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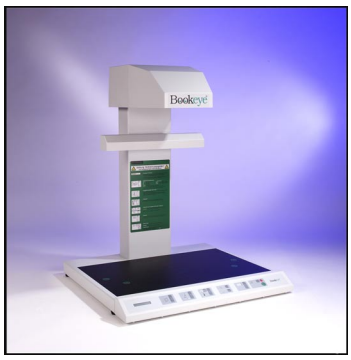
Success story

Lilly Forschung GmbH, Hamburg

The right place, at the right time

Scanning solution from ImageWare helps pharmaceutical development



It is generally considered child's play to digitalize journals, books and other bound printed matter. The pages are scanned one by one and saved in a digital archive – that's all there is to it. Scanning has become a routine task, and there are hundreds of scanners on the market that can do anything, or at least claim to. In practice, things look very different. Many poorly implemented or even failed projects prove that the digitalization of bound or loosely bound matter is not a simple process. Special solutions are required and very few firms can provide them. Lilly Forschung GmbH of Hamburg has achieved such a solution. But the path to success was anything but smooth.

Libraries, archives and collections have always faced the problem of the long-term safeguarding of bound and loosely bound printed works. Increasingly, the goal is not only to protect the works but also to make them available to interested users. Many a historically important archive has lost valuable resources due to excessive manual research. This problem was alleviated in the past by microfilming the documents, which could then later be accessed by means of re-enlargement and reproduction. While such solutions achieved lasting preservation of the originals, the method of viewing the material left much to be desired. If more than one user wished to access the same documents, multiple copies had to be produced and distributed manually or by fax. This cost time and money. The dream of being able to access documents from bound works at the right place and the right time was first achieved – at least theoretically – with the invention of scanning technology.

Scanning and archiving

The scanning of diverse documents for storage in electronic archives, as well as the subsequent distribution of the material, is today a matter of course. However, the planning of such archiving projects often fails to take into account the practical difficulties at the workplace that can be a hindrance to fast and, above all, economical scanning. Based on the practical experience of ImageWare Components of Bonn, an "80: 20 rule" can be observed in most cases. According to this rule, 20 percent of the documents to be scanned cause about 80 percent of the expense.

Bound Works

Staples must be removed, documents must be flattened, files opened and the documents fed to the scanner individually and then returned to the files.

Bound works must be opened page by page and turned over for scanning, which is often inexpedient due to the age or overall condition of historical works. Book scanners help in this case, but only very few exist that are suitable for the purpose.

The use of book scanners today is no longer limited to libraries or historical archives. The range of industrial applications that make use of the special capabilities of this technology is increasing.

Safe extensive knowledge

Here the emphasis is not so much on the preservation of old documents (even if this frequently remains a secondary effect), but instead on the company-wide, comprehensive and network-based use of the information contained in such works. The documents to be digitalized range from bound or loosely bound business reports to measuring logs, development results or lab journals.

This was the requirement of Lilly Forschung GmbH of Hamburg, a company of Eli Lilly and Company in Indianapolis (USA). In companies of this type, it is a fact that lab journals are written by hand. Every such journal is unique. They contain the results of the independent synthesis of new base materials as well as original measuring logs and test results for development and production. This knowledge never becomes outdated.

Information on active substances compiled 30 years ago can be of great importance in a special development taking place today. A further significant aspect is the permanent documentation of in-house research without concern for industrial property rights.

Therefore, it makes sense not only to save this extensive knowledge for all the developers in the organization, but also to make it available at the right time. The path is already marked out: this information must be prepared for distribution across the international Lilly Intranet.

History

Last year, Lilly celebrated its 125th anniversary. The theoretical origins of the parent company go back to the American Civil War. Colonel Eli Lilly was appalled by the state of medical care during and after this time. He could not stop thinking about ways to make significant improvements in the effectiveness of medication. Therefore, at the age of 38 he founded Eli Lilly and Company in 1876 in Indianapolis.

The goal of the company from the very beginning was to produce pharmaceuticals at the highest scientific and technological level. This corporate philosophy has been retained to this day, together with the idea that the management regards the employees to be the company's greatest asset. This conviction has enabled Lilly to remain an independent family operation despite it international proportions – among the top ten worldwide, based on sales.

Bookeye® Color

A question of optics

Lilly develops innovative medications with the goal not only of helping people to live longer, but also to remain healthier and more active. A further goal is to lower health care costs. The research and development activities focus on the fields of cancer, diabetes, endocrinology, cardiovascular disease, depression, schizophrenia, osteoporosis and hormones. However, products are also available for other areas. The Lilly company in Hamburg is Europe's main location for the development of pharmaceutical products and for research in the area of endocrinology with emphasis on diabetes.

