

# 技术英语 写作手册

[美] 杰拉尔德·J·阿尔里德 等 著

(第八版)

HANDBOOK OF  
TECHNICAL WRITING

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[美] 杰拉尔德·J·阿尔里德 (Gerald J. Alred)

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## Preface 前言

The eighth edition of the *Handbook of Technical Writing*, like previous editions, is a comprehensive resource for both academic and professional audiences. The *Handbook's* nearly 400 entries cover effective print, oral, and online technical communication, offering advice for writing and designing many different types of professional documents in addition to thorough explanations of grammar, style, and usage. This edition includes many new sample documents and visuals, as well as expanded advice for integrating visuals, making appropriate rhetorical choices, and considering ethics in technical writing.

### How to Use This Book

The *Handbook of Technical Writing* is made up of alphabetically organized entries with color tabs. Within each entry, underlined cross-references such as “formal reports” link readers to related entries that contain further information. Many entries present advice and guidelines in the form of convenient Writer’s Checklists.

The *Handbook's* alphabetical organization enables readers to find specific topics quickly and easily; however, readers with general questions will discover several alternate ways to find information in the book.

- **Contents by Topic.** The complete Contents by Topic on the inside back cover groups the alphabetical entries into topic categories. This topical key can help a writer focusing on a specific task or problem browse all related entries; it is also useful for instructors who want to correlate the *Handbook* with standard textbooks or their own course materials.
- **Commonly Misused Words and Phrases.** The list of Commonly Misused Words and Phrases on pages 635–36 extends the Contents by Topic by listing all of the usage entries, which appear in italics throughout the book.
- **Model Documents and Figures by Topic.** The topically organized list of model documents and figures on the inside front cover makes it easier to browse the book’s abundant sample documents

and visuals to find specific examples of technical communication genres.

- **Checklist of the Writing Process.** The checklist on pages xxiii–xxiv helps readers to reference key entries in a sequence useful for planning and carrying out a writing project.
- **Comprehensive Index.** The index lists all the topics covered in the book, including those topics that are not main entries in the alphabetical arrangement.

### Helpful Features

ESL Tips boxes throughout the book offer special advice for writers of English as a second language. In addition, the Contents by Topic on the inside back cover includes a list of entries—ESL Trouble Spots—that may be of particular interest to ESL writers.

Digital Tips and Web Link boxes throughout the book direct readers to specific related resources on the companion Web site at [bedfordstmartins.com/alredtech](http://bedfordstmartins.com/alredtech). Digital Tips in the book suggest ways to use workplace technology and word-processing software to simplify complex writing tasks such as designing a document or creating an index. Expanded Digital Tips on the Web site offer step-by-step instructions for completing each task. Web Links in the book point students to related resources on the companion site such as model documents, tutorials, and links to hundreds of useful related Web sites.

### New to This Edition

Our focus in revising the *Handbook* for this edition has been to give greater attention to the rhetorical and ethical choices writers face—both in writing and in designing professional documents. In response to suggestions from many instructors and workplace professionals who use the *Handbook*, we have replaced, revised, and redesigned many sample documents—in fact, this edition contains more new and updated examples than any previous edition. We have added new entries and updated information throughout the book to better reflect the choices today's technical writers face. In addition to thoroughly updated coverage of grammar, usage, and style, readers will find the following improvements.

- **New and redesigned sample documents and visuals.** New sample documents reflect the prominence of e-mail in the workplace and draw from a greater range of writing situations in disciplines such as engineering and health sciences. Abundant illustrations—many of them new—include charts, graphs, drawings, tables, internationally recognized symbols, illustrated

descriptions and instructions, brochure and newsletter pages, presentation slides, and more.

