

Enterprise Document Management for Healthcare

A Holistic View of Hospital Printing Helps Cut Costs and Improve Clinical Performance

Documents are at the heart of every business process. For hospitals, ambulatory care centers, physicians' offices, long-term care and behavioral health facilities, documents assume increased importance because of the integral role they play in essential clinical and administrative functions. Face sheets, chart documents, admitting forms—imagine your organization without these vital documents...how would you survive?

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In spite of their importance, documents can be an expensive, wasteful and time-consuming proposition. Most healthcare organizations lack a complete understanding of the total amount they spend to create, print and manage documents. The reason for this is that organizations tend to view

document management in a highly fragmented way, often only within a clinic or department, rather than looking at the process across the entire enterprise. As a result, opportunity for cost containment and process improvement is overlooked.

A holistic view that includes all aspects of document management is needed in order for hospitals to gain control of their documents. Since many, if not all, critical components of daily operations rely on the availability, accuracy and performance of key documents, it makes sense that enterprise document management receives the same strategic importance and focus given other essential systems. By examining the entire enterprise, healthcare organizations can make substantial work process improvements and significantly reduce document-related expenses.

DISCONNECTED VIEW OF DOCUMENTS

For most large healthcare organizations, printing occurs in several distinct environments; each with its own discrete management and reporting structure. For example, desktop printing is typically under the auspice of the computer network group, while copiers and faxes have traditionally been the responsibility of procurement departments. Centralized reprographics, more commonly known as the "print shop" or "copy center" may be a part of mail or administrative services, whereas data center printing remains staunchly part of the information technology organization. The marketing department most often contracts with outside providers of commercial print while ad hoc documents may find birth at a local copy shop at the behest of a variety of clinics, workgroups and laboratories. Hospitals also rely heavily on pre-printed documents for patient charting. The procurement department often manages these documents, but often it is the unit clerk responsible for ordering the forms and ensuring adequate supply is on hand.



With all this disconnected document activity, most hospital systems do not have a clear or comprehensive view of their total document-related expense. Printing costs are loosely monitored... if at all. Even those departments that actively track document-related expenses are typically viewed in isolation—printing regarded as a cost center or line item expense, rather than as a part of an entire document cost infrastructure.

This fragmented structure results in a fragmented attitude toward printing. Without a cohesive management approach, hospitals cannot be sure whether the printing habits of their users are in the best interest of the organization as a whole. For example, in many organizations little, if any, attention is paid to how, where and why users engage printing resources. More cost effective and efficient methods may indeed exist, but they are overlooked either because of lack of information, low priority or force of habit. The prevailing perception among users may be that printing is “free”—the cost of copying or printing either falling outside of their particular budget, or the expense considered only in passing as a price of providing service.

THE TOTAL COST OF OWNERSHIP OF DOCUMENTS

Considered separately in “information silos” before, all types of organizations from all industries can save money by looking at documents produced by the enterprise as a whole. Research indicates that over 30 billion documents are used each year in the United States. The cost

Fragmented Document Management Drives Increased Costs

- Organizational structure often leads to decision-making and spending in silos.
- Hospitals often lack the means to measure, manage and control document costs.
- Unknown or inconsistently applied service levels and reporting.
- The need to negotiate, administer and manage multiple vendor contracts.

of producing and managing those documents is estimated to reach as much as 15 percent of annual corporate revenue.¹ For an average Fortune 500 company, this figure is in the neighborhood of \$1.2 billion annually. Hospitals and healthcare facilities are not immune from this expense. By closely examining the entire enterprise document supply chain—including documents produced internally as well as those procured externally—hospitals find that the resulting expense is significantly higher than anticipated and often more costly than necessary.

Healthcare industry analysts estimate that for every dollar spent on purchasing paper forms, up to \$9 is spent on processing the forms. This number climbs higher when considering other burdened costs including support and infrastructure, procurement and facilities, end-user interaction time, and document management expense. These

