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# Tools and Methods to Achieve Consistency in Technical Documentation

Research Project

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## Abstract

In technical documentation, content must be clear and consistent and visual layout as a whole must be uniform. Ensuring these principles makes it easier for the user to understand documentation and reinforces branding. This seems simple however achieving consistency requires a great deal of organization and effort from technical writers. The aim of this article is to present and defend various solutions for achieving consistency and improving user experience, through observations made in three different professional contexts: two computer software companies and one software and hardware company.

In the first part, we will define some of the key elements that impact consistency: grammar rules, methods to address users and acute text architecture and present concrete tools and methods to improve consistency and their constraints. In the second part, we will present the most important aspect to take into account in order to find the best balance across methodologies to achieve consistency in technical documentation.

## Key Words

Clarity	Structured content	User experience
Content consistency	Style Guide	Writing guidelines
Information architecture	Templates	Technical Writing

## Authors' Experience

Our observations have been made in three separate companies, hereafter referred to as companies A, B and C, which vary in size, domain and approach to writing technical documentation as a team.

Company A is a well-known computer hardware and software company. It has a vast team of technical writers around the world and a plethora of resources created by the company itself.

Company B creates surveillance devices for the military and produces the related documentation. The team of technical writers is small and resorts to subcontractors to deliver the documentation.

Company C creates functional documentation of job-specific software for internal use only. There is a small team of technical writers that only recently began researching and implementing resources to improve consistency.

## Introduction

Dedicated writers have been researching and testing ways to achieve consistency in technical writing well before “Technical Writing” became something one could master in at university. Recently, new technologies have emerged to provide automatic solutions for teams of writers that find it difficult to maintain a homogeneous style in their corpus. The documentation that technical writers create must be comprehensive but also representative of a company, product or brand. It isn’t creative writing and needs to be succinct and without embellishment in order to insure that every user will interpret the content correctly.

Our experience has shown that software like XML editors and languages like DocBook and DITA only provide an outline, a global structure, to technical writing. Individual authors fill pages with their own words and teams need overarching material to refer to in order to achieve stylistic and grammatical harmony. Tried and true style and grammar guides are available, passed on and improved upon by “generations” of technical writers, which offer specific rules but become dusty as company-specific terminology and target audiences evolve. Every company requires an adapted style and guides and software can only take a team of writers so far.

Communication among writers, training and human editors are also key stones in the path to uniformity. It takes time to learn the global and specialized rules and writers must be coached and motivated to work together and use all the tools available today. Technology, guidelines and especially training are the best ways to achieve consistency in technical documentation.

## Part I – Defining the Key Elements that Affect Consistency

### Writing Style and Grammar

Technical documentation obeys strict rules in order to enhance readability. That is why companies often provide their writers with materials defining the grammar rules to be followed answering basic questions like:

- Which parts of speech are allowed and how do you use them?
- Is the passive voice allowed? If yes, under which circumstances?
- Which tenses can be used?
- How many words can sentences contain?
- How do you structure sentences?

It may seem pejorative to remind writers of what they should already know, but several factors have to be taken into account to understand the importance of the grammar rules. Having a thorough understanding of the utility of grammar rules lets us study how our companies deal with this issue.

Company A has long established writing guidelines and grammar rules. The writing process goes smoothly because the writers use a grammar and vocabulary spellchecker called Acrolinx. This tool reviews the content and helps writers produce consistent texts.

Company B has long established guidelines and grammar rules, too. However, they are in poor shape which means they cannot be trusted. Also, writers often do not actually obey the rules of technical English in the guidelines. As a result, even if the documentation is quite uniform regarding the terminology, it lacks consistency when it comes to grammar. For example, there is a mix of active and passive voice which can mislead the user.

Company C has no grammar rules nor any accurate writing rules established. As no common standards of writing are defined, each writer thinks that his or her style is the best. Therefore, the style is inconsistent with a strong contrast between the different individuals' documents. For example, a few writers use a high register and write overly long sentences while others keep things too short opting to omit information rather than embellish too much. Without guidelines, one can immediately detect multiple authors' voices, which requires the user to make extra effort every time they open a new document.

When grammar rules are incomplete or nonexistent it greatly impacts the quality of documentation.

## Targeting the User

Consistency in a technical document isn't only about making sure that writers use the same sentence structures and vocabulary. It is just as important for technical writers to know who they are writing for as it is for them to know how to write correctly. In fact, understanding what role the user plays and what their experience level is, or should be, will dictate what grammar, register and especially vocabulary to use. If a writer knows his audience, he will have half the arsenal he needs to create text that they will understand.

Users actively notice how they are being addressed in a document. If they are consistently reminded of who the intended audience of a document is, they will be able to know if they fit the role of the person intended to achieve the goal(s) described. If they are consistently sure that this document was written for them, they will be at ease with the text and much more likely to use it.

