

DATAIMAGE, INC.

State of Utah Electronic Payables Project

(Automating data entry and reduce handling of paper)

Prepared for Division of Finance

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Executive Summary

Finance organizations are being asked to reduce costs and to perform the same amount of work with fewer resources. AP departments are required to process invoices and employee reimbursement requests with smaller staffs, all while maintaining the same levels of service and standards of quality. Research indicates that highly automated organizations have a process cost per invoice that is 75% lower than at primarily paper-based organizations and are three times as productive. This report will demonstrate the State of Utah's accounts payable need for an automated solution and provide a recommended solution.

Areas of Concern

The main areas of concern regarding payment processing within State accounts payable departments are as follows:

Handling of Paper Most of the State's agencies/divisions are currently handling payments through manual, paper based processes.

Manual Data Entry All agencies/divisions are heavily reliant upon manual data entry processes. This hampers productivity and is more error prone.

Purchase Order System Some agencies/divisions have Purchase Order policies, however most do not. The use of a standardized Purchase Order system would greatly streamline payment processing.

Content Management System Many agencies are not using any electronic content management system, relying instead either on hard copy filing systems or computer network directories. This creates inefficiencies in filing and retrieval labor, lost invoices, security concerns, and manual processes in managing retention. Systems licensed on a per user basis pose a prohibitive cost to the State given its high number of agencies/divisions and the number of users needing access.

Access to Invoices A standard access point to invoices does not currently exist across all agencies/divisions. A standard repository would make research and auditing more efficient.

Consistent Adherence to Policies Some agencies are strict with regards to the State's accounting policies and procedures, others are more flexible.

See the Recommendations section starting on page 21 for a description of Dataimage's recommended solution.

Project Overview

In July 2010, The State of Utah commissioned Dataimage to examine the State's payment processes and systems and recommend the most efficient and cost effective way to move to electronic payment processing, with the vision of eliminating the handling of paper documents and duplicate data entry. Dataimage has conducted its review at 19 State of Utah agencies and divisions and provides its findings and recommendations in this report.

The 19 agencies and divisions were:

- Tax Commission
- Administrative Services, Division of Finance
- Administrative Services, DFCM Construction
- Administrative Services, Purchasing
- Administrative Services, Fleet Operations
- DTS
- Corrections, Finance Bureau
- Corrections, UCI
- Human Services, Child and Family Services
- Human Services, Executive Directors Operations
- Human Services, Juvenile Justice Services
- Human Services, Office of Recovery Services
- Human Services, Substance Abuse and Mental Health
- Natural Resources, Admin
- Natural Resources, Wildlife Resources
- Natural Resources, Water Rights
- UDOT, Complex Region
- Education
- Workforce Services

Note: Because the solutions and technologies recommended by Dataimage in this report are intended for both vendor invoices and state employee reimbursement requests (non-taxable), those two terms may be referred to interchangeably in this report.

Statement of Need

Finance organizations are being asked to reduce costs and to perform the same amount of work with fewer resources, and the State of Utah is no exception. AP departments are required to process invoices and employee reimbursement requests with smaller staffs, all while maintaining the same levels of service and standards of quality. The biggest stumbling block to accomplishing this is continued reliance on the combination of paper-based invoices and people-based processes. Research from The Hackett Group (a global strategic advisory firm and a leader in best practice implementation, advisory, and benchmarking) indicates that highly automated organizations have a process cost per invoice that is 75% lower than at primarily paper-based organizations. Their research also indicates that highly automated organizations have nearly a 30% higher first-pass match rate, are three times as productive, and capture two-and-a-half times the early payment discounts of their paper-based peers (Hackett's 2009 Purchase-to-Pay Performance Study). The State of Utah needs to eliminate the handling of paper documents and manual data entry in payment processing, and automation addresses this need.

Payment automation solutions - which combine front-end imaging, automated intelligent data capture, and approval workflow - have matured and become mainstream technology. These solutions reduce processing costs, accelerate cycle times, reduce AP workload, and increase visibility and performance. Additionally, automating the end-to-end AP process is a foundation for centralized finance organizations and shared service centers.

An important metric in determining cost justification for an automated solution is an organization's volume of invoices processed. Generally if an organization is handling between 180,000 and 540,000 invoices per year, an automated solution is warranted. The State of Utah handles over 600,000 invoices per year.

Gap Analysis

This section describes the differences between the current State of Utah AP processes at selected agencies and the core AP processing standards and best practices of centralized receipt of invoices, scanning invoices as soon as possible, intelligent extraction, and workflow.

Central Invoice Receipt

Best Practice: Vendors should send invoices directly to AP

Paper invoices create efficiency problems in AP organizations, and this problem is compounded when vendors send invoices to field approvers or buyers, sometimes sitting on their desks for days or weeks. Vendors should send invoices directly to AP.

Standard/Best Practice	Current State	Deficiency
Central Invoice Receipt	<u>Vendor Sends Invoices to Field Approvers</u> <ul style="list-style-type: none"> 7 out of 19 agencies 	<ul style="list-style-type: none"> Delayed payment More prone to lost invoices Opportunity for double payments
	<u>Vendor Sends Invoices to Agency AP</u> <ul style="list-style-type: none"> 12 out of 19 agencies 	

Front-End Imaging

Best Practice: Scan invoices as soon as they are received

Imaging (also referred to as document capture) is the process of scanning paper invoices and supporting documents and converting them into digital images. All invoice documents coming into the system should be imaged immediately; this removes paper from the process and ensures that documents are available to all relevant parties immediately; this enables data to be entered into FINET at receipt (creating a payment “shell” in FINET) allowing for more visibility into all outstanding liabilities. Current technology provides for high speed, high volume capture environments (as opposed to the process of scanning documents at a multi-functional peripheral machine).

Mailed, faxed, and e-mailed invoices should all be processed the same way

The same concept of capturing invoice documents at the front of the process should be applied to documents received through e-mail and fax. Current technology can automatically monitor e-mail inboxes and fax server directories for payment documents and route for processing.

