Chapter 2

Fundamental concepts of reuse

Content reuse is fundamental to a successful unified content strategy. This chapter defines content reuse and the benefits of its use. It explores how other industries have employed reuse for decades to improve their processes and the quality of their products. Content can be reused in many ways. The choice of the different methods and options for reuse are dependent upon your organization's needs and technology. This chapter details the pros and cons of using each method and the associated options, and it provides the concepts that underlie the remainder of the book.

What is content reuse?

Content reuse is the practice of using existing content components to develop new "documents." Although the majority of reusable content is text-based, any content can be reused (such as graphics, charts, media). Text-based materials are the easiest to reuse. You can reuse sections, paragraphs, sentences, or even words. It is easier to reuse graphics, charts, and media in their entirety than it is to use portions of them, but new standards such as Scalable Vector Graphics (SVG), a new Internet graphics standard, make it possible to create reusable media. For example, in the past if you wanted to reuse a graphic but change the callouts (for example, translated versions of the callouts were required) you either had to re-create the graphic and callouts or use one tool to create the graphic and another to layer the callouts. Now, the XML aspect of SVG makes it possible to layer all the components of a web graphic, thereby facilitating reuse.

Most organizations already reuse content, though they copy and paste it. This works well until the content—and everywhere it appears—has to be updated. Then it can be time consuming to find every place the content has been copied and reused and change it. Not only is this time consuming, but some occurrences may be missed, resulting in inconsistencies and inaccuracies. In addition, over time, inconsistencies tend to layer themselves, until original inconsistencies become buried and you end up with two completely different content sources.

Reuse, as discussed throughout this book, is the process of "linking" to an element of reusable content. The reusable content is displayed in the document in which you are working, but it does not actually reside in the document. Your organization may have already practiced this kind of reuse with graphics in Microsoft Word (Insert, Picture, From File, Insert and Link). When the reusable element is updated, it is updated wherever it occurs. This saves a lot of time and money in maintenance (change once, automatically change many).

Why reuse content?

Today's businesses are overwhelmed with the need to create more content, more quickly, customized for more customers and for more media than ever before. Combine this with the issues of decreasing resources, time, and budgets, and you have a stressful situation for organizations and their content creators.

Reusing content can provide a dramatic improvement in the way content is created in an organization. Improvements include increased quality and consistency and long-term reduced time and costs for development and maintenance. In addition, reuse provides support for rapid reconfiguration of your content to meet changing needs, facilitates content inventory, and makes it easier to assess content needs. Reusing content provides the following advantages:

- **Increased consistency**

  When content is written once and reused many times, it ensures that the content is consistent wherever it is used. This consistency leads to higher-quality content.

  Content written for reuse is structured content. Structured content is content that is similarly structured for similar types of information. Structured content leads to a more consistent writing style.

- **Reduced development and maintenance costs**

  Development costs are reduced because the amount of content a content creator has to create is reduced. Rather than writing all new content, or taking the time to find and copy content to be reused, reusable content is either rapidly available through improved management facilities (such as, metadata and content management) or is automatically made available to the author (systematic reuse). In addition, your content is better organized and processes are more efficient, reducing costs further.

  When content is changed, content is automatically changed everywhere it is reused. Your organization does not have to determine every place that content exists, either in its original form or in a modified form; it is automatically tracked by the content management system for rapid selection and update.

- **Rapid reconfiguration**

  Reusable content is modular content (small self-contained components that can be used in combination with other components). In today's rapidly changing world, products and customer requirements are constantly changing. Modular reusable content makes it easy for organizations to rapidly reconfigure their content to meet changing needs. You can easily change the order of modules, include new modules, exclude existing modules, identify whether something is missing (and what it might be), and use modules to build entirely new information products to meet new needs.

- **Translation**

  The cost of translation can be significantly reduced through reuse. Although translation memory systems have assisted organizations to reduce costs through pattern matching, reuse further reduces the cost. Each time content is sent for translation, it is run through the memory translation tool to identify content strings (text) that already have been translated. When content is reused, any content that has been reused and already translated can be automatically inserted into the version to be translated. This means that the previously translated content is skipped and the time to identify content that must be translated is reduced. Alternatively, if your content management system does not support the automatic insertion of previously translated content, you can ensure that the translator receives only the elements that require translation.

