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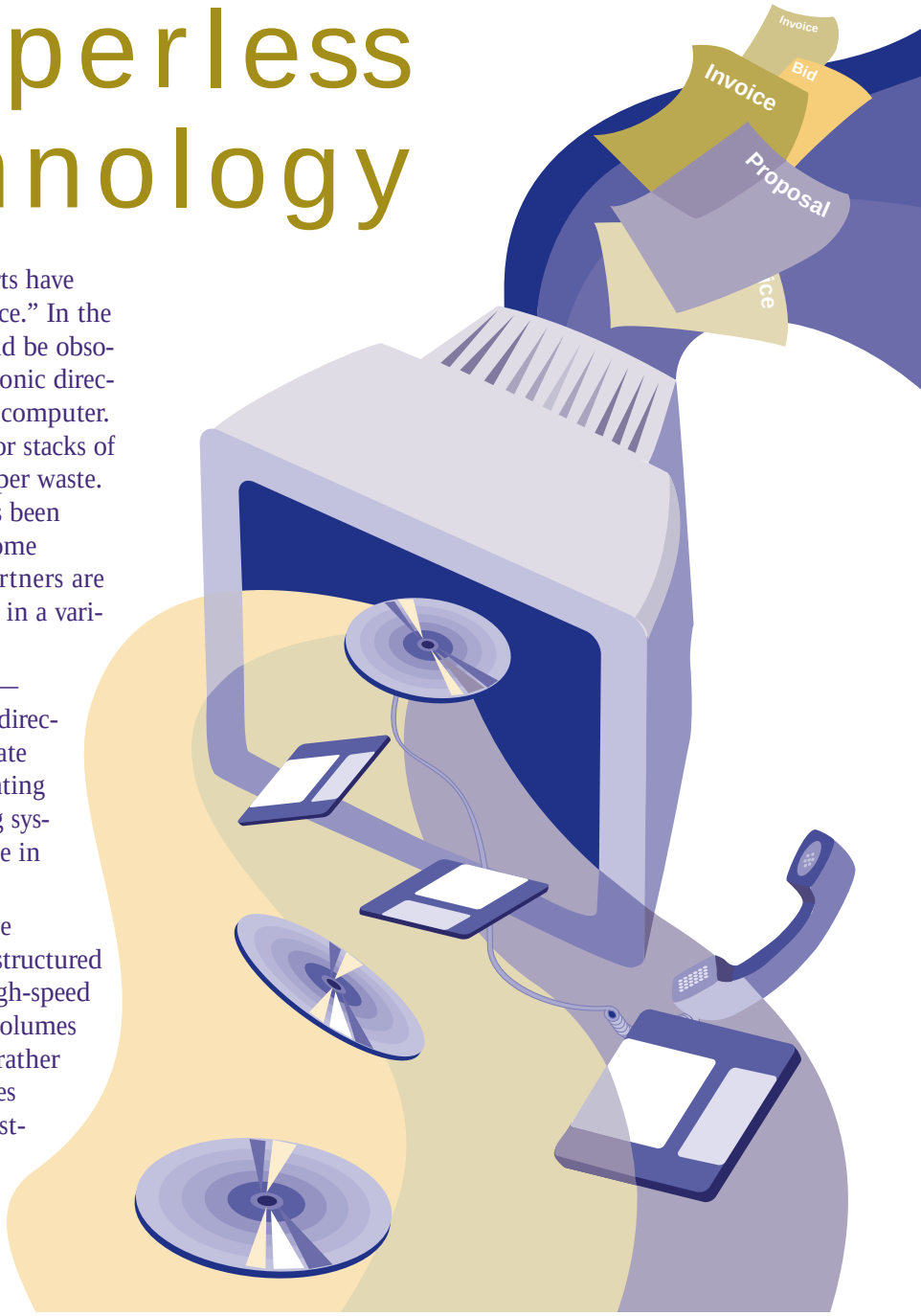
WasteWi$e Update

WASTE WI$E

Going Paperless With Technology

Printed on paper that contains at least 20 percent postconsumer fiber.

Going Paperless With Technology



Since the onset of the computer age, experts have predicted the arrival of the "paperless office." In the office of the future, they said, paper would be obsolete: documents would be stored in electronic directories and transmitted from computer to computer. There would be no file cabinets, reference books, or stacks of outgoing mail. There would also be little or no paper waste.

Even though this vision of a paperless office has been more difficult to realize than originally thought, some WasteWi$e partners are making real progress. Partners are using electronic technology to reduce excess paper in a variety of ways, including:

- **Computerized documents and filing systems**—Several WasteWi$e partners have placed phone directories, human resources documents, and corporate policy manuals on line to avoid constantly updating paper versions. Others are using electronic filing systems to reduce the amount of paper copies made in the office.
- **Electronic data interchange (EDI)**—EDI is the electronic transfer of business information in a structured format from one computer to another. It is a high-speed method of electronically communicating large volumes of data without the use of paper. For example, rather than sending paper purchase orders and invoices through the mail, WasteWi$e partners are investing in EDI to carry out these transactions electronically.
- **CD/ROM and other interactive tools**—CD/ROMs have enabled WasteWi$e partners to store vast quantities of information, much more than would fit on an ordinary floppy disk, in an easy-to-use, interactive format.