Objective	Current State	Deficiency
Front-end imaging	<u>No Imaging</u> <ul style="list-style-type: none"> Payment documents are 	<ul style="list-style-type: none"> Paper is never eliminated No opportunity for

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	<p>not scanned</p> <ul style="list-style-type: none"> • 100% paper based from approvals to filing • 6 of 19 agencies 	<p>automation of data entry</p>
	<p><u>Post-Payment Imaging</u></p> <ul style="list-style-type: none"> • Payment documents are scanned after manual invoice pre-approval and FINET payment approval • Image is stored in a content management system • 7 of 19 agencies (Some agencies are mixed) 	<ul style="list-style-type: none"> • Paper is not eliminated until very late in the process
	<p><u>Pre-Payment Imaging</u></p> <ul style="list-style-type: none"> • Payment documents are scanned after manual invoice pre-approval, but before FINET payment approval • Scanning occurs at a multi-functional printer and either saved to a network directory or e-mailed to themselves as PDF • The PDF is then attached to FINET payment document • 6 of 19 agencies (Some agencies are mixed) 	<ul style="list-style-type: none"> • Paper is not eliminated until late in the process (after the manual pre-approval) • Lower speed, lower volume scanning • Storage is in non-content management storage (attachments are BLOBs in FINET database)
	<p><u>Front-End Imaging</u></p> <ul style="list-style-type: none"> • Payment documents are scanned at receipt • Scanning either occurs at a multi-functional printer or at a desktop scanner • This has been implemented at DWS and USOE • 2 of 19 agencies (USOE also performs some post-payment) 	<ul style="list-style-type: none"> • DWS and USOE imaging solutions not integrated with automatic and intelligent data extraction • At USOE, some storage is as BLOBs in BASE database

The Case for Front-End Imaging at the State

These are some specific behaviors observed by Dataimage that build the case for a front-end imaging solution:

- Some AP clerks print emailed documents to be able to scan and/or paper file them
- Some AP clerks scan into content management system once per month
- Some AP clerks scan once per week
- There is generally no tracking done from when the invoice is received
- Invoices can be delivered everywhere but tracked by no one
- Most invoices are received through the mail
- A typical scenario at some agencies is invoices being sent to the wrong place
- Can take a clerk ~30 seconds to scan an invoice
- Some AP staff worry about whether a faxed invoice will get to them

Survey responses from state AP staff members that pertain to process pain points and/or ways to improve efficiencies that imaging and front-end imaging would address include:

- Some who are not currently scanning know that they need to implement some form of scanning
- Implement front-end scanning
- Eliminate filing
- Scanning all paperwork eliminate filing
- Faster front-end scanning, faster input process
- Eliminating paper at the front would help alter processes to cut excess activities
- Scan at front end to eliminate mail time
- Faster input process

In our State AP survey, scanning was listed at a pain level 3.4/5. We believe the lack of imaging at some divisions and low speed/volume scanning environments are the top contributors to this dissatisfaction.

One manager indicated that they have a lack of confidence in imaging, therefore they do not shred their documents.

Automated Data Entry

Best Practice: Leverage automated extraction technologies

Optical character recognition (“OCR”) technology automatically reads information from an image and translates it into an electronic format, which works well when processing documents such as a payment cover sheets (a very structured document) because the system knows where

to look for certain data. Invoice processing introduces a different level of complexity in that invoices look very different from vendor to vendor. Intelligent data recognition (“IDR”) is the enhanced technology for invoices, leveraging knowledge bases and learning systems to improve process efficiency. These knowledge bases support commonly used invoice terms for data extraction from the point of initial implementation; over a short period of time, as more invoices are processed through the system, the solution learns to interpret information on a vendor by vendor basis, which ultimately decreases manual intervention and increases accuracy. Additionally, IDR solutions have the benefit of not being tied to the success of vendor adoption (which is the major weakness of electronic invoicing solutions).

PO System

Purchase order based invoices and 3-way matching are key enablers of touchless payment processing. Based on our visits it is clear that many agencies understand the value of PO-based invoices. We saw a variety of PO systems ranging from online systems to spreadsheets to paper based PO books. We also observed examples of extra work required for invoices which arrive that do not have a PO. The use of a standardized PO system will allow all PO based invoices to be scanned and quickly matched against the PO for accuracy and to flag discrepancies. The solution can automatically pull data from the PO system, which is easier and more accurate than reading from a piece of paper.

Objective	Current State	Deficiency
Automated Data Entry	<u>Manual Data Entry</u> <ul style="list-style-type: none"> • Data is manually typed into FINET fields • 19 of 19 agencies 	<ul style="list-style-type: none"> • A manual process • More error prone • Data entry is duplicated if it was already in a system (non-FINET PO, PO book, or spreadsheet)
	<u>OCR</u> <ul style="list-style-type: none"> • Zonal OCR is performed on fixed locations in structured documents (e.g., payment cover sheets) for key index fields such as PRC # and Vendor # • DTS, UDOT, the Div. of Finance, ORS, and USOE (for some documents) use Kofax technologies for extracting data from structured payment documents • 5 of 19 agencies 	<ul style="list-style-type: none"> • Works only on structured documents

	<u>IDR</u> No agencies (0 of 19) currently utilize intelligent data capture for AP processing.	
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The Case for Automated Data Entry at the State

These are the specific behaviors observed by Dataimage that build the case for an automated data entry system:

- Data entry into FINET (or into the DWS and USOE systems that upload to FINET) is manual
- It can take one to two minutes to enter a payment into FINET, not including approval and error resolution which would take longer
- Data entry errors, for example Vendor Invoice Dates of 1939 and 1948 in the GAX tables provided to Dataimage

Survey responses from state AP staff members that pertain to process pain points and/or ways to improve efficiencies that automated data entry would address include:

- They would like a PO system
- Need more staff to handle the volume
- Faster input process
- Quicker coding
- Ability to reference receipt of goods/services
- Ability to reference that invoice matches what was received
- Ability to quickly reference purchase order document
- Faster processing of invoices by our agency
- Coding before it's sent to AP

In our State AP survey, data entry was listed as the highest pain level (3.9 out of 5). We believe an IDR solution that meets the above high level requirements will greatly alleviate that pain.

Workflow

Best Practice: Using workflow for invoice review, discrepancy resolution, coding, and approval

Workflows provide for the paperless processing of non-PO invoices and exceptions which are routed to the people who must approve them. All tasks are routed based on pre-defined business rules, and user roles and access rights can be set to match the State's approval

hierarchy. Approvers can be notified by email when invoices require their review/approval. A strong workflow system will track every action taken by each user on every document, providing an audit trail for all users and transactions. Users are able to respond effectively to vendor inquiries, and managers gain the ability to track the status of individual invoices, view the work of individual approvers, and monitor the entire approval process.