- **A new entry on the context of the writing situation** discusses questions writers must ask to understand and respond effectively to different writing situations. This entry also shows writers how to convey enough background information to help their readers understand the value and purpose of a document. To complement this discussion, most examples and model documents throughout the book are now introduced with a description of the rhetorical situation that prompted them.
- **Ethics Notes** throughout the book describe ethical issues in technical writing and help writers understand and address them.
- **Expanded treatment of visual communication.** A new chart in the entry *visuals* compares the functions of various types of graphics and can help writers make the best choices for their audience, purpose, and context. This entry also offers expanded advice for effectively integrating, labeling, and crediting visuals, and cautions readers about using misleading visuals.
- **New entries on writing white papers and requests for proposals** offer professional topics not found in most technical writing textbooks.
- **Updated coverage of résumé writing.** Job seekers will find new advice for using résumé summary statements, combining chronological and functional formats, and sending résumés as e-mail attachments. New sample résumés designed by Kim Isaacs, the Résumé Expert at Monster.com, and new sample application letters provide up-to-date models.
- **Expanded discussions of copyright and plagiarism.** Revised and expanded entries explain when and how to seek permission to use copyrighted material, how to properly acknowledge sources, and how to distinguish common knowledge from sources that must be cited.
- **Streamlined coverage of research.** We have combined and revised the previous edition's separate entries on library and Internet research in one research entry with an expanded *Writer's Checklist: Evaluating Print and Online Sources*.
- **New coverage of IEEE style.** The *Handbook* now provides guidelines for using IEEE (Institute of Electrical and Electronics Engineers) style for documenting sources, in addition to up-to-date advice and documentation models for APA (American Psychological Association) and MLA (Modern Language Association) styles.



- **An updated companion Web site at <[bedfordstmartins.com/alredtech](http://bedfordstmartins.com/alredtech)>.** The Web site helps instructors take advantage of the *Handbook's* potential as a classroom text by offering lesson plans, handouts, teaching tips, and assignment ideas. For students, the Web site includes additional sample documents, useful tutorials, expanded Digital Tips, and links to hundreds of useful Web sites keyed to the *Handbook's* main entries.

## Acknowledgments

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G. J. A.  
C. T. B.  
W. E. O.



# Five Steps to Successful Writing

## 成功写作五步骤

Successful writing on the job is not the product of inspiration, nor is it merely the spoken word converted to print; it is the result of knowing how to structure information using both text and design to achieve an intended purpose for a clearly defined audience. The best way to ensure that your writing will succeed—whether it is in the form of a memo, a résumé, a proposal, or a Web page—is to approach writing using the following steps:

1. Preparation
2. Research
3. Organization
4. Writing
5. Revision

You will very likely need to follow those steps consciously—even self-consciously—at first. The same is true the first time you use new software, interview a candidate for a job, or chair a committee meeting. With practice, the steps become nearly automatic. That is not to suggest that writing becomes easy. It does not. However, the easiest and most efficient way to write effectively is to do it systematically.

As you master the five steps, keep in mind that they are interrelated and often overlap. For example, your readers' needs and your purpose, which you determine in step 1, will affect decisions you make in subsequent steps. You may also need to retrace steps. When you conduct research, for example, you may realize that you need to revise your initial impression of the document's purpose and audience. Similarly, when you begin to organize, you may discover the need to return to the research step to gather more information.

The time required for each step varies with different writing tasks. When writing an informal memo, for example, you might follow the first three steps (preparation, research, and organization) by simply listing the points in the order you want to cover them. In such situations, you gather and organize information mentally as you consider your purpose and audience. For a formal report, the first three steps require well-organized research, careful note-taking, and detailed outlining. For

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a routine e-mail message to a coworker, the first four steps merge as you type the information on the screen. In short, the five steps expand, contract, and at times must be repeated to fit the complexity or context of the writing task.

Dividing the writing process into steps is especially useful for collaborative writing, in which you typically divide work among team members, keep track of a project, and save time by not duplicating effort. When you collaborate, you can use e-mail to share text and other files, suggest improvements to each other's work, and generally keep everyone informed of your progress as you follow the steps in the writing process.