  You can also rapidly reconfigure translated content and even deliver brand new information products from existing elements that have already been translated, without ever having to send the content to translation and pay additional costs!

  The less easily measured benefits of consistent structure, consistent terminology, and standardized writing guidelines that reuse requires also reduce the costs of translation.

  Finally, often a large cost in translation is in reformatting content. Frequently content must be converted from the original source format to RTF (Rich Text Format) before it can be translated into the target format (for example, Help, FrameMaker, HTML). When it is converted it loses much of its formatting. When content is separated from format, it is easy to automatically reformat content, regardless of language (see Chapter 20, "Separating content from format").

The historical foundation for reuse

The concept of reuse is not new. Many industries have turned to reuse to reduce costs, increase productivity, and standardize their processes. The manufacturing and computer software industries have been using reuse strategies for years, and the technical communication industry developed content reuse strategies in the early 1990s.

Manufacturing

Reuse has been employed in the manufacturing industry for decades. Manufacturing companies do not create new versions of the components of their product each time they manufacture the larger product. For example, cars differ in design, but rarely in structure. A significant portion of the car will be composed of the same parts that are included in other models (such as the chassis, for example) and even in models developed by different car manufacturers (such as axles, tires, and spark plugs).

Software industry

Likewise, the concept of reuse was introduced in the software industry more than 30 years ago, but it has gained widespread acceptance in the last decade. Prior to adopting reuse strategies, the software industry created software in much the same way content is created today, with programmers creating their own code and sometimes copying and pasting existing code. However, as the concept of software reuse became accepted, organizations moved to software code that was modular and specifically designed to be reused.

Technical publications

Pushed by the need to develop multiple versions of the same information, in multiple languages, in multiple media, on tight deadlines, the technical communication industry developed content reuse strategies in the early 1990s[1].

The technical communication industry refers to the concept of reusing content as *single sourcing*. Single sourcing implies that there is a single source for content; content is written once, stored in a single source location, and reused many times. As the technical communication industry started learning more about how to reuse content in different ways, single sourcing has moved through the following phases[2]:

1 Some organizations used Standard Generalized Markup Language (SGML) to reuse content in the 1980s but SGML-based reuse was not widespread.

2 Rockley, Ann. "Designing Effective Single Source Materials," Proceedings of the Society for Technical Communication, Annual Conference, 2001, Orlando, FL.

- **Phase 1—Identical content, multiple media**

  Identical content was made available in multiple media (such as paper, Help, and HTML). Little attempt was made to differentiate the content or the presentation of the information to accommodate for the differences in media and usage. If the materials were modified to fit the media or address the fact that online information is used differently than paper-based information, the materials became quite different and were not single sourced (updates had to be made to two sources).

  As writers became concerned about the effectiveness of identical content used in multiple media, they moved to Phase 2.

- **Phase 2—Static customized content**

  This type of single source material is customized to meet the needs of the user, the type of materials to be developed, and the media. The author deliberately "builds" the customized output from the single source to meet the specific user needs or output. Authors select from elements to create customized content (such as for different users or products). This results in customized information that is static (cannot be changed without the author's intervention).

  Although content is customized, it does not mean that the content is rewritten for each usage. Rather, sub-elements (for example, greater or lesser detail, or illustrations of screens in the paper document but not in the online document) are used where appropriate.

  This form of single sourcing produced much more effective and usable materials, but was also time consuming.

- **Phase 3—Dynamic customized content**

  Dynamic content does not exist in or as a document; it is information that is assembled only when it is requested. It exists as a series of information objects that are assembled in response to the user's requests or requirements. Users identify required content, or a user profile automatically identifies that user's requirements and delivers customized content.

  This type of reuse does not rely on the author to build the document, but does rely on effective information models that can predict how to provide the appropriate information at the right time.

  For more information about this type of reuse, see Chapter 10, "Designing dynamic content."

Web content management

Those responsible for the creation of web content embraced the concept of reuse in the late 90s. As it became more and more difficult to maintain sites, develop consistent material, and deliver current content, "web masters" began to adopt content reuse. Initially, reuse extended only to banners and other visual and navigational components, but it has now extended to common content reuse where appropriate. A portal is a good example of dynamic content reuse.

