KnowledgeShare: the Xerox and Lotus Solution for Collaborative Knowledge Management

An IDC White Paper sponsored by Xerox and IBM/Lotus

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Management Summary

In a recent survey conducted by the Malcolm Baldridge Quality Award, CEOs ranked knowledge management as their second highest corporate priority behind increasing globalization. Despite many efforts over the past two decades to bring a more systematic approach to the capturing and sharing of intellectual assets within and across enterprises, a wide gap between the promise and the reality still exists. Intellectual assets are contained in a variety of mostly isolated repositories, including employees, electronic documents, electronic databases, and paper documents. There is still no effective way of sharing information among these repositories across a widely distributed workforce. Much information is not shared with the people who need it when they need it, resulting in reduced productivity.

IDC Opinion

Corporations, large and small, are drowning in a sea of paper despite the many promises made by knowledge and document management solutions vendors. Will the new KnowledgeShare solution from Xerox and Lotus contribute to a more productive workforce?

Today's enterprises face relentless competitive pressures to improve cycle times, reduce costs, and increase productivity. IDC believes that Xerox and Lotus have developed a compelling solution that addresses one of the biggest obstacles to increased productivity — paper glut. Unlike many knowledge and document management solutions that are expensive, hard to use, and difficult to learn, KnowledgeShare is an easy to implement solution that promises to deliver rapid benefits.

IDC conducted research with more than 25 companies, including in-depth interviews with five of them. Based on these interviews, the return on investment gained by using KnowledgeShare is projected to be more than 400% over a five-year period. By bringing scanning and distribution capabilities to knowledge workers themselves, Xerox and Lotus foster collaboration in an era of widely distributed global teams. The notion of instant information access anytime, anywhere, is a step closer to reality.

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This IDC White Paper examines the document and knowledge management problems faced by today's global corporations. It explains why the new rules of business will exacerbate the situation unless new solutions are put into use. Although the concept of the near-paperless office has been with us for more than two decades and much of the technology exists to make it a reality, current solutions fail to deliver on the vision of instantaneous information access. Solutions have generally been costly, hard to learn, and difficult to use.

We will also discuss a new solution from Xerox and Lotus called KnowledgeShare, which captures paper-based documents into easily manageable electronic documents that are routed directly into a Notes environment — Domino.Doc, Lotus Notes databases, or Notes-based email. IDC conducted research on the use of knowledge management, document management, and collaboration technologies with 25 companies. IDC performed an in-depth ROI analysis with five of them, and an estimated ROI from using KnowledgeShare was projected to be more than 400% over a five-year period.

KnowledgeShare enables the free transfer of knowledge between electronic documents, paper documents, and other information repositories. Having information — both structured and unstructured — available to anyone at anyplace at anytime is a powerful and welcome notion.

The Myth of the Paperless Office

The paperless office won't be a reality anytime soon. In actuality, digital technologies, such as the Internet and email, are driving increased paper output. Recent IDC end-user research shows that the highest percentage of survey respondents indicate that their paper consumption is increasing (versus staying flat or declining). The shift being noticed is that print volumes are growing faster than copy volumes. This is not surprising given that print volumes come from a digital source (e.g., computer workstation), while copy volumes are gained only by walking up to the device and directly accessing it.

Xerox has used the following scenario to illustrate the growing paper consumption in the digital age: although the percentage of documents making their way onto paper may be declining, the volume of document information has increased so dramatically that paper consumption continues to increase. The sheer volume of documents far and away offsets any percentage decline in putting these documents on paper.

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The Need for Better Document Management

Despite the introduction of a wide range of document and knowledge management solutions over the past two decades, the glut of paper that chokes the flow of information is as problematic as ever. Companies of all sizes still face huge amounts of paper-based information that must be manually routed to its recipients, resulting in major distribution costs and long delays. The existence of valuable information is often unknown to others, precluding the ability to reuse intellectual assets.