Company A writes for an international audience who may or may not be specialists. They must remain generic and transform complicated instructions into content that the “everyday user” can understand.

Company B also writes for an international audience however, their documentation is aimed at technician teams who perform maintenance and repairs. The text must comply with the rules of Simplified Technical English (STE). To conform to STE rules, writers only use imperative and active verbs for procedures.

Users of both these company's documentation can easily follow the instructions given to them because they are actively involved in the process. Companies B and C have something in common as well; when referring to descriptions neither address users directly. For example, instead of writing “on your screen” both write “on the screen”.

Company C writes for an internal audience only. Their documentation is aimed at support and sales teams who teach clients how to use the software. Because they do not address the end user at all, they cannot use imperative or active verb forms. The end user must be addressed in the third person, which adds to the weight and length of sentences. Instead of giving precise directions, writers must refer to “the user” and explain what that person should do. For example instead of writing “Click Save”, which is precise and succinct, Company C writes “The user clicks the Save button”. This adds to the word count of the document and to the time it takes the user to read and understand it.

Double layered instructions require logical uniformity, not only on the small, sentence-level scale but also in the overall document. What does it take, then, to ensure a team can create a consistent document from start to finish?

## **Text Architecture and Layout**

At the document level, two key aspects affect consistency: the visual layout and text architecture. Layout guidelines are often decided by other people in the company to be consistent from one type document written by one team to another (e.g. marketing pamphlets and User Guides). Therefore, layout consistency is usually addressed separately from the activity of writing, and it is not necessarily a concern for writers. On the contrary, text architecture affects the way technical writers organize content and the way content flows within the document.

Company A uses DITA (Darwin Information Typing Architecture) as a guide to organize content at the topic level. As a consequence, writers are constantly reminded and forced to apply the same templates by the XML editor. These templates make the writers think about the information they present in a similar way and leave little room for personal preferences. At the document level, content is organized by information architects who work closely with the writers to decide how each topic of information fits in the document.

Company B uses S1000D models defined by an expert. Unfortunately, these models are not implemented in the text or XML editors used by writers and data entry clerks. As a result, they are not reminded of the rules that define the levels of information, and they make mistakes in the architecture of the files.

In company C, the file-level outline ends at the chapter level. The template imposed on writers contains predefined chapters (Introduction, Functional Description, Parameterization, etc.) but this only helps writers organize content on the large scale. On the small scale, writers only have the “approved” XML standard tags `<para>`, `<note>`, `<important>`, `<li>` and `<ul>` to organize the structure. There are only vague, unofficial rules dictating the order of content.

Consistency at the document level can be achieved in different ways, some methods being more limiting than others. Having a flow of information types that follow the same logic in the entire document is essential for the user to find what they are looking for. Additionally, it helps writers to understand how their content works within the big picture and to include relevant content.

## **Part II – The Tools and Methods to Improve Consistency**

### **Controlling Content Evolution**

The rate of product evolution can be surprisingly fast. Software is especially subject to quick version updates in response to customer demand. Writers must keep up with this and work fast to update documentation.

For example, company B has to deal with frequent data updates related to the tools and the spare parts. This is why company B uses an XML software called Arbortext to ensure consistency. In order to have a better understanding of the process, they rely on tagged element-level content. The tools used in their processes are imported from the database into the XML software and numbered (e.g.: tool 1 screwdriver, tool 2 hexagonal key 5 mm). Writers then insert a hyperlink targeting the tool needed in the procedure creating a dynamic link which ensures they do not have to manually update the content in the link.

Company A single sources some of its content, which makes it easier to update some parts of the documentation consistently. In the example of software that can be installed on different operating systems, some procedures are the same and are shared in several parts of the documentation. Updates are then made in one document and take effect everywhere the content is reused.

Documentation evolution is handled manually at Company C. When there are updates to the software, the writers have to learn what they are and search the content of the corresponding document to find out if the content needs to be updated. The XML software does allow content at the paragraph level (<p>) to be tagged and chosen for the final print, or not. While the team intends to use this feature in the future to tag content evolution, they have not yet incorporated the practice because they cannot find time to learn how to do it. Ultimately, this will help the team track content evolution but it will cause more confusion than anything else if it's used improperly.

### **External vs Internal Tools**

The tools that help writers improve consistency can be divided into two groups: tools that are used as reference information and tools that are actively used while writing.

Style guides are reference tools that define style for writing titles and body text, grammar rules and punctuation usage, and how writers address the users. Graphic charters address visual standards

based on document types and formats. Terminology glossaries list accepted terms and ensure consistent meaning and spelling. While all very helpful, the trouble comes from the fact that these external resources can be ignored. They are not connected to text editors so writers must choose to follow them, or not.