Learning materials

The educational and business learning industries have also begun to adopt reuse models. In 1997, Advanced Distributed Learning began working on a reference model that defines reusable learning content. This model is known as SCORM (Shareable Content Object Reference Model). This is a model for sharing learning objects. Organizations are beginning to adopt the principles of writing reusable learning objects (RLOs) and learning tools vendors are making their products SCORM-compliant.

Media

The news media are using content reuse. Reporters write content once and elements of that original source are published to different media in a variety of formats and languages. Content from one story may appear in a multitude of media (in a newspaper, on a web site, on web sites of others who purchase content services, in PDAs and cell phones, on portal pages, radio broadcast scripts, marquee signs, electronic billboards, and in various languages).

Reuse methods

There are two methods for reuse: opportunistic reuse (an author makes a conscious decision to reuse content) and systematic reuse (planned reuse where content is automatically inserted). Within each method of reuse are three options: locked reuse (reused content cannot be changed), derivative reuse (reused content can be changed) and nested reuse (multiple versions of the content are contained within the same element). This section details the methods and options for reuse.

Opportunistic reuse

Opportunistic reuse occurs when the author makes a conscious decision to find an element, retrieve it, and reuse it. Opportunistic reuse requires that the author be aware of the opportunities for reuse and be motivated to search for and retrieve reusable content. Opportunistic reuse is the most common form of reuse. Opportunistic reuse does not rely on specific technology; it can be done without a content management system, although a CMS is advisable.

Any content can be used in an opportunistic reuse situation. In some ways, opportunistic reuse is a replacement for the "copy and paste" that many organizations use. However, opportunistic reuse is not copy and paste because reused content does not actually include the content in the "document"; it is actually a "pointer" to the source content.

Many organizations use opportunistic reuse when they need to rapidly reconfigure their information products to meet new product or customer requirements. One organization found that they could even create new translated documents by using existing reusable elements without having to have any new content translated (that is, they could use existing translated elements in a new configuration).

Opportunistic reuse provides authors with the greatest flexibility because it provides them with the choice to reuse content and to determine which reusable content is appropriate. However, opportunistic reuse results in the lowest incidence of reuse because it puts the burden on the authors to want to reuse content, to know that potential reusable content exists, and to go and find the content they want to reuse. If there is a lack of motivation, or a lack of awareness that a suitable reusable element exists or might exist, or if it is difficult for authors to find the appropriate element, reuse may not occur. In addition, authors may reuse content inappropriately; there are no safeguards to prevent this.

To increase the effectiveness of opportunistic reuse, organizations can optimize retrievability, provide guidelines, and ensure that authors are effectively trained. Retrievability can be optimized through the use of content management systems, effective categorization of content, and rich metadata. Reuse guidelines

include models to help authors identify where content should be reused (see Chapter 8, "Information modeling"). Training ensures that authors are trained to use the models and the content management system and to follow guidelines for reuse. Organizational incentives can provide motivation for authors to reuse content.

Systematic reuse

Systematic reuse is planned reuse. Specific content is identified as reusable in a specific location. Then the content management system automatically inserts (auto-populates) the reusable content in the appropriate locations in the document. The author does not have to determine whether the reusable content exists or search for and retrieve it. Systematic reuse ensures that content is reused and reduces the burden on the author to know that reusable content exists, to find the reusable content, and to insert it appropriately.

Systematic reuse is dependent upon detailed information models, reuse maps (identification of where content is reused in your information set), and support for dynamic delivery of content through your content management system. This means that systematic reuse is planned for in advance, in the modeling and system configuration stage. Authors do not determine reuse; the system determines reuse.

The content management system uses your information models to identify where content can be reused. If a content element exists and matches the author's specific content requirements, the reusable elements are automatically inserted into appropriate spots in the document (that is, the document is pre-populated with content).

Systematic reuse is the most costly to implement because it requires the most planning for reuse, the creation of detailed models and reuse maps, and appropriate technology (for example, a dynamic content engine), but it provides the greatest return on investment. Return on investment is achieved through guaranteed reuse (reuse is automatic and not dependent on author motivation and knowledge of existing content).

