

Nikon Precision Selects Arbortext® to Produce Precise, Up-to-Date Service Information

ROI Estimated to be \$3 Million US

Nikon Precision, Belmont, California

Nikon Precision Inc., a wholly owned subsidiary of Nikon Corporation, provides cutting-edge, precision photolithography equipment to microelectronics customers around the world. Since 1980, when Nikon introduced the first production-ready, step-and-repeat photolithography machine, the company has been a leader in the industry. Today, more than half of all integrated circuits ever printed have been manufactured on Nikon equipment. Nikon Precision is one of only a few companies in the world to offer immersion photolithography solutions.

From its inception, the company has focused on innovation, continuously introducing new products to meet the needs of rapidly evolving technology sectors, such as the semiconductor, flat panel liquid crystal display (LCD), and thin-film magnetic head (TFH) industries.

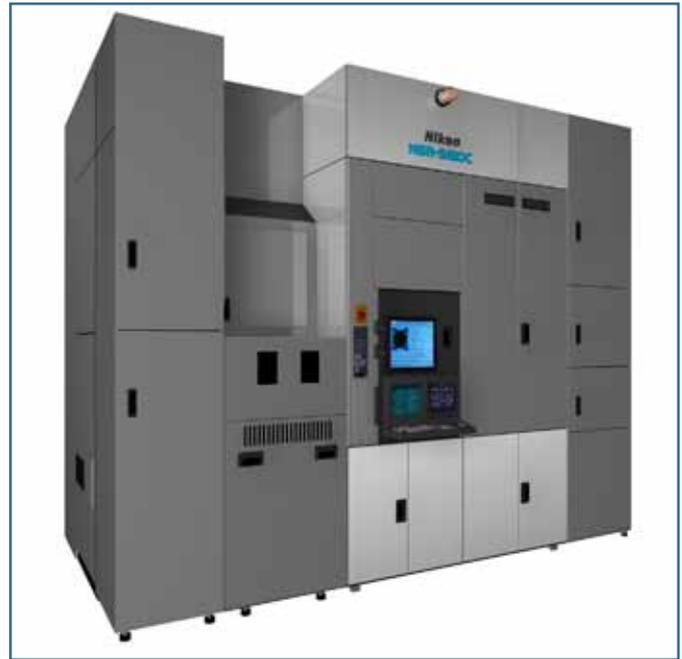
The Challenge: Produce Accurate Documentation—Faster

Nikon Precision provides technical service and customer support for the company's extremely complex photolithographic solutions. Documentation for each machine can be more than 3,000 pages, including hundreds of illustrations to guide technicians through repairs. Historically, service manuals were only available either in print, or as large PDFs that had to be spread over several Web portals. Technicians frequently needed to download service manuals while onsite with a customer, which wasted considerable time due to confusing search options, large files, and poor Internet connections. Field technicians estimated that 20-30% of their time onsite was spent searching for the correct materials instead of repairing customer machines.

Not only was online access to materials difficult, but the accuracy of service manuals suffered because there was no consistent, automated way to update documents or customize the data for each piece of equipment. The machines are manufactured in Japan, and the manuals are first published in Japanese, then translated and reformatted in English for the US and other regions that use English.

Concentrating on Product Support by Improving Service Information

In the intensely competitive technology industries, customer service is just as important as product quality. Nikon Precision Inc. saw a need to increase its focus on aftermarket product support, despite its geographical separation from the design and manufacturing functions in Japan.



Nikon Precision's extremely complex photolithography equipment required a well-defined, automated product support documentation strategy to ensure rapid, accurate equipment operation and service procedures to support each product's unique configuration.

The original service documents were written in Japanese by experts involved in the design process. However, Nikon Precision's customers are located primarily in North America and Europe, and English is the common language. The documents had to be sent from Japan to Nikon Precision for translation. Documents arrived in multiple formats—PDF, PowerPoint® and/or Excel®—without much consistency. Organizing the information, then translating and reformatting the documents, took an enormous amount of time and effort. Very often, manuals took so long to format that documentation fell behind product design, causing confusion for service technicians.

After each new manual was ready for publication, it was uploaded to one of several Web portals. Finding the correct documentation was difficult because the documents themselves were massive, and the Web portals were not well organized. Even though 80% of the company's employees were working onsite with customers, technicians could not keep pace with service demands; cumbersome and out-of-date service documents were causing delays in repairs and service.

