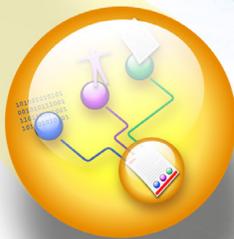


XEROX®

Smarter document management in the office





Introduction to Smarter Document Management

As businesses and organizations look for new ways to manage information, they're looking to key partners to help simplify and streamline their document processes. Smarter Document ManagementSM is the ability to add intelligence and structure to documents digital and paper — to activate the content they contain to streamline business processes and integrate with your structured data systems.

Managing documents more effectively, controlling costs associated with documents and document processes, and using resources more efficiently is increasingly important to businesses and IT organizations. This paper outlines the benefits and basic framework for implementing Smarter Document Management in office environments.

Introduction

Every organization — small startups, growing mid-size and global corporations — has made an investment in Information Technology. From 1997 to 2003, U.S. companies spent \$2.5 trillion on IT, according to the research firm IDC. The research house goes further to state that by 2007, offices around the world will produce 4.5 trillion pages of hardcopy information.

The emphasis for businesses as they try to reduce costs and improve productivity is not to eliminate paper, but to streamline how the information embedded in the paper documents is handled. Many organizations are looking beyond adding technology in order to improve the bottom line; they are looking to the people and processes actively shaping their workplace. They are interested in growing smarter, not bigger.

With the shift in focus, new questions are raised; how can they tailor and manage the technology to best meet their needs, and how can they later alter their processes to best use the technology? When it comes to investing in IT, there is a marked shift from the “T” to the “I” — from the technology to the information. It's information that generates new ideas and drives decisions.

The Big “I” and Document Challenge

Documents are one of the most critical elements of working life, the key connectors between IT infrastructure, people, and critical business processes. A recent report from IDC characterizes the growing importance of documents as “driven by regulatory compliance, the need to communicate with customers, suppliers and employees across multiple media, and the role of documents in effective business process solutions and related investments.”¹ The costs that lie in the production, distribution and use of documents are a hidden, overlooked and generally misunderstood aspect of business cost and productivity.

In all cases, the documents carry content that constitutes the backbone of work processes. However, that content is still mostly unstructured and hidden within the verbal expressions of text. It is up to individual users to figure out where to take it, what to do with it, how to process it and take an action on it.

¹ “The Role of Documents in Effective Business Processes,” Angele Boyd, IDC, October 2004.

According to IDC, offices around the world will produce 4.5 trillion pages of hardcopy information by 2007.



Toward Smarter Documents

Smarter documents are documents containing structured information to assist with document retrieval, distribution and manipulation. These smarter documents allow for more competitive businesses, combining intelligent human processing with the number crunching and communication facilities of computers and networks. Fluid document sharing across different media can close the processing gap between paper and digital documents, while connecting the information contained with other critical information systems.

The foundation for smarter documents and their management requires R&D investment and insights from two complementary aspects: work practices and technology. Through interviews and workshops, written diaries and video records, researchers at Xerox have developed a deeper understanding of how people work. This provides the basis for developing technologies and solutions tailored for customer needs and that truly improve efficiency.

Many studies have been conducted over the past three decades to analyze how information flows and how documents and their technology infrastructures are part of the IT environment. This understanding has generated technology to activate the information embedded in unstructured documents, and make it accessible as part of efficient business applications and more productive operations. Some of these studies have focused on:

- Understanding in which settings office workers prefer to use paper documents over electronic, and how they interact
- Understanding real business productivity opportunities resulting from reducing redundancies and errors associated with document intensive work

- Identifying ways mobile users can interact with stationary office devices, such as multifunction devices, copiers and printers, to deliver increasingly sophisticated document services
- Analyzing how to best use, and proactively administer and maintain print/copy infrastructures to reduce user interventions, and eliminate down time

These studies provide the foundation for Smarter Document Management in the office environment. The framework addresses three key areas:

Device and Fleet Infrastructure Management

Deployment of people, methodologies, tools, and technology to better support printing and imaging applications

Document Lifecycle Management

Streamlining business processes surrounding the office and document-intensive workflows

Managed Document Services and Platforms

Assessing and managing the role of documents as containers handling an enterprise's mission-critical information, and improving overall business process efficiency by leveraging customized services and solutions

Smarter Document Management for the office environment assesses the opportunities in these three areas, to help organizations move to more cost-effective document information and process management. In the next section, the Smarter Document Management framework is detailed within each focus area: Device and Fleet Management, Document Lifecycle Management, and Managed Services and Platforms.