In addition to reducing paper use, these emerging technologies also improve efficiency, saving time usually needed to process paper forms. These benefits ultimately mean increased savings for a company's bottom line.

This issue highlights WasteWi$e partners' experiences implementing electronic technologies that conserve paper. We look at their successes and the ways in which they've overcome some typical concerns, such as the length of time needed to implement EDI and costs of purchasing software and training employees to use the technology. In addition, some WasteWi$e partners have found that suppliers or customers might also need help adjusting to new technologies.

In this issue, we examine an on-line purchasing catalog implemented by Silicon Graphics, which the company estimates conserves 500,000 pages of paper per year, and illustrate how Haworth has conserved paper by placing its product catalogs on a CD/ROM. We also showcase the cost and paper savings Phillips Petroleum and the Southern Company have achieved through their use of EDI. In other articles, we see how BellSouth Telecommunications and Lockheed Martin achieve the benefits of computerized document storage.

WasteWi$e congratulates its partners on all the ways they've used technology to conserve paper and increase efficiency. Along with their other benefits, paper-free technologies offer another opportunity to be WasteWi$e.

EDI: Answers to Common Questions

If you're not sure what EDI is, or how it can help your company, you're not alone. According to a 1994 survey, the greatest barrier to adopting EDI and experiencing success is lack of knowledge about the technology and its benefits. To help partners learn more about EDI, WasteWi$e reviewed some common questions about this valuable tool.

Q. What is Electronic Data Interchange?

A. EDI is the electronic transfer of business information in a structured format from one computer to another. EDI is just one piece of a puzzle known as electronic commerce, which encompasses such activities as electronic mail, faxing, sharing information via networks and bulletin boards, bar coding, scanning, and imaging. Companies typically use EDI for purchase orders and invoices. Other applications include shipment notification, check issuance, and electronic transfer of funds; there are literally hundreds of uses for EDI.

Q. When was EDI first introduced? When did it start becoming so popular?

A. In 1975 the transportation industry became the first sector to replace paper transactions with EDI. Since 1987 EDI expenditures have grown 20 to 30 percent annually. EDI is now a $2 billion industry.

Q. Why do companies switch to EDI?

A. EDI systems have proven themselves to be much more efficient and accurate than paper systems, giving companies a competitive edge. Research indicates that the vast majority of the companies switching to EDI have no choice if they want to stay in business—their principal customer or supplier told them to switch!

Q. What cost savings can I expect from using EDI?

A. Depending on the size of your company, you can expect to save $1 to $5 per document. Dan Ferguson, president of The EDI Group, Ltd., a company specializing in electronic commerce education, explains, "These dollar savings are a result of eliminating redundant processing steps, eliminating paper, and reducing the amount of labor required to conduct the transaction."

Q. What other benefits can I expect?

A. According to the 1994 survey, companies switching to EDI can expect to see a better than 50 percent decrease in error rates and an average 40 percent or greater decrease in total transaction time. With all of these benefits, you probably also have happier customers.

Q. What are the components of an EDI system?

A. Typical EDI systems consist of three main components (1) EDI translation **software** to generate, receive, and interpret transacted information. (2) **Hardware,** including computers (mainframe, mid-range, or personal), modems, printer, and storage device. You may be able to use existing equipment, with upgrades as necessary. (3) Access to and continued support from a **network provider** that will transport your EDI information.

Q. What are typical EDI start-up costs?

A. Initial start-up costs can be quite high. Ferguson estimates that the cost to set up a typical EDI system averages $10,000 on a personal computer platform; $50,000 on a mid-range platform; and $100,000 on a mainframe platform. Adding the substantial costs of researching, pilot testing, and training employees on the new system can drive costs much higher.

