

Searching for the Best Mix of Paper and Online, Two Case Studies

As online help has evolved from simple field descriptions to a fully capable hypertext medium, designers of software documentation have been faced with determining the best mix of paper and online. Which information goes in which medium? How much, if any, should be repeated in both? This paper describes two case studies in which documentation teams addressed these issues while redesigning their information sets. By the end of both projects, the documentation was streamlined, redundancy between print and online was reduced, and the majority of the information was presented online.

CASE STUDY #1: DOCUMENTATION REENGINEERING AT A LARGE SOFTWARE VENDOR

In January 1995, the upper management of Dun & Bradstreet Software, a large applications vendor, challenged the client server documentation teams to reengineer their products. Specific goals were to make the documentation more usable, less voluminous, and less expensive to produce.

The Old Model

The existing or "old model" documentation included online help, printed manuals, and student guides. Little or no duplication of information across these deliverables was intended, though in practice some existed.

Online Help. The Microsoft Windows-based online help was designed to provide end users with instructions in the daily operation of the software. The help was developed and linked according to rigidly-defined standards. Discrete topics included window descriptions, field descriptions, step-by-step procedures, and pop-up definition topics.

Product Manuals. Several manuals were produced for each client server product. These manuals were intended both as reference books and as an integral part of the classroom training package. As such, the needs of training partially dictated the content of the product manuals. This content included window captures and explanations of the concepts and processes involved in implementing and using the software, as well as detailed examples. Printed manuals also contained information on reports and batch processes, and all information intended for a technical audience (database administrators, technical support personnel, and programmers).

Student Guides. Student guides were slim volumes that supplemented the product manuals in the classroom. They contained lesson objectives, review questions, and exercises.

Perceived Problems with the Old Model

The old model had a number of perceived problems:

- The training organization was unhappy with using the product manuals as course materials. They wanted comprehensive course manuals to provide added value for customers who bought training.
- Although the guidelines forbade redundancy between help and print, in practice redundancy existed. Concept explanations and examples often were found in both places.
- The documentation was often confusing due to its sheer volume. With many different books, plus online help, it was often hard for customers to find specific information.
- Finally, it was extremely expensive to produce and translate the documentation, help, and training materials. One of the imperatives of the reengineering was therefore to significantly reduce word count.

The New Model: The Solution for 1995

The documentation model that emerged from the reengineering effort was different from the old model in many ways. The existing deliverables all changed significantly, and new deliverables were added.

Online Help. The online help was redesigned to provide complete information for end users. Concepts and examples relevant to the daily use of the software were presented in "overview" topics for each window and application area. At the same time, the standards that evolved for the other topic types reflected a much tighter, more concise and direct writing style, to help meet the directive of reducing word count. (On average, word count was reduced about 40% per help file, despite the addition of the conceptual information.)

Product Manuals. Printed product manuals were limited to one per product and now covered only conceptual information and examples relevant to implementing the software (all end-user information having been moved to the online help). The product manuals were still used to supplement the Course Manuals.

Course Manuals. Expanded Course Manuals replaced the old Student Guides. These manuals contained concept explanations and examples, as well as window captures, diagrams, objectives, review questions, and exercises.

Online Technical Library. All of the technical documentation formerly in print was now published and distributed electronically. The platform for this was an online reference tool that allows both viewing onscreen and flexible printing options. The presentation metaphor used was that of a reference book, although full-text search

and hypertext links replaced tables of contents, indexes, and wordy cross-references.

Database Reference Tool. In the old model, much of the printed technical documentation was devoted to long reference tables that described information stored in the databases delivered with the product. All of this material was eliminated by providing the customers with a simple software tool to query and print directly from the databases. This gave the customers more up-to-date information, while eliminating massive production and maintenance efforts.

Documentation Roadmap. Finally, to address the problem of customers finding information, a brief documentation roadmap was produced. This printed document, packaged with the software, provided a listing of all of the information sources available, their purposes, and the business tasks they documented.

Problems with the New Model

Stated simply, the 1995 model solved some problems and created others.