Authors can perceive systematic reuse as being overly restrictive (that is, it does not provide flexibility and opportunities to be creative). This perception can be reduced if authors are provided with the opportunity to modify reusable content where appropriate (derivative reuse) and to choose not to use reusable elements when they are not appropriate in the given instance. However, care should be taken to ensure the effectiveness of systematic reuse is not diminished through increased flexibility. You need to ensure that content that *must* be included cannot be removed, that content that should not be changed is not editable, and that authors are educated on the value of systematic reuse.

Use systematic reuse when your content is very structured and you can explicitly identify where content is to be reused, and where you want to ensure that specific content is reused.

Examples of systematic reuse can include corporate standard information such as trademarks, copyrights, license information, and warranties. However, systematic reuse can be used wherever an organization wants to ensure that content is reused (for example, in product descriptions, warnings, cautions, notes, definitions, company profiles, and disclaimers).

Example: Systematic reuse

A consulting company that does process re-engineering creates a series of reports (analysis, recommendations, implementation). To assist consultants in the report writing process the company has implemented systematic reuse. Analysis reports identify the issues observed within the organization. The consultant summarizes the issues at the beginning of each section. The summaries are reused in the Executive Summary unchanged (locked). The issues are reused (locked) in the recommendations report and each issue is addressed by a recommendation. The recommendations are summarized at the beginning of each section and are reused (derivative) in the Executive Summary. In this way, after consultants write the content, they don't have to worry about copying and pasting content into the other portions of the report or the next report; the content is automatically reused appropriately (see Figure 2.1). In addition, the author can choose to change the reused content to ensure it fits the current situation (for example, in the Executive Summary of the recommendations).

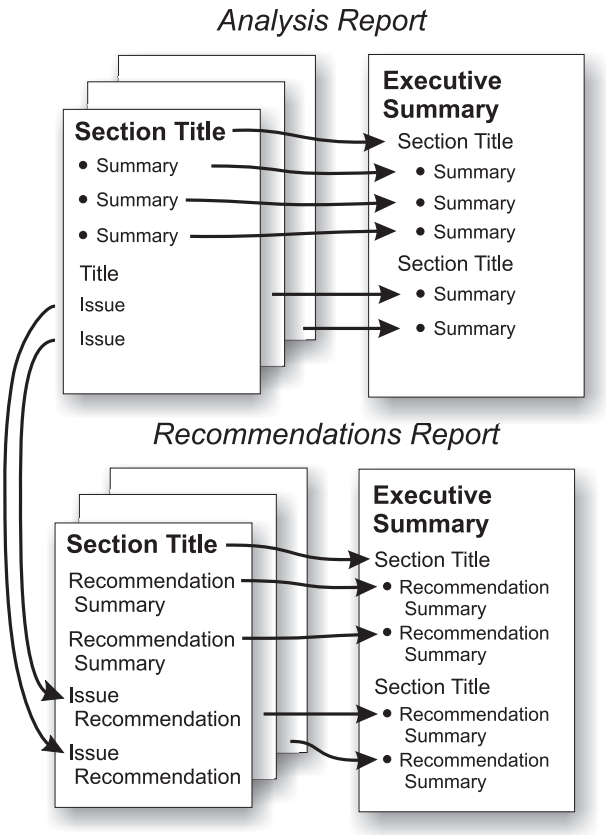


Figure 2.1 Systematic reuse.

Locked reuse

Locked reuse is where a reusable element is reused unchanged. Only an author with appropriate permissions may change the content of the element. This ensures that key content is reused identically. You can systematically reuse or opportunistically reuse a locked element.

Types of content that are commonly locked include legal information, cautionary information, standard statements of disclaimer, company descriptions, product positioning, or branding information. Any content that you do not want changed by others can be locked.

Use locked reuse when you want to ensure content is not changed when it is reused.

Derivative reuse

When an author edits a reusable content element, the resulting element then becomes a derivative, or a "child" of the original "parent" element. An element that is systematically reused or opportunistically reused and is not locked can become a derivative element. A derivative element continues to be related to the original, such that if the original (parent) changes, the author of the derivative (child) element is notified of the change and the change can be incorporated or not as desired. Providing derivative reuse increases the flexibility of reuse.

