The great American statesman, Benjamin Franklin, understood the importance of preserving knowledge. In 1731, Franklin helped create the Library Company, the nation’s first subscription library, which grew during his lifetime to include many volumes of works on a wide range of topics and continues to operate today.¹ The success of his library initiatives encouraged the expansion of libraries in neighborhoods throughout the country and in archiving government records. Franklin also understood the value of thrift.

The wisdom of Benjamin Franklin, printer, writer, scientist, inventor, civic leader, and one of the founding fathers of the United States of America, applies to an overlooked but very real task and its associated cost absorbed by federal agencies in carrying out their missions: managing paper records.² New electronic records management technologies give federal agencies – stewards of the U.S. government’s information – the power to significantly reduce the cost of managing records while improving constituent services.

“A penny saved is a penny earned.”
—Benjamin Franklin, Poor Richard’s Almanac

TABLE OF CONTENTS
Introduction ........................................... 2
Benefits of Electronic Records Management .......................................... 2
Increased Government Transparency ...... 3
Aggregate Cost Savings .............................. 3
Maintain Reliable Service Levels without Increasing Staffing ......................... 4
Safeguarding Vital Information .............. 5
Disaster Preparation and Continuity of Business ........................................... 5
Environmentally Responsible Solutions .... 5
Potential Source of Revenue ...................... 6
Procuring Electronic Records Management Services .................................. 6
Compliance with Federal Technology Standards ........................................ 6
Conclusion .............................................. 7
About the Authors ................................. 7

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Introduction

Far from bringing about the “paperless office,” modern information technologies have instead contributed to the growth in the amount of paper consumed, stored, and discarded. One study estimated that the amount of original information stored on paper increased 36 percent between 1999 and 2002. The vast majority of this increase was from printing office documents. Federal agencies are not immune to the phenomenal growth in paper-based content. Complicating this situation are federal requirements for record preservation and public access, constraining the ability of agencies to declare records obsolete and destroy them. In addition, federal records can have complex handling and security requirements. An effective federal records management solution must be responsive to these requirements while categorizing the stored information in a logical manner and safeguarding content against unauthorized access.

As a technology innovator and long-time practitioner of secure electronic records management internally, J.P. Morgan has helped many entities in the public and private sectors achieve savings and improve services through the use of electronic, secure, high-volume record scanning, storage and retrieval technology. The timing for federal investment in electronic records management has never been more appropriate than it is today.

Benefits of Electronic Records Management

Just as federal agencies have left typewriters and carbon paper in their past for document creation, electronic records management offers significant and immediate benefits. Critical information can be stored electronically and workflow and security features can elevate federal records management to new levels of efficiency and effectiveness while avoiding many issues associated with paper records, as shown in Fig. 1.

An electronic records management solution makes sense as part of a federal agency’s comprehensive enterprise records management approach. Once an agency’s records management has become automated, the agency may soon turn its attention to expanding these capabilities. Expansion plans could include scanning and storing additional document types andmicrofiche, sharing documents with other authorized user groups, and making some forms and documents available for direct public access.

Workflow management could also be revised so that other processes, such as accepting payments and associating them with electronic files, may leverage the technology. For example, introducing procedures that allow applications and forms to be submitted electronically helps enable the resulting information to be accessed by multiple authorized users simultaneously.

- Converting paper records, microfilm and microfiche to electronic records can result in cost savings within the first year of implementation.
- Migrating from paper-based records management to electronic records management helps improve staff productivity.
- Staff released from records management duties gain time to perform mission-critical tasks.
- Maintaining electronic archives provides continued records access and supports disaster recovery and continuity-of-business planning.
- Reducing the need to print and distribute paper records promotes environmental conservation.
- Avoiding delays, investigations and lawsuits resulting from misplaced paper records promotes increased confidence in agency processes.
- Paper records increase the potential for unauthorized access to sensitive information, especially if secure storage space is limited.
- Difficulties and delays are inevitable in responding to requests for paper records, especially if stored off-site.

With traditional methods, paper forms and applications must be copied, distributed and stored to enable various staff to review and act upon them, thus multiplying the paper problem.

Another important factor for federal agencies considering an electronic records management solution is whether certain record types are subject to statutory or regulatory retention requirements. Some changes in law or regulation may be appropriate to enable federal agencies to implement an enterprise records management solution and remain responsive to legal and administrative mandates.
Increased Government Transparency

“My administration will take appropriate action, consistent with law and policy, to disclose information rapidly in forms that the public can readily find and use. Executive departments and agencies should harness new technologies to put information about their operations and decisions online and readily available to the public.”