Xerox Palo Alto Research Center (PARC)

In the 70's, behavioral research here led to the *big green button* still in place on today's office machines. Similar studies are now examining how document management and technology can become more intelligent.





Device and Fleet Infrastructure Management

1. Device and Fleet Infrastructure Management

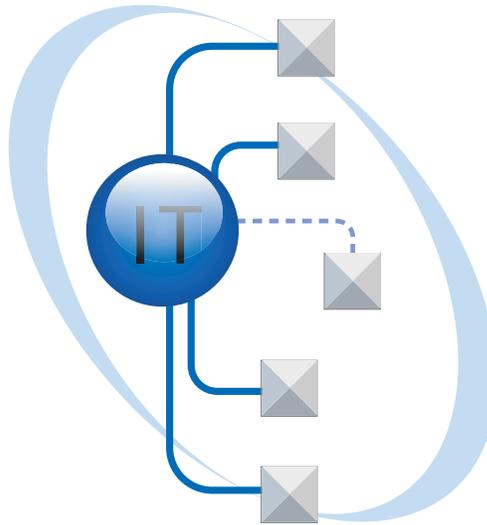
There are five main components to people, process and technology deployment in a Smarter Document Management strategy:

- 1 Assessing the growing complexity and cost of managing diverse networked devices and applications for printing and imaging
- 2 Using fact-based assessment tools to understand total costs
- 3 The smarter deployment of devices and management tools
- 4 Adequately securing information in documents that are printed or scanned
- 5 Assessing opportunities for managed services in printing and imaging for better return on investment

IT Operations Managers, including system and network administrators, are concerned with the growing complexity, shrinking resources, and managing costs associated with new demands on networked systems and for new applications. IT departments look to standardize, simplify and consolidate assets, and want to provide adequate flexibility, while still positioning their organizations for growth. It's about efficiency, effectiveness and innovation. There is increasing awareness that significant cost controls can be achieved by rightsizing the document printing and imaging infrastructure. However, ownership and management of the printing and imaging fleet is fractured across lines of business, workgroups, and geographies. The result is a mix of products, software, and protocols, frequently underutilized devices, and strained IT resources and challenging cost control opportunities arising from managing a multiple vendor environment.

Unfortunately, IT managers may find themselves battling a reality that includes mix-and-match hardware and software, often with older non-networked copiers and printers. Purchasing decisions made for copiers, networked printers and personal desktop printers may have been made with inadequate, or worse, ad hoc deployment strategies without understanding the organization's overall business needs, and the long term impact of these devices on maintenance and supplies costs. Further, few organizations have document tracking systems that accurately measure true usage for print, scan, fax and copy services.

A methodical and proven approach to understanding Total Cost of Ownership (TCO) considers all costs associated with procuring, owning and using document printing and imaging technology, maintenance and ongoing support. Total Cost includes upfront and ongoing costs for prints, supplies, maintenance, and help desk support resources. Accurate measurement tools and usage data can help establish accurate current costs, and apply best practices and standards to better control costs — while maintaining or ideally expanding capacity and improving services. Assessments must be fact based, practical to implement, and scalable to support evaluations in small businesses, departments, or across an enterprise with the necessary rigor to provide reliable guidance for rightsizing.



Total Cost of Ownership encompasses direct costs such as upfront device acquisition & financing costs and ongoing charges for print cartridges, supplies, paper, maintenance, as well as related indirect costs, such as space, power, IT support, help desk support, and end-user productivity impacts. Direct costs are often \$50-80 per employee, with indirect costs often 2-4 times the direct cost.



Office productivity assessments and document tracking systems provide IT managers with accurate data to better leverage and manage current investments, exploit new value capabilities with smarter deployment approaches, and improve bottom line costs. Enhanced capabilities achieved through more cost effective color printing and the introduction of scanning to support document management can lead to significantly higher levels of productivity, and allows IT the ability to provide greater value to the organization and return on investment. With the advent of MFPs (multifunctional products) and the opportunity for fleet rightsizing, the extended capabilities serve as the gateway to paper reduction, compressed business cycle times, increased worker productivity, and more secure paper to electronic document management strategies.

Systems that are easy to configure, manage and use are essential to any network and IT department. The best engineered printers and MFPs offer solid two-way communication between technology and users, robust security, detailed auditing and concurrency in copy, scan, fax and print operations. IT departments recognizing the opportunity to include productive, multitasking MFPs in their fleet management strategies are discovering the value add capabilities can also lead to streamlined work processes and more efficient business operations. This potential for smart MFPs is yet to be tapped in many organizations.