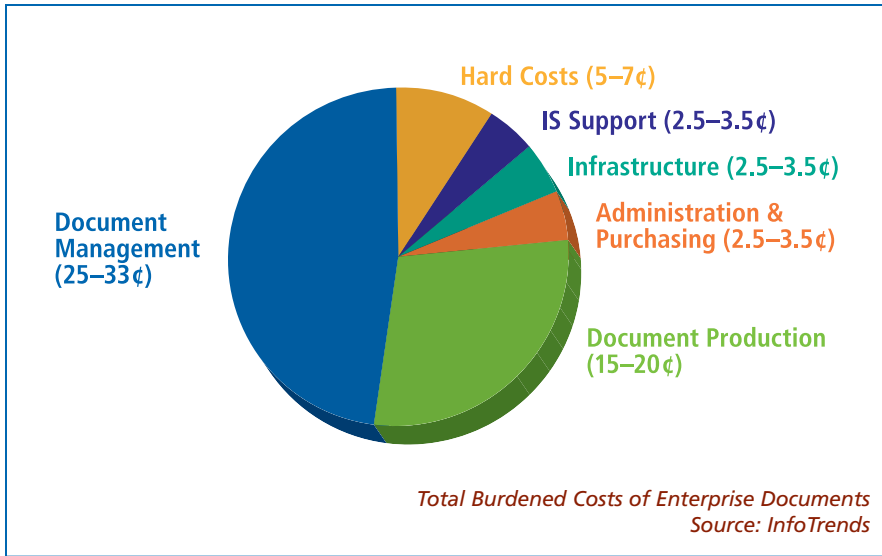
fragmented costs are hidden in budgets and processes throughout the entire enterprise. According to InfoTrends, a noted document industry research firm, only about 10 percent of actual document costs are ever exposed by an assessment, which means that 90 percent of document-related expense is being overlooked.

Understanding an organization’s overall enterprise document expense is a challenge, but without this information, it is impossible to assess the magnitude of the savings opportunity and develop a meaningful document management strategy. This paper will examine the three primary print environments, consider factors that influence costs in each environment, and explore approaches to assess the entire enterprise to uncover opportunities for productivity enhancement, process improvement and risk avoidance.

ENTERPRISE PRINT ENVIRONMENTS

In general, organizations print in one of the following three ways: at the desktop or at shared printers, with a centralized production printing or reprographics department, and via external providers. While the expenses of each print environment eventually become part of the overall cost of the organization, each environment is typically administered under different management and cost structures.

Most hospitals do not have a “Chief Document Officer,” but perhaps they should. By looking at the trends, current state, and potential future state,



hospitals and care facilities are in a better position to make strategic choices that will reduce document-related costs and bolster the efficiency of the critical processes they support.

Desktop Printing

The desktop printing environment includes the multitude of office documents that fuel the inner-workings of any healthcare unit. Face sheets, consent forms, chart documents—these are among the many documents that are indispensable for clinical operations. As in any office environment, desktop printing is categorized by the need for immediate turnaround of documents that are low volume and have limited color and finishing requirements.

Hospitals, however, have a variety of specialized documents that are printed at registration or within each unit that are not only vital to procedure, but also carry with them specific attributes unique to the hospital environment. Barcode wristband combination sheets, for example, provide bar-coded labels that apply to various chart documents

corresponding to a specific patient. These types of documents often require additional technology and expense beyond what is typically associated with business office printing.

By far the largest share of printing done within hospitals is from the desktop. From lab and radiology reports to procurement documents, local desktop printing is prevalent in hospitals and that follows suit with the rest of corporate America. Estimates are that U.S. companies spend approximately \$100 billion each year to print and manage office documents.²

Most hospitals do not have a clear understanding of the amount they spend on desktop printing. In general, IT directors are unclear just how many printers reside in their enterprise, how many pages are printed each month, or the cost of each sheet of paper that passes through their printer fleet. For the most part, healthcare organizations have loosely controlled methodologies for acquiring and managing office printers, few have effective utilization and expense tracking capabilities, and

printer fleets often grow by default as a result of a non-integrated placement philosophy.

In addition to the straight printing costs, technicians and network administrators testify that they spend 15 percent of their time on printing-related issues. Printer installation and driver management are their top two issues for support. Over 55 percent of network traffic is printer related and between 50 and 60 percent of help desk calls are printer related.³

Centralized Production Printing

Centralized production printing environments produce documents in slightly higher volumes and provide moderate finishing options. Nurses rely on the print shop for a fresh supply of patient charting documents—often via a copy center walk-up window where they submit requests and have their forms either delivered or ready for pickup within a few hours. These documents have a slightly longer turnaround than is associated with desktop printing, generally within hours, and many are printed “on demand” on a regular, recurring basis.

Companies in America spend an estimated \$50 billion a year on centralized production printing⁶ and hospitals are familiar with this rising expense. On a cost-per-copy basis it often makes sense to print documents in a centralized reprographic center. Compared to office printing, economy of scale generally provides centralized printers a much lower per-page cost than is found using desktop printers. This cost advantage erodes quickly, however, if in-plant printing equipment is underutilized or if the current

contracts are misaligned with current usage. With trends leaning toward declining volumes and attention focused on desktop printing or other digital delivery methods, many print shops find they are left somewhat adrift, either working under sub-optimal agreements or without sufficient volumes to sustain their investments.