Workflow can be provided in three ways:

- Custom development (programming language or workflow development toolkit)
 - A team (IT or consulting) designs the workflows and uses a programming language to deliver them
- Templates
 - Typically supplied with a workflow toolkit
 - Consist of partially built workflows that address generic problems
 - Require a team (IT or consulting) to customize the software, modifying and adding to the template code
 - Relies on the team (IT or consulting) for workflow design, ERP integration, documentation, testing, training, supporting and upgrading the workflow software
- Complete productized workflows
 - Provide real-time ERP integration
 - Are configurable to meet requirements
 - Provide options for accommodating change
 - Are documented, tested, and certified with the ERP system
 - Offer learning services and on-line help
 - Upgradeable by a standardized, tested, and automated process

Objective	Current State	Deficiency
Workflow	<u>Manual Paper Process</u> <ul style="list-style-type: none"> • Physical documents are sent through inter-office mail or carried around to approvers' desks • 17 out of 19 agencies 	<ul style="list-style-type: none"> • Highly inefficient • More prone to lost papers
	<u>Workflow</u> <ul style="list-style-type: none"> • 2 of 19 agencies • DWS has a solution called Avaflow, developed by Avacom, a template based workflow that requires customization by Avacom for new workflows 	

	<ul style="list-style-type: none">• USOE uses a custom developed workflow created by their developers	<ul style="list-style-type: none">• Custom built specifically for USOE
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The Case for Workflow at the State

These are the specific behaviors observed by Dataimage that build the case for an automated workflow system at the state:

Duplication of work

- When a vendor calls asking for the status of a payment and AP can't track down the invoice, they tell the vendor to send in another one
- Some managers have to diffuse vendor complaints by telling them to just send the invoice again
- Sometimes approval paperwork for second FINET approvals is lost/misplaced
- Hardcopy documents are entered into FINET and then sent to another office where the paperwork is approved. The paper work is then sent back to the first office where the paperwork is stored or archived.

Manual processes that go away with a workflow

- Clerks walking around/making phone calls/sending emails to ask questions about an invoice
- Invoice approvers sending documents via mail or interoffice to AP for payment approval
- Techs physically delivering papers to a manager's office for payment approval
- Manager isn't aware of a payment waiting for their approval until they see the paper on desk
- Physical papers sitting in front of tech while entering data in FINET, or papers sitting in front of manager during FINET approval
- Payment cover pages/accounting reports printed by the tech
- Writing and stamping on invoices for approvals
- AP staff looks at the invoices then verifies that the PO in purchasing system checks out with the invoice. If it doesn't show as received in the system, the tech will scan the invoice and email it to the receiver who replies back.
- For productivity tracking purposes, the tech enters in a spreadsheet the date of when she starts processing a payment

Lack of invoice visibility

- AP receives calls from vendors when the invoice is sitting on a field approver's desk

- Some field approvers get the invoice to AP within two days, others wait until the vendor starts screaming
- Vendors calling AP is a real pain point because the vendors call them a lot, she then has to track down the project manager and then call the vendor back

Other Efficiency Opportunities

- Some groups have very few PO-based invoices

Survey Responses

Survey responses from state AP staff members that pertain to process pain points and/or ways to improve efficiencies that matching and a workflow would address include:

- Complaints that invoices aren't getting approved like they should
- Paperless processing of invoice and payments
- Faster processing of invoices by our agency
- Divisions who receive invoices should turn them in quicker
- Better invoice delivery system
- Quicker approval/coding
- More timely approvals from project managers
- Faster approval process prior to invoice reaching AP
- Get invoices to AP in a timely manner
- Division Directors making approval of invoices a higher priority
- Proper approval
- Signatures for OK to Pay (not verbal)
- Getting signatures more efficiently
- 15% of our invoices are held by outlying offices until they arrive, and then the encumbrance is entered into FINET and documentation mailed to our central location. Too slow, burdensome, and may miss purchases. They are unwilling to change. It is a burning issue for us but not for others.
- If we go paperless we could alter our processes to cut excess activities
- Streamlined approval process

In our State AP survey, matching reported with a pain level of 3.89 out of 5 and approval process was 3.73. We believe a strong workflow system that meets the above functions will greatly alleviate that pain.

Electronic Content Management (ECM)

Using an electronic content management (ECM) system to store all invoices and related AP documentation throughout the lifecycle of the documents

An ECM system provides many benefits that are almost impossible to achieve in paper-based filing systems. These benefits include:

- The ability to search all AP related documents by a date range or other information such as vendor name
- Ability for an AP clerk to respond to a discrepancy by sending a vendor a copy of a document while still on the original phone call without leaving their seat
- Searching a list of unrelated invoice numbers with one query and pulling up the entire list of invoices within a few seconds. This type of searching power is extremely helpful during an audit.
- Ability for multiple workers in different locations to view the same document at the same time.
- Ability to integrate closely with existing ERP or back end accounting systems to enable seamless retrieval of documents from within the client system to users with the appropriate access rights.

By providing a centralized repository, an ECM eliminates redundant or out-of-date copies/versions of content, and allows multiple workers to view and work from the same document at the same time without generating multiple copies.

Productivity is greatly increased when employees can find the documents they need when they need them without investing several minutes or hours looking for them. A recent AIIM study found that companies spend \$20 in labor to file a document, \$120 in labor to find a misfiled document, and \$220 in labor to reproduce a lost document. The study also found that 7.5 percent of all documents get lost and 3 percent of the remainder get misfiled.

According to industry research in a paper based environment professionals spend 3 to 4 times as much time looking for information as they spend actually reviewing the information once they find it. ECM will provide access to all AP related documents within a few seconds with only a few keystrokes right at the employees' desk. The same benefit will be magnified in examples of auditing. Auditing of paper files can take hours or days and can also present unnecessary liabilities if the documents cannot be found.

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Objective	Current State	Deficiency
Content Management (ECM)	<u>Hard Copy File</u> <ul style="list-style-type: none"> • Paper payment documents stored in physical files • 6 of 19 agencies (Some agencies are mixed) 	<ul style="list-style-type: none"> • Extra time spent retrieving for audit or inquiry purposes • More prone to lost documents • More prone to misfiled documents • Multiple versions of the same document <ul style="list-style-type: none"> ○ Separate copies with unique notes ○ For misplaced documents, new copies of the document are sometimes requested ○ Sometimes leads to duplicate payments • Computer disk storage is cheaper than floor space required for paper
	<u>Network Folder</u> <ul style="list-style-type: none"> • Payment document images stored in a network folder (e.g., the F drive) • 1 of 19 agencies 	<ul style="list-style-type: none"> • Locating other user's files is sometimes problematic • Folders can become a collection of obscurely named folders with indistinguishable files • Limited searching functionality • Limited security or audit ability of this type of storage • As the volume and user base increases these types of solutions prove to become more cumbersome and difficult to manage

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	<u>Database</u> <ul style="list-style-type: none"> • Payment documents stored in a database as binary large objects (“BLOB”) along with document metadata • Applies to all agencies attaching PDFs in FINET • USOE attaching PDFs in their BASE system • 8 of 19 agencies (Some agencies are mixed) 	<ul style="list-style-type: none"> • As the volume of these documents increases, the total size of binary document blobs will far outweigh the size of the document metadata and other structured data • File size limitations
	<u>IBM Content Manager</u> <ul style="list-style-type: none"> • Payment documents stored in this ECM • 4 of 19 agencies (Some agencies are mixed) 	<ul style="list-style-type: none"> • Named user licensing model
	<u>ProjectWise</u> <ul style="list-style-type: none"> • Payment documents stored in this ECM • 2 of 19 agencies 	
	<u>Documentum</u> <u>ApplicationXtender</u> <ul style="list-style-type: none"> • Payment documents stored in this ECM • 1 of 19 agencies (Some agencies are mixed) 	

The Case for ECM at the State

BLOB storage

Some State agencies are currently storing invoice related documents directly in the FINET database as BLOBs (binary large objects) along with document metadata. As the volume of these documents increases, the total size of binary document blobs will far outweigh the size of the document metadata and other structured data. This skews the ratio of structured vs. unstructured binary data far to the side of unstructured data. Moving the unstructured BLOB data outside of the main database reserves the relational database storage for data which will be referenced in queries, and places the unstructured data on storage (ECM) more appropriate for it. Doing so will also alleviate the file size limitation of storing directly in the database.