The Solution: Arbortext for Service Information

Nikon Precision needed a different approach to creating documentation for its photolithography equipment. The machines are so complex that Nikon Precision realized it needed an extremely organized, streamlined documentation strategy to provide accurate, timely manuals. No doubt, confusion resulting from poor documentation was making service calls in the field too difficult and too costly.

To solve these problems, Nikon Precision worked with PTC to implement its Arbortext service manual application. Arbortext automated the publishing process from beginning to end. For instance, when documentation arrives from Japan—whether as a PDF or a Microsoft Word® document—the Arbortext import/export capability strips all of the content from the original file and drops it into Arbortext Editor™. Arbortext can also pull legacy Adobe FrameMaker® content and merge it with new information pulled from other file formats. Once the text is translated, Arbortext reformats the English content automatically—including technical illustrations—for publishing to multiple media (CD, DVD, PDF, HTML, etc.).

PTC also worked with Nikon Precision to reorganize and consolidate its Web portals, from which service technicians access documents in the field. Working with a new naming system, technicians can now easily identify the most relevant and recent information available. Nikon Precision is also now able to create concise, specific, task-relevant PDFs for downloading in the field. This saves the service technicians considerable time, allowing them to access only the information they need, when they need it, while improving field service efficiencies.

The Results: Task Completion Time Reduced from One Week to 15 Minutes

Nikon Precision's technical publications department continues to measure the long-term total operations return on investment for the service information project. However, in the first year, for two common tasks alone (described below), Nikon Precision has realized an ROI of more than \$342,000 annually. The improvements to these tasks were:

Converted Service Information from an Existing, Static PDF into Actionable Content

Nikon Precision previously converted PDFs of the legacy service information into Microsoft Word, and then copy/pasted that information into Adobe FrameMaker. They would then have to clean up any formatting issues and apply Nikon Precision styles. This task normally took 14 days to convert a 400-page manual.

Using the Arbortext import map and Arbortext Editor, Nikon Precision can now convert a 400-page static PDF manual into high-quality, usable content in seven days. Additionally, the new process allows writers to “grab” only what they need, using the DITA topics in Arbortext Editor, thus eliminating outdated or unnecessary content. The use of stylesheets and document type definitions (DTDs) eliminates the time that authors formerly spent reformatting and laying out content. ROI on this task is estimated at \$118,000.

Automated Reuse of Service Information

Often, Nikon Precision needs to provide multiple configurations of their service information. To do this, they traditionally had to copy/paste information from one document into another in FrameMaker, and reformat the text for the new configuration. For example, Nikon Precision's technical training documents are reconfigured when class structures change or when a customer requests a certain configuration of a particular class. This task normally took nearly an entire week to configure a 400-page manual.

Using Arbortext Editor and the DITA capabilities inherent in the service manual application, Nikon Precision now creates reconfigured documents in just 15 minutes, an increase in productivity of 694%. Again, the stylesheets and DTDs eliminate the need to reformat or lay out the published documents. For example, Nikon Precision reused a total of 1395 pages, which required just over one hour to repurpose into five new DITA maps. Prior to Arbortext, this task would have taken 16 days. As a result, Nikon Precision has realized a cost-savings on this task alone of \$224,000.

Selecting Arbortext

When Nikon Precision researched service information solutions, one of the key benchmarks was compatibility with DITA topics and DITA maps. Arbortext Editor performed far better than the competition in Nikon Precision's benchmarking. Additionally, the Arbortext service manual application—right out of the box—allowed Nikon Precision to minimize initial design and implementation costs.

At initial implementation, Nikon Precision installed Arbortext within its technical publications department for five users. Nikon Precision estimates that the ROI on this installation alone will reach over \$3 million US in the first five years. The next scheduled phase of the implementation will expand the use of Arbortext tools to 20 additional users within the department. This second phase is poised to present an even larger return on investment as Nikon Precision is planning on implementing additional document types to support expansion into their translation and technical training groups.

With Arbortext, Nikon Precision now provides high-quality, up-to-date service information, which better supports their stringent customer service standards. This information can be navigated and searched quickly for relevant information, providing a huge advantage for the Nikon Precision field service organization.

Product design and service content can also be reused between documents, where appropriate. And, because Arbortext automatically publishes to multiple formats, Nikon Precision can provide documentation in the preferred formats for technicians, including PDF, Web, CD-ROM, DVD, and HTML Help formats.

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