(Continued on page 11)

Haworth's Intelligent Furniture Catalog

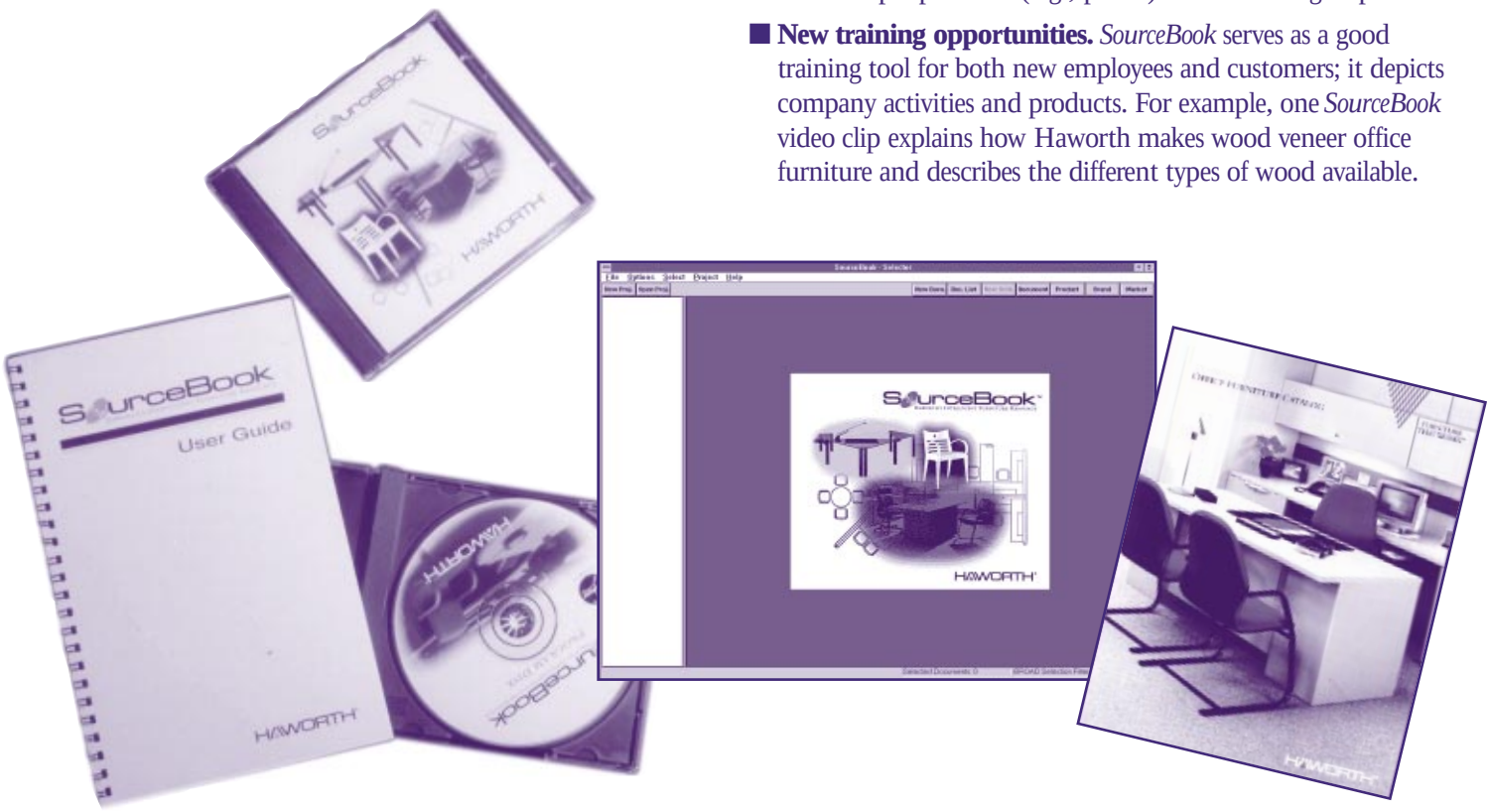
How many compact disks does it take to hold 2,000 furniture catalogs? Just one! Salespeople at WasteWi$e partner Haworth, Inc., the second largest manufacturer of office furniture in the United States, can carry nearly a quarter ton of sales literature to client meetings—all in the palms of their hands. With *SourceBook*, a CD/ROM containing more than 2,000 sales-related documents (e.g., sales bulletins, price lists, forms, planning guides, fabric samples, and video clips), salespeople have a wealth of information at their fingertips. Haworth estimates that if all of the information contained on one *SourceBook* CD were printed, the stack of paper would be 6 feet tall and weigh 400 pounds.

Costs and Benefits

The start-up costs for *SourceBook* included $500,000 for software development and another $2 to 3 million for training more than 600 people, purchasing laptop computers for 260 market managers, and other indirect expenses. Ted Evans, systems analyst responsible for Haworth's CD/ROM publications, explains, "It's really too early to calculate hard cost figures, but we believe that from a marketing perspective alone, *SourceBook* has already paid for itself through customer satisfaction, the general impressiveness and high visibility of the product, and the increase in employee efficiency."