—President Barack Obama

On his first full day in office, President Obama announced that his Administration was “committed to creating an unprecedented level of openness in Government.” A cornerstone of open government is how a government maintains its records.

The U.S. Freedom of Information Act (FOIA), enacted in 1966, is a vital link to federal records for citizens, media, researchers and others. FOIA’s provisions apply to departments, agencies, and offices of the executive branch, federal regulatory agencies, and federal corporations. FOIA states that any person has the right to request access to the records of a federal agency and, subject to certain exemptions, such as national security, trade secrets, etc., mandates that all agencies of the federal government are required to disclose records upon receiving a written request for them. Federal agencies have posted FOIA compliance requirements and procedures on their Web sites.

There are, however, practical considerations that can make it difficult to obtain federal records under FOIA. For example, FOIA requires that the requester reasonably describe the records being sought and states that the federal agency may charge certain fees, depending on the nature of the request, as shown in Fig. 2.

While no one would suggest these requirements are unreasonable, a broad initiative for the automation of both current and historic federal records would simplify the request process by enabling the use of more generic key words. Automation would also help keep assessed fees as low as possible.

Federal agencies have made great progress in making records directly available via the Internet. Yet, it is easy to imagine cavernous storage facilities where many records subject to FOIA are still kept exclusively on paper, and how accessing these records requires labor-intensive search and retrieval efforts that increase costs to the requester and delay the agency’s response. In addition, paper records are subject to loss and physical deterioration while in storage, especially if not stored in climate-controlled environments.

Aggregate Cost Savings

In addition to the benefits described above, an electronic records management solution offers agencies significant aggregate cost savings. Ongoing paper management costs may not appear as separate line items in an agency’s budget, but they exist nevertheless and are compounded as paper records accumulate. Conversely, many of these costs can be reduced or even eliminated by migrating to an electronic records management solution.

By implementing an effective electronic records management solution, typically a prompt process, agencies can realize significant cost savings and productivity enhancements. Investments in records management can be integrated with existing agency information infrastructures.

I. Fees shall be limited to reasonable standard charges for document search, duplication, and review, when records are requested for commercial use;

II. Fees shall be limited to reasonable standard charges for document duplication when records are not sought for commercial use and the request is made by an educational or noncommercial scientific institution, whose purpose is scholarly or scientific research; or a representative of the news media; and

III. For any request not described in (I) or (II), fees shall be limited to reasonable standard charges for document search and duplication.

Fig. 2: FOIA Fee Structure

Variable Cost Savings

An electronic records management solution can help federal agencies save costs by reducing storage fees and expenses for items such as paper and printing. Examining the variable costs associated with printing alone can be enough for a federal agency to justify increased use of digitized documents. A May 2009 report claims more than $440 million in savings to be available just by changing the printing habits of federal employees.

According to this report, an amazing 92 percent of federal employees said that it is not necessary to print all of the documents they print on a given day. More specifically, the report estimates that 2,520 of the 7,200 pages that a federal employee annually prints on average are not necessary. Extrapolating to the federal workforce at large, this yields 18,778,838,400 pages that a federal employee annually prints, of which 6,572,593,440 pages are not necessary. The human and nonhuman resources needed to harvest, produce and transport this unnecessary paper, plus toner, and wear and tear on office equipment (as well as on federal employees) all translates into wasted purchasing dollars.
These recent findings concerning federal printing activities are in line with another published estimate that the cost of handling paper accounts for up to 30 percent of an organization’s overhead. Another study reportedly found that the cost to maintain a single five-drawer cabinet is approximately $2,000 per year.

Federal agencies that reduce the costs of record handling, even by a few cents per record, can realize immediate variable cost savings. For example, assuming printing costs of $0.05 per page, by eliminating the printing equivalent of 100 “banker boxes” of records (with each box containing 2,000 pages) agencies could save $10,000. This is in addition to the costs of handling and storing these documents, many of which may be unnecessary to print in the first place.

