover that customers can achieve only a 110% return on investment in ten years, you will be better off giving them another reason why they should purchase the product.

When you analyze the return on investment, thoroughly examine all costs and savings. For example, a product might cost $5,000 and return 110% in ten years by replacing more expensive or more erratic leased hardware, which costs $550 per year. But does the product enable labor savings? If the product saves five hours a week of administrative

time, compute the value of the administrative time including wages, benefits, and overhead. If the administrative time is worth $30 per hour, then the product saves $150 per week in labor, which comes out to $7,800 per year. Take the $550 per year hardware savings and add to it the $7,800 per year labor savings. The total is $8,350 per year. Now we have a 167% return on investment in the first year alone ($8,350 is 167% of $5,000).

When you give an ROI figure, consider explaining the calculation in the white paper. For an example, see the case study on this page. Your readers may not believe the ROI figure unless you show them the calculation. It's easy to shrug off "significant return on investment" as wishful thinking. It's almost as easy to shrug off "167% return on investment" as wishful thinking. If you show your audience how you calculated the return on investment, they are more likely to feel that it is realistic. They may even compute a return-on-investment scenario for their organization. When they do that, you are on the way to achieving your goals.

Tip: If you don't want to include the calculation along with the ROI figure, put the calculation and supporting data in an appendix. ROI calculations with supporting data make compelling arguments even when the audience just glances at them.

Prepare Case Studies

One of the most effective ways to present a detailed benefits analysis is to prepare a case study or "success story." The case study shows how a technology, product, or service was successfully implemented at an example company. In some situations, you may want to discuss the implementation in detail, explain procedural improvements, and so on. The example case study on this page analyzes a return-on-investment calculation.

Case Study: ElectroWorkFlow Generates 334% Return on Investment in Two Years at ABC Company

ABC Company used ElectroWorkFlow to automate the operations at its headquarters office. ElectroWorkFlow cost $5,000, and it replaced leased office automation equipment that cost $550 a year.

ElectroWorkFlow saved five hours a week of administrative time required to operate the leased equipment. Three hours of time savings resulted from automatic distribution and updating of shared files. One hour resulted from elimination of errors caused by overwriting the current version of a file with a previous version. The file security module eliminated one hour per week of time required to manually monitor users' hard drives for files containing confidential information.

The total cost per hour (including overhead) for an administrative assistant at the ABC company is $30. At this cost per hour, ElectroWorkFlow is saving the ABC Company $7,800 per year ($150 per week x 52).

Cost of Investment: $5,000
- ElectroWorkFlow purchase price: $4,500
- ElectroWorkFlow installation fee: $500

Annual Savings: $8,350
- Leased equipment: $550
- Labor: $7,800

Return on Investment
- One year: 167%
- Two year: 334%
- Five year: 835%

Highlight Key Points

When you write the white paper, I recommend working in the page layout from *Phase 5: Design the Look & Feel.* You can take maximum advantage of the design elements to highlight key points, and you can add visual interest to long stretches of text.

If the layout gets in the way while you are creating the text, do your writing in a word processor and insert the text into your desktop publishing program as soon as you have written it. Add illustrations as you receive them from the illustrator. You now have immediate feedback on how the text and illustrations look in your page layout. If you wait until the end of the project to put the text and illustrations in the page layout, you will have much less time – and possibly much less inclination – to improve the white paper's visual communication.

Make sure the words you highlight with your design elements make a strong statement. For example, don't use a headline like "Case Study: Deploying Office Automation." Instead, grab your readers' attention by summarizing the underlying message: "Case Study: Deploying Office Automation at ABC Company Doubles Productivity."

Use the captions to your illustrations to highlight information. Don't label an illustration with just a number. Describe what the illustration is showing. For example: "Figure 7. *How the file security module works."* If the illustration makes a critical point, use the caption to emphasize the point: "Figure 7. *The file security module keeps proprietary information secure."*

Put Supplementary Material at the End

If you need them, include appendixes, a glossary, and a bibliography.

An appendix is a good place to put supplementary material such as specifications, worksheets, and tables of data. You might put detailed data supporting your benefits analyses in an appendix. Your audience can check the data for any benefits that they question. Even if they don't check the data, they will be reassured by the presence of the data.

You can use a glossary to define terms that all members of your audience need to know, or you can define terms that some members of your audience know but others don't know.

A bibliography adds authority to a white paper. You can include suggestions for additional reading as well as sources you consulted while writing the white paper. References to sources that support major points can be especially persuasive.

Put any information that doesn't belong in the body of the white paper at the end of the white paper after the appendixes, glossary, and bibliography. For example, you might include a brief introduction to the organization that is sponsoring the white paper or brief biographical information about the author and subject matter experts.

Summarize the Content

Don't summarize your content until you have written the first draft. At that point:

- Write a strong conclusion
- Choose a title that highlights value
- Write a compelling overview
- Write an abstract if you need one

Write a Strong Conclusion

In the last section of your white paper, restate your main points. If the white paper is part of a sales process, tell your readers about the next step in the

process – the call to action – and remind them why they want to take that step. For information about the call to action, see "Identify Sales Processes & Related Marketing Publications" on page 13.

Choose a Title that Highlights Value

The first thing that potential readers see is the title; they may decide whether to read the white paper based on its title. A strong title that highlights the value of the white paper's subject will increase your readership. *Productivity Gains through Office Automation* is a better title than *Office Automation.* Review your goals; a strong title reinforces them.

The best time to choose a title for the white paper is after you have finished the first draft. At that point, you should be ready to select a compelling title that supports your goals. Until you think of a strong title, use a simple working title like *White Paper on Office Automation.*

Some white papers have both a title and subtitle. The subtitle lets you make a second important point. For example, a white paper with the title *Productivity Gains through Office Automation* might be subtitled *How ElectroWorkFlow Solves Office Automation Problems.*

Write a Compelling Overview

Don't write the overview until after you have written the detailed text. Writing the overview first is a surefire recipe for writer's block, a weak introduction, or both. Writers introduce ideas most effectively after they have worked with them in detail.

The overview should state the purpose of the white paper, which is related to your goals. The overview should also clearly and forcefully convey the main points you are making in the white paper.

If your analysis of the audience indicates that they may be reluctant to read the entire white paper, the overview is critical. A compelling overview with well-written and persuasive text, clear explanations, powerful facts and figures, and attention-grabbing graphics will encourage a reluctant audience to read the detailed content.

Review your needs assessment while you work on the overview. The needs assessment is especially helpful if you have trouble choosing which ideas to put in the overview. Choose ideas that contribute the most to achieving your goals. Many overviews highlight solutions to problems. Overviews for executives often highlight business value.

The length of the overview depends on the length of the white paper. As a general rule, write no more than one page of overview for every eight pages of detailed text (not including appendixes).

Whether you call the overview an Executive Summary depends on your audience analysis. If your audience includes executives and managers or if you are writing a business-to-business white paper, use Executive Summary.

Write an Abstract if You Need One

If the white paper will be posted on the Web in a white-paper repository that displays abstracts along with titles, write an abstract. Look at examples in the repository, especially abstracts on topics related to your white paper. A good abstract usually includes the white paper's purpose statement and one or two key points. The key points may need to include key words that readers are likely to search for. White-paper repositories often put titles and abstracts into a database that users can search. Repositories also use titles and abstracts to classify white papers into groups.

PHASE 7: ILLUSTRATE

The goal of Phase 7 is to convey important information in the white paper visually. This phase often occurs at the same time as *Phase 6: Write.* The writer should have identified basic illustration needs in *Phase 4: Organize Content*. In Phase 6, the writer identifies the need for more illustrations. The illustrator should start work on the illustrations after finishing *Phase 5: Design the Look & Feel.* The writer may supply the illustrator with the basic ideas for the illustrations, or writer and illustrator may brainstorm ideas.

The output of Phase 7 is the illustrations, which become part of the current review draft.

Like writing, illustrating is an iterative process. Review comments may include suggestions for new illustrations or improvements to current illustrations. Changes to the text during review and revision may result in changes to the illustrations.

Use the Right Resolution for your Graphics

Graphics should be sharp and clear when viewed in the output medium. Graphics with a lower resolution than the output medium appear jagged or blurry; they do not instill confidence in a white paper's credibility. An organization positioning itself as a technology leader should know how to produce graphics with proper resolution. If the resolution of an illustration or photograph is too low, create a new version at the proper resolution.

The appearance of high-resolution graphics is fine at lower resolutions, but file size may be a problem. Computers take longer to process large graphics files. If you publish a white paper as an electronic document, pages with large graphics files may print slowly – or not at all – on readers' printers. If a graphic has more resolution than you need, you can reduce the file size by resampling the graphic at a lower resolution. Check the appearance of the graphic in the output medium after you re-sample it to make sure it looks as good as the original. Never discard the original file. Printers often want the highest resolution files you have.

The resolution you need for your graphics depends on your output medium. Follow these guidelines.

- Computer display: 96 pixels per inch (ppi).
- Laser printing: around 150 ppi for photographs and 300 ppi for line art.
- Offset printing: around 300 ppi for photographs and 800 to 1200 ppi for line art.