Some of the many benefits that Haworth has realized through *SourceBook* include:

- **Decreased printing costs and paper usage.** Haworth frequently makes adjustments to prices and product lines, resulting in the need for updated sales literature, which requires vast amounts of paper. Reprinting these materials costs Haworth more than $1 million annually. Over the next few years, Haworth plans to discontinue printing much of this literature, with the goal of decreasing its annual budget for reprints by 40 percent by the year 2005.
- **Higher-quality client presentations.** Rather than cutting up glossy catalogs to create presentations, the salespeople now custom design client presentations on the computer, complete with full-color graphics. This conserves paper and avoids discarding cut-up catalogs.
- **Greater customer satisfaction.** Response time to customers' questions has decreased since all of the information that salespeople need (e.g., prices) is at their fingertips.
- **New training opportunities.** *SourceBook* serves as a good training tool for both new employees and customers; it depicts company activities and products. For example, one *SourceBook* video clip explains how Haworth makes wood veneer office furniture and describes the different types of wood available.



Evans comments, "The entire company is pleased with *SourceBook*, and we have received nothing but compliments. In fact, Dick Haworth, the company's chairman, wanted to try it out too. He recently received his own laptop computer, complete with *SourceBook*, and loves it!"

Implementation Schedule

From concept to product, *SourceBook* took about three years to develop, beginning in 1992. Haworth spent approximately one year examining the innovative proposal for *SourceBook*, including an initial cost-benefit analysis. Writing the software took about a year as well, during which time the company devised a 10-year schedule for implementation and expansion of *SourceBook*.

Haworth released *SourceBook* to its 350 independent dealers in February 1995. The company's 260 internal market managers were up and running with laptop computers equipped with *SourceBook* in November 1995. In early 1996, Haworth began targeting the first documents for printing reduction.

Haworth currently provides monthly updates of the *SourceBook* CD to its dealers and market managers. These salespeople retain the old CDs as a reference library for historic prices, product lines, and video clips.

"We believe that from a marketing perspective alone, *SourceBook* has already paid for itself through customer satisfaction, the general impressiveness and high visibility of the product, and the increase in employee efficiency."

Ted Evans, Systems Analyst, Haworth

Challenges Take Time to Resolve

As with the introduction of any new technology, Haworth encountered some challenges during the project. Timing was a crucial issue. Many of Haworth's marketing activities are conducted by outside, independent dealers of office furniture as well as internal Haworth employees, known as market managers. When the company introduced *SourceBook* in February 1995, both the independent dealers and Haworth's market managers received training on how to use it. While the dealers possessed the hardware necessary to run *SourceBook*, the market managers were initially without laptop computers and thus unable to use the new tool. As a result, Haworth's market managers did not support the technology at first, especially since part of their job involves supporting the independent dealers, as well as servicing their own clients. By November 1995, however, all of the market managers were up and running with laptop computers and *SourceBook* themselves. Evans remarks, "It's difficult to pull them away from their computers now! Although the market managers are now fully supportive of the technology, they are not yet completely comfortable with it. Everyone is using *SourceBook*, but perhaps not to its full potential. It will take time to fully adjust to this new technology."

Haworth's Electronic Horizon

Haworth is continuously making improvements and expanding upon its original idea. Currently one-third of the *SourceBook* disk space is consumed by video clips, such as an 11-minute interview with G.W. Haworth, the company's founder. In April 1996, Haworth expects to have enough video for an entire CD/ROM, which will be used for both training and marketing purposes. The company is also in the process of electronically scanning fabric and finishing swatches, which eventually will be contained on a separate CD/ROM.

Each page of a *SourceBook* document is currently formatted as if it were a standard piece of paper. Once the need to print the information decreases, Haworth will be able to improve *SourceBook* formatting, making it more compatible with the electronic medium.

Evans notes, "We continue to learn new things that *SourceBook* can be used for. It adds value to the company."

Lockheed Martin Flies High With Internet Communication

While many companies develop a home page on the Internet to communicate with customers, The Lockheed Martin Corporation went one step further. This WasteWi$e partner, headquartered in Bethesda, Maryland, is also using the World Wide Web to communicate corporate policies and decisions to over 80,000 employees nationwide.

Employees can quickly access information on both corporate and facility procedures from their desktop computers. Lockheed Martin selected internet technology as the most effective way to convey vast amounts of information and enable employees to search for specific information.

To ensure that Lockheed Martin's corporate policies and procedures are kept confidential, the network is protected with a firewall. Only Lockheed Martin employees and authorized guests are able to access the network.

"The Internet has proven to be a cost-effective and timely way to distribute corporate policies and procedures," says Nancy Corder, director of corporate policies and procedures at Lockheed Martin. Using the Internet to distribute information has helped Lockheed Martin lower business costs by reducing staff time spent accessing information and the use of paper products. While Lockheed Martin does not track the number of documents pulled off the Internet, the company believes the associated paper savings are tremendous. Mailing just one 100-page policy manual to each of the 80,000 employees connected to the network would cost the company more than $250,000 in postage and paper costs.