Derivative reuse is common in organizations where key content should be retained, but such changes as the following may be made to the content:

- Tense (for example, in content used over time in different reports)
- Spelling (for example, American English versus British English)
- Order of the content
- Emphasis (for example, changing the focus of benefits from one set of features to another to address different regional needs)
- Use (for example, a brochure which would be very marketing oriented and a user guide which would be more product usage oriented)

Translated content is an example of derivative reuse (the original language element is reused, but the content is replaced by the translated content); however, the relationship is maintained to ensure that whenever the source element is changed, the translated element is identified as requiring change. In the case of translation, the entire content of the element is changed; however, in the majority of cases of derivative reuse, only a few words are changed or sentences are added or deleted. For more on content relationships see Appendix E, "Content relationships."

Example: Usability reports

A company is planning to conduct a usability test of its new Internet site. They create a proposal for management to indicate the types of users they will select, then they conduct the test and write the summary report. They derivatively reuse content from the proposal in the summary report. Compare the pieces of the two reports (Table 2.1) to see how the content changes derivatively.

Table 2.1 Example of derivative reuse

Usability test proposal report selecting test subjects	Usability summary report selected test subjects
The following criteria for selection **will be** used to ensure we **get** appropriate test subjects from all our key customer areas including: • Commercial customers • General public customers • Decision-makers	The following criteria for selection **were** used to ensure we **got** appropriate test subjects from all our key customer areas including: • Commercial customers • General public customers • Decision-makers
The selected test subjects **should meet** the following criteria: • English as a first language • Uses the Internet at least twice a week • Uses Product ABC • Has previously used our Help Desk for assistance	The selected test subjects **met** the following criteria: • English as a first language • Uses the Internet at least twice a week • Uses Product ABC • Has previously used our Help Desk for assistance
Each participant **will be** asked to complete a pre-test questionnaire (see Appendix A "Checklist for implementing a Unified Content Strategy") **to** enable us to assess prior knowledge and experience.	Each participant **was** asked to complete a pre-test questionnaire (see Appendix A) **that enabled** us to assess prior knowledge and experience.

Nested reuse

Nested reuse is content that has a number of reusable elements contained within a single element. The sum of all the elements creates an element, and subsets of the element can be used in alternate information products. Nested reuse does not involve building from small reusable elements; rather it involves an element that contains all the reusable sub-elements.

Nested reusable information enables authors to create content for all the outputs at the same time, thereby providing context and frequently speeding up the content authoring process. When content is nested, all the relevant content is available at a glance.

Nested reuse can be used any time when greater or lesser detail of content is required for one information product or another, or when it makes it easier for the author to create all the necessary content on a topic/subject in one place.

Use nested reuse when you want to retain the context for alternate content or when content is a subset of other content.

Example: Product description

A company produces a product called the B-Brother. They reuse a product description (see Table 2.2) in three different information products: a brochure, an operations guide, and an e-commerce site.

Table 2.2 Comparison of product description content

Brochure	Operations guide	E-commerce site
The B-Brother model 1984 is a programmable device that connects directly to consumers' televisions to track the channels they flip to, what programs they record, and what commercials they skip. The information is instantly transmitted to the cable or satellite provider.	The B-Brother connects directly to consumers' televisions. It can be programmed to track what channels they flip to, what programs they record, and what commercials they skip. The information is transmitted to the cable or satellite provider.	The B-Brother model 1984 is a device that connects directly to consumers' televisions to track their television watching habits.

As you can see by reading the three examples, the content is different, sometimes only slightly different, but still different. It doesn't need to be different. First the authors unify the content as shown in Figure 2.2 to create one product statement that encapsulates what the company is trying to say about the product.

The B-Brother model 1984 is a device that connects directly to a consumer's television to track their television watching habits. It can be programmed to track the channels they flip to, what programs they record and what commercials they skip. The information is instantly transmitted to the cable or satellite provider.

Figure 2.2 Unified product description.

Then the content is identified, as shown in Figure 2.3, to indicate which components are appropriate for each information product.

<The B-Brother model 1984 is a device that connects directly to a consumer's television to track their television watching habits.> *[Brochure, Operations Guide, E-Commerce]* <It can be programmed to track the channels they flip to, what programs they record and what commercials they skip. The information is instantly transmitted to the cable or satellite provider.> *[Brochure, Operations Guide]*

Figure 2.3 Product description marked to indicate information product reuse.