Converting external resources like grammar guidelines to internal software linked directly to text editors can deter writers from ignoring them. Samples of sentences expected can be incorporated in templates. Writers see the imposed structure and can adapt it as necessary depending on the nature of the document. This method is part of dynamic style guide. Geoff Hart, an expert in technical writing, explains more about this process in an article entitled *The style is dead: long live the dynamic style guide!*

A solution to another problem can also be automated. Macros can be used for global updates to replace opening individual files to search content. Macros are small programs that you can create yourself or with the help of a developer, that repeat actions with the aim of reducing workload. This method is also recommended by Geoff Hart in his article. However, the use of macros is most effective when implemented at an early stage of the creation process because it guarantees consistency in writing styles from the very beginning.

Hart's article was published in 2000 in Intercom magazine, so the concept of automated tasks has been defined for 15 years, but dynamic style guides are still not widely used by companies. Creating them can take time as it requires implementing not only the levels of information but content examples in templates. Additionally, they must address questions such as knowing in what situations exceptions can be made. The time, effort and cost involved in incorporating dynamic style guides deter companies despite their apparent effectiveness.

Company B has a hard time implementing even Simplified Technical English. Methods such as software related tools, like Company A uses, were considered to solve this issue to enforce company standards. As writers are constantly reminded of the rules, they get used to thinking inside the box when designing and writing content. They are more easily accessible to writers and user-friendly but more expensive than external reference tools which convey the same information. Company B does not intend to invest in new tools so writers are working on a new glossary which compiles all the troublesome terms and grammatical questions and documentation is being updated with new procedures complying with the rules of STE. The updates aim to show the writers which words they can use and how they can structure their sentences, but it also aims at influencing them: the more

they read consistent text the more they are likely to reproduce it. However, this method is not perfect. As Tom Person, a technical writer, points it out in the article *Consistency* on his blog, you cannot see all the mistakes.

## **Collaboration as a Motivator**

Indeed, writers need to work as team to make consistent documents. To do so, they must share the same knowledge. Collaboration based methods can back up tools to reach consistency. Editorial or peer review processes not only spot errors in the content and its logic, but also rules that have become outdated or are impossible to follow. For example, the peer review process in our companies continuously opens the teams' eyes to inconsistencies. These meetings allow writers to work together, debate and agree on rules to follow.

The editing committee at Company B found that a few words were not appropriate for a documentation written in Simplified Technical English, and at the same time writers realized they were using different verbs for the same action. Indeed, one writer would write "Remove the screw" and another "Unscrew the screw". At Company C, the committee meets weekly to reread each document, one by one. The pressure that knowing the entire team will be reading your work and looking for errors is great motivation to use the tools available, whatever they are.

The peer review process also points out mistakes in the content flow. At Company C, the team tries to adhere to a vague content order (Create, Edit, View) but the committee has proven that this isn't always possible. Content needs to be written according to the product it describes, not necessarily according to an imposed guideline. Exceptions will always need to be accommodated so tools and, especially writers need to be flexible.

In Company A, writers are highly recommended to send any new content for an editorial review. The editor makes this review based on the company's style guide and rules, and is also part of a community within the company that communicates on the evolutions of the rules. But reviews are costly because they take time, especially if there is not enough effort on the part of writers to comply with the company's standards, or if they don't have easy access to them.

## **Investing in Technical Writers**

Despite having access to a plethora of tools and writing guidelines, our experience shows that the inconsistency issue still remains because the writers think they know better. That is the crux of the

matter. Team managers have to find ways to enforce consistency. Is it better to change the tools or to help the writers evolve?

Companies B and C are good examples of this situation. Senior writers are not reminded of the standards and they get stuck in their bad ways. They do not want to change their methods. According to them, it would take too much time to update all the documentation. This is disagreeable yet understandable as writers must comply with tight delivery deadlines.

Training a team of writers to listen to each other, use the tools provided and be open to change is crucial. A good way to support such training and to have writers agree with the standards they use, is to involve them in the decision making process. Managers are key to increasing teamwork. Technical documentation is not black and white. Creativity shouldn't be extinguished but it can be controlled by putting the right combination of technology and manual organization in place.

## **Conclusion**

At the end of this study, we come to the conclusion that the lack of consistency in documentation can be the result of poor writing guidelines, unclear style guides and inappropriate tools. However, the main issue is that the standards defined by a company are not well understood by all-too-independent writers. The most logical thing to do is to ensure writers know how to enforce writing rules and especially why they need to. After studying how three companies deal with consistency we find that two complementary methods stand out. The first consists of using tools and guidelines, for example, spell checkers determine whether the vocabulary complies with the terminology defined by the company. A template ensures that the content is structured according to the models established by the information architect. The second method is the key factor - companies must train writers to use these tools, make sure they are well understood and then remind writers to put them to good use.

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