Tip! Don't use graphics from an organization's Web site unless you are delivering the white paper as a series of Web pages. The resolution of most graphics on the Web is too low for print materials.

Tell the Story Visually

One of the fastest ways to communicate with an audience is through graphics. A portion of your audience will browse through your white paper before they decide to read it. To capture as many reluctant readers as possible, your white paper should tell its story visually through attention-grabbing words in your headings, sidebars, pull-quotes, and so on as well as through illustrations.

Each time you produce a draft, browse through it to see how well the white paper tells its story at a glance. Have you made your major points visually? If you haven't, look for graphical ways to make those points.

Use Charts to Show Data

Use the five types of charts discussed in this section to highlight important data.

The Standard Reference Book on Charts

For a detailed discussion of charts, see Edward R. Tufte's book, *The Visual Display of Quantitative Information.*[1] Tufte deals brilliantly with graphics that display large amounts of data. His book can help you think up powerful ways to visualize information for your audience.

Bar Charts

Bar charts are a great way to compare quantities, as Figure 8 shows. Adding visual interest to bar charts is important, especially if the white paper contains multiple bar charts.

Don't use the chart feature in a spreadsheet program to create charts. The results are drab, the charts waste lots of space, and the units don't always make sense.

Note: Tufte disagrees with my advice on bar charts. He prefers tables to simple charts and dislikes unnecessary graphics.

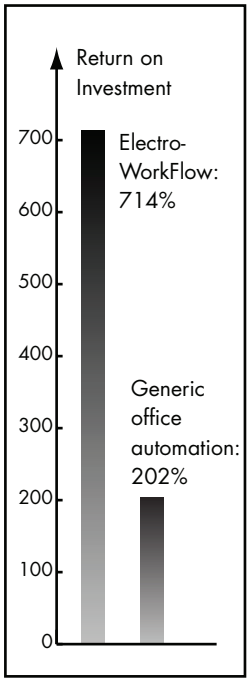

Figure 8: Example of bar chart

1. Tufte, *The Visual Display of Quantitative Information* (Cheshire, Connecticut: Graphics Press, 2001).

Pie Charts

You can use pie charts to show percentages. Before you do, though, ask yourself whether a bar chart would better convey the information.

Tufte states categorically that pie charts should never be used. He cites two main objections:

- Low data density (a few percentages takes up a lot of space)
- Lack of a visual dimension (such as height) for comparing data

Time-Series Charts

A time-series chart graphs one or more dimensions against a time line. Figure 9 plots technical support calls for office automation problems over a four-year period (1999-2003) for offices with Electro-WorkFlow, generic office automation, and no office automation.

I am indebted to Tufte for this classification as well as the two that follow it: relational charts and data maps. All three can display large amounts of data.

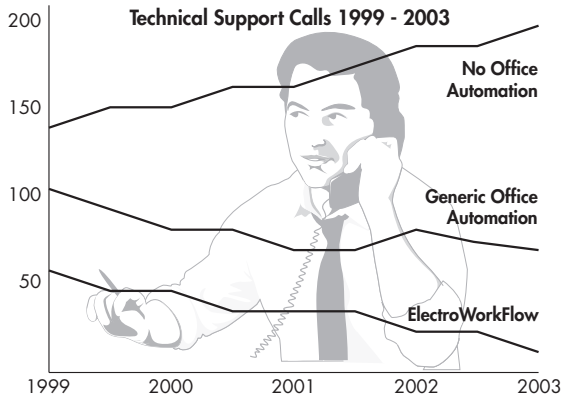

Figure 9: Example of time series chart

Relational Charts

A relational chart plots two variable quantities in relation to each other when they are not connected by geography or time. Figure 10 compares annual support calls per employee with the percentage of automated office processes at 20 companies.

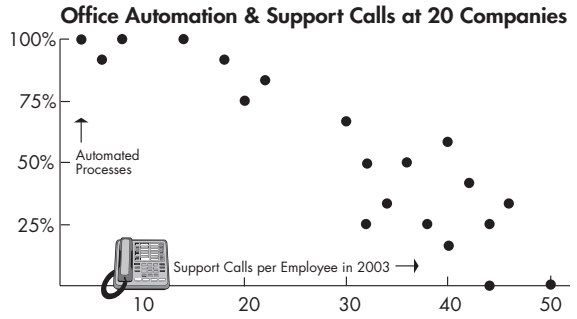

Figure 10: Example of relational chart

Data Maps

A data map plots data against a map. Figure 11 shows an example. It measures percentages of an unspecified quantity by state.

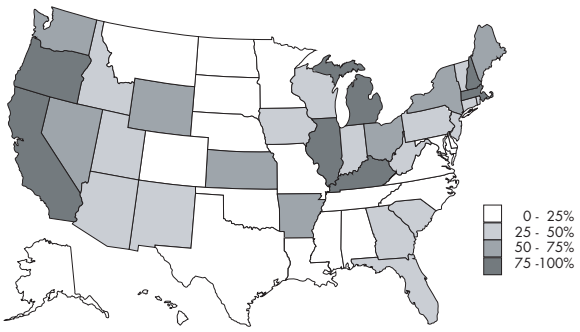

Figure 11: Example of data map

Drawing Tips for Charts

Here are three tips on drawing the graphics in charts. Again I am indebted to Tufte.

- Look for ways to reduce the grid elements. Don't use a box to outline the grid.
- Use a light-colored or gray grid. Don't use dark grid lines.
- Avoid patterns that interfere with the data. Use solid colors or shades of gray.

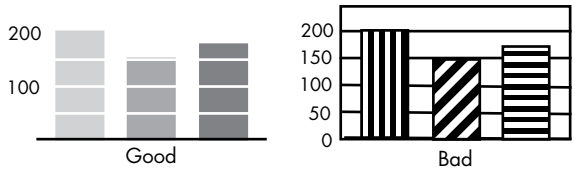

Figure 12: Good and bad ways to display chart data

Watch Out for Deceptive Charts

Don't use charts to deceive your audience. If they spot the deception, they will question all the information in your white paper, and you will fail to achieve your goals.

Deceptive scale: Example 1 in Figure 13 shows a chart with a deceptive scale. The bar for 2003 is four times the size of the bar for 2001. But the vertical scale starts at 50. The *value* for 2003 is only 1.5 times the value for 2001!

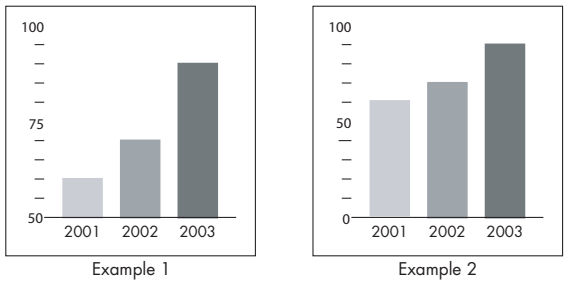

Figure 13: Distorting data by deceptive scale

Example 2 in Figure 13 shows the same data when the chart uses a vertical scale from 0 to 100.

Example 1 is deceptive because visually it conveys a 300% increase when the actual increase is 50%. Newspapers, magazines, and television news programs use charts with non-zero scales to make small changes in data values look sensational.

Members of a technical or business audience will check a chart to make sure its scale starts at zero. If it doesn't, the audience will recognize that the white paper is manipulating the data, and the white paper's credibility will be damaged. If your data does not look impressive when the scale starts at zero, find a different way to present the data or find different data.

Deceptive area: Example 1 in Figure 14 shows a chart with deceptive area. The graph's scale starts at zero, but the graph uses a two-dimensional image of a light bulb to show an increase in one dimension: dollars saved. As a result, Dept. B appears to have saved four times as much money as poor Dept. A. The height of the light bulbs shows the proper proportion: one to two. But the *area* of the light bulbs shows an inflated proportion: one to four.

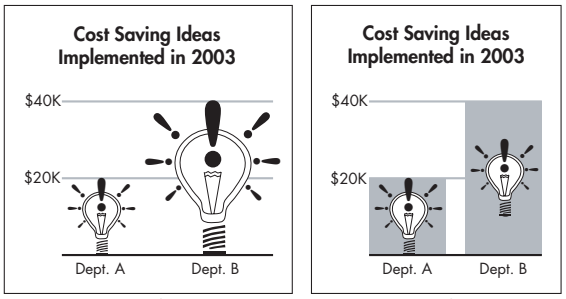

Figure 14: Distorting data by deceptive area

Example 2 shows how to incorporate graphics into a bar chart without distorting the data.

I am once again indebted to Tufte for pointing out the problems caused by showing one-dimensional data in multiple dimensions. Tufte offers this simple rule for graphical integrity:

> A graphic does not distort if the visual representation of the data is consistent with the numerical representation.[1]

If you can't create an honest chart that displays your data effectively, then you need different data. Return to Phase 3 and do more analysis.

Document the Source for your Data

Always document the source for your data. Believe it or not, I have seen highly detailed charts that were entirely wishful thinking. The charts had no supporting data whatsoever.

To document the source for your data, you can put a credit in small print right on the chart. You can footnote the source. If you want to highlight the source – usually because it will impress the audience – you can put it in the text.