Productivity can also be improved through digitized documents as staff becomes more quickly able to respond to requests by accessing documents electronically, rather than manually. Electronically managed documents are more easily located and referenced than paper documents, according to 78 percent of federal employees surveyed in the May 2009 report. Although there is no similar study of the costs to the federal government to process, file, search for, and re-create lost and misfiled records, these costs are inherent within every organization that uses, produces, accepts, files, and accesses paper records.

Indirect Costs
Facilitating easy access to electronic records can help federal agencies streamline responses to document inquiries. In addition, providing information required for audits and FOIA requests will no longer take up significant staff time or disrupt mission-critical activities. Decentralized access to electronic records also improves productivity by eliminating the need to copy and route records to multiple authorized users for review and approval.

Sharing paper copies with multiple staff was cited by 51 percent of federal employees in the May 2009 report as among the major reasons for printing documents. Instead of distributing multiple paper copies, electronic records can be accessed easily and quickly by authorized users simultaneously at the same or different locations. Telephone inquiries may be resolved in a single call, if multiple staff can electronically retrieve the information needed to respond. This improves service levels while reducing telecommunications and call center costs.

Agency personnel consigned to printing, distributing, filing, retrieving, and destroying documents are not performing critical functions, learning new ones or training successors to address staff attrition. Electronic document systems allow staff to spend time formerly allocated to manual methods of records management on transitioning their expertise to the emerging federal workforce. Digitized documents are also a far more effective way to preserve the institutional knowledge of a federal agency than paper files, as agencies deal with significant transition and turnover issues.

More Predictable Costs Overall
The operating costs of records management vary based on expected events, such as technological advances, and unexpected events, such as natural disasters, military conflicts, and economic disruption. Governmental events can also impact the number of records to be generated, processed and stored, such as legislative or regulatory mandates. Any such events can cause sudden increases in record volumes and storage capacity needs, which can be problematic for an agency’s fixed budget.

Maintain Reliable Service Levels without Increasing Staffing
The need for government services is cyclical and difficult to forecast accurately, especially with current economic uncertainties.

Eliminating paper-based, labor-intensive records management processes assists federal agencies in maintaining reliable service levels without increasing staffing. Viewing each opportunity to handle a paper record as a “transaction,” by reducing the variable cost of each transaction, an agency will decrease overall administrative and staff costs. As transaction volumes increase, an electronic records management solution helps federal agencies respond to workload increases without having to add and train new staff.

Federal agencies can realize additional productivity improvements and cost savings
by utilizing optical character recognition (OCR) and intelligent character recognition (ICR) technology, in which paper records are scanned and data is captured electronically instead of being manually entered. ICR/OCR technology captures the data based on pre-determined index values, which also assists with data retrieval and sharing, further improving productivity.

**Safeguarding Vital Information**

Benjamin Franklin was the only founding father of the United States who signed all three of the nation’s most important documents: The Declaration of Independence, The Treaty of Paris and the United States Constitution.22

Federal agencies are entrusted with the safekeeping of many types of records, from the ordinary to national treasures. Some contain sensitive and confidential information such as Social Security numbers, bank account numbers, medical histories and tax returns. Paper records are vulnerable to unauthorized access because they can be physically removed, copied and destroyed.

While electronic records can also be compromised, there are many methods available to protect and encrypt sensitive data. Some data security measures that can be used to protect electronic records are shown in Fig. 3.

Agency plans to automate records management should include evaluation of security and regulatory considerations. Agency plans also must identify retention periods and provide instructions for safely and securely deleting or archiving documents that approach or exceed retention periods.

**Disaster Preparation and Continuity of Business**

“I am accordingly ready; I have pressed as many Cabinet papers into trunks as to fill one carriage; our private property must be sacrificed, as it is impossible to procure wagons for its transportation.”

—Dolley Madison, regarding the evacuation of White House during the British invasion of Washington DC, August 1814

In addition to the ensuring citizens’ safety and health, government agencies must protect and access critical information during an emergency. If records management is not included in continuity of business planning activities, staff cannot protect records prior to an emergency (or access records effectively during or after). An example of poor records management planning occurred in 2005 when, much to the dismay of archivists and officials, government buildings in New Orleans containing vital public information were bulldozed before salvageable paper records could be retrieved.23

Managing records electronically helps protect critical information from loss due to flood, fire, or other natural or man-made disasters. Electronic records should be stored in remote archives, at locations geographically separate from where the master records are stored. If original paper records are destroyed or inaccessible, electronic records can be retrieved quickly, on-site or remotely, through a Web browser, or copies can be printed.