### Preparation

Writing, like most professional tasks, requires solid preparation.<sup>\*</sup> In fact, adequate preparation is as important as writing a draft. In preparation for writing, your goal is to accomplish the following four major tasks:

- Establish your primary purpose.
- Assess your audience (or readers) and the context.
- Determine the scope of your coverage.
- Select the appropriate medium.

***Establishing Your Purpose.*** To establish your primary purpose simply ask yourself what you want your readers to know, to believe, or to be able to do after they have finished reading what you have written. Be precise. Often a writer states a purpose so broadly that it is almost useless. A purpose such as “to report on possible locations for a new research facility” is too general. However, “to compare the relative advantages of Paris, Singapore, and San Francisco as possible locations for a new research facility so top management can choose the best location” is a purpose statement that can guide you throughout the writing process. In addition to your primary purpose, consider possible secondary purposes for your document. For example, a secondary purpose of the research-facilities report might be to make corporate executive readers aware of the staffing needs of the new facility so that they can ensure its smooth operation in whatever location is selected.

***Assessing Your Audience and Context.*** The next task is to assess your audience. Again, be precise and ask key questions. Who exactly is your reader? Do you have multiple readers? Who needs to see or to use

<sup>\*</sup>In this discussion, as elsewhere throughout this book, words and phrases shown as links—underlined and set in an alternate typeface—refer to specific alphabetical entries.

the document? What are your readers' needs in relation to your subject? What are their attitudes about the subject? (Skeptical? Supportive? Anxious? Bored?) What do your readers already know about the subject? Should you define basic terminology, or will such definitions merely bore, or even impede, your readers? Are you communicating with international readers and therefore dealing with issues inherent in global communication?

For the research-facilities report, the readers are described as "top management." Who is included in that category? Will one of the people evaluating the report be the Human Resources Manager? If so, that person likely would be interested in the availability of qualified professionals as well as in the presence of training, housing, and perhaps even recreational facilities available to potential employees in each city. The Purchasing Manager would be concerned about available sources for materials needed by the facility. The Marketing Manager would give priority to the facility's proximity to the primary markets for its products and services and the transportation options that are available. The Chief Financial Officer would want to know about land and building costs and about each country's tax structure. The Chief Executive Officer would be interested in all this information and perhaps more. As with this example, many workplace documents have audiences composed of multiple readers. You can accommodate their needs through one of a number of approaches described in the entry readers.

In addition to knowing the needs and interests of your readers, learn as much as you can about the context. Simply put, context is the environment or circumstances in which writers produce documents and within which readers interpret their meanings. Everything is written

#### **ESL TIPS FOR CONSIDERING AUDIENCES**

In the United States, conciseness, coherence, and clarity characterize good writing. Make sure readers can follow your writing, and say only what is necessary to communicate your message. Of course, no writing style is inherently better than another, but to be a successful writer in any language, you must understand the cultural values that underlie the language in which you are writing. See also awkwardness, copyright, global communication, plagiarism, and English as a second language.

Throughout this book we have included ESL Tips boxes like this one with information that may be particularly helpful to nonnative speakers of English. See the Contents by Topic on the inside back cover for listings of ESL Tips and ESL Trouble Spots, entries that may be of particular help to ESL writers.

in a context, as illustrated in many entries and examples throughout this book. To determine the effect of context on the research-facilities report you might ask both specific and general questions about the situation and about your readers' backgrounds: Is this the company's first new facility, or has the company chosen locations for new facilities before? Have the readers visited all three cities? Have they already seen other reports on the three cities? What is the corporate culture in which your readers work, and what are its key values? What specific factors, such as competition, finance, and regulation, are recognized as important within the organization?