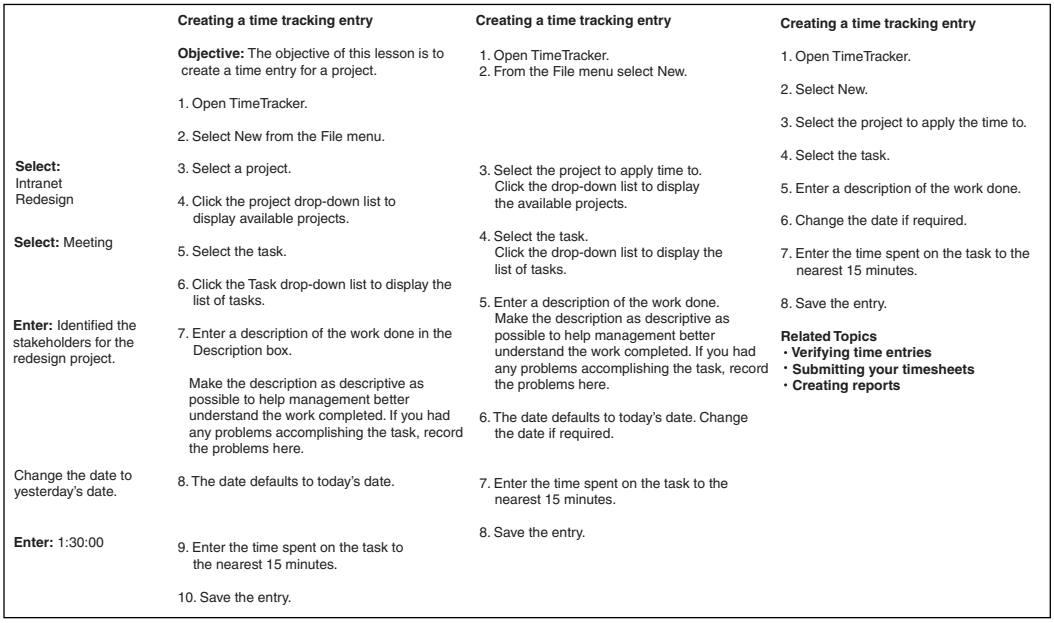
The product description includes a short description of the product (the first sentence) that can be used in all three information products. The second and third sentence can be used in the brochure and the operations guide, which require more content. This is illustrated in Table 2.3.

Table 2.3 Product description reuse

Brochure	Operations Guide	E-commerce product description
The B-Brother model 1984 is a device that connects directly to consumers' televisions to track their television watching habits.	The B-Brother model 1984 is a device that connects directly to consumers' televisions to track their television watching habits.	The B-Brother model 1984 is a device that connects directly to consumers' televisions to track their television watching habits.
It can be programmed to track what channels they flip to, what programs they record, and what commercials they skip. The information is instantly transmitted to the cable or satellite provider.	It can be programmed to track what channels they flip to, what programs they record, and what commercials they skip. The information is instantly transmitted to the cable or satellite provider.	

Example: Procedure

A company has developed training, user documentation, and help for its time tracking system. The content needed to be updated and they have decided to redesign the common procedural information as a nested procedure. Figure 2.4 illustrates an original procedure that is common across training materials, user documentation, and Help.



Creating a time tracking entry

Objective: The objective of this lesson is to create a time entry for a project.

1. Open TimeTracker.
2. Select New from the File menu.
3. Select a project.
4. Click the project drop-down list to display available projects.
5. Select the task.
6. Click the Task drop-down list to display the list of tasks.
7. Enter a description of the work done in the Description box.

   Make the description as descriptive as possible to help management better understand the work completed. If you had any problems accomplishing the task, record the problems here.
8. The date defaults to today's date.
9. Enter the time spent on the task to the nearest 15 minutes.
10. Save the entry.

Select: Intranet Redesign

Select: Meeting

Enter: Identified the stakeholders for the redesign project.

Change the date to yesterday's date.

Enter: 1:30:00

Creating a time tracking entry

1. Open TimeTracker.
2. From the File menu select New.
3. Select the project to apply time to. Click the drop-down list to display the available projects.
4. Select the task. Click the drop-down list to display the list of tasks.
5. Enter a description of the work done. Make the description as descriptive as possible to help management better understand the work completed. If you had any problems accomplishing the task, record the problems here.
6. The date defaults to today's date. Change the date if required.
7. Enter the time spent on the task to the nearest 15 minutes.
8. Save the entry.