External Printing

The external printing environment, also commonly referred to as commercial printing or “print-for-pay,” involves a broad array of graphic and printing services. For hospitals, this externally sourced printing may be contracted under a print management program with a supplier or procured via a Group Purchasing Organization (GPO). New patient brochures and specialized marketing literature make up the lion’s share of work that has historically been the domain of traditional offset printing. Over recent years, however, external printing has evolved to include a variety of high-end digital printing systems as well.

Hospitals often work with external printers because the nature and distribution of their documents requires sophisticated set up, demands very high-quality color and paper or involves customized finishing. Complicated charting forms are also produced using external providers. Many facilities continue to use two and three-panel wide documents, 11” x 17”, 11” x 25” forms, intensive care flow sheets and nursing care plans. Building the capability to produce these patient documents in-house is expensive and is dependent upon specialized staffing and expertise so external providers are used.

WHAT ARE THE TOTAL COSTS OF ENTERPRISE DOCUMENTS?

DESKTOP PRINTING	CENTRALIZED PRINTING	EXTERNAL PRINTING
Cost Per Page Hardware Acquisition Maintenance Costs Consumables Operating Costs Deployment and Configuration Updates and Upgrades Network Administration Problem Resolution / Help Desk Preventative Maintenance Supply Replenishment Software Training	Cost Per Page Hardware Maintenance Costs Consumables, including Paper Operating Costs Labor Operators Customer Support Administration Space and Utilities Postage Inventory Management Obsolescence Warehouse Space Sourcing Software Training Depreciation Waste	Transactional Costs Design Prepress Data Management File Transfer File Storage Print Specifying Bidding and Awarding Project/Change Order Mgmt Scheduling Production Shipping / Distribution Warehousing Rework and changes Administrative Costs Supplier Management Contracting Invoicing Reporting

Virtually all businesses rely on commercially printed materials as important business communications. For hospitals, clinics and other health-care organizations this often includes a variety of secure and sensitive documents (checks, certificates, prescription pads, etc.). These documents have longer turnaround times, generally days or weeks, and range from moderate to very high volumes. Analysts estimate that approximately \$100 billion is spent each year on externally procured, commercial printing.⁷

MISSION-CRITICAL DOCUMENTS

For hospitals and other health organizations, the expense and technology associated with documents are secondary to the critical role documents play in clinical procedure. Indeed, while some commercial organizations boldly espouse how documents are “mission critical,” the term assumes deeper meaning in a hospital setting. Everyone involved—

from administrative and registration staff, to nurses, lab techs and surgeons—relies on a variety of documents as essential components of clinical workflow. When it comes to these vital forms the common sentiment is: “I don’t care how it is printed, it just better be there when I go to reach for it in the cabinet.”

However a patient document is stored and delivered—whether printed on paper or pulled up on a PC—the technology used is secondary to the availability and accuracy of the document itself. To ensure this reliability, hospitals must address the entire document-related life cycle and all associated supply chains, not just the output. This holistic view clarifies how documents are created, revised, used, and delivered, and puts organizations in the position to not only uncover the full savings potential enterprise wide, but also improve the reliability, accuracy and efficiency of documents that drive daily clinical procedure and workflow.

Version Control

Critical healthcare documents must not only be available when needed, but they must also be in the correct and most recent version. Maintaining proper version control is essential, yet frequent updates and revisions are inherent in the healthcare industry and keeping documents current is an ongoing challenge. Consent forms, patient assessments, care plans, standing physician orders, and medication records—these are just a few of the many documents and forms in the fray of daily workflow. When documents are used for billing treatment, hospitals must also ensure correct and updated International Classification of Disease codes are used throughout the process in order to capture accurate charges and shorten collection time. This adds yet another layer of complexity to the version control process.

For many healthcare organizations, the detail and amount of revisions that must be managed can be overwhelming; especially when different documents are originated from different systems and are managed by separate silos within the enterprise. But organizations that invest the effort and technology needed find that the control demonstrates a high standard of quality during JCAHO reviews. The key is to achieve the ability to make changes accurately, quickly and comprehensively across the entire system.

Standardization

Document standardization has many benefits including a greater ability to maintain accurate version control. By standardizing document characteristics across the entire organization, updates

are implemented once for all the related documents. As a result, revisions are facilitated more easily and quickly across the enterprise. By standardizing content, HIPAA and JCAHO standards are more clearly managed. Consequently, waste and obsolescence are reduced.