In the fast-emerging ebusiness era, where speed, flexibility, and agility are the new watchwords, companies can no longer afford to share and disseminate information the old way. Those that continue to do so will be overwhelmed by more nimble competitors who have designed their business processes to take advantage of the new technologies from the start. Globalization, the emerging need for 24 x 7 support, the use of widely dispersed teams, and other factors are making the need for speed even more acute. The Web, email, and other technologies have made instant access and collaboration almost a requirement. Today's organizations need rapid response to new opportunities, better ways to leverage existing assets and creativity within their company, and improved sharing of knowledge and information.

Old habits are hard to break. Studies of office workers show that up to 60% of a business person's time is spent handling documents, with up to 40% of labor cost associated with document production, processing, and storage. IDC interviewed one company that has several hundred retail stores spread around the country. Many important documents that originate on paper are copied and then sent by overnight courier to each store. This time-consuming dissemination process results in delays and excessive costs. In addition, there is little sharing among the stores, since headquarters send the information in a "hub and spoke" manner that limits interaction among the spokes.

Technologies that allow this information to be disseminated electronically, which would save the company a great deal of time and money and allow iterative collaboration, are in existence today. However, it is one thing to electronically capture text and numbers; it is another thing to capture images, engineering schematics, drawings, pictures, forms, and unstructured information. And it is another thing entirely to make the process easy and reliable. One problem is that much of the technology isn't user friendly, it is too difficult to learn or isn't convenient to the creator of content. As a result, old behaviors such as copying and physical distribution, even though they may dramatically decrease productivity, are widespread.

IDC found in its research for this project that the many repositories of information, including those that are electronic, remain isolated for a number of reasons. Much information is not searchable, effectively limiting its usefulness. And much important information never finds its way into electronic format, making sharing and distribution

difficult. Collaborative solutions and document management technologies are seldom integrated. Thus, one system is used to communicate and collaborate; another is used to share documents. The widespread use of email is alleviating the situation somewhat, but document management technologies are often relegated to the back room for archiving purposes. Scanning, if in use, is typically a production function that takes place in batch mode. All of this contributes to an environment in which the promise of knowledge and document management goes unfulfilled.

Introducing the Lotus/Xerox KnowledgeShare Solution for Enhancing Productivity and Competitiveness

KnowledgeShare, from Lotus and Xerox, delivers a document management solution that quickly and easily allows companies to enhance knowledge sharing throughout their organizations. Designed to be used by knowledge workers in the "front office" where documents are created, the solution enables electronic capture of a wide variety of paper-based information for fast dissemination and action. It leverages the power of the Internet to bring information to anyone, anywhere, at anytime.

Saving time and reducing the cost necessary to distribute paper-based information are two of the most important elements of KnowledgeShare. Allowing widely dispersed parties to collaborate quickly through the power of electronic distribution can reduce cycle times dramatically. At the same time, the use of costly overnight courier services or fax machines for information distribution can be greatly reduced. One global company using KnowledgeShare has been able to eliminate its daily five-hour overseas fax of a large parts manual in favor of a 25-minute scanning process to its local Domino database. The Domino database is replicated globally, and each user accesses the latest parts information at a fraction of the original cost. Furthermore, the scanned images are in a much higher resolution than the faxed ones (600dpi versus 200dpi), making them much more readable.

