

# **A Guide to Standardizing and Organizing Documentation**

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# Introduction

This document explains a basic, workable system for standardizing and organizing documentation, using commonly available technologies, in a way that maximizes productivity and minimizes common problems. It is intended for a company using Microsoft Word or a similar product as its primary publishing tool.

## Why Do You Need A Documentation System?

There are three main reasons why companies or organizations need a documentation system:

1. It makes their documents better.

The use of document templates makes documents more uniform and professional in appearance. In addition, templates also ensure uniformity of structure among similar documents, making it easier to go from one document to another. Templates can also add features like tables of contents that some users would have difficulty adding on their own.

2. It allows them to find information more easily.

Establishing a uniform system for organizing directories of documents makes it much easier to find what you're looking for. A good documentation system also encourages documents to be stored on network drives, instead of on individuals' PCs, where others cannot access them.

3. It makes their work easier.

A properly set up document template will actually make it easier to create documents because the template can automate some of the work for you, and because it prevents you from having to reinvent the wheel for each new document. A system that encourages storing files on a network drive is also easier for network admins to support, because docs are in one place where they can be easily archived.

## What Makes a Good Documentation System?

1. Easier to use than not to use.

If you can make using your documentation system the path of least resistance, people will use it gladly. This can be done by proper use of templates to speed up creation of documents, for instance. If a system is cumbersome, people will tend to work around it, and it will be difficult to roll out across multiple work groups.

2. Based on simple principles that are easily understood and applied.

The goal is to eliminate people having to guess or make judgement calls on where to store things or look for things. At the same time, the system should be easy to use: you don't want to make people have to learn the Dewey Decimal System, or constantly be referring to a convoluted index to find things.

3. Maintains ownership of documents and directories.

It is important for work groups to "own" their own directories and documents, because it makes it easier for them to maintain their own documents. Ownership also makes it easier to establish responsibility for documents and directories when it inevitably comes time to clean house. Lastly, a system which takes documents away from their owners quickly leads to the owners working on local copies on their PCs, defeating the purpose of having the system in the first place.

4. Able to scale up to handle large numbers of documents and users.

Many systems of organization work on a small scale. Not all of them keep working as an organization grows. For instance, a documentation system based on one person or group of people doing everything for the rest of the organization is not likely to succeed in the long term, because the person or group becomes a built-in bottleneck.

Also, issues of finding documents become far more important as the size of the organization grows. A system which is amenable to indexing and searching is far more likely to be successful on a larger scale.

5. Capable of being used by all work groups within a company or organization.

It is far better for a single system to serve everyone within a company than for competing, noncompatible systems to be used by different groups. For one thing, it will be almost impossible to provide uniform search capabilities across the entire organization's documents if different parts of the organization are using different proprietary systems. Secondly, there are often economies of scale which will work in an organization's favor, making a single system more affordable than multiple smaller systems.

In order for a system to be usable by all members of an organization, there should be as little specialized knowledge required to use the system as possible.

# Implementing a Basic Documentation System

There are five steps to implementing the system laid out in this document:

## **1. Demonstrate the need for a documentation system (if necessary).**

Before you can put a system in place, it may be necessary to rally support among employees and management, in order to get the support and buy-in needed to put the system into place and make sure people use it.

## **2. Create document templates.**

Documentation needs to be standardized using templates for a number of reasons. Firstly, because uniform documents present a more professional appearance. Secondly, because the use of templates helps ensure that necessary information will always be present. Thirdly, documents created from a single template will be structured identically, enabling users who have learned the structure to find information within different documents more rapidly. Lastly, the use of templates, if done properly, can also speed up the production and quality of documents immensely.

## **3. Create a documentation directory on a network drive**

Once documentation is created, the files need to be stored in a single place, so that users will not have to search every computer on the network in order to find a document. A network drive is ideal for this purpose, as it can be accessed by all users throughout an organization without the use of specialized software. Using a network drive also facilitates regular backups of documentation, which can be invaluable in the case of a hard drive crash on a user's PC, or similar disaster.

## **4. Organize files and directories in keeping with the structure of the organization**

The number of files generated by even a small group will quickly create a problem if they are not organized into sub-directories. However, as soon as this is done, people start having trouble finding things. Therefore, it is important to organize files and directories based on some universal and obvious system. It is important that this system requires as few "value judgements" as possible when deciding where to file something, because then different people will have trouble understanding each other's decisions on how they organized things.

One system that has been proven to work is to organize the directories based on the structure of the organization, with each group having their own directory, and each sub-group or task they do having its own subdirectory within that directory. Everyone knows which group(s) they are in, after all.