Creating a time tracking entry

1. Open TimeTracker.
2. Select New.
3. Select the project to apply the time to.
4. Select the task.
5. Enter a description of the work done.
6. Change the date if required.
7. Enter the time spent on the task to the nearest 15 minutes.
8. Save the entry.

Related Topics
- **Verifying time entries**
- **Submitting your timesheets**
- **Creating reports**

Figure 2.4 Original procedure content.

Table 2.4 shows how the procedure was unified with nested reuse to create one procedure that could be used to produce each of the information products. All the content for the procedure is contained in one place. The content for the Help is nested within the content for the user guide, which in turn is nested in the training materials.

Table 2.4 Unified procedure content

Content	Information product		
	Training	User documentation	Help
Creating a time tracking entry	✓	✓	✓
Objective: The objective of this lesson is to create a time entry for a project.	✓		

Content	Information product		
	Training	User documentation	Help
1. Open TimeTracker.	✓	✓	✓
2. Select New from the File menu.	✓	✓	✓
Select: Intranet Redesign	✓		
3. Select the project to apply the time to.	✓	✓	✓
Click the drop-down list to display the available projects.	✓	✓	
4. Select the task.	✓	✓	✓
Click the drop-down list to display the list of tasks.	✓	✓	
Select: Meeting	✓		
5. Enter a description of the work done in the Description box.	✓	✓	✓
Make the description as descriptive as possible to help management better understand the work completed. If you had any problems accomplishing the task, record the problems here.	✓	✓	
Enter: Identify the stakeholders for the redesign project.	✓		
6. Enter a date. The date defaults to today's date.	✓	✓	✓
Change the date to yesterday's date.	✓		
7. Enter the time spent on the task to the nearest 15 minutes.	✓	✓	✓
Enter: 1:30:00	✓		
8. Save the entry.	✓	✓	✓
Related topics			✓
• Verifying time entries.			✓
• Submitting your timesheets.			✓
• Creating reports.			✓

Notice that the formatting that was visible in the training materials (exercise content in the left column) or Help (hypertext links) is not shown in this nested example. Formatting is applied when the content is published in the relevant information product, not during the authoring stage (see Figure 2.5).