Especially helpful in reducing paper costs is the Internet's ability to incorporate and disseminate changes to documents on-line. Instead of printing and distributing hard copies of revised policies and procedures, changes to documents can be made without using a single sheet of paper. In addition, the network can send on-line memos to employees alerting them of any recent revisions to documents.

Phillips Reaps Rewards Through EDI

As a result of its use of EDI and other technologies, WasteWi$e partner Phillips Petroleum Company has saved almost $250,000 in paper, envelopes, and forms over seven years and conserved 210,000 pounds of paper. The company, headquartered in Bartlesville, Oklahoma, reaped these rewards by changing the way it does business with its suppliers.

In 1989, Phillips began paying a few of its major suppliers electronically (i.e., transferring funds via computers rather than paper checks). Since then, the company has expanded its use of electronic fund transfers to make an estimated 615,000 payments, or 35 percent of Phillips' total payments, annually. Start-up costs were low as Phillips developed the program through a partnership with its bank. The company believes that implementation costs, including a $25,000 annual maintenance fee and $80,000 for an EDI translator, have been offset by the cost savings.

The company is currently expanding its use of technology in two ways:

- **Encouraging major customers to replace check payments with electronic fund transfers.** Instead of sending checks each month, customers can save paper by transferring money to Phillips electronically. Presently, 75 major customers are making 300 payments each month.
- **Replacing paper purchase order forms with electronically transmitted requests.** When ordering paper, for example, rather than filling out a purchase form and mailing it to Phillips' paper supplier, the company can communicate via computer with the supplier to place an order. Some 126,000 purchases have been made via computer order since 1990.

Phillips' use of these technologies has not only saved money and reduced waste, it has also improved efficiency. Transferring money and purchase orders electronically reduces the time and effort formerly spent to process paper checks and forms.

Electronic Quotes Streamline the Bidding Process at The Southern Company

From start to finish, EDI improves the purchasing process," says Steve Choat, The Southern Company's EDI coordinator, Georgia Power, Procurement and Materials. The Southern Company, an electric utility holding company in Atlanta, Georgia, developed a system to obtain price quotes from vendors electronically, significantly shortening the purchasing process and saving money. Choat estimates that Georgia Power, one of the seven utilities in the holding company, saved $120,000 in avoided administrative costs in one year alone.

Previously, the Southern Company requested price quotes for transformers, cable, and other supplies and equipment via paper forms and received a bid document in response. Any negotiations over price, quantity, and availability required that documents be sent back and forth between the company and its suppliers. This correspondence lengthened the time and increased the cost needed to select a supplier.

Today, the use of standardized EDI transactions cuts processing time significantly. More than 312 suppliers use utility-specific standards (known as ASC X12 EDI standards), which enable the company to send and receive price quotes in a standard format. The ASC X12 standards have been promoted by the Utilities Industry Group to both utilities and their suppliers nationwide.

> **"EDI has been immensely popular with both large and small suppliers. Everyone appreciates how it speeds up the payment process and minimizes the need for paperwork"**
>
> Steve Choat, EDI Coordinator, Georgia Power, Procurement and Materials, The Southern Company

The Southern Company's new process minimizes turnaround time because the standardized forms identify the information required from suppliers. Negotiations are conducted using an electronic form of post-it notes that allow both parties to attach comments to specific sections. When all bids are complete, the Purchasing Department reviews and selects a supplier. In many instances, employees can then order the materials directly from the supplier, through their computers.

To calculate administrative costs (e.g., handling, paper, postage) avoided from electronic bidding, the company developed a conversion factor of $6 per EDI document based on a national survey of EDI document costs and savings. The Southern Company multiplied the 20,000 quotes received last year by $6 to calculate savings. To implement the new system, the Southern Company did incur network charges and technical service costs. According to Choat, however, "With the cost savings realized through EDI, the new system more than pays for itself."

An important benefit of the Southern Company's electronic bidding process was the reduction of paper use. Formerly, each quote averaged three pages, for a total of 60,000 sheets each year. Thanks to the new paperless system, the company now conserves approximately 600 pounds of paper per year.

Setting EDI Standards Industry Wide

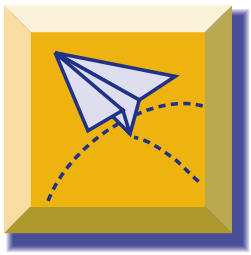
The Utilities Industry Group (UIG), a national association of 163 utilities and 98 utility suppliers, was formed in 1987 to investigate the benefits of standardizing EDI transactions in the utility industry. In coordination with the ANSI Accredited Standards X-12 Committee, UIG developed national guidelines that govern electronic transfer of information throughout the industry, allowing participating suppliers and utilities to use the same system.