Avoid making statements like "a reputable survey shows that office automation saves a typical mid-sized company $10,000 a month." If the survey is reputable, you should credit it by name. For example: "A survey in the November 2002 issue of *Office Automation Report* (page 8) shows that office automation saves a typical company $10,000 a month." If the survey is not reputable, don't use it.

1. Tufte, *The Visual Display of Quantitative Information,* p. 55.

Use Diagrams To Make Comparisons without Data

Use a diagram without a quantitative scale to make a comparison when you don't have data to support your claim. Figure 15 shows that fewer system administrators are required to support ElectroWorkFlow and that administrative tasks can be assigned to office workers.

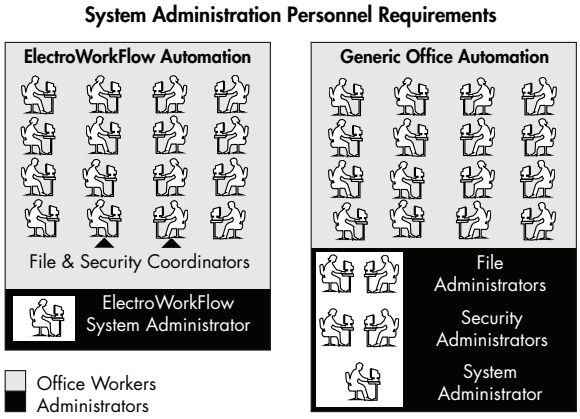

Figure 15: Making a comparison without supporting data

A chart that compares the cost of system administration will make a stronger point than Figure 15 makes. If you make too many unsubstantiated claims, your audience will doubt the validity of your white paper. There is no substitute for well-documented, thought-provoking data.

Use Flow Charts to Show Processes

To show information about processes visually, create a flow chart. Readers understand a process more quickly by viewing a flow chart than by reading explanatory text. You may need to write text that conveys process details, but the flow chart delivers the big picture much faster.

Many flow-charting techniques use a formal set of symbols. Whether you should use formal symbols depends on your audience. If it has the technical knowledge required to understand the symbols, use them. If you are writing for a general audience, design a simple, informal flow chart. Figure 16 shows a formal process flow chart, suitable for software engineers. The flow chart highlights the steps and decision points in the process. Figure 17 on page 58 shows the same process flow chart designed for a general audience.

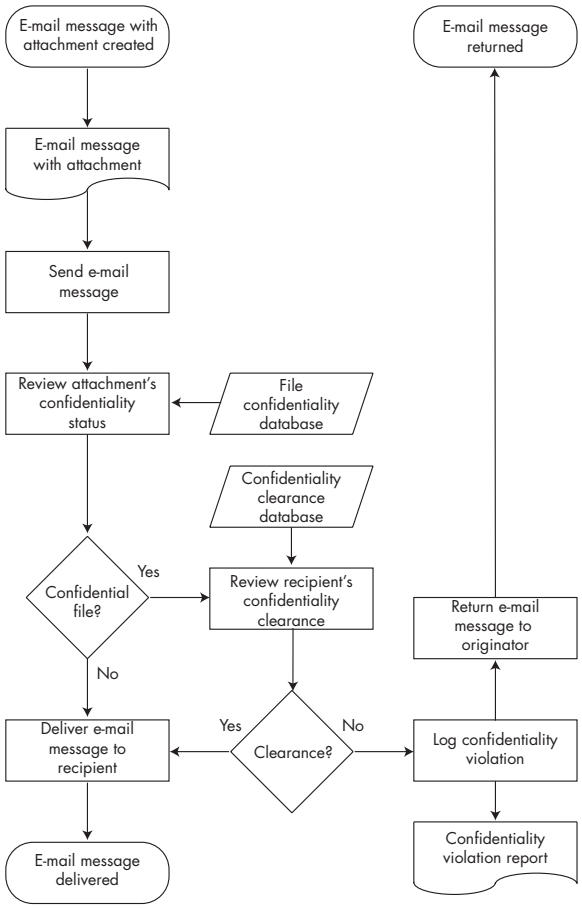

Figure 16: Example of a formal process flow chart

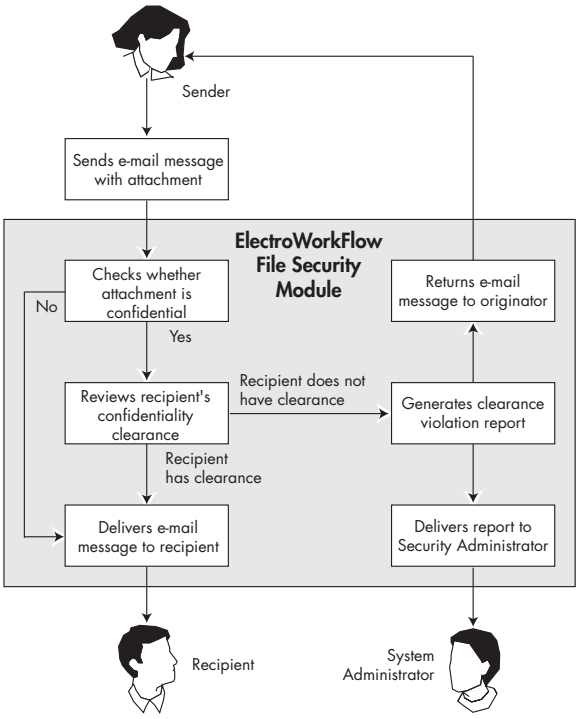

Figure 17: Example of an informal process flow chart

A flow chart can do more than clarify processes for readers. Creating a flow chart can help you clarify the relationships for yourself and identify the most important steps and outputs so that you can explain them to readers.

Use Illustrations to Explain Concepts

Look for opportunities to explain concepts with illustrations. Be creative! Illustrations not only make concepts easier to understand, illustrations also capture the attention of readers who are browsing through the white paper.

Figure 18 shows an example of a simple block diagram that explains the concept of concurrent engineering. A block diagram is better than no illustration at all.

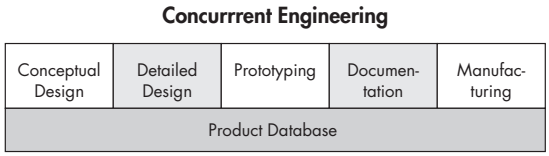

Figure 18: Simple bock diagram

Figure 19 shows that with a little creativity you can develop a diagram that captures the attention of your audience.

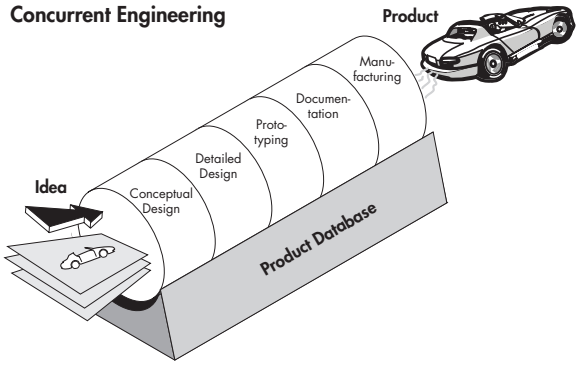

Figure 19: Creative illustration

When using multiple illustrations to elaborate on a concept, use the same visual idea in each illustration. For example, to elaborate on the components of the product database in Figure 19, keep the visual idea of a base supporting five cylinders.

Use Interactive Graphics in Electronic Documents

In an electronic white paper that your audience will read on a computer screen, you can use interactive graphics to:

- Assemble an object part by part or display a process step by step. For example, you can show how to assemble a product by progressively adding more parts to the display until the product is fully assembled.

- Disassemble an object part by part. For example, an interactive figure shows a neighborhood with buildings and streets. When a reader clicks a button, the buildings and streets disappear to reveal the underlying utilities: water, sewer, gas, electric, and phone lines.
- Highlight different parts of an object or a process. Instead of showing separate process diagrams, an interactive graphic can highlight the relevant portions of the process when a reader moves a cursor over each portion.
- Enlarge views of an object's components. For example, an interactive graphic of a plastics extrusion press might show enlarged views of each component.
- Animate a process or show how equipment operates. A classic example of equipment animation shows how an internal combustion engine works.

William Horton points out: "Animation need not be complex. Simple moving line drawings are often more effective than complex shaded animations or fully detailed video segments."[1]

Use Illustrations to Emphasize Major Points

Some major points can't be shown visually using the types of illustrations we have discussed. If these major points are too important to make solely in the white paper's text, highlight them by creating graphics that reinforce the text. Figure 20 shows an example. This graphic will capture your readers' attention, even if they are browsing through your white paper.

Figure 20: Supporting a major point graphically

Don't overuse graphics that reinforce the text. Save them for important points that you can't show visually in any other way. If you have a choice between a chart showing data and a graphic that reinforces the text, use the chart.

Use Tables to Highlight Information

Use tables to highlight simple data, to make large amounts of data accessible, and to compare lists of items like advantages and disadvantages. Remember to design attractive tables that are easy to read. See the discussion of tables in "Specify your Design Elements" on page 36 for tips.