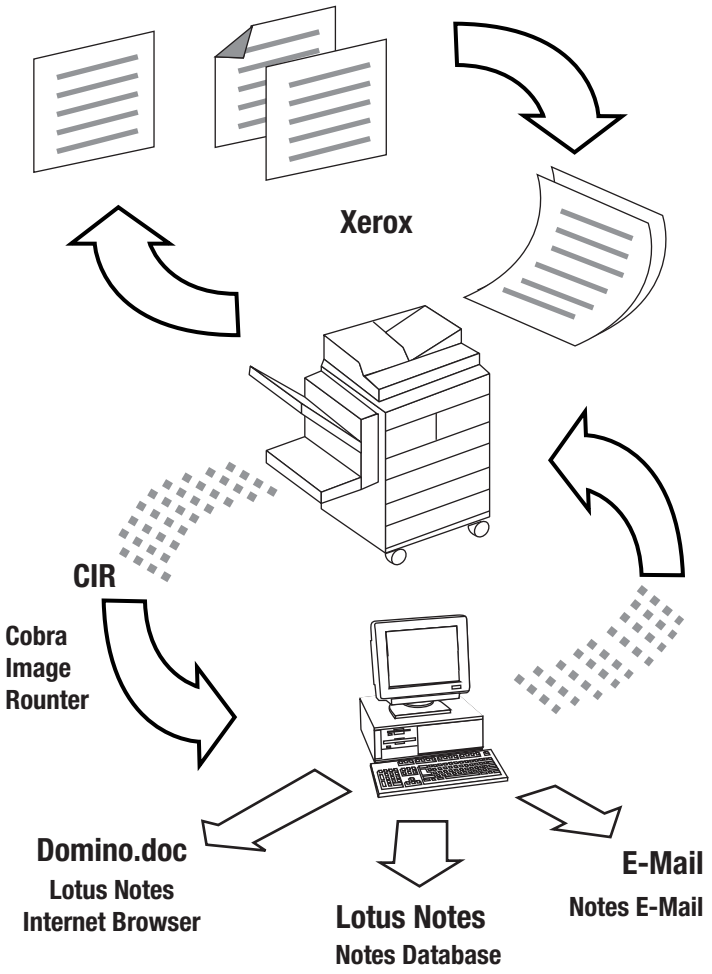
KnowledgeShare uses the combined strengths of the Xerox Document Centre and the Cobra Image Router for Xerox (CIRX). The Cobra Image Router is from Cobra Technologies, a Lotus Premier Partner. KnowledgeShare is a scalable offering that seamlessly delivers both paper and electronic documents directly into an organization's Lotus workflow and document management environments in a defined process as follows (see Figure 1):

1. Physical documents are converted to electronic format using the scanning capabilities of a networked Xerox Document Centre Multifunction Peripheral (MFP)

2. Electronic documents are distributed via email or scanned directly into Domino databases or Domino.doc repositories

3. Electronic documents are shared via Domino and Domino.Doc
4. Document management applications are used to manage physical and electronic documents

Figure 1
KnowledgeShare Solution



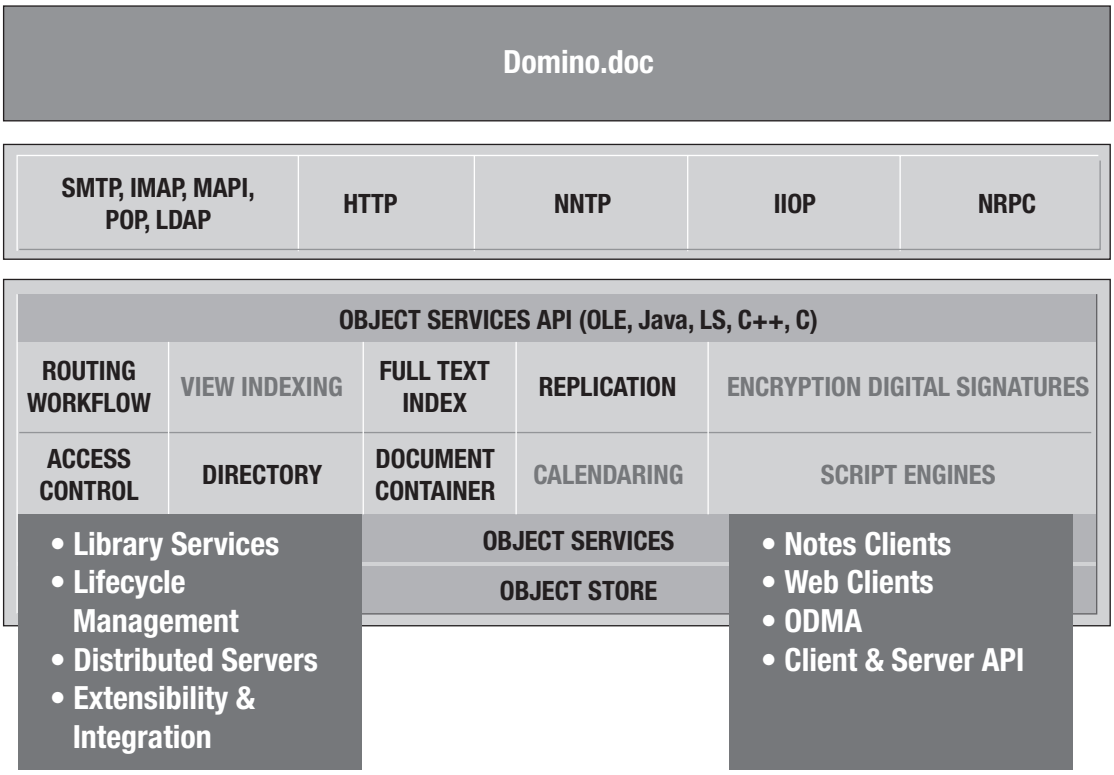
The KnowledgeShare solution converts paper documents into text and images that can be seamlessly routed anywhere in the Notes environment.
Source: Xerox and IBM/Lotus