- There was great confusion over how to develop information. The old standards no longer applied and new standards were not yet fully evolved.
- The question of which information went in product manuals and which in course manuals was never completely resolved. As a result, there was much redundancy between the two.
- Porting the technical documentation to the online publishing system resulted in numerous formatting and graphics problems. Not all of these could be solved before the major product releases in November, 1995.

The following table summarizes the media used for information in the old and 1995 models:

Information Type	Old Model	95 Model
window and field descriptions	help	help
end-user procedures	help	help
end-user concepts	print/help	help
end user examples	print/help	help
implementation	print	print
reports	print	print
batch processing	print	online book
technical	print	online book
database reference	print	software tool

CASE STUDY #2: A SMALL SOFTWARE COMPANY MOVES THEIR INFORMATION ONLINE

CADNET Corporation produces software that interfaces to CAD applications and drives plotters over networks. Although a small company, CADNET has an international presence and relationships with all of the major CAD and plotter vendors, making the company a leader in its market.

During 1996, CADNET was focused on porting their main product, Plot Station, from DOS to the Windows NT platform. An end-user application called Plot Manager had previously been released for Windows, but a new 2.0 version was also planned for mid-year.

Evolving Documentation Models

The CADNET documentation as it existed at the start of 1996 reflected the evolving product line.

Documentation for the DOS Plot Station and its adjunct programs consisted of large, detailed manuals covering all product functions, printed in 8-1/2 by 11 format, and delivered in three-ring binders. Frequent program updates were documented with smaller "update guides." These covered only changes and new features and were delivered in a form that allowed them to be inserted into the customers' existing

manuals. Online help consisted of simple field descriptions custom-coded into the DOS interface.

The documentation for Plot Manager, on the other hand, had been developed according to general Windows 3.1 standards. Both a User Guide and an Installation/System Administration Guide were produced. These guides were attractive, 7-by-9-inch productions with glossy covers, spiral binding, and carefully-crafted page layouts. The writing was crisp and effective, and the books were well-illustrated with screen captures and icons. The online help provided field descriptions in context-sensitive pop-ups, plus step-by-step procedures presented in a "How To" secondary window.

Impetus for Further Change

Despite the success of the Plot Manager documentation and help, CADNET had reasons for reassessing this model when planning its 1996 product releases:

- **Long development cycle.** The Plot Manager information set had taken a long time to develop, longer even than the software itself.
- **Redundancy.** The Plot Manager help was approximately 90% redundant to the printed guides. There was also significant repetition of information between the two guides. This level of redundancy would become an acute problem in light of the much larger scale of the Plot Station products.
- **The problem of updates.** Frequent product updates are a fact of life for CADNET. The update guides previously used for the DOS products were expensive to produce and confusing for customers to track and use. The Plot Manager model did not address this problem except with the expensive alternative of completely reprinting the spiral-bound books.

In addition to the above, the design of the Plot Station NT information solution had to address other problems that were not so severe with the simpler Plot Manager product:

- **Cost of manuals.** The much greater size and complexity of Plot Station and its accessory products would mean a much larger number and size of printed manuals. The cost of producing, maintaining, and shipping so much printed material was prohibitive.
- **Insufficient information.** The most difficult task for Plot Station customers was configuring the open-system software, with the multitude of file formats, drivers, and plotters it supports. While the existing DOS manuals contained voluminous information on implementation, this information was often hard to retrieve or use in context. Also, the CADNET Support organization had compiled a great deal of configuration and troubleshooting information that was stored in internal documents and databases. Somehow, this information had to be delivered and made accessible to customers.

Redesign - Moving to an Online Model

With the help of an outside consultant, CADNET evaluated these issues along with its 1996 product development schedules and produced a new plan. The main thrust of the plan was to move most information online.

A single online delivery vehicle would greatly reduce the high costs of printed manuals and solve the problem of delivering frequent updates. Careful planning and design of a hypertext library would allow topics to be developed once and used for multiple purposes, thereby eliminating redundancy and shortening development time.