Table 3: Advantages and Disadvantages

Advantages	Disadvantages
Improved efficiency	Higher initial cost of investment
Greater accuracy	
Less downtime	

1. William Horton, *Designing and Writing Online Documentation,* Second Edition (New York: John Wiley and Sons, 1994), p. 328. For detailed information about creating interactive graphics and using multimedia, see the "New Media" chapter.

Use Sample Screens and Reports to Show Capabilities

Screen samples demonstrate product capabilities and well-designed user interfaces. Reports show data that audiences want to access. To add visual interest, make screen samples part of a larger illustration. The samples can tell a story if you show them in a meaningful sequence. See Figure 21.

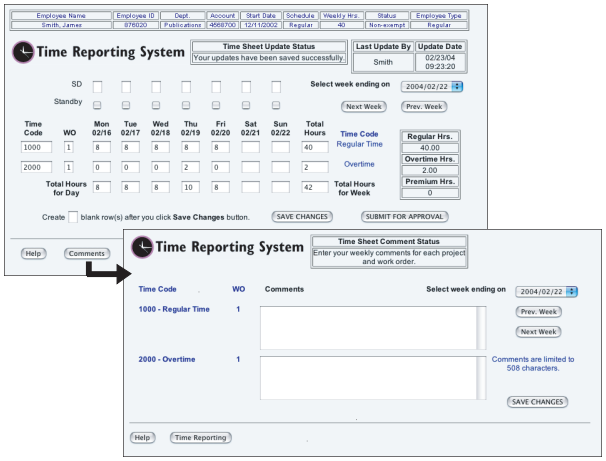

Figure 21: Screen samples in a sequence

Don't overuse screen and report samples. Readers lose interest in them quickly. Never use a screen or report sample just to add a graphic to a long block of text. Use another type of illustration.

Use Illustrations to Show People, Places, and Objects

Illustrations of people, places, and objects add visual interest. You can show a research and development laboratory, a product, or a person working with a technology. An illustration can serve as background for a chart or table. Don't overdo the use of photos. A white paper with too many photos looks like a product brochure.

Advantages of Line Drawings to Photographs

A line drawing often shows how a technology, product, or service works better than a photograph does. The line drawing can highlight important information and dispense with unnecessary details. Compare the photo and line drawing in Figure 22.

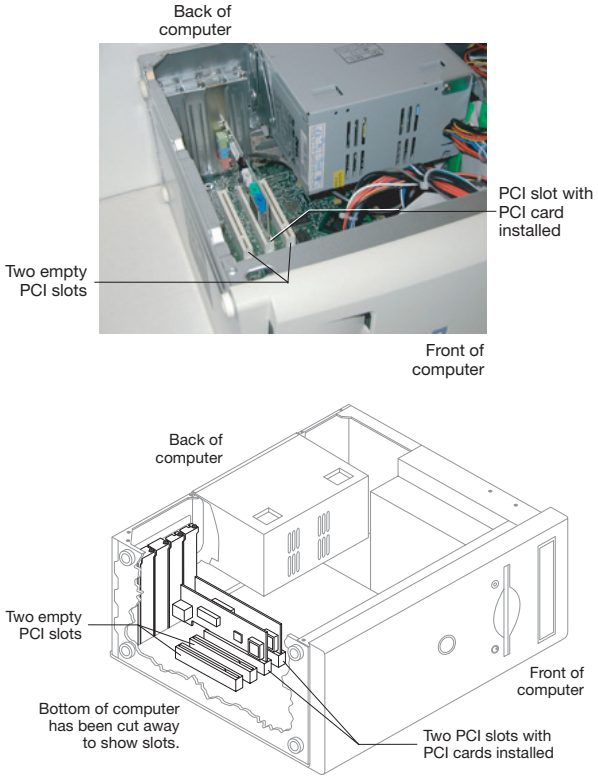

Figure 22: Photo and line drawing showing the inside of a computer

In the line drawing, the illustrator has cut away the bottom on the computer to better show the PCI slots. Try doing that with a photo!

PHASE 8: REVIEW, REVISE, & APPROVE

In Phase 8, you circulate the drafts of the white paper for review, make revisions, and obtain approval to publish.

The output of Phase 8 consists of the drafts marked up with review comments, revised drafts ready for review, and the final approved version of the white paper for publication.

The white-paper development process has two basic reviews - first draft and final draft – which are conducted by two sets of reviwers. Organizations may have their own variants with additional reviews by different groups. You should have identified the reviewers in *Phase 2: Plan*.

The first-draft reviewers consist of your subject matter experts and others with whom you have been working closely to produce the white paper.

The final-draft reviewers include senior management. Depending on the importance of the white paper to the organization, reviewers may include the heads of marketing, sales, and product development. Subject matter experts and others with whom you have been working closely may be included in the final review.

In theory, the first draft should receive a content review, and the final draft should receive a style review. In practice, the distinction is not nearly so clear. First-draft reviewers often suggest changes to the writing style, and final-draft reviewers may suggest changes to content and organization.

As I mentioned in *Phase 6: Write,* developing the content for your white paper is an iterative process. You usually need to circulate multiple drafts to your first-draft reviewers, and you may need to circulate multiple drafts to your final-draft reviewers. The complexity of the subject matter, the thoroughness of the reviews, and the importance of the white paper to the organization influence the number of times that you must review and revise the white paper between the first draft and the final draft.

Review the First Draft

Before you circulate the first draft for review, improve wordy or unclear text but don't polish the writing. I recommend putting a note at the start of the draft to remind reviewers that you will improve the writing style after you get the first round of review comments. You don't want to spend too much time polishing first-draft material that is reworked in the following drafts. And you don't want reviewers to pass up suggestions to improve the organization because they like the writing style.

Won't my reputation as a writer suffer if reviewers read a draft that is not written in my best style?

Your reputation as a writer may *suffer – but only if the reviewers have not worked with you before and only until you circulate the final draft, which contains your best presentation of content* and *is written in your best style. Educating readers about technical subjects is challenging. Content is critical. Writing style is secondary. Spend your first-draft writing time making ideas clear and logical. Minimize transitions and stylistic elegance. Reviewers should be able to see the organization clearly so they can suggest improvements.*

Revise the First Draft

A well-researched and skillfully organized draft may generate more review comments than a mediocre draft, especially a draft that hides poor research and organization behind a veneer of elegant writing. Good research and organization help your reviewers see the power of the ideas. Powerful ideas stimulate reviewers to think about the subject matter from new perspectives. New perspectives, in turn, enable reviewers to suggest important new ideas and new sources for supporting data. To incorporate those suggestions, you may need to rework material as you revise it for the next review.

Revise the Organization and Content

Making changes in response to review comments on the first draft involves going back to the earlier phases in the white-paper development process and revising the organization and content.

If a reviewer questions assumptions about the goals, audience, or strategies, go back to Phase 1 and reassess needs.

Many comments may send you back to Phase 3 to acquire new information. This is a normal part of writing all but the simplest white papers.

Your reviewers may suggest improvements to the organization that will send you back to Phase 4. For example, you have organized the first draft into ten topics based on ten benefits. A reviewer notices that the ten topics fit into three major groups of benefits and suggests using those groups to reorganize the white paper. That is the sort of comment you want on the first draft.

The review of the first draft is a good time to get input on the white paper's look and feel (Phase 5).

Phase 6 is where most writers expect to make revisions. Changing the content and organization means revising and adding new definitions, explanations, examples, processes, and demonstrations of business value. Of course, you can't keep your reviewers from editing your sentences. Those comments are good, because you know the reviewers have read the white paper!

The review of the first draft will probably include comments on the content of the illustrations (Phase 7). When you revise the illustrations, you may need to revise the text that describes the illustrations (Phase 6).

If you have made substantial revisions to the organization and content, submit the revised draft to your first-draft reviewers.

Prepare the Final Draft

As soon as you have consensus on organization and content, you are ready to prepare the final draft.

Review and Fine-Tune the Material

Make sure that all your material contributes to your goals and strategies. If you have weak topics in the white paper, strengthen them: give better explanations, add supporting data, and so on.

Make Sure Text and Illustrations Work Together

Review your text and illustrations to make sure they complement each other. If you have been working closely with your illustrator to develop the content of each illustration, you should not have a problem. If your subject matter experts have asked you to insert illustrations from other documents, analyze the illustrations and work them into the text in the same way that you would develop an

illustration from scratch. Don't use an illustration "as is" if it contains material that will confuse your readers. Rework the illustration.

Figure 23 is from an actual white paper. I have redrawn and relabeled the illustration to protect the guilty. It highlights four components in gray.

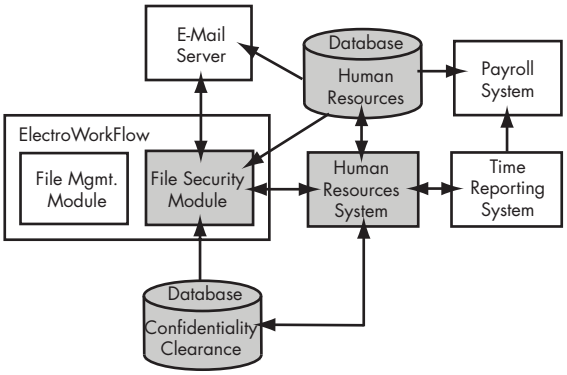

Figure 23: Comparing an illustration with text that describes it

The text describes four core components:
- File security module
- Confidentiality clearance database
- File confidentiality database
- File management module

So far, so good. But compare the illustration with the text. The illustration highlights only two of the four core components listed in the text. The illustration shows the third core component but does not highlight it. The illustration does not show the fourth core component. The illustration highlights two components that the text does not mention.