KnowledgeShare captures paper-based documents into easily manageable electronic documents that are routed directly into a Notes environment — Domino.Doc, Lotus Notes databases, or Notes-based email — as specified by the user on the Xerox Document Centre at up to 65 pages per minute. File formats include TIFF, OCR, and PDF. Companies can efficiently convert physical documents to digital form — and back to hard copy — as easily as using a standard office copier.

Domino.Doc extends the capabilities of Domino's application server. It is used to build applications that manage documents throughout their life cycle, from preparation and authoring to review, editing, approval, distribution, and archiving. Document management with Domino.Doc is optimized for distributed workgroups by leveraging Domino's replication services.

Once a body of documents has been created, Domino.Doc becomes a specialized repository of documents and captured expertise that is suited for discovery and reuse. As a collaborative platform, Domino.Doc easily moves business information and expertise into team-based, interactive environments where it can be acted upon by local as well as dispersed teams (see Figure 2). As a powerful Web-based solution, Domino.Doc extends Lotus Domino and Notes.

Figure 2
"Layered" Document Management



Domino.Doc streamlines multiple business processes while functioning as a key component of enterprise-wide Knowledge Management.
Source: IDC, 2000

KnowledgeShare, in conjunction with Domino.Doc, is designed to deploy a variety of document management solutions in a single management system. It will help companies combine disparate and isolated resources, thus streamlining communications among individuals, departments, and enterprises. For example, companies can combine asynchronous collaboration with synchronous, or real-time, collaboration with products such as Lotus Sametime. Sametime delivers the benefits of network-based, real-time communication and collaboration. When Sametime is combined with the asynchronous capabilities of Domino and Notes, it offers a new range of capabilities.

There are numerous business processes across industries that can benefit from the KnowledgeShare solution. Paper-intensive processes, such as mortgage origination, claims processing, project management, legislative research, government agency records processing, contract management, invoicing, or hiring, can be streamlined and improved. The ability to collaborate, edit, update, and build upon prior information is greatly enhanced. Departments such as facilities management, legal, tax, and procurement typically rely on many paper-intensive, yet collaborative, processes to accomplish work.

IDC ROI Methodology

IDC's ROI methodology measures the projected financial benefits from investing in IT hardware, software, training, and services. To measure the anticipated benefits of Xerox and Lotus's KnowledgeShare, IDC developed an ROI model based on the following:

- Total projected costs of deployment, including servers, clients, networks, personnel, and training over five years
- Sum of projected savings — labor, material, and overhead — over a forward-looking five-year period
- Increased revenue due to the solution over a forward-looking five-year period

IDC built the model in four steps:

1. Determine the qualitative costs and benefits of selling, planning, administering, and managing paper-based documents
2. Estimate the gains in productivity and efficiency, calculate the associated cost savings and revenue gains
3. Evaluate the investments made in the purchase and implementation of the KnowledgeShare solution
4. Calculate the projected ROI over a five-year time horizon.