Observations

As we conducted the onsite analysis we saw several different examples of manual storing and tracking methods including Microsoft Excel spreadsheets, handwritten logs and file foldering systems.

During our onsite interviews we were told many times about missing invoices which could not be found, where vendors were asked to send a second copy. We also heard mention of documents which were on one person's desk and required someone walking around the office to find the document in order to respond to questions for the vendor.

Currently within the agencies visited and surveyed as part of this study, there are several ECM systems in use. There are multiple agencies using IBM Content Manager. Content Manager is a leading ECM product, it is very scalable, and offers many modules which can address additional needs such as workflow, and retention management. Although many agencies have found success with Content Manager, several people commented that the costs associated with licensing Content Manager had prevented them from considering it as an option or from expanding the system to allow all employees access to the system. We also found other agencies who were using FINET as their ECM, and were storing scanned images directly in FINET. There appear to be some file size limitations associated with FINET which have kept some agencies from storing all their documents in FINET. FINET stores the image as a blob in the SQL database.

We also spoke with two agencies using ProjectWise as their document management system. ProjectWise is an acceptable departmental solution; and it is vertically aligned for agencies who are managing project based documents. It will likely have scalability and functionality issues if used to address document management functionality to all users across the entire state. For those agencies who have specialized needs for document management which may be better served with a more vertically aligned product such as ProjectWise, our recommendation would be to allow for these exceptions and provide dual image release to it. We feel moving all agencies to a single ECM platform could potentially be the largest obstacle in the process, since there are some who would consider this a major step backward compared to a specialized industry specific platform which they have already implemented. This could be a good compromise to allow those agencies to feel they are still in control of their information, one of the main points of resistance which was communicated to us during our interviews.

Survey Results

Currently over 50% of all agencies surveyed are not scanning their invoices, this means that all their invoices are being manually filed, and stored long term in filing cabinets or in boxes, and that all retrieval, research and audits are 100% manual.

Options

This section details different options of payment processing automation available to the State.

Option A: Back-End Document Capture and Archival

This is the most basic form of payment automation. It addresses the gap of agencies that are not currently scanning and using a content management system.

Integration Requirements

- There is no FINET integration necessary with this option
- The scanning technology used would need to integrate with the content management system (Scanning technology → ECM)
- Data warehouse can integrate with the ECM for invoice display

This option consists of these steps:

1. Operators group payment documents and scan them at the end of the payment process
2. Operators index the images either manually or with zonal optical character recognition (OCR)
3. The document images are stored in an electronic repository for retrieval

Pros

- Physical storage requirements for paper are eliminated
- Document retrieval for data warehouse, audits, and discrepancy resolution
- Improved responsiveness to vendor inquiries

Cons

- Since scanning and indexing occur after approval processing, the process continues to follow a manual and paper-intensive course

Option B: Mid-Process Document Capture and Attach to FINET Payment

This is another basic form of payment automation. It also addresses the gap of agencies not currently scanning and using a content repository. The very basic method of using multi-functional printers (MFPs) to create the PDF is the scanning technology used.

Integration Requirements

- Integration with FINET is very simple, consisting of browsing to the location of the PDF and attaching to the FINET document.

This option consists of these steps:

1. Operators group payment documents and scan them after the invoice has been preapproved but before payment is made
2. Document images are stored in a database management system as binary large objects (BLOBs)

Pros

- Physical storage requirements are generally eliminated
- Document retrieval for audits (requires a FINET account) and discrepancy resolution
- Improved responsiveness to vendor inquires

Cons

- Since scanning occurs after the payment preapproval process, agencies would continue to follow a manual and paper-intensive course
- Images stored as BLOBs in the database
- Restriction in document image file size

Option C: Front-End Document and Data Capture, Attach to FINET Payment, and Workflow

This option provides genuine improvements to the payment processing cycle. In addition to addressing the gaps of agencies not scanning and using a content repository, it also addresses the gap of automated data extraction.

Integration Requirements

- Document and data capture system → FINET (FINET used for workflow and accounting)
- Document and data capture system → Workflow system → FINET (if FINET is not used for workflow)

This option consists of these steps:

1. Paper documents are organized into batches and scanned upon receipt
2. Intelligent engines are able to correctly sort batches and separate documents on the fly
3. Data is automatically extracted from the documents using intelligent document recognition (IDR), including line item information
4. Certain data fields (e.g., PO numbers) are automatically compared to data in the appropriate back-end system (e.g. FINET's purchasing system)
5. An operator examines the extraction results. The invoice image and the data the recognition engine has extracted are displayed side-by-side. If there is a failed validation or a low confidence level for character recognition, that field is highlighted for acceptance or correction by the operator.
6. The verified information is uploaded to FINET and If the PO matches the invoice and a receiver document then the payment is automatically issued
7. Workflow approval for non-PO invoices and exceptions

Pros

- Physical storage requirements for paper are eliminated
- Document retrieval for audits (requires a FINET account) and discrepancy resolution
- Improved responsiveness to vendor inquires
- Automated data entry; improved productivity and data accuracy

Cons

- Images stored as BLOBs in the database
- Restriction in document image file size

Option D: Front-End Document and Data Capture, ECM storage, and Workflow

This is an advanced form of payment automation; similar to option C but incorporates an ECM for the repository. It addresses all the gaps defined in the gap analysis (imaging, auto data extraction, workflow, and ECM).