Legislative and regulatory measures may also be needed to determine in advance the legality of electronic records when paper records are temporarily inaccessible or have been destroyed in public emergencies.

**Environmentally Responsible Solutions**

Consumption of resources, including paper and the energy required to distribute and store paper documents, has a direct impact upon the environment. Excluding wood used for fuel, 42 percent of the global wood harvest goes to paper production.24 The effects of paper consumption are not limited to wood, however. The paper and pulp industry has been cited as “the single largest consumer of water used in industrial activities” in member countries of the Organization for Economic Cooperation and Development and as “the third greatest industrial greenhouse gas emitter” following chemical and steel production.25

A “ballpark estimate” is that one paper-producing tree makes 8,333.3 sheets of copy paper.26 Unnecessarily printing over six-and-a-half billion pages translates into the unnecessary annual consumption of the rough equivalent of more than 80,000 trees. Added to this, is the avoidable use of printing.
consumables that each printed sheet represents, such as toner, ink and cartridges, which have their own environmental impact in terms of production, transport and disposal.

Potential Source of Revenue

With electronic records, federal agencies could allow citizens to access public documents quickly and easily, and where appropriate, for a reasonable fee – a common practice in FOIA requests. Agencies may use electronic records technology to make some records available to citizens directly, either through the agency Web site or through kiosks at government locations. Electronically collected convenience fees at the point of access may offer agency revenue possibilities for the expedited access they provide. Examples may include providing expedited access to licensing information, regulatory documents, government contracts and historical archives.

Procuring Electronic Records Management Services

“For necessary expenses in connection with the development of the electronic records archives, to include all direct project costs associated with research, analysis, design, development, and program management, $67,008,000, of which $45,795,000 shall remain available until September 30, 2011.27

Federal agencies that choose to automate their records management then face a second choice: whether to handle the project within the agency or contract with a vendor to provide an electronic solution. In most instances, J.P. Morgan recommends that federal agencies contract with a vendor for any records management functions that are not inherently governmental. By contracting with a vendor, federal agencies can align records management costs directly to their programs, in proportion to the actual services provided. Contracting with a vendor for an electronic records management solution enables agencies to avoid the capital costs and ongoing depreciation expense of purchasing equipment to implement their own records management system.

J.P. Morgan estimates that the cost to an agency to procure high-volume, high-speed document scanners ranges from $100,000 to $150,000 per unit, excluding maintenance, service, supplies, support personnel and other variable operating costs associated with the equipment. Some agencies may be able to utilize smaller scanning units, but the overall costs are still likely greater than the cost of operating a single high-volume, high-speed scanner.

In contrast, a records management services vendor assumes all fixed overhead costs, passing on economies of scale to the federal agency. There are also variable costs for an agency operating its own electronic records management system to consider beyond those associated directly with the equipment. Contracting with a records management vendor is similarly one of the most reliable ways for federal agencies to avoid variable costs in records management.

By working with vendors in the business of electronic records management, federal agencies can mitigate cost spikes because the vendor takes on the risk of adjusting to any variations in volume beyond agency control. Federal agencies that contract for records management can also shift the risk of technological obsolescence to the vendor. As technologies improve, scanning equipment and software routinely become obsolete. Agencies avoid the costs of obsolescence by contracting with a vendor that maintains current technology in the ordinary course of business.

Federal agencies can take advantage of the many benefits of electronic records management in adherence with federal procurement policies by contracting for services through the U.S. General Service Administration (GSA) Federal Supply Service Schedule 36, Office Imaging and Document Solutions SIN 51-506, as shown in Fig. 4. GSA Schedules provide most favored customer pricing by leveraging the scale and purchasing power of the federal government. Agencies may add requirements at the task order level, such as enhanced security measures, not included in Schedule 36.

Office, Imaging and Document Solutions

SIN 51 506

Document Conversion Services convert from an original paper document, data, or graphics into digital data, and transferred to a new media and format for use in a document imaging and storage system. These services may include: (1) back file and day forward conversion, data entry, state-of-the-art scanning, and/or (2) indexing, hyper link, web hosting, media of choice, blowback, classified and non-classified documents.29

Fig. 4: GSA Supply Service Schedule, Imaging and Document Solutions

Compliance with Federal Technology Standards

To respond to the rapidly growing volume of records and the costs associated with their management, federal agencies need to examine, and then articulate their strategies in this area. A well-designed records management solution can be integrated into existing agency infrastructures with minimal disruption. Within the federal government, the National Archives and Records Administration
(NARA) assists federal agencies in managing their ever-growing records. NARA provides federal standards for records management technology and guidance to federal agencies looking to implement, enhance or replace an electronic records management solution. The NARA Technical Reference Manual is “a framework for classifying, naming, describing, and defining technology so that NARA can better communicate about technology concepts and the agency’s technology needs both internally and with its Information Technology (IT) contractors and suppliers.”