Improve the Writing Style

After you have revised the content, you are ready to improve the writing style. Here are seven tips:

- Always put text between a heading and the subheading that follows it. Subheadings that immediately follow headings are all right in first drafts put not in final drafts.
- Add transition passages where needed to strengthen the connections between topics.
- Check for and eliminate wordiness and needless redundancy.
- Change sentences in passive voice to active voice unless you have a good reason for using passive voice.
- Look for forceful ways to express key ideas.
- Review your pronouns, especially *it, this,* and *that.* Make sure readers know what the pronouns refer to. For example: "this capability" or "that module."
- Check one last time to make sure marketing hyperbole did not creep into the white paper during the revision process.

Check Spelling and Grammar

Run a spelling checker. Check for mistakes that spelling checkers don't catch: missing words, extraneous words, and errors in grammar.

Review the Final Draft

Now you are ready to circulate the final draft for review of the writing style.

Final draft reviewers who did not participate in the review of the first drafts may have suggestions about content and organization. Don't be surprised if they do. If you thoroughly assessed needs in Phase 1 and worked with subject matter experts from marketing, sales, and product development, you should have covered most concerns of senior management. But senior managers may be subject matter experts, too. While reviewing the final draft, they may think of a new goal or strategy.

Revise the Final Draft

Make changes to the white paper's organization, content, and writing style based on the review of the final draft.

Check Accuracy and Verify All Sources

Perform these four steps to assure quality:
- Check the spelling of all names.
- Check the accuracy of all postal mail, e-mail, and Web addresses and all telephone numbers.
- Check the accuracy of all the computations.
- Verify all data and documentation of sources.

Test the Mechanics

If you are publishing your white paper electronically, test all the links to make sure they work. If possible, use several different browsers to test Web pages in a production environment.

Test the Content

This step is optional, but I highly recommend it.

When you are ready to submit the white paper for final approval, produce a mock-up in the delivery medium: print document, electronic document, or Web pages. Ask one or more members of the audience (who have not read any of the drafts) to read the white paper.

Interview the audience members after they have read the white paper. Ask them to describe how they read it. Did they skim over it? Did they read it closely? Did anything grab their attention? Did anything confuse them? Did they agree with all of the white paper's conclusions? With some conclusions but not others? Ask questions related to the actions you want the audience to perform after reading the white paper. If readers are reluctant to perform those actions, find out why.

If the white paper will be delivered as Web pages, test the user interface to the content. Web delivery involves many usability issues. Problems with the user interface to Web pages may discourage your audience from giving the white paper the attention it deserves. Many user-interface problems are easy to fix once you know about them. If possible, watch one or more audience members read the white paper on a computer screen. If you can't do that, interview them after they have read the white paper. Ask whether the white paper was easy to read. Did they have any trouble finding information? How much of the white paper did they read?

Make revisions as needed based on the results of your content test. If you are on a tight schedule and you have uncovered a problem that requires significant rework, one solution is to release an initial version of the white paper, correct the problem, and release a second version.

Obtain Legal & Financial Approval

You may need to obtain legal approval, financial approval, or both for your white paper. Legal approval may be required if you make claims about your organization's product or a competitor's product. Legal approval may also be required to ensure that the white paper does not contain proprietary information. Financial approval may be required for any claims the white paper makes about return on investment, costs, and savings.

Obtain Approval to Publish

Circulate the final white paper to your reviewers for approval to publish the white paper. Make any final changes as needed.

PHASE 9: PUBLISH

In Phase 9, you publish the approved the white paper.

Depending on your delivery medium, publishing your final white paper is a simple or complicated process.

The output of Phase 9 is the final, published white paper.

Generate Output for Publication

The process of generating output for publication depends on the white paper's delivery medium:

- Print document
- Electronic document
- Web pages

Print Document

If you are using a copier to print the white paper, all you need is printed output or a disc with the file containing the white paper. A Portable Document Format file is usually the best choice.

If you are printing your white paper on an offset press, you must supply your printer with all the materials they need. Usually they will ask you either for all the application source files or for a Portable Document Format file. If your white paper is in two or more colors, you should prepare *separations.* Each separation shows the portion of the white paper that will be printed in a single color. Separations help you catch color problems and correct them before the files go to the printer.

Electronic Document

If you are distributing your white paper as an electronic document, generate the file using software options that will give the graphics the proper resolution. Don't use screen resolution (96 dots per inch) if a portion of your audience will print the white paper. Make sure you include all the fonts when you generate the file.

If you are distributing your white paper on a compact disc, you must provide the CD duplicating service with the files that go on the compact disc. You must also provide them with the artwork for the CD label and package.

Web Pages

If you are posting the white paper on a Web site, ask the Webmaster what output you should provide. Many Web sites have design templates. Often the Webmaster takes care of fitting the white paper content into the template. In some situations, you may be responsible for the template work.

Check the Output

Never assume that your output is correct. Always check it before you release it. Fixing mistakes is much easier, much more economical, and much less embarrassing prior to the release of the white paper.

Print Document

If you are using a copier to print the white paper, check the first copy before making the remaining copies. Make sure that the pages are in the proper sequence, everything is aligned properly, and the fonts and illustrations are printing correctly.

If you are printing the white paper on an offset press, you must check and approve the printing proofs. This approval is critical; you don't want to throw away several thousand dollars' worth of printed materials because they contain errors that could have been caught on the proofs.

Check the text and illustrations to make sure there are no errors. This is time-consuming, but if you find errors, you will be glad you checked the printing proofs carefully. Fixing printing proofs is *much* more economical than rerunning a print job.

Check all addresses and telephone numbers number by number and word by word.

Other things to check include *bleeds,* printing that extends to the edge of the page, and – if you are printing in two or more colors – the *registration,* whether the colors align correctly. When colors are out of alignment, shadows in different colors appear on the *composite* printing proof – the proof printed with all the ink colors.

Electronic Document

If you are distributing your white paper as an electronic document, display it on a computer screen and print it. Make sure that the pages are in the proper sequence, everything is aligned properly, and the fonts and illustrations are correct. To check that the electronic file includes all the fonts, display it on the screen of a computer that does not have the fonts installed. If you display the electronic document only on the computer used to generate the file, you won't know whether fonts are missing.

If you are distributing your white paper on a compact disc, check the contents on the master CD before duplicating it. Also check the CD label and packaging the same way you would check a print document.

Web Pages

If you are posting the white paper on a Web site, check the white paper's Web pages in several popular Internet browsers to make sure that readers will not encounter any problems when they display the white paper.

Save your Files

Regardless of your delivery medium, make at least two backup copies of all your source files, and keep the copies in two different places.

FINAL THOUGHTS

> "Would you tell me, please, which way I ought to go from here?"
>
> "That depends a good deal on where you want to get to," said the Cat.
>
> "I don't much care where—" said Alice.
>
> "Then it doesn't matter which way you go," said the Cat.
>
> "—so long as I get *somewhere,"* Alice added as an explanation.
>
> "Oh, you're sure to do that," said the Cat, "if you only walk long enough."[1]

Many white-paper writers – like Alice – spend all their time getting somewhere and no time at all deciding where they want to go. The Cheshire Cat may not have a problem with that approach, but I sure do! That's why this guide describes a process driven by your goals, your audience, and your strategies to achieve your goals. Phase One assesses your needs to make sure you know which way to go. Once you know your destination, Phases Two through Nine help you get there.

Explaining technical ideas to achieve marketing objectives is an art rather than a science. The art requires science – the explanations are technical – but the *process* of explanation is an art. With any art form, the results separate success from failure. The creative process described in this guide is no more valid than any other creative process that delivers results.

1. A conversation between Alice and the Cheshire Cat from *Alice's Adventures in Wonderland* by Lewis Carol.

The creative process in this guide, however, helps you develop an educational white paper quickly and effectively. When you are explaining difficult technical ideas, the process gives you the techniques you need to simplify the complexity until the ideas are clear to your audience.

If you follow this process, you will:

- Think creatively and avoid obstacles that bring unstructured writing to a halt
- Get input from your subject matter experts and reviewers at the point in the development process where you can make the best use of the input
- Organize your content effectively the first time that you work with it
- Take maximum advantage of the principles of visual communication

If you follow this process, you will *not:*

- Write whatever pops into your head and hope it does the job
- Place style over substance
- Attempt to persuade your audience without educating them
- Assume that the audience will read your white paper just because you wrote it for them
- Limit yourself to imitating other white papers

The first four points are show-stoppers. Lack of organization, lack of substance, unsupported assertions of value, or disregard for the audience – any one of them – will stop a white paper from achieving its goals.

Imitation is not a show-stopper. A white paper that imitates other white papers may achieve some or all of its goals. But imitation has its limits.