***Determining the Scope.*** Determining your purpose and assessing your readers and context will help you decide what to include and what not to include in your writing. Those decisions establish the scope of your writing project. If you do not clearly define the scope, you will spend needless hours on research because you will not be sure what kind of information you need or even how much. Given the purpose and audience established for the report on facility locations, the scope would include such information as land and building costs, available labor force, cultural issues, transportation options, and proximity to suppliers. However, it probably would not include the early history of the cities being considered or their climate and geological features, unless those aspects were directly related to your particular business.

***Selecting the Medium.*** Finally, you need to determine the most appropriate medium for communicating your message. Professionals on the job face a wide array of options—from e-mail, fax, voice mail, videoconferencing, and Web sites to more traditional means like letters, memos, reports, telephone calls, and face-to-face meetings.

The most important considerations in selecting the appropriate medium are the audience and the purpose of the communication. For example, if you need to collaborate with someone to solve a problem or if you need to establish rapport with someone, written exchanges could be far less efficient than a phone call or a face-to-face meeting. However, if you need precise wording or you need to provide a record of a complex message, communicate in writing. If you need to make information that is frequently revised accessible to employees at a large company, the best choice might be to place the information on the company's intranet site. If reviewers need to make handwritten comments on a proposal, you may need to provide paper copies that can be faxed or use word-processing software to insert comments electronically. The comparative advantages and primary characteristics of the most typical means of communication are discussed in selecting the medium.

## Research

The only way to be sure that you can write about a complex subject is to thoroughly understand it. To do that, you must conduct adequate research, whether that means conducting an extensive investigation for a major proposal—through interviewing, library and Internet research, careful note-taking, and documenting sources—or simply checking a company Web site and jotting down points before you send an e-mail to a colleague.

**Methods of Research.** Researchers frequently distinguish between primary and secondary research, depending on the types of sources consulted and the method of gathering information. *Primary research* refers to the gathering of raw data compiled from interviews, direct observation, surveys, experiments, questionnaires, and audio and video recordings, for example. In fact, direct observation and hands-on experience are the only ways to obtain certain kinds of information, such as the behavior of people and animals, certain natural phenomena, mechanical processes, and the operation of systems and equipment. *Secondary research* refers to gathering information that has been analyzed, assessed, evaluated, compiled, or otherwise organized into accessible form. Such forms or sources include books, articles, reports, Web documents, e-mail discussions, correspondence, minutes of meetings, operating manuals, and brochures. Use the methods most appropriate to your needs, recognizing that some projects will require several types of research and that collaborative projects may require those research tasks to be distributed among team members.

**Sources of Information.** As you conduct research, numerous sources of information are available to you.

- Your own knowledge and that of your colleagues
- The knowledge of people outside your workplace, gathered through interviewing for information
- Internet sources, including Web sites, directories, archives, and discussion groups
- Library resources, including databases and indexes of articles as well as books and reference works
- Printed and electronic sources in the workplace, such as brochures, memos, e-mail, and Web documents

Consider all sources of information when you begin your research and use those that are appropriate and useful. The amount of research you will need to do depends on the scope of your project.



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### Organization

Without organization, the material gathered during your research will be incoherent to your readers. To organize information effectively, you need to determine the best way to structure your ideas; that is, you must choose a primary method of development.

**Methods of Development.** An appropriate method of development is the writer's tool for keeping information under control and the readers' means of following the writer's presentation. As you analyze the information you have gathered, choose the method that best suits your subject, your readers' needs, and your purpose. For example, if you were writing instructions for assembling office equipment, you would naturally present the steps of the process in the order readers should perform them: the sequential method of development. If you were writing about the history of an organization, your account would most naturally go from the beginning to the present: the chronological method of development. If your subject naturally lends itself to a certain method of development, use it—do not attempt to impose another method on it.

Often you will need to combine methods of development. For example, a persuasive brochure for a charitable organization might combine a specific-to-general method of development with a cause-and-effect method of development. That is, you could begin with persuasive case histories of individual people in need and then move to general information about the positive effects of donations on recipients.