Research Method

All five companies interviewed in depth in the course of IDC's research are involved in selling goods and services. They include General

Motors, Union Pacific, XL Capital, National Association of Independent Insurers, and Whitehall Jewelers. The estimated cumulative five-year ROI for the five companies was projected to be greater than 400%. When less tangible, harder-to-quantify factors such as increased sales productivity, better turnaround time, and improved supplier relations are factored in, the ROI increases to more than 600%.

IDC interviewed senior managers (VPs and directors of IT or administration) who had responsibility for office services, document management, imaging, or a similar function. IDC posed a series of questions on specific business processes and time and staffing requirements, examining the potential payoff of the KnowledgeShare solution.

Interviews concentrated on required investments to deploy the solution and the following areas of benefit — productivity, reduced cost of materials, and increased revenues. We also discussed less tangible benefits, such as decreased turnaround time, customer retention, and better supplier relations.

Investment Required

To estimate the total investment required to deploy the solution, IDC included the cost of purchasing and installing the network, hardware, and software as well as any costs for integration, software maintenance, IT staff, and training for current and projected new users over the time horizon.

Productivity

To estimate increases in productivity, IDC determined how much time would be saved or how much more productive employees would be with the new solution. Staff time after implementation of the solution was recorded, together with the fully burdened hourly staff-salary rate.

Reduced Cost of Materials

IDC estimated the reduction in materials and related costs (paper, printing, warehousing) associated with KnowledgeShare.

Increased Revenues

IDC estimated the average revenue per staff after the implementation of KnowledgeShare to gauge the impact of improved knowledge management.

Discussion of KnowledgeShare ROI Results

The five companies interviewed in depth anticipate considerable savings from increasing the productivity and efficiency of their staff. They also look forward to significant cost savings and better customer reten-

tion if not an actual increase in revenue as a result of better utilization of employee time. Reduced labor costs and better turnaround times are expected to improve the business as well. Additional benefits include enhanced quality and increased customer satisfaction.

Looking over the five-year period, it is important to note that there is a positive ROI in every year, including the first. In other words, implementing the solution will yield an immediate payback rather than a delayed one. The solution is simple to install, as it relies on Xerox (MFP) hardware and scanning technology, which is often considered an industry standard. Implementing KnowledgeShare will lead to a more efficient workforce, as the time required for paper distribution and access will decrease dramatically.

By any measure, a 400+% ROI indicates that KnowledgeShare will be highly effective in reducing cycle time and streamlining the operations of the typical corporation.

Key Challenges Facing Xerox and Lotus

Xerox and Lotus are two of the most recognized companies in the world. The former is a global leader in copying and printing, the latter a global leader in groupware and collaboration. Adding IBM to the mix provides an extra element of solidity to an already-solid foundation. Yet even with the strengths each company brings to the table, several challenges must be faced in addition to competitors that have a significant presence in the equipment (copying, printing, scanning) and software (document management, knowledge management) markets.

One challenge is that people are familiar with paper and may be unwilling to let go of it as quickly as they should. Many people do not like reading documents on a computer screen, preferring to handle paper and physically mark it up. Although the process may be less productive, there is a feeling of safety and security with paper that does not translate easily into the electronic world. KnowledgeShare addresses this challenge by making it easy for people who prefer to edit with hard copy to scan the marked up copy into the system for more efficient distribution and collaboration.

Another challenge that may prevent rapid adoption of the KnowledgeShare solution is that knowledge workers may view scanning as an activity for others to engage in. Often considered a back-office function, scanning must be made as ubiquitous and easy to perform as copying if the KnowledgeShare solution is to thrive. To eliminate time delays, documents should be entered into the system in the front office rather than sent to a processing center.