## **5. Provide advanced search and indexing tools**

Once documentation is placed into an appropriate set of directories, the files and directories need to be indexed so that users can easily find files on a specific topic out of all the files out on the network. This indexing can be done through the use of automated tools, either bought from vendors or created in-house. Documentation can also be broadcast throughout an organization via an intranet.

## Demonstrating the Need for a Documentation System

No matter how much work you put into setting up the system, you will have to present the system to the users. And as they say, you'll never get a second chance to make a first impression.

Users must be convinced that the documentation system is easy to understand and use, and that its advantages will make their jobs easier in the long run. Convincing them that it is "nifty" is not really a goal.

### Things To Do

- Recruit department heads. They are the key to settling the system in place throughout the company because they know what their employees want and roughly how they see things. They are also the persons you will want to take control of the documentation tree.
- Test the system first with a limited release to a small number of interested people. Let them find out what breaks, and fix it before the majority of people ever see the problem.
- Concentrate on selling the non-technical users on the merits of the system. Techies will probably already be sold, and will be able to adapt in any case.
- Have the complete system in place for the launch. You don't want it to seem haphazard.
- Give users something interesting to do with the system right out of the gate.
- Introduce users to the system in small informal groups. This makes it easier for people to ask questions, and gives you the ability to see who is having problems with the concepts and work to meet their needs.

### Things To Avoid Doing

- Don't rely on technoglitzy to sell the system. It won't impress the techies, and will alienate the non-technical. Use simple, direct language.
- Don't attempt to hide all the mechanisms behind the curtain. In order for people to use the system, they will have to know some basic details of its operation. Figure out what is important and make sure they are taught it.

## Creating Document Templates

The simplest way to standardize formatting and document structure is to provide workers with document templates that are outlines of the documents they will need to create. This way, the finicky details of formatting are already taken care of, and creating the documents according to spec becomes the path of least resistance.

Standardizing documentation is important for a number of reasons:

- If done properly, creating a document using a template will save the writer all the effort of creating the style and outline of the document themselves, and will therefore improve buy-in on the documentation system as a whole.
- Standardized documents are more attractive and present a more professional appearance than a collection of documents which do not match each other.
- It forces the people who write the documents to include all important information.
- Standardized documents are easier to read. Users know what to expect when they look at a standardized document, and don't have to get used to the style.
- Standardized documents make much better reference materials. Users can pick up a standardized document and immediately flip to what they need. If documents are not standardized, users must first figure out how the document is organized, or read through the whole thing to find the part they want.

### Things to Do

#### **Provide Training and Documentation**

It's generally not enough to say "Here are the templates: go to work!" People need to be taught how to use the templates. They need to see instructions and examples. Printed documentation is important, and some training classes may be needed as well.

#### **Stick to Common Fonts**

There are only two ways to ensure that a document has all of the fonts needed to render it properly on any random PC it might be opened on:

1. Distribute the document only as a .PDF file with the fonts embedded in it.
2. Distribute your special fonts to every single Windows machine on your network.
3. Use only the standard Windows fonts: Arial, Courier New and Times New Roman.

The last option is by far the easiest, and yields perfectly acceptable results. Stick to the standard fonts.

## **Automate Common Chores**

Modern word processors like Microsoft Word provide macro languages and other tools which allow your templates to do work for your users. This saves them time, and ensures that things will be done your way: a win-win situation.

- In Microsoft Word, you can create a form which will appear each time you create a new document (the form is displayed by an AutoNew macro that triggers when a new document is created from the template). This form provides the user with a convenient place to enter information like the document title, the name(s) of the author(s), and the document version number. Once the information is entered, the user can simply hit an OK button, and the information can be automatically written to wherever it is needed within the document in one simple step. This is a big time-saver for the user, and ensures compliance for the administrator.
- Use Styles to apply formatting to paragraphs. This helps eliminate mistakes in formatting, allows you to change the formatting easily, and is much faster than formatting paragraphs by hand.
- Use Heading styles and the TOC field to build an automated table of contents from your page and section headings. This provides your document with a table of contents that is always accurate and up to date. Don't use TC fields: building the TOC off the headings is faster, easier, and requires less maintenance.
- Mark pages you want to appear in your index with Index Entry ("XE") fields, and use the Index field to build an automated index at the end of the document. The index thus created will automatically keep its page numbers up to date. The only maintenance required under such a setup is to index new sections of the document as they are added.
- If you want the title of the document to appear on every page, use a TITLE field in the header or footer to pull the information from the Title Property of the Word document and display it on every page. The Title Property can be filled in by the automated form mentioned above, and the TITLE fields included with the template, so that the information will simply appear in the footer or header without users needing to even think about it.

## **Collect Information for Automated Searching and Indexing Later**

One useful thing that can be done with a template is to specify keywords for each document which can later be collected programmatically and used to create an index that would allow users to search for documents across the entire company. The keywords can be entered by the user in an automated form that appears when the document is created, and can be stored in the Keywords Property of the Word Document.