**Outlining.** Once you have chosen a method of development, you are ready to prepare an outline. Outlining breaks large or complex subjects into manageable parts. It also enables you to emphasize key points by placing them in the positions of greatest importance. By structuring your thinking at an early stage, a well-developed outline ensures that your document will be complete and logically organized, allowing you to focus exclusively on writing when you begin the rough draft. An outline can be especially helpful for maintaining a collaborative-writing team's focus throughout a large project. However, even a short letter or memo needs the logic and structure that an outline provides, whether the outline exists in your mind or on-screen or on paper.

At this point, you must begin to consider layout and design elements that will be helpful to your readers and appropriate to your subject and purpose. For example, if visuals such as photographs or tables will be useful, this is a good time to think about where they may be deployed and what kinds of visual elements will be effective, especially if they need to be prepared by someone else while you are writing and re-



vising the draft. The outline can also suggest where headings, lists, and other special design features may be useful.

## Writing

When you have established your purpose, your readers' needs, and your scope and have completed your research and your outline, you will be well prepared to write a first draft. Expand your outline into paragraphs, without worrying about grammar, refinements of language usage, or punctuation. Writing and revising are different activities; refinements come with revision.

Write the rough draft, concentrating entirely on converting your outline into sentences and paragraphs. You might try writing as though you were explaining your subject to a reader sitting across from you. Do not worry about a good opening. Just start. Do not be concerned in the rough draft about exact word choice unless it comes quickly and easily—concentrate instead on ideas.

Even with good preparation, writing the draft remains a chore for many writers. The most effective way to get started and keep going is to use your outline as a map for your first draft. Do not wait for inspiration—you need to treat writing a draft as you would any on-the-job task. The entry writing a draft describes tactics used by experienced writers—discover which ones are best suited to you and your task.

Consider writing an introduction last because then you will know more precisely what is in the body of the draft. Your opening should announce the subject and give readers essential background information, such as the document's primary purpose. For longer documents, an introduction should serve as a frame into which readers can fit the detailed information that follows.

Finally, you will need to write a conclusion that ties the main ideas together and emphatically makes a final significant point. The final point may be to recommend a course of action, make a prediction or a judgment, or merely summarize your main points—the way you conclude depends on the purpose of your writing and your readers' needs.

## Revision

The clearer a finished piece of writing seems to the reader, the more effort the writer has likely put into its revision. If you have followed the steps of the writing process to this point, you will have a rough draft that needs to be revised. Revising, however, requires a different frame of mind than does writing the draft. During revision, be eager to find and correct faults and be honest. Be hard on yourself for the benefit of your readers. Read and evaluate the draft as if you were a reader seeing it for the first time.

#### XIV Five Steps to Successful Writing

Check your draft for accuracy, completeness, and effectiveness in achieving your purpose and meeting your readers' needs and expectations. Trim extraneous information: Your writing should give readers exactly what they need, but it should not burden them with unnecessary information or sidetrack them into loosely related subjects.

Do not try to revise for everything at once. Read your rough draft several times, each time looking for and correcting a different set of problems or errors. Concentrate first on larger issues, such as unity and coherence; save mechanical corrections, like spelling and punctuation, for later proofreading. See also ethics in writing.

Finally, for important documents, consider having others review your writing and make suggestions for improvement. For collaborative writing, of course, team members must review each other's work on segments of the document as well as the final master draft. Use the Checklist of the Writing Process on pages xxiii–xxiv to guide you not only as you revise but also throughout the writing process.

## MODEL DOCUMENTS AND FIGURES BY TOPIC

### 各主题文档及图表范例

Use the following list as a quick reference for finding samples of technical writing and visuals by topic. See also the Contents by Topic on the inside back cover of this book. For additional model documents and resources, see the companion Web site at [bedfordstmartins.com/alredtech](http://bedfordstmartins.com/alredtech).

#### TECHNICAL WRITING DOCUMENTS AND ELEMENTS

技术写作文件及要素

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