According to Mercedes Johnson, head of a UIG task force on environmental issues, standardization makes electronic transactions easier for everyone in the industry. "For the utilities involved, the use of standard EDI procedures eliminates mail and courier charges, improves production cycles, and reduces inventories, clerical workloads, and errors in on-time data entry," says Johnson. The suppliers' process is also facilitated, because suppliers respond to utilities' requests in a standard format, rather than having to adapt to hundreds of different formats for processing requests. "The overall result of EDI standardization has been the improvement of business efficiencies throughout the industry," adds Johnson.

Carbon Paper Outdated At Silicon Graphics

Would your company invest in a project if it could double its investment within two years? Silicon Graphics expects that its paperless purchasing project will do just that. By developing a World Wide Web-based purchasing system, Silicon Graphics conserved over two and half tons of paper forms in just one year. Now, the company's 11,000 employees can order products and services electronically without leaving a costly paper trail.

Breaking the Paper Chain



Early in 1994, WasteWi$e partner Silicon Graphics, a leading computer manufacturer, began investigating opportunities to streamline its purchasing process and cut costs. The company, based in Mountain View, California, noticed that in just two years the number of purchasing transactions had increased by 90 percent, reaching 19,000 transactions. Ben Gardner, manager of Corporate Purchasing, realized that he either needed to hire additional people to handle the growing paperwork or reengineer the purchasing process to become more efficient. He chose to research electronic commerce opportunities and put these technologies to work for the company. Results to date indicate that his instinct was right on target. As a result of the purchasing system, Silicon Graphics has saved money, paper, and time. According to Gardner, "In the upcoming year, Silicon Graphics expects the project's savings to reach $2.1 million."

By replacing the multi-part paper forms with electronic forms, Silicon Graphics conserved approximately 500,000 sheets of paper in just one year (60 to 70 percent of the paper is unrecyclable carbon paper). This estimate does not include the paper generated by supplier organizations.

Improving Efficiency

Using a Web-based system, the Purchasing Group reduced the number of purchasing steps from 15 to three. "That's not all," adds Gardner, "now employees can receive their purchases more quickly, too. Employee orders can often be filled within 24 hours instead of 3 weeks."

Prior to implementing this system, the Purchasing Group routed every request through a series of cumbersome steps, logging items into various systems. To purchase an item, employees searched through paper catalogs and sent a paper form to management for approval. The manager then sent each approved form to the Purchasing Group. After logging in each form, the Purchasing Group sent another form to the supplier, who sent back invoices and receipts. Finally, the Accounts Payable Group cut and mailed checks, logging in forms at every step of the process. Keeping track of an item in the paper intensive process was time-consuming and frustrating.

Under Silicon Graphics' new purchasing system, employees browse supplier catalogs that are electronically linked to the system and fill out an electronic form. The system sends the form via e-mail to the appropriate manager for approval. If the manager approves the request, the purchase order is transmitted to the supplier via EDI. In the future, the system will allow digital signatures to acknowledge receipt of materials, and electronic invoices and payments. Employees will also be able to track the status of an order at any point throughout the process.

"Paperless forms are no longer just the wave of the future at Silicon Graphics. They are changing the way we do business by saving the company money, time, and paper *today*."

Ben Gardner, Manager, Corporate Purchasing, Silicon Graphics

Decision-Making Process

The project took more than a year and a half to develop. Silicon Graphics' Purchasing Group began by researching purchasing systems at approximately 20 companies through a benchmark study. The study helped identify the best purchasing practices in the industry. Concurrently, the company investigated commercial software available to facilitate electronic transactions. Unable to locate software that met their needs, Silicon Graphics resolved to develop its own purchasing system based on the World Wide Web and the company's internal network.

To plan the new system, the company conducted numerous focus groups with employees and suppliers across the country. The focus groups helped the company design a system that would both enable employees to do their jobs more effectively and be compatible with suppliers' systems.

Gardner notes that the most rewarding feedback from users of the new system has been, "Hey you guys really listened to our advice. Thanks."

Large Start-Up Costs Are Well Worth It for the Future

Silicon Graphics attributes its ability to please all involved parties to its long and in-depth review of what users of the system needed. The company's motto throughout the project was "If the system is not fast, simple, and pretty, it's not going to succeed!" The biggest obstacle the Purchasing Group faced was getting people to understand the opportunities that electronic commerce presents.

Although project start-up costs exceeded $1 million, Gardner expects to achieve payback within nine months of initiating the project. In the first year, the project has already saved an estimated $200,000 for Silicon Graphics and is expected to save $2.1 million in the second year as the system is expanded to include additional purchasing functions. Initial costs were high because they included all of the efforts to research, design, develop, pilot, and implement the system, as well as efforts to work with and educate employees and suppliers. Now that the infrastructure is in place, however, Silicon Graphics can expand its use of the electronic forms infrastructure into other company groups.