White-paper content templates promote imitation and demote creative thinking. If your subject matter or your approach is new, a content template needlessly constricts your creativity. If your subject matter or approach is *not* new, a content template robs you of creativity that may be essential to achieve your goals when you are competing with white papers by other organizations.

Your goals, your audience, and your strategies to achieve your goals should drive all the content decisions you make throughout the project. If you use a content template, the template drives the decisions you make. It has a higher priority than your goals, audience, and strategies. If you imitate another white paper, you will have trouble correcting its weaknesses and adapting its strengths to achieve your goals with your audience.

In contrast, the creative white-paper development process in this guide places *your* goals and *your* audience first. Everything else serves your goals and audience. The more you work to achieve your goals with your audience, the better your results will be. If your competitors are using content templates or writing white papers "off the cuff," the white papers you write with this creative, goal-driven process will leave the competition in the dust!

Appendix A: Five Myths about White Papers

1. Business executives will not read a long white paper.

Frankly, business executives will not read any white paper – long or short – if the content does not interest them.

When writing a white paper for business executives, include an executive summary that makes compelling points about business value. The length of the summary depends on the length of the white paper and the complexity of the subject, but within reason, shorter is better.

As a general rule, use a top-down approach. Make your major points at the start of the white paper and then support those points.

If your executive summary makes compelling points about business value, business executives will want to read more. Make the white paper easy to browse. Capture business executives' attention and they will read much – perhaps all – of the white paper.

What is the proper length for a white paper? The answer is simple: it is the minimum length required to achieve your goals. If you can do that in five pages, then eight pages is too long. If you need 30 pages to achieve your goals, then 20 pages is too short. One size does not fit all.

If the executive summary to a 30-page white paper makes business executives think that the white paper proposes a solution that can double their company's profits in 12 months, they will not hesitate to examine the contents closely!

2. Audiences should read the entire white paper.

First and foremost, a white paper should achieve its goals. Which would you rather have: an audience that reads a white paper in its entirety and then does nothing, or an audience that reads a portion of a white paper and then takes the action that the white paper advocates?

Myth #2 may tempt writers to organize their white papers to encourage reading rather than to achieve goals. For example, to encourage an audience to read a white paper, a writer may hold off presenting the solution to a problem. The writer hopes that the audience will be curious enough about the solution to read the entire white paper.

But audiences have many demands on their time. They want information quickly. A reader may examine the main points at the start of a white paper closely and then browse through the information that supports those points. This reader may overlook main points at the end of the white paper. Halfway through the white paper, another reader may be called away to other tasks. This reader may never finish the white paper. If the white paper makes its main points on the final pages, it will fail to achieve its goals with these readers.

In some situations, presenting the main points at the end of a white paper may be the best strategy. But it's not gospel, and often it's not good.

How do you determine the best place to present the main points? You identify strategies to achieve your goals with your audience, and you develop content based on the strategies.

3. Never make assumptions about the audience's knowledge of subject matter.

A corollary to this myth is: write for audiences who know nothing about the subjects of white papers. On the contrary, writers should analyze audiences in detail.

I understand the origin this myth: too many white papers assume that their audiences understand their subjects in the same detail that technical specialists do. If the audience is business executives, that assumption is misplaced. But business executives may have extensive technical knowledge. We won't know unless we analyze them.

Writers who proclaim that assumptions should never be made about audience knowledge usually assume quite a bit about business executives. They assume that business executives know what ROI is, what a CTO is, what B2B means, and so on. Business executives do know those things. But what else do business executives know? And who else is in the audience? What do they know?

An argument for writing to the level of a know-nothing audience is that the audience may include members that writers or organizations do not anticipate. If writers do not analyze the audience, most likely the audience will include unanticipated members. If organizations don't know their target markets, the marketing and sales departments have some underachievers, to put it mildly.

Certainly, the appeal of a white paper on a subject of general interest may extend beyond the target audience. If that happens, analyze the new audience, and if necessary revise the white paper or write a new one for the new audience. How do you know which alternative is best? Examine the white paper's role in the sales process.

4. To sell drills, talk about holes.

Like the other myths, there's a grain of truth in this one, too. Writers should emphasize value (making holes) rather than features (a great whirring noise).

Myth #4 seems reasonable only because most of us have never thought about the content of a white paper on drills. The absurdity of the myth becomes clear when we vary it: *To sell airplanes, talk about flight.* Prospective purchasers know that airplanes fly from one place to another. Cost, capacity, speed, safety, durability, fuel efficiency, and ease of maintenance are much more likely topics.

What should we talk about if we want to sell drills? In a white paper on drills or any other subject, we should talk about whatever we need to talk about to achieve our goals. Nothing more, nothing less.

How do we decide what we need to talk about to achieve our goals? And how do we organize that content? I don't have a glib answer. Content development is a critical process; short change it at your risk. If you spend the time required to develop the content you need to achieve your goals, you will put your competitors at a disadvantage. They cannot achieve their goals by short-changing content development, either.

5. Everything in a white paper must support its abstract.

Nonsense! Everything in a white paper must support its goals. A white paper may have covert goals: goals that are never mentioned. Covert goals will not appear in an abstract. For that matter, an abstract is not mandatory – unless you are publishing a white paper in a white-paper repository on the Web that requires abstracts.

APPENDIX B: THREE MISTAKES WHEN STARTING A WHITE PAPER

Here are three mistakes that you should watch out for when you organize your white paper and select your starting point. Each mistake can cost you readers, especially when you have a weak overview or – worse yet – no overview at all.

The History Lesson

This far too common starting point discusses historical information at length. For example:

> Products with proprietary architectures were first released in the early 1970s. Over the next 15 years, the industry slowly moved to open architectures. In 1982, the XYZ Company introduced the first product that could import information from and export information to other proprietary products. Finally, in 1987 the LMN Company released the first product with a true open architecture....

In the white paper on which I based the example above, the historical information takes up half the content. The author does not explain why readers should be interested in the historical information until they are halfway through the white paper.

Authors' goals seldom involve giving readers a history of a technology. Goals usually involve the current or future state of a technology such as showing how a technology solves problems, demonstrating that it is viable, or making its business value clear.

Start the white paper with ideas that support your goals. If historical information will contribute to the understanding of a topic within the white paper, include the information in the topic. The first thing your audience wants to know is not the historical problems that the company or the industry has overcome but rather "Why do I want to read this white paper?"

Another example: you are writing a white paper to justify teaching algebra in secondary schools. Don't start with the history of algebra; start with reasons why algebra is an important subject for secondary school students to learn.

The Joy of Technology Syndrome

This starting point discusses the technology at length without explaining to readers why the technology is important. This is an actual example of a white paper's opening paragraph, which I have made generic to protect the guilty:

> The application architecture is a client - server structure. End-user services are built from components of the foundation library. In the process of designing a service, the bandwidth of server and client nodes must be carefully considered. The foundation library provides solutions for both "thin" and "fat" clients following the recommended functional decomposition.

Sometimes the technology discussion is so basic that the audience already knows the material. Sometimes the discussion is so advanced that the audience is overwhelmed without any encouragement to assimilate the material. Sometimes the discussion is at the right level, but the audience does not know why it should be interested.

The Joy of Technology Syndrome results in a lost opportunity to capture readers' attention. Tell them something that will encourage them to learn about the technology.

Explaining technologies is an important part of many white papers, but remember that you are telling a story. Make sure the audience understands why the explanation is important. The following example explains why readers should be interested in the basics of office automation.

> Office automation systems have proven their value in medium and large organizations. They process documents efficiently, eliminate repetitive procedures and redundant data, and reduce the need for hard-copy documents. Understanding how a basic office automation system works is necessary to understand how office automation systems provide these benefits.

The Laundry List of Problems

This starting point discusses problems that the technology solves. Unlike the History Lesson and the Joy of Technology Syndrome, which are always bad starting points, the laundry list of problems may be a good starting point. But make sure that airing a list of problems at the start is the best way to achieve your goals. In many instances, readers already know they have problems. They are interested in solutions to their problems. If that is the case, focus on solutions and discuss the problems as you discuss the solutions.

The Laundry List of Problems works best when readers:

- Don't understand that they have problems. You must convince them that they have problems before you can convince them that you have a solution.
- Understand that they have problems but don't think that the problems are serious. You must convince them that the problems are serious before you can convince them that your solution is worth investigating.

Here's an example of the Laundry List of Problems:

> Today there is no accepted standard for storing raw camera files; not only do camera manufacturers create their own formats, but these formats often vary among cameras created by a single manufacturer.

This laundry list of problems is from a white paper[1] by Adobe Systems for an audience of camera manufacturers. I think this is a poor way to open a white paper. Camera manufacturers already know about these problems. But I am not criticizing Adobe's white paper! The paragraph above does not start the white paper. It appears on the second page.

Here's the opening paragraph:

> The Digital Negative (DNG) specification describes a generalized raw format for digital cameras that can broadly support such files across a variety of workflows and products. Adobe is introducing this new file specification as a solution to the increasing proliferation of camera-specific raw formats, which complicate shared workflows and create concerns about archiving over a long period of time.