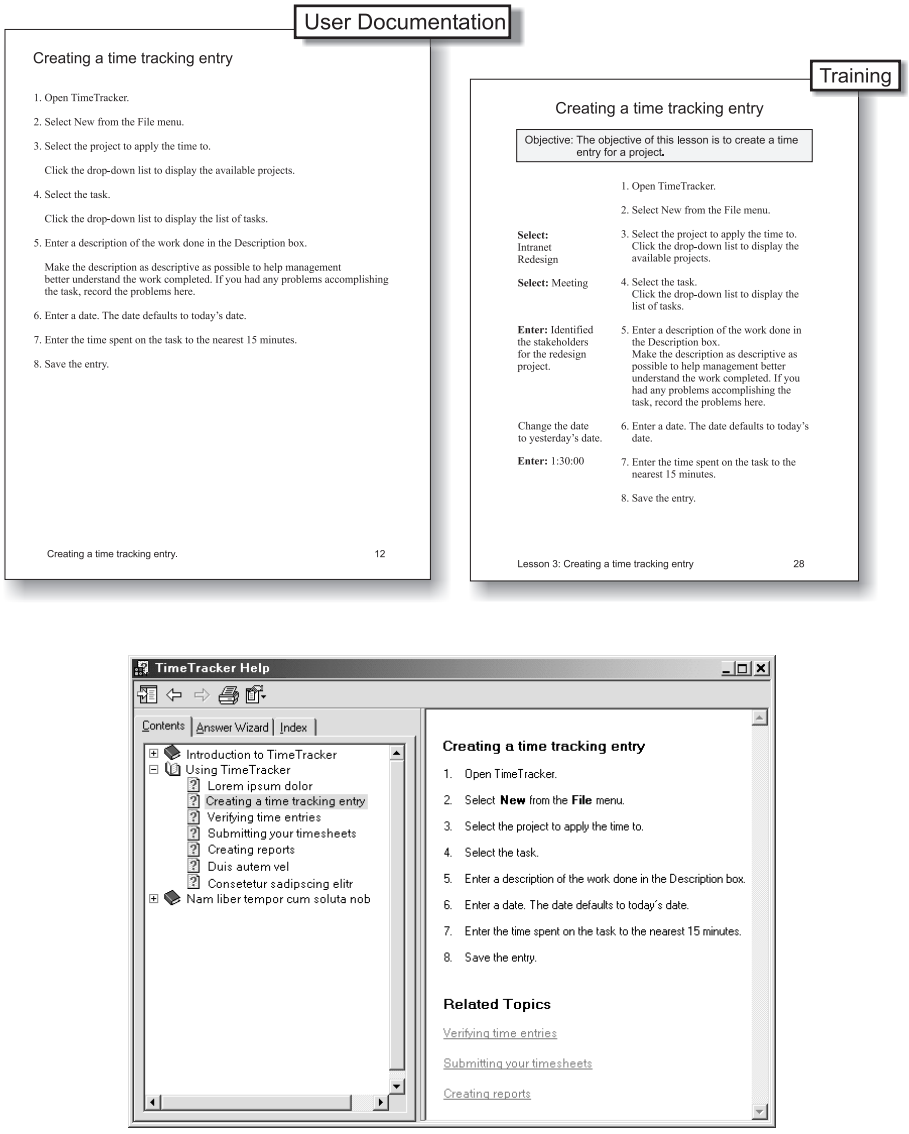


Figure 2.5 Formatted published version of the nested procedure.

The nested procedure enables an organization to create all the necessary content at the same time and publish the content as desired to the appropriate information product. Creating all the content in context makes it easier to write it and to ensure consistency.

When doesn't reuse make sense?

While you should try to reuse as much content as possible, there are times when reuse is inappropriate. Not every piece of content is reusable, nor should content be reused when it is inappropriate in the context in which it is being reused.

Sentence fragments and individual words may not be appropriate for reuse. The smaller you break down your content elements for reuse, the more complex it is to reuse and manage the content. If individual words are the only component of information that changes, consider using variables, which can have a different value depending upon the instance. Variables are much easier to manage than individual word-size elements. If sentence fragments can be reused, consider creating the reusable element at the sentence level and creating a derivative element by changing the portion of the sentence that is not appropriate for reuse.

To ensure that an element is reusable in many instances, you may contemplate writing very generic elements. The generic reusable element may serve the reuse requirement, but may compromise the usability and comprehensibility of the content. Never compromise the quality of the content to reuse it. Consider not reusing the content, or using derivative reuse so the content can be adapted to meet the needs of the specific reuse instance.

There may be times when you need to create unique "one-off" content or ad-hoc content to meet a specific need where existing content is not appropriate for reuse.

As you perform your analysis and build your models, consider the value of the reuse. Reuse content where appropriate and effective and always ensure that the reuse will not compromise the quality and usability of your materials or make the reusable content very difficult to create, find, and manage.

Summary

Reuse is not a new concept. Many industries have been using reuse to improve quality and consistency and realize reduced development time and maintenance costs.

Most organizations use multiple types of reuse. Each of the types of reuse may be appropriate in different instances and with different types of content. Your models identify what type of reuse is appropriate (see Chapter 8).

- Opportunistic reuse is when the author makes a conscious decision to find an element, retrieve it, and reuse it. Use opportunistic reuse when you do not have the technology to support systematic reuse, or when your content or corporate culture warrants the use of flexible reuse and choice.
- Systematic reuse is planned reuse. Use systematic reuse when your content is very structured and you can explicitly identify where content is to be reused, and where you want to ensure that certain content is reused.
- Locked reuse is reusable content that cannot be changed except by the original author. Use locked reuse when you want to ensure content is not changed.
- Derivative reuse is content that is not reused identically; the content is changed. Use derivative reuse when you want to retain the relationships between pieces of information, but some of the content can be changed.
- Nested reuse involves content that has a number of reusable elements contained within a single element. The sum of all the elements creates one element, and subsets of the element can be used to create alternate information products. Use nested reuse when you want to retain the context for alternate content or when content is a subset of other content.