Glowing Reactions From All Involved

Silicon Graphics' new system makes life easier for everyone involved, including suppliers. Managers are excited about the savings in time and money. Employees receive their orders faster and do not get frustrated because the order slip has been misplaced. Suppliers are paid promptly and now have the infrastructure in place to work electronically with their other customers. Ben Gardner concludes, "Paperless forms are no longer just the wave of the future at Silicon Graphics. They are changing the way we do business by saving the company money, time, and paper *today*."

Advice

From Silicon Graphics

- **Research the current paper-based process from "womb to tomb."**
  Know the details from start to finish about where a form is initiated and sent.
- **Look at the entire chain of individuals involved with the process including all customers and suppliers.**
  Identifying all links is critical to designing a successful system.
- **Listen to everyone's suggestions and concerns and incorporate key ideas.**
  Understanding supplies, customer, and employee needs helped Silicon Graphics design a system that works.
- **Don't be intimidated by the initial start-up costs.**
  Once the infrastructure is in place, the system can be expanded to target other areas where forms are processed, providing opportunities for additional savings.

WasteWi$e On Line

For more than two years, WasteWi$e has encouraged companies to prevent waste at the source. We're taking our own advice—WasteWi$e is now using Internet technology to reduce paper. The next time you're taking a drive on the information superhighway, check out our new home page at **http://www.epa.gov/epaoswer/wastewise.html**.

On the WasteWi$e Home Page, you will find an assortment of waste reduction information at your fingertips, including *WasteWi$e Update* newsletters, a list of partners (updated periodically), and technical assistance tip sheets. We provide most documents in both text (ASCII) files and graphics (PDF) files. As WasteWi$e develops new tip sheets and other materials, we will add them to the home page.

The future of the WasteWi$e Home Page holds the following enhancements:

- **On-line Registration.** Businesses and other organizations will be able to join WasteWi$e via on-line registration. Prospective members will simply enter the requested information on line, and e-mail directly to WasteWi$e.
- **On-line Distribution of Materials.** Soon we will put the WasteWi$e Bulletin and other materials on the home page regularly. **If you have Internet access and would like us to stop sending paper copies of new materials, please call the Helpline at 800 372-9473 and let us know.**
- **On-line Reporting.** As requested by several partners, WasteWi$e hopes to make on-line reporting available by March 1997. Partners will be able to complete their 1996 Annual Reporting Forms and 1997 Goals Identification Forms on line. Paper copies of both forms will remain available for those partners without Internet access.

We'll let you know as these features are developed. If you have questions or suggestions, you can also correspond with us via e-mail at **ww@cais.net**.

Endorser Update: NADA Helps Car Dealers Be WasteWi$e

WasteWi$e has 40 Endorsers, trade associations and other organizations, that have pledged to promote WasteWi$e to their member companies. Endorsers are using a variety of approaches to educate their membership on waste reduction benefits. Consider, for example, the approach used by the National Automobile Dealers Association (NADA), located in McLean Virginia. In an effort to educate its 20,000 dealership owners about ways to reduce waste and reap savings, NADA developed the *WasteWi$e Management Bulletin.* The Bulletin, part of a series of educational guides for dealerships, is an easy-to-use tool designed to help dealerships understand the waste they generate and develop a strategy to reduce it. While most of the guides in the series have focused on new regulations and standards, the *WasteWi$e Management Bulletin* is the first to highlight voluntary initiatives for protecting the environment and saving money. NADA plans to advertise the availability of the Bulletin in trade publications such as *Automotive Executive* and *Automotive News*.

According to Patrick Rowsey of NADA's Legal and Regulatory Group, NADA undertook this project because "we are moving out of the era of command and control regulations and into the world of voluntary partnership programs like WasteWi$e that provide the flexibility for companies to implement cost-effective environmental management programs." NADA hopes that by educating its membership about voluntary programs, it can keep members on the cutting edge and help them be proactive about waste reduction.

NADA researched dealership wastes by surveying selected dealerships and performing a waste audit at one dealership. Based on this information, NADA developed a modified WasteWi$e goals form for use at automotive dealerships, with sample activities under the waste prevention, recycling, and buying recycled sections. For each recommended activity, NADA explains how to implement it and discusses associated benefits and considerations.

For other WasteWi$e endorsers, developing similar guidance might be a useful way to alert your membership to the cost-saving opportunities of waste reduction.

(Continued from page 3)

Q. What are the implementation costs of EDI?

A. Implementation costs vary according to applications used and the number of trading partners (i.e., other facilities within one company or other companies with which you exchange information.) According to the 1994 survey, a company with 100 or more trading partners invests an average of $200,000 or more annually. A company with 10 or fewer trading partners may invest $10,000 or less per year.

Q. How long is the payback period?

A. The typical payback period averages two and a half years. The more trading partners and paper documents you convert to EDI, the greater your benefits will be and the shorter your payback period.

Q. What's on the EDI horizon?

A. Value-added networks (VANs) have long been the standard choice for transporting EDI information from one computer to another. A new player is emerging—the Internet. Debate still ensues over the strengths and weaknesses of VANs versus the Internet. Only time and experience will tell which one will ultimately serve more customers.