Standardization can reduce the procurement expense associated with forms and documents as well. For example, in a network of 30 different hospitals it is not uncommon for each hospital to use its own set of forms. Standardization, if any, is generally limited within a single hospital or facility rather than across the broader system. As a result, despite having a number of common attributes and functions, the organization must procure and manage each set of similar documents. By examining the entire print supply chain across the enterprise, hospitals find that lack of standardization drives up procurement costs by as much as 15% to 30% overall and increases the complexity of version control.

Electronic Medical Records Systems

Standardization also improves the process of scanning documents into an Electronic Medical Records (EMR) system like those offered by McKesson, Cerner or MEDITECH. Hospitals have a variety of documents enterprise wide, each developed for different reasons

and in different places. These documents have been implemented, in most cases, without much consideration of how they must be captured into the EMR system. In recent years, medical organizations have experienced a dramatic confluence of paper and digital documents. How efficiently and accurately they can be scanned and indexed in an EMR system is dependent upon specific attributes that are improved with standardization.

One way to increase the effectiveness of scanning and data capture operations is to consider how documents are designed and laid out with an eye to improve conditions surrounding version control, standardization and scanning. Merging common forms helps ensure revisions across the network are timely and accurate. Standardizing the location of a patient's name or insurance information, or barcoded patient ID, for example, will improve the throughput of scanning operations. Adding automatic document recognition intelligent barcodes and other methods to automatically extract metadata can increase the accuracy and availability of critical information across the entire EMR system.

“By computerizing health records, we can avoid dangerous medical mistakes, reduce costs, and improve care. We can control healthcare costs and improve care by moving American medicine into the information age.”

-President George W. Bush, in his 2004 State of the Union Address.

Position for the Future

Federal government mandates, like HIPAA and others, will push hospitals into the electronic age. Mandates regarding Electronic Medical Records and electronic data transfer will impact the way hospitals must do business. By stepping back and building a more holistic view of document management across their enterprises, hospitals and other health organizations can cut costs and position for the inevitable future of healthcare documents.

RETHINKING DOCUMENT OUTPUT

Health organizations are rethinking document output because print is both enduring and essential to doing business. Due to the varied scope of documents across an enterprise, and the fragmented nature with which they are managed, hospitals find that evaluating all aspects of their print supply chain helps control the cost of documents and enables substantial and innovative work process improvements.

By rethinking current approaches to enterprise document management, organizations address both the tactical deficiencies of printing as well as the strategic opportunities that can be gained by improving the process.

Centralized Responsibility for Enterprise Documents

The notion that “print is a commodity” is only true to a certain extent. Documents can be complex and expensive, and their strategic importance warrants subject matter expertise as well as a single point of accountability. Version control and standardization are more difficult because there is no cohesive

management or centralized accountability for enterprise documents. As a result, hospitals can dramatically improve the expense, accuracy and availability of critical documents by centralizing responsibility either through a “Chief Document Officer” or by establishing a single strategic partner who assumes responsibility for all document-related processes and vendors.

Moving from Low-value/High-cost Documents to High-value/Low-Cost Documents

Evaluating the entire print supply chain unlocks savings in all three major print environments. In turn, these savings can be reinvested in activities and technology to bolster the critical nature of healthcare documents. With effective scanning, data capture and online EMR availability, hospitals can design hybrid paper/digital document systems that ensure improved compliance and performance while reducing administrative and procurement costs.

Business Rules Drive Optimal Output

Organizations can reduce the total cost of ownership of documents across the enterprise by establishing business rules to determine the most advantageous method of printing...or if a document should be printed at all. With a “less paper” approach, companies can leverage advancements in online document delivery, while ensuring that printed documents are sent to the optimal output device or printing environment for production. Rules-based routing along with appropriate measurement and reporting brings control to a formerly fragmented process.

Core Competency

Hospitals now recognize that they cannot be experts in every aspect of enterprise printing and, as a result, are rethinking how documents fit into their core competencies. Effective outsourcing brings in an outside expert to become part of the enterprise to provide resources and process expertise on an “on demand” basis. This eliminates the need to maintain a large fixed investment in terms of staff, technology and process development, and creates a much more flexible document management environment.

PROCESS IMPROVEMENT THROUGH ENTERPRISE DOCUMENT MANAGEMENT

Since no two healthcare organizations are exactly alike, neither are the solutions to document mismanagement. What is needed is a process to guide the development, actions and solutions that are meaningful, practical and ensure worthwhile and lasting results. It is important to assess the current state from a fact-based perspective that is comprehensive enough to ensure that something important is not overlooked while manageable enough to avoid the risk of a project so large that nothing ever gets done.