## **Optimize for Online Reading**

All documentation standards should be created with the idea of being browsed online rather than being printed out. Printouts will still be possible, but will become a secondary means of accessing the information.

## Things To Avoid Doing

- Make sure that ordinary employees will be able to create and update documents, not just the tech writer. Let's face it, if a whiteboard was something you had to have an expert come up and write on for you, nobody would want one.
- Don't use a page numbering scheme in your templates that your word processor won't actually support. Simple consecutive numbering of pages is best, though you can use "1-1, 1-2...2-2, 2-2" if you must. You can fake other types of page numbering schemes, but the numbers won't come out properly on an automated TOC and index.
- Don't use tip-in pages to add content to your documents. That may work in paper distribution and to a lesser extent in .PDF, but it does not work at all in most word processors.
- Don't use some automated tool to build an index that lists every page on which the word "transmitter" appears. When your users look up "transmitter," they should find only the pages that are actually about the transmitter, not the dozens of pages which refer to it in passing. This requires some human discernment, but without it the index is largely useless.
- Don't use absolute path names (e.g. "C:/My Documents/big project/graph.xls") when linking files into your documents. Instead, keep related files within the same directory and simply refer to them by name, without listing the path (e.g. "graph.xls"). This type of relative link is much less likely to fail when directories are reorganized.

## Creating a Network Directory

Once users have their tools for creating documents, they will need a place to put them so that others can read them. A directory on a network drive is ideal for this purpose.

### Things To Do

- Set up user's PC so that everyone uses the same network drive letter for the documentation directory. This eliminates confusion over where the documents are.
- Use read/write permissions to allow users to write only to their own groups' directories. Generally, you should allow everyone to read everything, with the exception of sensitive materials found in Human Resources or Accounting.
- Use read/write permissions to prevent people from accidentally changing or writing over their document templates. Put the templates in their own directory and make users have to log in a "template administrator" for their group to be able to edit the templates.
- Try to keep all the files on a single network drive, if possible. This provides the major advantage of having all documentation in one place, making it far easier to find things, and to do backups.
- Use some kind of RAID/drive mirroring/clustering solution to ensure uptime of your network directory. The network directory will become a critical part of your company's infrastructure, so that down time can be crippling. The good news is that file serving is a simple task that can be made bulletproof with competent IT staff.
- Make sure that regular backups of your documentation directory are made, so that you will not be wiped out in a disaster. Backup interval should be no greater than a week, nightly would be ideal. You may also want to look into off-site storage for backup tapes.
- Test your backups. After the server crashed is a bad time to find out the backups were faulty.

### Things To Avoid Doing

- Do not store files on people's local hard drives. A local hard drive is rarely backed up, will eventually crash, and when it does, all the data stored on it will be lost.
- Don't skimp on disk space. Allocate at least 100 MB per user, including all of the users you might be hiring within the next several years. Disk space is dirt cheap and it's harder to add more later.
- Do not forget to buy extra hot-swappable drives for your RAID ahead of time. If you don't pay the couple of hundred dollars that this will cost, you will lose tens or even hundreds of thousands of dollars in lost work time when a drive failure occurs, and a failure is inevitable.

## Organizing Files

Once the documents have been created and given a place to be stored on a network drive, the files must be collected and organized in a rational fashion. Documents are useless unless the readers can find them.

It is important to have a system for organizing documents, and for that system to be simple and obvious enough that people don't have to think very hard to use it.

One system that has been proven to work is based on the overall structure of the company. Each major division of labor is given its own directory: Engineering, Production, Customer Service, Administration, etc. Each of the directories for these divisions has subdirectories for the individual workgroups within the divisions. Each of the subdirectories for the workgroups has subdirectories for their various ongoing projects and tasks, and so on.

This organization scheme has the following major advantages:

1. Since all employees know what workgroup(s) they are in, and what workgroups others are in, they automatically know where to look for files.
2. Each division and workgroup can be given ownership of their own subdirectories, at which point questions about where to put files, etc., can be handled by department heads instead of a centralized, overworked and hard to replace know-it-all.
3. It is easily expandable to allow for growth: simply subdivide directories as they begin to fill up with too many files.
4. It is flexible when business reorganization occurs: directories for workgroups can be moved to reflect new organizational realities without disrupting their contents.
5. All files are owned by specific departments, so that when old files need to be cleared off the server, administrators will know who to talk to.