Integration Requirements

- Document and data capture system → FINET
- Document and data capture system → ECM
- Document and data capture system → workflow system → FINET (If FINET is not used for workflow)
- Data warehouse can integrate with ECM for invoice display

This option consists of these steps:

1. Paper documents are organized into batches and scanned upon receipt
2. Intelligent engines are able to correctly sort batches and separate documents on the fly
3. Data is automatically extracted from the documents using intelligent document recognition (IDR), including line item information
4. Certain data fields (e.g., PO numbers) are automatically compared to data in the appropriate back-end system (e.g. FINET's purchasing system)
5. An operator examines the extraction results. The invoice image and the data the recognition engine has extracted are displayed side-by-side. If there is a failed validation or a low confidence level for character recognition, that field is highlighted for acceptance or correction by the operator.
6. The verified information is uploaded to FINET and If the PO matches the invoice and a receiver document then the payment is automatically issued
7. Workflow approval for non-PO invoices and exceptions

Pros

- Physical storage requirements for paper are eliminated
- Document retrieval for data warehouse, audits, and discrepancy resolution
- Improved responsiveness to vendor inquires
- Automated data entry; improved productivity and data accuracy

Cons

- N/A

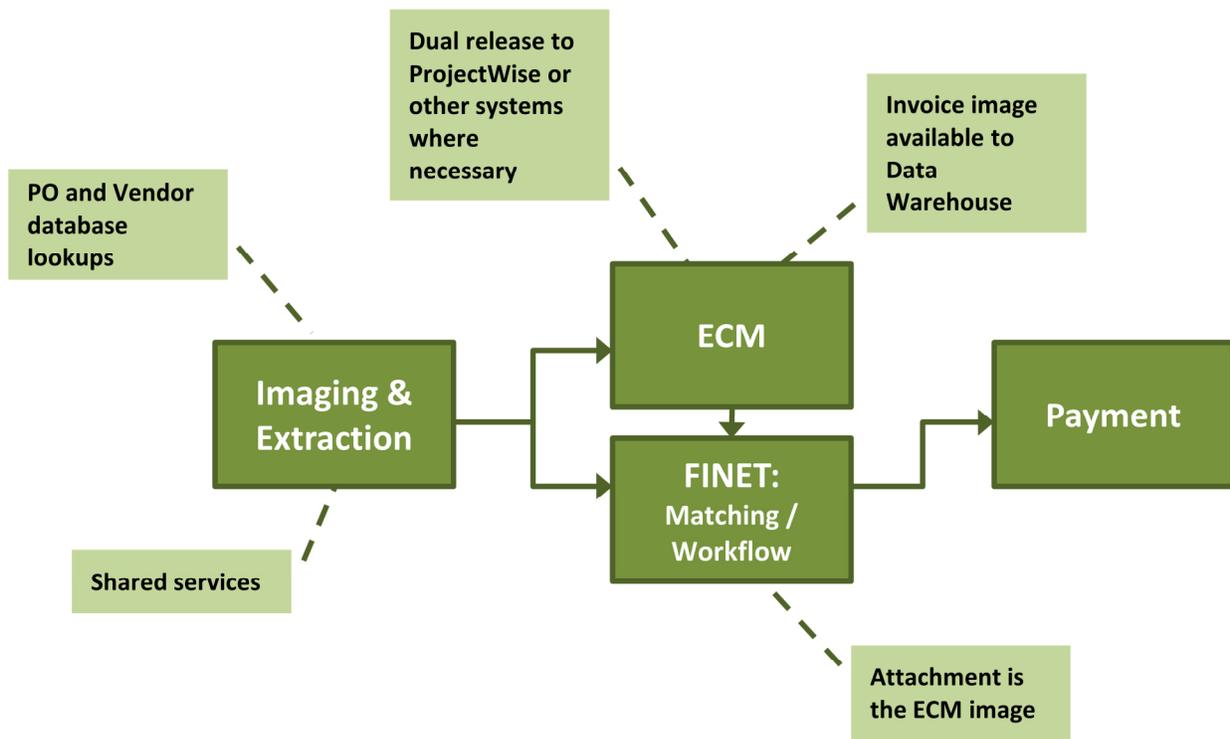
Summary of Options

		Option			
		A	B	C	D
Imaging	Back End	✓			
	Mid Process		✓		
	Front End			✓	✓
Auto Data Extraction	Zonal OCR	✓			
	IDR			✓	✓
Repository	FINET BLOB		✓	✓	
	ECM	✓			✓
Workflow				✓	✓
Implementation		20 days	2 days	45 days	60 days
Change to Current Processes		Med	Min	Med-High	Med-High
Level of Automation		Low	Low	Med-High	Med-High
Cost		\$\$	\$	\$\$	\$\$\$

Recommendations

Solution

The following diagram provides an overview of the Dataimage recommended solution for the State of Utah’s payment processing.



This section describes the recommended solution:

Shared Services

A shared services model for the imaging and extraction portion of the solution means that the administrative tasks of scanning, data entry, and validation of documents are handled by dedicated operators. Vendors should be instructed to send invoices to this central location. Employees should be instructed to send non-taxable reimbursement requests to this central location.

Imaging and Extraction

Documents are scanned and imaged at the front-end upon receipt, removing paper from the process. Technology is executed to automate data entry. Dataimage recommends that intelligent data recognition technology be implemented for improved productivity and accuracy. Dataimage also recommends that dual monitors be provided for each validation operator.

PO System

Modern imaging and extraction systems provide for database validation (automatically comparing PO data to invoice information). While not a mandatory recommendations (invoices can still be routed through workflow without POs behind them) Dataimage still recommends that agencies adopt a standard PO system as it provides for 2 and 3 way matching, which offers even more automation.

ECM

Images are uploaded and stored in ECM. For agencies that require it, images can also be dually uploaded and stored in other systems such as ProjectWise. In the ECM repository, images are also available to be viewed via Data Warehouse queries.

Images can be stored as either PDFs or TIFFs. This decision can be primarily based on the State's preference. TIFF files are more efficient for the advanced extraction processing recommended in this report, and for that reason TIFFs are the Dataimage recommended file type. Both formats require roughly the same amount of storage space.

ECM systems licensed on a named user basis pose a prohibitive cost to the State given its high number of agencies/divisions and the number of users needing access. The most common ECM at the state is IBM Content Manager, but it's licensed per named user. Because the need for accessing payment documents in the ECM for many state users is only at certain times of the day/week, Dataimage recommends an ECM with a concurrent licensing model. An example of a concurrent licensing model: If there are 40 state agencies, and if 4 people per agency need ECM access for invoices, 160 users need access. For 160 users, Dataimage recommends 30 concurrent licenses (~20%). EMC Documentum ApplicationXtender is a concurrent license

model ECM currently used at the state (Education), and Dataimage highly recommends it as meeting the ECM needs for state AP.

Cloud/SaaS solutions offer lower upfront implementation costs and reduces many of the hassles of maintaining them, but costs are only deferred (as the repository grows, the usage charges do as well).

FINET

Documents are automatically created in FINET where they can be matched or workflowed. Advantage document “attachments” are links to the image stored in the ECM.

Workflow

Workflows are launched for the approval of non-PO invoices and exceptions. Dataimage recommends that the State utilize the FINET workflow as it meets the requirements listed in the Functional Requirements section.