Background situation

Lilly Forschung GmbH in Hamburg is divided into two divisions: Discovery and Development. While Discovery concentrates on finding new (synthetic) molecules, for example, the task of Development is to put finished substances into the correct form. For example, converting a medicine in powder form into droplets can pose a tremendous technological and production problem.

The standard for all considerations was the demand for availability of the company's scientific and development data in every lab. While the authorized employees formerly had to access the original journals, logs and reports in the central archive, this and other data from the entire corporation was to be made available in the future on the Lilly Intranet.

Project

Therefore, it was necessary to scan the paper documents for digital archiving. In Development, two workstations were equipped with feed scanners in 1997, in order to make single-page documents available on the Intranet as a first step. Since then, approximately 5,000 documents have been automatically added to the digital archive each year after being scanned, using the Documentum software (restricted for this purpose to the archiving application). Afterwards, they are immediately available on the network.

Altogether, Lilly was faced with an extensive paper archive to be digitalized. It originated primarily from the pharmaceutical division of Beiersdorf AG, which was completely taken over by Lilly in 1996. The archive documents encompass logs, test reports and lab journals going back to 1961. This also reflects the long retention period for original data in medical research (30 years after the product has been removed from the market).

After extensive analysis of the documents it was decided to digitally archive all lab journals and so-called supporting documents (additional paper-based or digital information, such as mass spectrometer readings and other logs on basic chemical structures) from 1961 onward. This amounted to about 1000 journals with 200 – 280 pages each. Including the supporting documents, this resulted in about 300,000 pages of old archive material. Every year, about 100 new journals are added.

The first step was to find solutions for book scanning of a comparative prospect analysis; the first scanning tests took place in the middle of the year 2001. The difference between theory and practice came to light in a drastic manner.

Success

The scanning solution finally selected could not be successfully installed by the supplier, despite numerous adjustments. Serious interface problems arose repeatedly during the transfer to Documentum, i.e. error-free archiving was not possible.

In the search for alternative systems, the solution of ImageWare Components of Bonn was discovered. ImageWare, in close cooperation with the Lilly team, was able to quickly implement a viable and stable system, which has been in operation since August 2001.

Bookeye® Color scanner with new repro technology

The Bookeye® scanning system was used for the project. Bookeye scanners enable the digitalization of books, newspapers, files and plans without damaging the documents and without having to remove them from the original binding. The integrated Plug & Play interfaces make it possible to connect Bookeye scanners with individual computers and with networks. The scanners also have an electronic book joint correction function. This feature is especially useful for the scanning of lab journals, since the pages are often very full. The journals place high demands on the scanning techniques used, as the practices used at Lilly have shown. The old material to be archived frequently contained supplements in color, or sketches drawn on transparencies, which sometimes had a negative effect on the scanning quality.

New Requirements

On the basis of these experiences, new requirements were created during the first weeks of scanning for the keeping of lab journals and were implemented immediately through training measures. In this way, it was possible to consistently improve the scanning quality. Some of these regulations would not have been necessary if color book scanners had been used.

But Lilly dispenses with the use of color. For that would inflate the file sizes, which would affect the distribution via Intranet, not to mention the archive size. The current solution provides for book scanning in black/white (300 dpi) or grayscale (4-8 bit).

Storage of journals

As far as the storage of the important journals is concerned, the archive data is maintained on disc (Sun) and tape. In addition, the originals are stored in a special central archive. Together with all trade journals, of which many volumes are maintained, Lilly has about 800 meters of archives in Hamburg alone.

What counts, though, is the result: all scanned information is available at the workstation of every Lilly employee worldwide, directly via Intranet. The data is integrated in a detailed authorization system, since the information is extremely sensitive and important for the corporate strategy.

The retrieval system is a simple search machine with a hit list. It is possible to browse and zoom the found objects and to make copies. Documentum is limited to merely archiving. There is no document processing via the network, since the original raw data cannot be changed in the development process.

In Hamburg, 100 clients are connected to the archive. They also have access to other data in the Intranet, depending on their authorization. For example, there is a worldwide Lilly report archive that can be accessed via the network. The data is managed using Documentum and normally input in Office format or as PDF files.

The archive contains all information and the internally acquired knowledge on numerous substances. Such information is used systematically for test and model productions, around the world.

Motto

While in the age of paper journals and reports the transfer of selected information was possible only via telephone or fax, Lilly Forschung GmbH has created a virtual workstation library for researchers and developers that also saves a great deal of research time, thus reducing costs.

Motto: The right information at the right time, and at the right place.

Author: Dr. Klaus Engelhardt

Bookeye® overhead scanner now in Color!

Technical Data of Bookeye®

- Formats: DIN A4, A3, A2
- Resolution: 200, 300 dpi
- Interface: Fujitsu compatible video interface (M3097)
- Mesurements: 840 x 690 x 650 mm
- Weight: 46 kg

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