## Principles of Organization

### Things To Do

- Create a single "documentation tree," i.e. have all your documentation coming from a single master directory. This way, when you need to find something there is only one place to check.
- Use subdirectories to divide up the master directory for clarity. As each directory **fills** up, you will need to break it up into subdirectories to prevent the "hundred files in a directory" problem. Consider dividing up files once you get more than a dozen.
- Make sure that each directory in your **file** tree is owned by a single person, or by a group with a well-defined leader. That way there will be someone to answer questions about the directory, perform maintenance on it, and delete unwanted files.
- When members of different groups meet to form a team, give that team its own directory separate from those of the members' groups.

- Keep after things on a steady, low-level basis. if you slack off, then react to disasters, you will end up doing more work, and completely interrupt other people's work patterns.
- Keep all the files for a project together in their own directory.
- When a project is completed, zip up all the files into a PKZIP archive & make sure the archive is backed up onto tape. This ensures that none of the individual files will be lost.

### **Things To Avoid Doing**

- Don't keep dozens of files together in a single directory. Even if the directory is well indexed, sorting through large numbers of files is time-consuming and discouraging to the user.
- Don't take a single person and put them in charge of everything. For one thing, this builds a huge bottleneck into the system from day one. It also makes the false assumption that the one person will be in the know about everything that goes on in every department. Far better to divide the work among the departments themselves!
- Don't put all the **files** of a certain type in their own directory (ex: all the bitmaps in a BMP directory). This seems like an obvious thing to do, but it doesn't work in the long run. The result is often a jumble of files from a dozen different projects, all mixed together, none of which "belong" to anyone, which no one person can go through and clean out, and whose original reasons for existing are often entirely obscure.

## Providing Advanced Search and Indexing Tools

Even if your directory structure is a logical masterpiece, users will need help finding documents on a given subject, especially in a large organization.

### Things To Do

#### Keep Your Documents Online

Modern documentation is increasingly distributed online, for a number of reasons:

- With online documentation, physical distances are no longer a barrier to communications.
- Online documentation can be kept up-to-date more easily than printed documentation, since the file which users look at can simply be changed, instead of having to send out fresh hardcopy and make sure old hardcopy is replaced.
- Modern hypertext systems allow greater flexibility in presenting information than traditional printed manuals (although the segmented nature of hypertext can make it difficult to find all information on a particular subject).
- The advent of the World Wide Web has provided a widely accepted open standard for communication, supported by a huge number of tools and utilities, many of which are distributed as freeware.
- Online documentation is less expensive to produce and distribute than printed manuals. This advantage increases as projects get bigger and more complex.
- Online documentation takes up less space than an equivalent set of printed manuals. This advantage increases as projects get bigger and more complex.

#### Build in Human Discernment at the Ground Level

Get people to provide info about the documents when the files are created (done with templates by executing a macro every time a document is created which prompts for the information). This information can then be collected programatically and used to create your indexes and search engine databases.

It is important that this information be captured at the beginning of the documentation process, because it is by far the path of least resistance. People don't want to spell-check their documents, they certainly won't want to go back and provide keywords.

#### Give the People What They Want

Organize your indexing system to fit people. When they want to use it, they will be asking "Where is X?" or "What files exist on subject Y?" or "Where is the directory for Z?" They won't be interested in learning your amazing directory structure, even if it's important that that structure be in place.

## **Automate the Process Where Possible**

You cannot automate the selection of keywords, but you should automate their collection, processing and republishing as an index. There are two advantages to this:

- It is less work for those maintaining the system.
- It allows you to update the index constantly. The list of documents will grow and shrink, shuffle around and mutate. You have to have a system which keeps up with a moving target.

## **Protect Confidential Materials**

Remember that not everything should be browsable. Things like employee information, payroll records, etc, should not be included in your index and search engine, and should be walled off and protected by a separate password to prevent unwanted access.

## **Things To Avoid Doing**

- Don't reinvent the wheel. See what tools are being widely used that will fit your needs. Avoid using proprietary tools and closed standards. If you adhere to open standards, other people out there on the Internet will make useful things that you won't have to create for yourself, or buy from a monopolistic software manufacturer. Using widely-accepted standards also will make it easier to upgrade down the road.
- Don't put all of the documents into a database or version control system. Doing this forces you to have two copies of the document floating around: one in the database, and the one that you're working with, leading to problems and confusion about which is most up to date. It also takes away the documents from their owners, and requires everyone in the company to be trained to operate the database or version control software.
- Don't assign one person the job of indexing all of the documents while leaving the rest of the company to go on as before. This builds a bottleneck into the system, as the person will invariably fall behind. It can also prevent groups from being able to really take ownership of their files, which is bad.
- Don't build some automated index that lists every document in which the word "transmitter" appears. When your users look up "transmitter," they should only find the small group of files that are really about the transmitter, not the dozens of files which only refer to it in passing. This requires some human discernment, but without it the index is largely useless.