Electronic Invoicing

The most sophisticated invoice automation solutions combine front-end document imaging and data capture with electronic invoicing and workflow. This enables organizations to process all invoices through a single, common process. Under such a scenario, AP staff would work to transition vendors from paper to electronic means of invoice submission. Because vendor adaptation to e-invoices is a considerable undertaking, Dataimage recommends waiting for a future phase to begin an e-invoicing initiative. The Functional Requirements section under the Document and Data Capture component lists the ability to receive e-invoices and provide vendors with self services as Desirable requirements.

Pilot

Once organizations see the technologies, they often move forward very quickly to implement it. The State may want to strongly consider a pilot phase in which a small system is setup to allow users hands-on time with the technologies. Please refer to the Next Steps section for details on systems currently in use at the State that could be utilized for a pilot.

The Case for Shared Services

Shared services is one of the best models for reducing costs and incorporating best practices. The driver of shared services benefits is simplification -- reducing the redundancy of people, processes, and systems.

Dataimage recommends a shared services model for the state to take advantage of these specific benefits:

- Leveraging technology
- Improved productivity
- Standardized systems and processes
- Focus on administrative tasks
- Allow agencies to focus on core operations
- Consistent policy adherence
- Better service levels
- A single source for reliable, accurate information
- ROI for advanced technologies

Current AP environments at the state are not setup for high volume/speed scanning operations, and IDR solutions would be cost prohibitive for small agencies. A shared services environment would allow all agencies to benefit from the use of advanced technologies to automate the process without the entire burden of the investment in the technology being realized separately by each individual agency.

Concerns from Agencies

These are some concerns about a shared services model we gathered from our meetings:

- Concerns about a loss of service to the agency
- Concerns about shared services performing validation because special invoices they require from vendors are rarely filled out correctly and currently require a lot of intervention from their clerks

Phased Implementation

It is important to assess the change readiness at the onset of this project. As we met with different agencies we discovered there are various levels of acceptance of this project. For some it is unclear why the changes are needed, and some are unsure that the changes will help to provide the desired results. There are some who are more comfortable dealing with paper and feel they will have less control over their process if the paper goes away and responsibilities shift. Some of these processes we observed have been in place for many years without change, and although they are laden with inefficient manual process they are familiar and change will be met with resistance.

It is interesting to note that almost everyone who responded to the survey said that procedures and policies are very well defined and that they are followed with exactness, however during our visits we often saw many variations of processes within in the same agency. Some of those who we met with were reluctant to expose existing procedural weaknesses in fear of the changes which may result. Often with implementation of new technology there is fear that

sufficient training will not be provided or that the technology will be beyond their comprehension. There are also many who hold recent memories of other attempts at technological advancements which have fallen short and use these as examples why a project of this scope will never actually get off the ground.

Successful change management requires that these concerns be noted and addressed and a team approach in discussing and resolving these types of issues is paramount to the success of the project. However with a project of this size and scope a team approach also has the potential to impede the ability to move the project along within an acceptable timeframe.

One of the most successful implementations of a complex solution which we have seen in a state environment was the project with State of Utah Office of Recovery Services. When asked about their success the project lead attributed the success to two main factors:

1. They had executive level buy in for the project and this was clearly communicated to the entire agency- this is the direction we are going, this is why we are doing it, and these are the results we expect to realize.
2. They used a small group / large group approach to the implementation. The large group of stake holders and users were able to provide their input and insight, however ultimately the small group was allowed to make the final decisions and to move the project forward. If every decision would have required the review and approval of the larger group the implementation would have taken years longer than it did. Given the size and scope of the AP shared services project a similar small group / large group approach would be highly recommended.

It is important that all involved have a clear understanding of the need for the change and the desired outcome. Clear, regular, ongoing communication is critical from the start. Carefully considering drivers for change, weighing costs against benefits, and budgeting appropriately do not guarantee project acceptance. Even if they are discussed verbally, communications should be reinforced regularly in writing. Written communication reinforces what's been said and ensures everyone has identical information. It clearly states the facts and allows time for reflection and preparation.

It is important that this communication come from the top down, and that all understand that senior level managers are fully onboard. The exercise of the survey and the individual interviews conducted over the past several months are a good first step in allowing workers to have a chance to voice concerns and offer input from the beginning. Successful change management involves listening to concerns and fears - perceived, imagined, or legitimate - that could become barriers. Open communications provide valuable insight; this approach will allow the state to lay the foundation for effective change.

One interview was especially insightful, when asked how many FTE's were involved in processing AP for this agency, the individual responded that they would not share this information, because they knew it was being used to calculate how many FTE's could be eliminated as part of the project. It is very common for even the most dedicated employees to want to know how change will affect them personally, and to show some level of resistance. Discussion around automation of data entry and electronic workflow will cause workers to wonder how these technologies will affect the work they do on a daily basis, they will wonder what they will need to do differently and what additional skills they will need to learn to remain employed. Many ECM solutions provide efficiency gains by repurposing employees to more meaningful work, once their manual tasks have been automated. The aim is not to eliminate people, but to position them to handle work more efficiently.

One of the most important pieces of a successful implementation is that agency leadership - executives, directors, department and divisional heads, and IT - must present a unified vision and convey project support if they expect employees to embrace it. Indifference can lead to project demise. For a project of this size with as many autonomous agencies involved this could prove to be challenging. For this reason our recommendation would be that the project be rolled out in phases, rather than attempting to take on too much at one time. It would be wise to identify one or two agencies who are in support of the project, and who have already realized some of the benefits of document scanning, and working from images rather than paper. The primary objective of phase one should be establishing a successful fully functional environment within the chosen agency and then communicating the success of the project throughout the state. Over time this will begin to break down some of the resistance and other agencies will begin to step forward to be next in line rather than having to be pulled in against their will.

Next Steps

The State may choose to submit an RFP or explore its current resources.

RFP

The requirements listed in the Functional Requirements section could be used to build an RFP.

Current Resources

The State's current resources could be utilized to create both a pilot environment as well as implement a full solution. The following systems are currently being utilized by various State agencies and incorporate all four of the key technologies (imaging, intelligent data extraction, ECM, and workflow):

Kofax Capture and Kofax Transformation Modules

Kofax software is currently in use at different State agencies for imaging and data extraction. DAS-Div. of Finance, DTS, DHS-ORS, UDOT, and Education are currently utilizing Kofax Capture. DHS-ORS is currently utilizing Kofax Transformation Modules. Kofax Capture and Kofax Transformation Modules are considered industry leaders in document imaging and intelligent data recognition technologies.

The State contract for Kofax software and services is PD2082.

EMC Documentum ApplicationXtender

Documentum ApplicationXtender is currently in use at Education for ECM. Documentum ApplicationXtender is a content management system that's focused on fixed content in a cost-effective manner. It offers key ECM functionality, including retention management, web access, and auditing, and its licensing model is based on concurrent users.