This starting point makes sense. Adobe is telling camera manufacturers that they want to read the white paper because it presents a solution to an industry-wide problem. The white paper continues with a discussion of the problems associated with raw files and an analysis of the proposed solution: the Digital Negative specification.

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1. *Introducing the Digital Negative Specification: Information for Manufacturers,* Adobe Systems Inc. See "1. Introducing the Digital Negative Specification: Information for Manufacturers" on page 73.

APPENDIX C: SEVEN EXCELLENT WHITE PAPERS

This appendix examines seven excellent white papers. All were available on the World Wide Web as of this writing. Registration is not required to view the white papers. For clickable links, go to the Impact Technical Publications Web site:

http://www.ImpactOnTheNet.com/wplinks.html

Are the white papers successful? We can't answer that question because we don't know how well they achieved their goals.

Although I have pointed out weaknesses in these seven examples, their strengths are noteworthy and will repay careful study.

I examined several hundred white papers in the process of selecting these seven. Some were too simple and others too specialized. But I eliminated most of them because they were badly organized, poorly written, or – surprisingly often – product brochures masquerading as white papers.

1. Introducing the Digital Negative Specification: Information for Manufacturers

Published by: Adobe Systems Incorporated

http://www.adobe.com/products/dng/main.html

This example shows the power of an educational writing style. I don't know whether the Digital Negative specification is the best way to solve the problems of manufacturer-specific raw camera files, but Adobe clearly and compellingly explains why they think the Digital Negative specification is the best solution. I would not bother to read the white paper if it confined itself to boasting that Adobe is "the industry leader" with a "robust, best-of-breed" solution.

This white paper and its companion, *Introducing the Digital Negative Specification,* illustrate how to write two white papers on the same subject for two audiences: photographers and manufacturers. Both white papers are available at the link given above.

Strengths

As I mentioned in "The Laundry List of Problems" on page 72 of this guide, this white paper has a highly effective opening paragraph (page 1).

The explanation "What is a raw file?" on pages 1-2 is excellent. It uses good examples (white balance and sharpness settings) to clarify the explanation.

After introducing the Digital Negative specification as a solution and explaining what a raw file is, the white paper discusses problems with camera-specific raw file formats. Adobe does not simply assert that the problems exist; Adobe explains why raw file formats have these problems (page 2).

In "Benefits of DNG support to manufacturers" (page 4), Adobe explains how adopting the Digital Negative specification makes the benefits possible.

The tie-in with Adobe Photoshop and the concluding paragraph are both well written (page 5).

The one-column format is easy to read.

Weaknesses

Two words: no graphics.

2. Redefining Security to Combat Today's Malware Threats

Published by: Trend Micro, Inc.

http://www.softwarespectrum.com/business/TAAP_Library/Trend_docs/Redefining_Security_to_Combat_Malware_Threats.pdf

This white paper promotes the Trend Micro™ Network VirusWall™ 1200. Unlike many product promotions that pretend they are white papers, this one really is a white paper. When I first read it, I thought it might not qualify as an example of white-paper excellence. But the competition is surprisingly weak. Although this white paper could be improved, it has many strengths.

Strengths

Look at the table of contents on page 2. The headings tell us the white paper's story. Well done!

The white paper starts with an effective one-page executive summary (page 3). This is important because the detailed content starts with problems (page 4-8) and ends with the solution (pages 8-14). By introducing the solution in the executive summary, the writer avoids starting with a laundry list of problems (see page 72 of this guide). As soon as readers agree that the problems are serious and relevant to their situation, they can skip forward to the solution.

Although the writing style is not particularly accomplished, the organization and presentation of ideas are strong. This is a classic example of why content is more important than style.

The white paper contains short but effective case studies of security failures on pages 4 and 6.

"On the Attack" (pages 4-5) uses a chart and a table to make two important points. "Hitting the Bottom Line" on pages 6-7 examines costs associated with security vulnerabilities. Table 2 on page 7 highlights damage caused by malware. These and other points are well-documented.

Figures 2, 4, 5, and 6 use the same visual concept to show how viruses infect a network and how Network VirusWall prevents the infections.

"Enforcing Security Policies," "Securing Network Access Points," and "Isolating Malware and Maintaining Network Services" on pages 9-14 explain how Network VirusWall works. The Blaster and Code Red examples on page 12 build upon the explanations.

The explanations support the assertions at the top of page 14 and in the conclusion.

The conclusion is strong. Compare it with the executive summary.

The white paper has an easy-to-read one-column format; readers can acquire lots of information just by browsing. Note the captions in the left column.

Weaknesses

The definitions could use some work. What is an *outbreak prevention appliance?* The second paragraph on page 9 hints at the definition. Are Trend Micro™ Outbreak Prevention Services and Damage Cleanup Services components of Network VirusWall or separate products?

Production values could be higher. The charts look like they were produced in a spreadsheet program. Compare them with the bar chart on page 54 of this guide.

3. Radio Revolution

Subtitle: *The Coming Age of Unlicensed Wireless*

Author: Kevin Werbach

Published by: New America Foundation

http://werbach.com/docs/RadioRevolution.pdf

This example demonstrates why there is no maximum length for white papers (see "Appendix A: Five Myths about White Papers" on page 69 of this guide). The thoroughness conveys a powerful impression of authority. After reading the white paper, I'm ready to write my representatives in Congress to support the "radio revolution"!

Strengths

The white paper has a powerful title and a strong introduction (pages 1-3). The introduction sets the stage for the basic concepts on page 5. The conclusion (pages 47-48) is also excellent.

The author handles historical information elegantly. Instead of starting with a "history lesson" (see "Appendix B: Three Mistakes when Starting a White Paper" on page 71 of this guide), the author adds historical information as needed. See the history of spectrum regulation on page 12.

The author makes powerful use of analogies. For an analogy between radio wave and acoustic interference, see page 5. A full-page sidebar on page 6 examines the analogy in detail.

The white paper contains excellent case studies. See "WiFI as a Case Study" on pages 22-24 and the sidebars on pages 31, 33, 34, 38, 41, and 42.

Visual communication is strong:

- The headings convey the story.
- Fourteen illustrations with well-written captions and seven pull-quotes reinforce major points.
- Ten sidebars and a table highlight information.
- The two-column layout is well-designed and easy to read.

Although *Radio Revolution* is 53 pages long, it facilitates browsing. Headings help readers decide whether topics are required reading for their purposes. Audience members who read the introduction, browse through the main body, read only the sections that interest them, and read the conclusion will have a strong sense of the white paper's content. The white paper may achieve its goals with audience members who read fewer than 10 pages!

Weaknesses

The biggest weakness is lack of quality control in preparation of the Portable Document Format (PDF) file. All the photographs and other raster graphics (figures 2, 5, 6, 8, and 12) were converted into PDF format at far too low a resolution.

Blank pages were removed from the electronic document. As a result, page numbers 1-3 and 37-52 are on the wrong side of the page, and pages 4 and 36 are missing. To avoid this problem:

- Leave blank pages in the electronic file, or
- Remove the blank pages and repaginate the document before preparing the electronic file.

A few key terms are missing definitions. Examples: *spectrum* on page 2 and *multiplex* on page 7. If the primary audience for the white paper is people with a general knowledge of radio-communication spectrum issues, then the omission is not serious.

4. Podcasting & Vodcasting: a White Paper

Subtitle: *Definitions, Discussions & Implications*

Author: Peter Meng

Published by: IAT Services, University of Missouri, March 2005

Republished at the Apple Computer Web site.

http://edmarketing.apple.com/adcinstitute/wp-content/Missouri_Podcasting_White_Paper.pdf

By explaining how a technology works and showing its value, this white paper stimulates interest in products that incorporate the technology. The white paper is a classic example of how to sell products by discussing a technology. "To sell drills, talk about holes" (see page 70 of this guide) isn't *always* a myth!

Strengths

The section "What is Podcasting?" provides a good definition of and introduction to podcasting.

At the start of "How It Works" on page 2, the white paper highlights podcasting and VODcasting business value: "simple to produce" and "very inexpensive to deliver." The white paper then demonstrates the business value by examining the process, required tools and equipment, and required skills.

The process illustrations are excellent. In addition to the illustration on page 1, look closely at "How to Podcast" on page 11 and "How to VODcast" on page 12. These illustrations are far more interesting and informative than simple block diagrams.

Weaknesses

This white paper starts with a definition and explanation of podcasting. Starting with a technical explanation is extremely risky. (See page 71 of this guide for a discussion of the problems involved in "The Joy of Technology Syndrome.") In this case, however, podcasting has captured the attention of the popular media, and many people are already interested in the technology. Even so, an introduction that explains why podcasting is important would encourage audience members who are less interested in podcasting to learn about the technology. Material from "Potential Uses of Podcasting and VODcasting at the University of Missouri" on page 5 would make a good introduction.

The figure on page 1 goes with the text in "The Pod/VODcasting Process" on page 2, but there is no reference to the figure in the text. Also, the roman numerals in the text should be arabic numerals to match the illustration.

A table of contents would help. Readers won't know that the illustrations on pages 11-12 exist until they reach page 11. Another solution is to cross-reference the illustrations in the text.