Information security has emerged as one of the highest priorities for businesses and their supporting network information infrastructures, across organizations of all sizes and in all business sectors. Secure office environments, and document printing and imaging systems must deliver end-to-end security from scanned input to printed output and the associated electronic print files. Specific measures are needed to guarantee the security of printed documents and electronic documents.

Today, IT expects security features to be embedded in printing and imaging platforms and services, including:

- A means for securing printing
- Image erasure after print
- Customer-defined authorization
- Comprehensive audit logs
- Data encryption during transmission and in storage
- Secure scan-to-destination applications

Whether managing one device or many, both end-users and network administrators want intelligently designed tools to help maintain productivity and reduce calls to the help desk. Printing and imaging device management utilities should help IT detect, view, and manage devices and job queues regardless of device manufacturer. Intelligent remote monitoring software can reduce or eliminate avoidable downtime from undetected consumables depletion; job stoppages due to resource conflicts; or hardware failures. This software can also prevent calls to the help desk.

A fully managed printing and imaging solution may be the optimal approach to cutting costs. Adoption of outsourced fleet management services focuses a calculating eye on the current document output asset backbone – the people, equipment, services, and supplies required. For some enterprises, better return on investment is achieved through customizable and comprehensive tracking, accounting tools and reporting systems, and the allocation of dedicated people who ensure optimal fleet management, providing document workflow support services.

Smarter Document Management for devices and fleets addresses the growing complexity and costs of managing these systems, provides new value add capability and efficiencies, improves document security, and better return on infrastructure investments.

According to CAPV research, nearly 50% of organizations do not currently have a document tracking solution of any kind (manual or electronic).

– InfoTrends Research, “Organizations are Ready to Tackle Document Output Costs in the Office,” CAPV, December 2004.





Document Lifecycle Management

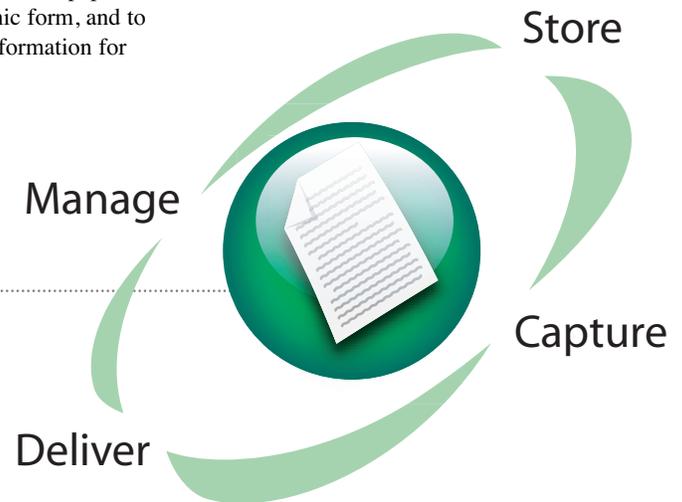
2. Document Lifecycle Management

With the introduction of digital technologies, the use of paper in the office started changing. As pointed out more than a decade ago by a Xerox research study,² “we are not headed towards offices that use less paper, but rather towards offices that keep less paper.” Electronic documents are used for search and retrieval, data analysis, document production and distribution, and in business processes and transactions. However, office workers prefer paper for reading, annotating, and sharing of information in face-to-face discussions. Many business processes still rely on paper for incoming forms-based documents, such as invoices and contracts as well as customer correspondence. In some cases paper copies need to be stored for legal reasons, and paper (or microfilm) is by many people and organizations still considered the safest form for long-term archival of documents.

Unfortunately, once a digital document is transferred to paper, much information is lost or at least put into a format that makes it more difficult to retrieve digitally. While scanning and optical character recognition (OCR) usually allow the textual content to be retrieved, the structural information that describes how a document is broken down into its constituent parts may for example be visible to the human eye (and mind), but be very difficult for scanning software to discover. The significance of a highlighted passage, or the red edit marks on a paper, could be difficult to automatically analyze.

A Document Lifecycle Management view is useful to examine each step in the document workflow process, and to identify opportunities to make information in documents more easily actionable within an organization’s document intensive business processes. A document lifecycle is composed of four fundamental stages of document workflow: Capture, Manage, Store and Deliver. Each stage can be further defined to support a set of services necessary to support the transfer of paper document content to electronic form, and to route and make use of the information for specific applications.

IT managers, especially in small- and middle-sized organizations, are faced with cost control demands and strained resources. They may be daunted by skyrocketing standards for document management, cost control, security, and workflow efficiency. IT may be looking for targeted point solutions to test, before deciding on broader deployments or adding more extended capabilities for their users.