The State of Utah is part of the Western States Contracting Alliance (WSCA) which provides for EMC ApplicationXtender software and services. The State contract for WSCA/NASPO is B27161.

FINET

FINET worklists are currently in use by the State for workflow. FINET worklists provide email notifications and auditing, is configurable, and can be expanded by utilizing invoice documents in FINET. Expanded use of FINET worklists would impact Stephanie Wilcox's workload.

Functional Requirements

The following are high-level requirements for future systems for the State which address the solutions presented in this report. General infrastructure requirements are also included below.

Component	Requirement	Mandatory/ Desirable/ Optional
Overall Solution	Able to handle document volumes of 1 million+ annually	Mandatory
	Able to support both single and multiple page documents	Mandatory
	Provide an accessible audit trail for all system activity	Desirable
	Provide context sensitive Help throughout the system	Desirable
	Provide security roles for users and allow for passwords to be set	Mandatory
	Fully support Windows Server operating systems	Mandatory
	Fully support Windows Client operating systems	Mandatory
Document and Data Capture	Integrated system with consistent function and features across all modules (common look and feel) to provide users with ease of use	Desirable
	Able to process files received through mail, e-mail, and fax	Mandatory
	Ability to receive e-invoices	Desirable
	Able to provide vendors with self service status of sent, received, submitted for processing, and in error state	Desirable
	Integrate with either ISIS or TWAIN scanner drivers	Mandatory
	Support high speed scanning	Desirable
	Allow documents to be scanned at 300 dpi resolution	Desirable
	Automatic image enhancement such as de-skewing, noise reduction, removal of unwanted borders, and rotating images	Desirable
	Support distributed scan stations	Optional
	Able to process both single and multiple page documents	Mandatory
	Provide a means for correcting individual image quality problems after scanning without interruption to the scanning operation	Mandatory
	Provide ability to reorder images within a document	Desirable
	Ability to route problem payment requests for exception handling	Desirable
	Provide automatic document identification and separation by invoice, credit memos, and vendor statements	Mandatory
	Automatic data capture/recognition technologies such as machine print, handprint, OCR, IDR, OMR, and barcodes	Mandatory
	Able to perform data capture/recognition from scanned paper, TIFFs, and PDFs	Mandatory
	Allow for data capture/recognition of unstructured documents (templates cannot be a requirement for data capture/recognition)	Mandatory
	Provide the following field extractions for invoices: Vendor/Vendor # (database lookup against vendor table), Line Description, Line Amount, Vendor Invoice Number, determination of Vendor Invoice Line, Vendor Invoice Date, Purchase Order/Delivery Order #, and Contract #.	Mandatory
	Provide database lookup functionality with known data sources (both Oracle and SQL Server) such as purchase order databases	Desirable

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	Provide user interface to permit users to view the images of scanned documents and to verify and correct captured data	Mandatory
	Provide for the configuration of alerts when extracted data falls below pre-determined confidence thresholds, forcing the operator to verify the field.	Desirable
	Provide the operators with point-and-click and auto complete functionality when correcting captured data	Desirable
	Ability to export images (TIFF or PDF) and extracted data to workflow, ECM, and FINET (standard and customizable exports through a documented API)	Mandatory
Workflow	Provide a link to the document image in ECM	Mandatory
	Provide integration to FINET	Mandatory
	Provide the ability to establish different processing rules and routing sequences for different workflows	Desirable
	Enable State Finance to configure workflows without custom programming	Desirable
	Provide the ability to configure e-mail alerts (of actions required, etc.)	Desirable
	Ability to monitor work in progress	Desirable
	Ability to route work to specific people or groups	Desirable
	Allow users with group rights to select work from a workflow queue	Desirable
	Provide for certain actions based on security rights, for example: Approve, Unapprove, Reject, Return, and Reassign	Desirable
	Provide for ad hoc routing	Desirable
Content Management (ECM)	Provide a repository for fixed content	Mandatory
	Provide online access via web browser	Mandatory
	Provide retrieval based on index field and full text searching	Mandatory
	Provide for the configuration of automatic retention policies and management	Desirable
	Provide users with the ability to add annotations and redactions	Desirable
	Provide security rights/privileges for read-only, apply annotations/redactions, remove annotations/redactions, delete, etc.	Desirable
	Provide for concurrent user licensing module	Desirable
	Provide documented API for integration with State's data warehouse	Desirable

Network Requirements

- Windows network
- TCP/IP protocol
- NIC: 100 Mbps

Hardware Requirements

Scanner

- Rated for 80 pages per minute or higher
- TWAIN or ISIS driver

Server Machines

- Processor: Pentium class 2.0 GHz processor, 2-4 CPUs (quad core)
- System memory: 2 Gbytes per CPU
- Operating system: Windows Server 2003 (64-bit) or Windows Server 2008 (64-bit)
- Server dedicated to document/data capture processing
- Server dedicated to workflow server (if not going with FINET workflow, otherwise use current FINET servers) with IIS
- VMWare environments: ESXi Server 3.5 or 4.0 okay
- Remote access environment: Citrix XenApp 5.0
- Storage space: Enough disk space for planned ECM image storage, on machine separate from document/data capture server machine

Client Machines

- Processor: Pentium class 1.5 GHz processor
- System memory: 1 Gbyte or more
- Operating system: Windows XP Pro, Vista, or 7

Database Support

- Supported database systems: SQL Server, Oracle, and IBM DB2

Appendices

Cost Estimates

This table provides a general idea of what a solution might cost the State:

Invoice Documents for All State Agencies	Volume Tiers		
	1,000,000	2,000,000	5,000,000
Implementation Costs			
Software			
Document capture and IDR	\$140,000	\$180,000	\$365,000
ECM (concurrent licensing)	\$35,000	\$35,000	\$35,000
Workflow (FINET)	\$0	\$0	\$0
Hardware			
Scanners	\$20,000	\$40,000	\$80,000
Client workstations	\$15,000	\$30,000	\$60,000
Servers	\$15,000	\$15,000	\$30,000
Internal IT Support			
Server and client machines setup	\$2,000	\$4,000	\$6,000
Advantage worklist configuration	\$15,000	\$15,000	\$15,000
Professional Services			
Document capture and IDR install/config/development	\$35,000	\$40,000	\$45,000
ECM install/config	\$15,000	\$15,000	\$15,000
Advantage integration	\$25,000	\$25,000	\$25,000
Training	\$5,000	\$7,500	\$10,000
Total Implementation	\$322,000	\$406,500	\$686,000
Ongoing Software and Support Costs			
Software maintenance (annual)	\$45,000	\$65,000	\$110,000
Internal IT staff (annual)	\$5,000	\$10,000	\$20,000
Total Annual	\$50,000	\$75,000	\$130,000

The amounts in the above columns are not incremental; in other words the volumes and costs of the 2 mil. invoice documents includes the 1 mil. column.