Q. What are the benefits of using VANs?

A. VANs offer years of EDI experience and implementation support for their customers, including trouble-shooting, communications monitoring, and policing for compliance with EDI standards. VANs also provide a direct link between computers, thus ensuring reliability, stability, and availability.

Q. What are the benefits of using the Internet?

A. Internet accounts usually allow many hours of use at much lower costs than VANs. The Internet also offers worldwide access and rapid transport of information. Security and reliability are issues for EDI via the Internet. However, standards such as including encryption and digital signature techniques are being developed.

Sources for EDI Questions and Answers

1. 1994 survey, conducted by the EDI Group, Ltd., results published in *EDI Forum, The Journal of Electronic Commerce*, 1994, "The Real Facts About EDI in 1994," Daniel M. Ferguson.
2. *Journal of Systems Management*, March/April 1995, "EDI: An Analysis of Adoption, Uses, Benefits and Barriers," Vairam Arunachalam, Asst. Professor of Accounting, University of Missouri, Columbia.
3. *EDI Forum, The Journal of Electronic Commerce*, 1995, "The Internet: A Strategic Backbone for EDI?," Vince Hruska, Vice President, First Interstate Bank in Los Angeles.
4. *EDI Forum, The Journal of Electronic Commerce*, 1995, "EDI on the Internet," Timothy Szal and Barbara Lloyd, Advantis.
5. Interview with Daniel Ferguson, president of The EDI Group, Ltd., Oak Park, IL, March 1996.

RESOURCES

SELECTED EDI RESOURCES

A wide variety of EDI and electronic commerce resources exist. Here are a few that WasteWi$e is aware of:

- EDI World. A monthly magazine of electronic commerce that integrates management and technology information with editorials and advertising. For more information, call 800 336-4887 or send e-mail to ediworld@ix.netcom.com. Or visit the EDI World home page (http://pwr.com/ediworld) to learn about its bookstore, conference, and seminars.

- EDI Forum, The Journal of Electronic Commerce. A quarterly journal featuring EDI research, trends, opinions, and case studies written by a variety of authors in the electronic commerce industry. For more information on this journal or The EDI Group, Ltd., including courses and conferences, call 708 848-0135 or send e-mail to dmferguson@attmail.com.

- Buyer's Guide to Electronic Commerce. Describes e-mail, EDI, and electronic commerce products and services; also available electronically. For more information, call 770 951-2648 or send e-mail to info@e-com.com.

- Internet links. Start with the home page of Premenos, an EDI software company (http://www.premenos.com), which will introduce you to many publications, web sites, and e-mail addresses.

- Data Interchange Standards Association (DISA). Located in Alexandria, Virginia, this not-for-profit organization provides education and information on EDI and electronic commerce. DISA also sponsors one of largest annual EDI conferences and exhibitions in the country. For more information, call 703 548-7005.

- Electronic Commerce World Institute. Located in Montreal, Canada, this membership organization offers a global perspective on EDI and electronic commerce, including current news from around the world. The Institute's web site (http://www.ecworld.org) offers case studies, links to related sites, and other useful resources. For more information, call 514 288-3555 or send e-mail to institute@ecworld.org.

BellSouth Telecommunications Dials Up Big Savings

You might not think that something so seemingly simple as storing reports electronically could save millions of dollars, but that's precisely what BellSouth Telecommunications (BST) has discovered. During 1994 and 1995, the company conserved approximately 16 million sheets of printout paper and saved $3.5 million by implementing an electronic filing system.

BST's system of storing reports electronically enables employees to view, download, or print reports archived in the company's data centers from their own workstations.

Implementing this system has helped the company conserve paper, improve efficiency, and reduce the need for paper storage. Prior to initiating the electronic filing system, BST employees could only obtain reports by ordering printed copies. For employees requiring specific references or pages from a report, this process often wasted time and paper. Employees now can save resources by viewing reports on line or printing individual pages.

Implementing an electronic filing system at BST has not been without challenges. "The greatest challenge has been getting users to change their mindset for the need to have a piece of paper in their hand," says Lamar Poppell, environmental coordinator of BST's Information Technologies-Operations. "Employees need to be assured that their reports are safe and accessible," explains Poppell. To overcome this challenge, the company has publicized the advantages of the electronic filing system in its employee publication. BST also includes a note with all printed reports that details how much paper an employee could have saved by not printing the reports.

We'd Like to Hear from You!

WasteWi$e would like to hear about your efforts to achieve a "paperless office." In addition, if you are not yet a WasteWi$e partner and would like to join, please let us know. Benefits of membership include technical assistance on waste reduction, publications, a peer match program, workshops, and more. Contact us at 800 EPA-WISE for more information.

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