Quality control is a problem. Page 1 mentions a non-existent glossary. Two sentences on page 8 end in mid-air, with words missing. Sloppy proofreading and quality control detract from the expertise of a well-written, persuasively argued white paper.

The line length is over 100 characters. Robert Bringhurst states that a line length of up to 80 characters is acceptable (see "Line Lengths" on page 34 of this guide). Compare the readability of this white paper with all the other examples (except *Records Management Redefined,* which also suffers from too many characters per line).

5. Records Management Redefined: From The Backroom To The Boardroom

Subtitle: *Managing Business Content to Improve Business Efficiency & Accountability*

Authors: Randolph Kahn, Esq. & Barclay T. Blair

Published by: LEGATO Systems, Inc.

http://www.kahnconsultinginc.com/library/KCIWhitepaper-RecordsManagementRedefined-Legato.pdf

This white paper promotes an organizational function: records management. LEGATO Solutions offers products and services that enable organizations to manage records effectively. By promoting the function, the white paper generates interest in products and services without mentioning them!

Strengths

After a preface that states "Headline events have taught corporate leaders that, at any given moment, the well being of their entire enterprise may depend upon their ability to manage records effectively," the white paper examines the consequences of failing to manage records effectively.

A good definition of records management appears on page 2.

"Central Business Purposes for Records Management" on pages 3-4 and "The Economics of Records Management" on page 4 persuasively present the business value.

The writing is authoritative. Well-documented facts and figures appear throughout the white paper, and there are 36 footnotes on page 9.

The explanations of the "Approaches to Records Management" on pages 5-7 are clear and help readers evaluate their current records management program.

The pull-quotes on pages 1-6 draw readers' attention to the technical material.

Weaknesses

"Unmanaged Data, Unmanaged Risk and Erosion of Value" on pages 4-5 disrupts the white paper's flow. I would combine that section with "What Needs To Be Managed Has Changed" on pages 2-3 and call the new section "Problems with Traditional Records Management." Compare the table of contents for this white paper with the table of contents for *Redefining Security to Combat Today's Malware Threats* on page 74. *Redefining Security* tells a clear and logical story. The *Records Management* story could use some rethinking.

This statement on page 2 is obviously incorrect: "Every minute, a typical organization's... employees generate millions of email messages." Always check accuracy and verify all sources before you release a white paper.

The white paper does not have any illustrations, although plenty of opportunities exist. For example, the statement "the market is expected to grow from $8.8 billion in 2002 to $20 billion in 2006" could be reinforced with a bar chart.

The line length is over 100 characters. Robert Bringhurst states that a line length of up to 80 characters is acceptable (see "Line Lengths" on page 34 of this guide). Compare the readability of this white paper with all the other examples (except *Podcasting & Vodcasting: a White Paper,* which also suffers from too many characters per line).

6. eXtensible Metadata Platform

Full title: *A Manager's Introduction to Adobe eXtensible Metadata Platform, The Adobe XML Metadata Framework*

Published by: Adobe Systems Incorporated

http://www.adobe.com/products/xmp/pdfs/whitepaper.pdf

This example shows the importance of a core technology in a company's software products. The white paper promotes the products by promoting the technology.

Strengths

"The Bean Data Analogy" on pages 3-5 is a striking way to demonstrate the importance of data about data. The can of beans represents the data; the label represents the metadata. The white paper builds on the initial analogy. Note the following:

- "A file marked up only with HTML tags is no more informative about its content than a can without a label is informative to supermarket patrons" (page 9).
- The comparison of the can's label "in bullet form" and "in XML for RDF" (page 12).

One of the white paper's main points is that Adobe's "investment in XMP will enable its users to mobilize their content across the boundaries of different uses and different systems" (page xii). The white paper's technical explanations demonstrate this point.

The white paper has an easy-to-read one-column 8.5 by 11 inch format, groups the content with logical headings, and uses illustrations to explain concepts.

Weaknesses

Given that the audience is "managers," too many technical terms are undefined:

- *String* data type (page 4)
- *Pointer* to a record (page 5)
- *WebDAV* (page 6)
- *SDKs* (pages 10 and 14)

The white paper has several examples of "trailing definitions:" definitions that appear well after a term is introduced. The most surprising example is *metadata.* Although the term occurs in the title and the heading on page 5, "From bean data to metadata," the term is not defined until page 9. A less serious example is *XMP packet,* mentioned in figure 7 on page 10 and in the text on page 12 but not defined until page 13. Trailing definitions indicate problems with content organization.

The white paper contains several different definitions of *eXtensible metadata platform.* You can find them easily by using the "is" test that I described in the tip at the end of "Define Each Concept with One Definition" on page 42 of this guide. Never short-change your definitions. They are the foundation that supports the technical content.

Always check for typographical errors. There's a big one on page 10: "RDF Framework or expressing metadata from multiple schemas should be "RDF Framework *for* expressing metadata...."

While the *use* of illustrations is commendable, the illustrations could be better drawn, more consistent, and more interesting. Figures 2 and 3 both show workflows, but only one of them includes arrowheads. The relationship of figure 5, "Author-centric production," to the text is not immediately clear: the phrase "author-centric production" occurs only in the introduction on page xii.

7. Corporate Blogging: Is It Worth the Hype?

Authors: John Cass, Kristine Munroe, and Stephen Turcotte

Published by Backbone Media, Inc.

http://www.backbonemedia.com/blogsurvey/blogsurvey2005.pdf

This is an excellent example of a white paper designed to be read on a computer screen. If you have been reading the other examples in this appendix on your computer screen, you have been scrolling up and down the pages. You can adjust the size of this white paper to fill your computer screen, and you can click to display the next page.

Strengths

The white paper opens with a strong, one-page executive summary.

The white paper presents the results of its survey on corporate blogging "up front" on pages 3-4 where readers can find the results easily.

The white paper contains summary case studies on pages 5-7 followed by detailed case studies on pages 50-64. This is an interesting technique.

"Lessons Learned: How To Build a Successful Blog" on pages 65-68 provides a good summary.

The illustration on page 11 highlights one of the white paper's main points.

The white paper uses a good typeface for reading on a computer screen and it meets Bringhurst's guidelines for a maximum of 55-60 characters per line (see "Line Lengths" on page 34 of this guide).

Weaknesses

The text contains many poorly worded sentences. Here's an example: "If they do they will build more successful products, which also have ready customers who want to adopt new ideas and products because those same customers have participated in the process of product development" (page 8). Let's think about what we want to say: "If they do, they will build more successful products. Customers are more likely to buy products when they participate in the development of the products." Wordy, run-on sentences dilute readers' attention.

The text has too many errors. It could use good editing and proofreading. Here's one example: "Previously, the Microsoft blogger reported product builders at Microsoft didn't understand their customers' needs, as were not able to receive many complaints" (page 6). The clause at the end of the sentence should probably read "as *the product builders* were not able to receive many complaints," but I had to think about what the clause was trying to say before I realized that the subject of the dependent clause was missing.

The survey data on pages 12-49 should go in an appendix. It needlessly interrupts the flow of the white paper. Don't make readers wade through detailed survey data to read case studies and lessons learned. This example shows why you should always create a storyboard. The survey data is not part of the story; it provides support for the story.

The survey data could be formatted better. The text should be in two columns, and two survey questions with pie charts fit easily on a single page.

The table of contents should have clickable links. A small table of contents in the left margin of each page would help readers find main topics quickly.

What To Do if You Can't Access an Example

The World Wide Web is a dynamic place; your copy of this printed book or PDF file is totally static. I will do my best to monitor the availability of these white papers and to provide new examples when the examples in this guide are removed from the Web. Please check the Impact Technical Publications Web site for the current list of links:

http://www.ImpactOnTheNet.com/wplinks.html

Have I Overlooked an Excellent White Paper?

If you have read an excellent white paper and it is available on the Web without registration, I would like to learn about it. (No self-promotion, please!) I need to know how to find it, and I will appreciate a few words about why you like it. You can reach me through the contact page on the Impact Technical Publications Web site:

http://www.ImpactOnTheNet.com/contact.html/

INDEX

D

E

F

G

H

I

J

K

L

M

N

O

P

Q

R

S

T

U

V

W

Z

About the Author

Al Kemp's white papers, product technical overviews, and business cases have helped secure 40 million dollars for high-tech start-up companies and advanced technology projects at Fortune 500 companies. With strong business experience and extensive technical skills, Mr. Kemp specializes in educating prospective customers and investors on highly technical topics. A technical and marketing communication consultant since 1987, Mr. Kemp is the owner of Impact Technical Publications. He holds an M.A. in English from the University of Chicago and a B.A. in writing from the University of Illinois.

The words “white paper” in the title of a document no longer indicate a detailed and authoritative report. Many white papers today are overly long product brochures weighed down by weak organization, confusing content, unsupported assertions, and poor document design. If you follow the instructions in this guide, you will write real white papers: authoritative business communications that achieve marketing goals by explaining technical ideas clearly with a compelling presentation of business value.

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TECHNICAL PUBLICATIONS
7090 Routt Street, Arvada, Colorado 80004 USA
303.431.8259 www.ImpactOnTheNet.com