² Richard Harper and Abigail Sellen: "Paper-Supported Collaborative Work," Technical Report Xerox Research Centre Europe, 1995. Later also published in Harper and Sellen: "The Myth of the Paperless Office," The MIT Press, Cambridge, MA, 2002.





Smarter Document Management

The question is how to select products, software, and services to support the complexity of information transfer in cost-effective ways; systems that are readily deployed, easily adopted and readily managed. IT organizations understand structured data, but may not fully understand how to manage unstructured documents as effectively. IT managers increasingly need to identify partners who do, and who can offer a variety of entry points, industry specific applications, and targeted solutions. And, IT must demand more value from their current infrastructure investments.

MFPs are often the underutilized office asset, and can be incorporated into printing and imaging infrastructures to control costs, and extend business capabilities. MFPs are well positioned to support Capture solutions and support document scanning and distribution as well as fully featured, shared printing off ramps. For example, a contract could be scanned and then distributed using the MFP to multiple destinations through the initiation of a workflow. Destinations within the workflow could include email recipients, fax recipients, remote printers, file share or to an Enterprise Content Management system such as EMC Documentum, Microsoft® SharePoint, or Xerox DocuShare®.

MFP technology should be evaluated for its ability to support multiple applications concurrently (true multitasking) with no impact on system performance and task efficiency. And, they should be assessed as a part of overall printing infrastructure investments, to ensure the right mix of capabilities and features are in place for given workgroups and their applications.

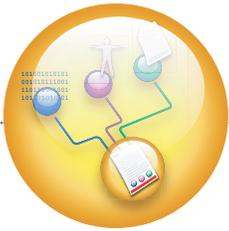
Management and Delivery solutions, as embedded or add-on software modules for MFPs or managed services, should be well integrated with the MFP platform and support existing IT desktop applications, be easily deployed, and readily customizable. These solutions can support the automatic routing of paper-based and electronic documents, usage accounting and tracking, and their electronic management for later use. A wide variety of applications and vendors are now working with scan-enabled MFPs.

Smarter Document Management in the office environment looks at the most effective path to business solutions that can be deployed at a pace and scale that's affordable and manageable by IT departments. The advantages of end-to-end, plug and play solutions, certified with a single contact for support are important considerations during the technology and partner selection process.

Information life-cycle management has now become possible. Intelligent documents that have a life cycle built into them and travel on the backbone of enterprise transaction systems are beginning to appear. Content comprehension, digital rights, and integration will continue to evolve and will be built into an increasing array of "smart" applications.

- Richard V. Heiman and Anthony C. Picardi, "Worldwide Software 2004-2008 Forecast Summary," IDC, August 2004.





Managed Document Services and Platforms

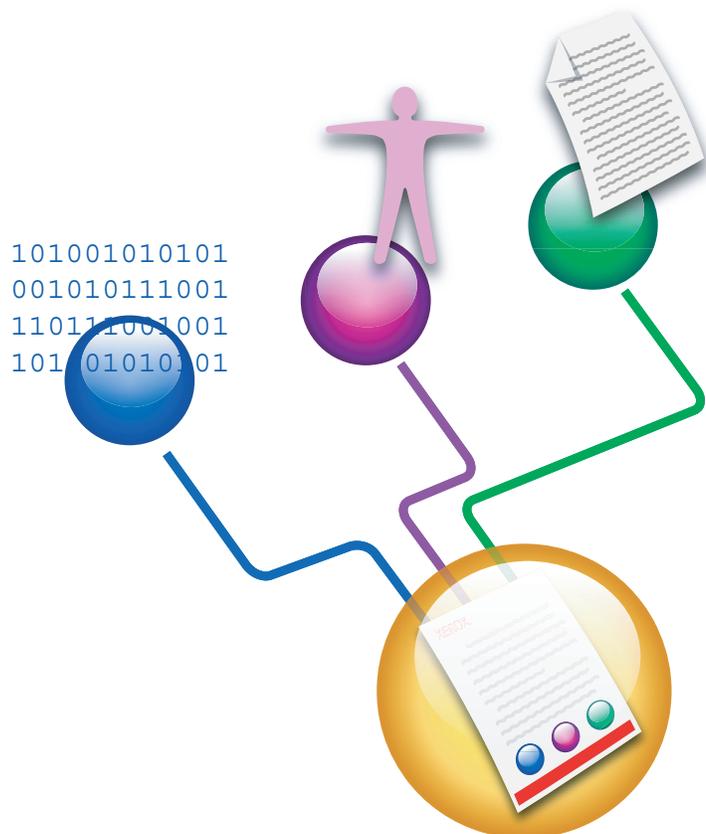
3. Managed Document Services and Platforms

For high volume, repetitive document processing in office settings, and when mission-critical workflows include analyzing document content, organizations are increasingly considering outsourcing to reduce associated costs, to better utilize internal resources, and eliminate complexity. Managed services within Smarter Document Management in the office environment framework provide value add document workflow resources using people, technology, and business process redesign. These services establish the necessary technology investments that allow parts of mission-critical workflows and support activities to be outsourced and managed as a hosted service.