Because installation information needed to be provided before the online library would be available to customers, and because an attractive book adds to the perceived value of a product, a single Getting Started Guide for each product was also included in the documentation plan.

Design of the Printed Guide

The Getting Started Guide is the one printed manual delivered with Plot Station NT. The guide includes a product overview, installation instructions, and a high-level walkthrough of the main program features. The final section is a roadmap for finding further information, including the online library, the CADNET Web Page, and product Support. The book is in a spiral-bound, 7-by-9-inch format, and is approximately 100 pages.

Design of the Online Library

Various tools were considered in planning the online library, including page-turner applications and full-fledged electronic publishing systems, as well as traditional help tools. However, two key goals of the project were to provide a consistent user-interface for all information and to keep costs low. These requirements brought the design team back to the existing in-house tools and the Windows Help platform.

The online library needed to serve both as help and as online reference. The main flaws the design team perceived in using the 3.1 version of Windows Help for online "books" was the lack of facilities for full-text searching and for printing multiple topics. At first, the plan was to address these shortcomings by using third-party DLLs that added this functionality. Later in the project, it was determined that the products would run only on platforms that supported the Windows Help 4.0 engine. This made it possible to use 32-bit Windows Help, which provides full-text search and multiple-topic printing as native features.

The online library consists of the field, window, procedure, and glossary topics typical of most Windows Help. Additional overview and concept topics are provided where appropriate. The library is organized into several .HLP files, one for each executable within the Plot Station product. There is also a separate .HLP called the Online Reference, which contains advanced and technical topics. These topics include a

technical overview, hardware-specific configuration instructions, documentation of adjunct command-line tools and utilities, troubleshooting tips, and explanations of error-messages. The Online Reference contains much new information drawn from the product Support and Development organizations. It aims at addressing the past customer problems of configuring the Plot Station software.

The design of the online library takes advantage of another feature of Windows Help 4.0, the ability to display multiple secondary windows. Procedure topics are displayed as training cards, and field descriptions in a small context-sensitive window. The system allows users to drill down, for example, from a training card to field topics, then to a related glossary definition or troubleshooting tip—all while performing a task in the software. The intent is to give the users on-demand, integrated access to all the available information on configuring and using the product. Within the limitations of the present tools, this design is an attempt to move in the direction of a true Electronic Performance Support System (EPSS).¹

Comparison of the Evolving Models

The following table shows how CADNET's evolving documentation models present different types of information, from the DOS model, through the Pre-1996 (Plot Manager) Windows model, to the new online model.

Information Type	DOS Model	Pre-96 Windows Model	New Online Model
product overviews	print	print and help	print and help
window and field descriptions	print/some help	print and help	help
procedures	print	print and help	help
end-user concepts	print	print and help	help
end-user examples	print	print and help	help
installation	print	print	print
technical	print	print	help

Future Focus

CADNET's documentation approach continues to evolve. Developments currently under discussion include:

- Closer integration of the software with the online library, to provide a more robust implementation of EPSS principles.

- Providing a subset of the online library on the company's World Wide Web Site. Prime candidates include the technical overview and configuration troubleshooting sections.

CONCLUSIONS

Both of these projects involved migrating legacy documentation from print to online media, as well as developing new information. The overall cost savings hoped for in Case Study 1 were not immediately realized, due to the higher-than-expected costs of reengineering. Nevertheless, it seems clear that moving to a mostly-online model will result in significant savings for both companies over the long term.

The best mix of print and online documentation depends on many factors, including the nature of the software, the availability of development resources, the severity of project deadlines, and the needs and expectations of all of the documentation audiences. As the industry moves toward mostly-online delivery of documentation, and audience acceptance of online media increases, it is safe to say that a good strategy is to deliver most information online. Instructions on operating the software, or information used only at the computer, can be limited to online-only delivery. Printed documentation should be used for planning, implementation, and installation information, and can also be helpful for explaining concepts, providing tutorials or detailed examples, and as a backup reference.

REFERENCE

(1) Gery, Gloria J. *Electronic Performance Support Systems*. Ziff Communications Company. Cambridge, MA. 1991

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