Concerns such as access, security, reliability, and speed are also important factors. If documents are not quickly converted into easily indexed and searchable files with all their elements intact (pictures, drawings, tables), then the usefulness of the solution will be limited.

Another challenge will be to ensure that the solution works with environments such as Microsoft Exchange and Novell GroupWise and interfaces with leading document management solutions. Although there is an installed base of Notes users numbering about 50 million, not all companies standardize on one platform. For the solution to be adopted by the global enterprise, it must be technologically open and be able to work in multiple computing environments.

One other challenge that Xerox has in promoting the sharing of electronic documents is that it may lead to a de-emphasis in printing and copying. This is the "bread and butter" of its current business model. The aftermarket annuity provided by supplies consumption (e.g., copier/printer toner) is most profitable. A common comparison made to this business model is in the often quoted "razor versus blade" marketing scenario. Copier, printer, and MFP hardware is often provided at low margins in order to "make the sale." Once the machine is installed, higher margins can be gained by selling toner and other machine consumables. These consumables are typically sold at much higher margins and also require repurchase throughout the life of the machine. Consumable repurchases are dependent on machine use. As the machine produces more pages, the machine will require more consumables. KnowledgeShare's key advantages are its fast routing and distribution of paper-based documents, and individual recipients may still decide to print them out for reading and editing. If so, there may not be a significant decrease in printing and copying volume.

Conclusion

There is no doubt that document-driven companies can benefit from the KnowledgeShare solution, especially those that are already users of Xerox Document Centres, Lotus Notes, and Domino. IDC believes that KnowledgeShare has the potential to revolutionize the way documents are shared throughout an enterprise if it works as promised and is as easy to use as copying and email.

Lotus and Xerox have had an enthusiastic response from prospects and customers thus far, indicating that is in tune with market needs. Both companies have huge installed bases to sell to, with many common global customers, such as GM, ABB, Reuters, Caterpillar, Michelin, American Express, Procter and Gamble, and Deutsche Bank. Once these corporations systematically leverage the hidden or inaccessible information they possess and realize the benefits that KnowledgeShare offers, usage will skyrocket.

Union Pacific Railroad

Union Pacific is one of the country's largest railroads with more than 52,000 employees and approximately $12 billion in revenue. The company has 16,000 Notes seats and one Domino server in the legal department. Although Union Pacific has a document management

system in place, it is used primarily for retaining images. The mix of paper to electronic documents is close to 50/50, suggesting that significant gains can be made if the amount of paper-based documents could be reduced. Many paper documents now come from outside sources, and the time it takes to work through the system can slow down productivity dramatically. With KnowledgeShare, a large number of paper documents would quickly be converted to electronic documents and would result in significant savings.

Union Pacific estimated that the KnowledgeShare solution would dramatically increase productivity of employees using Notes by up to 10%. Estimating conservatively at only a .5% productivity gain, the company would save the equivalent of 80 employees annually, giving the implementation an ROI of 799% over the five-year period.

General Motors

General Motors is the world's leading manufacturer of cars and trucks, with a market share of nearly 16% and 1999 revenues of $176 billion. The company has a large Domino messaging infrastructure, with 120,000 clients and 1,500 servers that link the supply chains, design chains, manufacturing, and other critical systems.

To some extent, GM already uses scanning technology to convert paper documents to electronic ones. They see the use of scanning increasing as people feel more comfortable distributing documents in this manner.

With the use of the Xerox (MFP), the company believes it will be able to reduce the number of costly desktop PCs it has in place. Looking at KnowledgeShare for the engineering design group, savings from the PC and related hardware alone would amount to $1.3 million per year, or more than $6 million over forecast period. Coupled with labor savings of nearly $7 million, the total return is expected to be $13.5 million. Because its investment in new technology would be minimal, the company expects a cumulative ROI of 255% for the engineering design group, a significant figure. Expanding use of KnowledgeShare beyond this group to additional Domino users would result in a greater payoff.

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