Organizations considering managed services are best to align with a partner who brings a set of integrated, scalable tools and methodologies to evaluate the office environment and their work processes. The assessment should optimize the organizations' assets, provide a means for asset tracking, and lower overall total costs, while offering a single acquisition point for new investments. Smart Document Management in the office environment for managing document services includes a single point of service support for all output devices, regardless of manufacturer.

Services offered should include intelligent, proactive supplies order management, along with device relationship management support systems. The most functional Device Relationship Management systems today offer remote diagnostic tools to eliminate system downtime, a robust range of fleet and device management tools, and customized usage and other reporting systems. The managed services provider must offer a sufficiently broad range of enterprise help desk and end user support services, both on site and offsite that can be tailored and optimized for specific environments.

Customized document imaging support, and associated services for office environments can also be included in the managed solution. These services both design and implement cost efficient solutions for capturing, managing, retrieving and distributing information into digital repositories. Services can include solutions testing and deployment, end user training, and ongoing support and upgrade planning, as needs evolve over time.





Smarter Document Management in the Office

To implement Smarter Document Management in today's workplace, CIOs and IT managers must:

- Adopt new work processes while leveraging current technology investments
- Ensure and increase the security levels surrounding document assets
- Maintain tight control over costs

Device and fleet management solutions help organizations understand and control printing and imaging costs, secure document assets, and fully leverage current technology investments:

- Office assessment resources provide businesses fact-based methodology and data to make critical decisions
- Intelligent device management tools and software for IT departments:
 - Remote intelligence and proactive support
 - Comprehensive fleet management utilities supporting management of printers and MFPs, regardless of device manufacturer
- A fully managed approach to imaging and output: asset management services including asset tracking; asset optimization; output management services addressing device management; break-fix management; and supplies management

In Document Lifecycle Management for the office, organizations must possess scalable and customizable solutions to capture, manage and deliver documents, to meet the needs of small- and middle-sized organizations, and for large global enterprises with document-intensive workflows involving both paper and electronic documents. Key offerings include:

- A scalable range of hardware platforms which are highly secure, and highly productive, true multitasking systems to serve as both capture and delivery ramps to support a wide range of document workflow applications, and networked printers for distributed workgroup printing
- Transformation, and document routing software
- A robust portfolio of software and capabilities for high accuracy optical character recognition, forms management and document routing, tracking and accounting, analyzing and processing document content, and highly specialized applications such as emergency notification support, all fully integrated with MFP platforms using open SDKs and APIs
- Easy access, storage and tracking solutions using an enterprise content management system with enablers to deliver documents to other web interfaces, secure repositories, or to centralized production services or distributed printers

Smart multifunction product technology allows organizations to reduce output costs and simplify paper-intensive processes. Some smart MFPs offer a total solution for document storage, indexing and retrieval applications.

– D. Dixon, “Smart MFPs Improve Document Processes and Save Businesses Money,” Gartner Research, January 4, 2005.





Smarter Document Management

The Future

Xerox will continue to dedicate its R&D and resources to simplify office work processes and reduce the overall costs of working with information and documents. These are some of the unique investigations from Xerox researchers:

- New technologies to provide further support for secure printing and scanning, particularly adapted to mobile users from origin to destination. Leveraging the communication, storage and computing capabilities of new mobile devices, secure document management may be possible through a separate channel for transporting decryption keys.
- Technologies for securing paper documents to guarantee the authenticity of printed documents. One such technology is the use of Glossmarks. Glossmarks exploit the half-tone differences to embed markings on a document, clearly visible to the human eye as gloss variations, but not reproducible through scanning or copying.
- Using color marking to attract the reader's attention to the most important parts of a document. This software service uses linguistic processing and injects color mark-ups prior to the printing of a document. To analyze a large collection of documents for key information, users will enter keywords of the facts they want to extract (e.g. company names, technical words, dates), and the digital and scanned documents are printed, highlighting the facts in the preferred colors.

To learn more about Smarter Document Management, please visit the web at www.xerox.com, or contact a Xerox representative at 1-800-ASK-XEROX.