The Office of Management and Budget also provides procedural and analytic guidelines to federal agencies related to the Federal Enterprise Architecture for records management systems.

**Conclusion**

“Every country in the Western world uses more paper today, on a per-capita basis, than it did ten years ago. The consumption of uncoated free-sheet paper, for instance – the most common kind of office paper – rose almost fifteen percent in the United States between 1995 and 2000.”

Although the use of paper in modern society is increasing, and the responsibilities of the federal government are growing, federal agencies can achieve significant cost savings, increase efficiency, improve services and enhance transparency by using electronic records management solutions. Some resourceful agencies are already doing so. This positive momentum can continue if agencies increase the pace and expand the reach of moving paper records to electronic records, and electronically archive records in a manner that provides prompt access to authorized users.

In addition to cost savings and process efficiencies, agencies can enhance document security, be better prepared for emergencies, and otherwise guard against the loss of records and the interruption of access to essential information. And reducing – or at least controlling – consumption of paper and print supplies is environmentally responsible and consistent with sustainable resource management. Federal agencies can most effectively meet the evolving records management needs of governance by looking to the private sector, where industry leaders are applying emerging and improving technologies to manage essential information. Mr. Franklin would approve.

“The time to repair the roof is when the sun is shining.”
—John F. Kennedy, State of the Union Address, January 1962

**About the Authors**

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Dan Nemec has been with J.P. Morgan for 21 years, primarily in financial management, project management and business development of evolving electronic financial services products. Mr. Nemec is responsible for identifying and promoting technology-based treasury management solutions to meet the needs of public sector agencies and the constituents they serve. His current area of focus is on electronic content management, including document imaging, archiving and retrieval. He works within the J.P. Morgan Treasury Services organization, a full-service provider of innovative payment, collection, liquidity management, trade finance, commercial card and information solutions to corporations, financial services institutions, middle market companies, small businesses and governments worldwide.

Mr. Nemec earned his Master of Business Administration degree in Financial Management and Policy Studies from the University of Chicago. He earned his undergraduate degree from Kent State University.

**Brian Kibble-Smith**

*Executive Director*

Brian Kibble-Smith is Executive Director of Public Affairs for J.P. Morgan Treasury Services. For the past 18 years, he has specialized in the policy, law and regulation of electronic benefits transfer (EBT), debit cards and electronic funds transfer (EFT) as used by government agencies. Mr. Kibble-Smith has testified as an industry expert to the full U.S. house banking committee and house subcommittees on banking and agriculture, as well as to state assembly committees in California and New York. In addition to authoring papers on EBT, EFT and debit cards, he has published works in areas as diverse as computer law, civil rights, medical ethics and malpractice, and copyright, including an article used as a teaching tool by the Smithsonian.

Mr. Kibble-Smith earned his law degree from Illinois Chicago-Kent College of Law, where he graduated with high distinction and was a law review editor for two years. He earned his undergraduate degree from the University of Michigan-Flint.

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2. Throughout this paper, the term “managing” paper records refers to accepting, categorizing, storing and accessing any paper document that an agency is responsible for maintaining for a pre-determined amount of time.
8. 5 U.S.C. § 552(b).
9. See, e.g., FOIA descriptions of the U.S. Department of Education, available at:

14 Id., at 11.
15 Id., at 5.
16 Toby J. Velte, Anthony T. Velte and Robert Elsenpeter, Green IT: Reduce Your Information System’s Impact While Adding to the Bottom Line (2008), at 104.
19 Id., at 7.
21 Jerry Hagstrom, USDA Secretary favors strong link between performance measures and goals, Government Executive (March 27, 2009), available at: http://www.govexec.com/story_page.cfm?filepath=/dailyfed/0309/032709jh1.htm
29 NARA Technical Reference Model Version 5.0, National Archives and Records Administration (February 28, 2008), at 3.