Situation Assessment

Many organizations use formalized methodologies such as Six Sigma or Lean Manufacturing methodologies to conduct an assessment of their enterprise print supply chain. Whatever approach is employed it is important that it include both “before” and “after” process measurements, as well as the ability to monitor ongoing results.

The adage *you can improve only that which you can measure* holds true.

Measuring and demonstrating improvement is critical for the ongoing success of enterprise document management. Measurements help answer these essential questions:

- What is the current state of all three enterprise print environments?
- How does the current state compare to benchmarks and best in class processes?
- What should the future state look like with respect to EMR system integration?
- How do we close the gaps in process performance?
- What is needed to ensure improvements are sustained on an ongoing basis?

An effective enterprise document management system looks at how documents are created throughout the entire print supply chain and then examines the enabling technologies and services available to improve the gaps in performance. These efforts may be aided by procuring services through a Group Purchasing Organization or through GPO approved suppliers. Plans are also made for ongoing management of the process using performance measures and benchmarks, as well as effective negotiation of pricing by leveraging print volumes across the enterprise.

ENTERPRISE PRINT ENVIRONMENTS

Desktop Printing

The goal is to reduce the total cost of ownership specific to desktop printing while ensuring that critical documents are available when needed. The assessment should identify and analyze the fleet of printing devices, their related cost of ownership, utilization and workflow. Efforts should assess the special and critical needs that are unique to each unit as well. The aim is to leverage investments and ensure “least cost print” through rules-based routing. Steps are taken to provide users with adequate information and education in order to optimize the quality, availability and cost of printed documents.

Centralized Printing

Improvement goals for centralized printing centers focus on increasing the utilization of the copy centers, where appropriate, and reducing the total cost per copy to the enterprise. Efforts are applied to identify appropriate equipment sizing through analysis of ongoing user demand and to renegotiate flexible and cost effective equipment lease and service contracts. Merging disparate document scanning centers together with centralized printing is an additional opportunity for process improvement. By combining these similar document services hospitals may find advantage in terms of cross training, shift coverage and redundant technology. Streamlined vendor relationships may be another benefit as well.

External printing

Process improvement efforts focused on external printing not only ensure a competitive price, but also leverage best-in-class processes and technology. With the advent of digital printers and advanced databases, external printers offer the promise of one-to-one documents that perform well beyond generic “junk” mail. Another key objective is to eliminate the “bypass” printing that results from users working outside the centralized print supply chain function.

DESIGNING AN ENTERPRISE DOCUMENT MANAGEMENT STRATEGY

Most healthcare organizations do not have a clear or comprehensive understanding of the costs associated with the documents they produce in the course of doing business. Document mismanagement and proliferation gives rise to increased expense and decreased ability to leverage current investments in technology and services. Version control and standardization are more difficult because there is no cohesive management or centralized accountability for enterprise documents. Compliance to regulations and industry standards are at risk when mission-critical documents are not monitored and controlled. Documents and their related processes play an important role in mitigating potential compliance gaffes.

An effective document management strategy starts by examining all aspects of the print supply chain and building a holistic view of the enterprise’s document processes. With clearly

defined measurements and goals, organizations can gain control of the cost of their documents and make substantial work process improvements. Centralized accountability, rules-based routing, and ongoing process measurement and monitoring ensure that documents are cost effective, reliable and efficient.

For many healthcare organizations, the time has come to regard document management as a strategic, rather than tactical activity. The perception that documents are not important has given way to the understanding that documents are an indispensable aspect of daily procedures. By stepping back and building a more holistic view of document management and printing across their enterprises, healthcare organizations can cut costs and transform critical documents from high-cost liabilities to high-value assets.

Key Questions to Ask

- Do you know what your organization currently spends on printing and associated document management processes?
- How do you define your organization's "print supply chain?"
- Have you evaluated your three printing environments (desktop, centralized and external) as a whole?
- What actions have you put in place to streamline the workflows associated with scanning and data capture into your EMR system?
- What programs are in place or are budgeted to reduce the use of printed documents?
- What are the key documents that will continue to be printed?
- Have you considered having an outside assessment of your enterprise printing?

NOTES

1. Kevin Craine, *Designing a Document Strategy* (MC² Books), referencing various statistics from Gartner Inc., InfoTrends and others.
2. International Data Corporation (IDC).
3. Hewlett-Packard.
4. Kevin Craine, *White Paper: The Growth of Digital Information*.
5. Granada Research
6. IDC.
7. Ibid.