The amounts above do not include Oracle/Sybase database licenses and DTS hosting/storage/connection costs.

Discount Management

Reduce costs by taking advantage of early payment discounts

One of the primary benefits of invoice automation is the ability to shorten the invoice processing cycle to allow an organization to take advantage of early payment discounts. Based on our interviews with the different agencies there does not appear to be much focus on taking advantage of early payment discounts. When asked about early payment discounts several people referred to the fact that the state typically has 60 days to pay invoices, and that there is no real emphasis on pushing an invoice through to qualify for early payment discounts. Those interviewed did not think their vendors generally offer early payment terms, and that they just focus on processing the invoices as quickly as they can.

Based on the FY 2010 invoice information provided to Dataimage, we were unable to get an accurate measurement of the number of invoices across the state which were paid within 10 days of receipt. This would be an interesting study, if invoices are paid within 10 days the State should try to take advantage of potential early payment discounts. However, many vendors do not offer early payment terms only because such arrangements have not been put into place. If there is no incentive to pay an invoice within 10 days, then invoices should be allowed to age until the due date. Early payment discount terms of 2% 10 net 30 can result in significant cost savings, and can translate to a much higher APR than aging AP. As a simple example an invoice for \$100,000.00 would be reduced by \$2,000.00, if that same \$100,000.00 remains in the bank for an additional 50 days to collect interest at a annual rate of 1.25% the interest earned will be a little over \$200.00. In this scenario the earning potential for early payment discounts is 10x greater than that of aging AP.

The greatest challenge to efficient AP processing and discount management is the latency associated with paper invoice based processes, and lack of visibility to the AP process. In most cases it is very difficult to process AP from receipt of invoice to payment within 10 days. When asked how many days on average it takes to process their invoices we were repeatedly told 1-2 days. However after further investigation it became apparent that this estimation did not take into consideration the amount of time the invoice spends sitting on an approver's desk or being routed throughout the agency prior to arriving at the AP clerk's desk. In many cases the manual paper flow that occurs before the invoice arrives in the accounting department is a serious bottleneck to the process and there is no accurate method for them to measure the actual cycle time from receipt to payment since invoices are not date stamped when they are first received.

As the technologies recommended in this study are implemented by the state, the average invoice cycle times will be reduced and will provide the State an opportunity to pursue greater cost saving measures through early payment discount management. Front end imaging, along

with automated workflow will provide greater visibility to the entire AP process and will make invoices available to approvers in a shorter timeframe which will reduce the approval cycle. Electronic workflow will also provide prioritization queues which can automatically move invoices with discounts to the front of the processing queue, allowing approvers to focus on these items first to ensure they are approved in a timely manner and that early payment timeframes are met. Electronic workflow will also provide an assortment of tools such as alerts, escalation procedures, reminders and process auditing which will eliminate manual process bottlenecks which can result in unnecessary delays in the processing cycle.

Agency Summaries

Tax Commission

Agency	Tax Commission
AP FTE	.6
Invoice Volume (Monthly)	125

Automation Best Practices Table

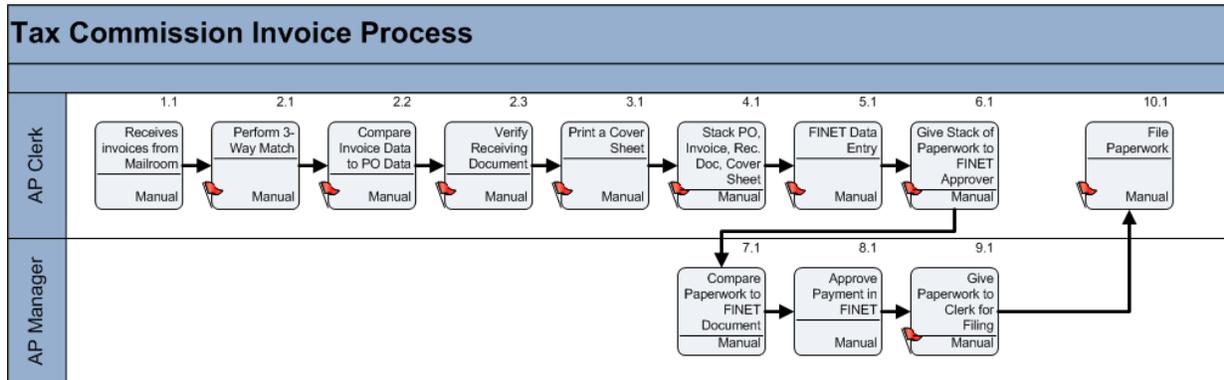
Central Invoice Receipt (vendors send to AP)	1
Front-End Scanning	0
Automated Extraction Technologies	0
Approval Workflow	0
Score	1 (out of 4)

Systems

PO System	FINET
When Do They Scan	They do not scan
Scanning Technology	
Scanner	
Electronic Repository	Hard copy filing

Process Diagram

 = Manual Process & Automation Opportunity



Notes

Utah Electronic Payables Project

Regarding policies, they have an internal document (Policy 01.00) in addition to the state's 04-00.00, and it's available on their dept intranet.

Their strict policy is they require a PO for everything that is not a P-card purchase.

Regarding FINET's PO system: She doesn't think it has as many useful reports as it should; it doesn't pull from the data warehouse like they'd like it to. But, that's all they have so it's at least satisfactory. They do not use the Receiver transaction in FINET, the receiving is hard copy. In the receiving in the warehouse, when something is received they have a logging system (Spectrum Plus, owned by Xerox), but it does not integrate/talk to AP. Jeff says it would take a lot of programming to get it to integrate with FINET. Compared to other agencies they process/handle very few receiving documents so it would have to be cheap.

They do not scan the receiving document (it either comes with or they generate one in receiving), it's 100% hard copy, they keep it with the payment filed away in a file room. Their warehouse group keeps the first three years, state archives manages the rest.

They perform 3-way matching for non-services (hard copy file on clerks desk that contains the PO printout and the Receiving document printout).

They'll never go away from paper unless scanning (what DTS charges per page that is scanned) is cheaper. If the idea is to get away from paper, they think it costs more to scan than to just use hard paper (b/c of the DTS charges).

They would be okay with a workflow, if it works monetarily.

They haven't had an issue for years of lost documents (when Finance does an audit, they just have a good record). One of the reasons she likes the hard copy system is proof of why they paid (unless it gets misfiled). She doesn't think they have ever lost anything for auditing purposes in her 22 years.

Administrative Services

Agency	Admin Services, Division of Finance
AP FTE	.15
Invoice Volume (Monthly)	25

Automation Best Practices Table

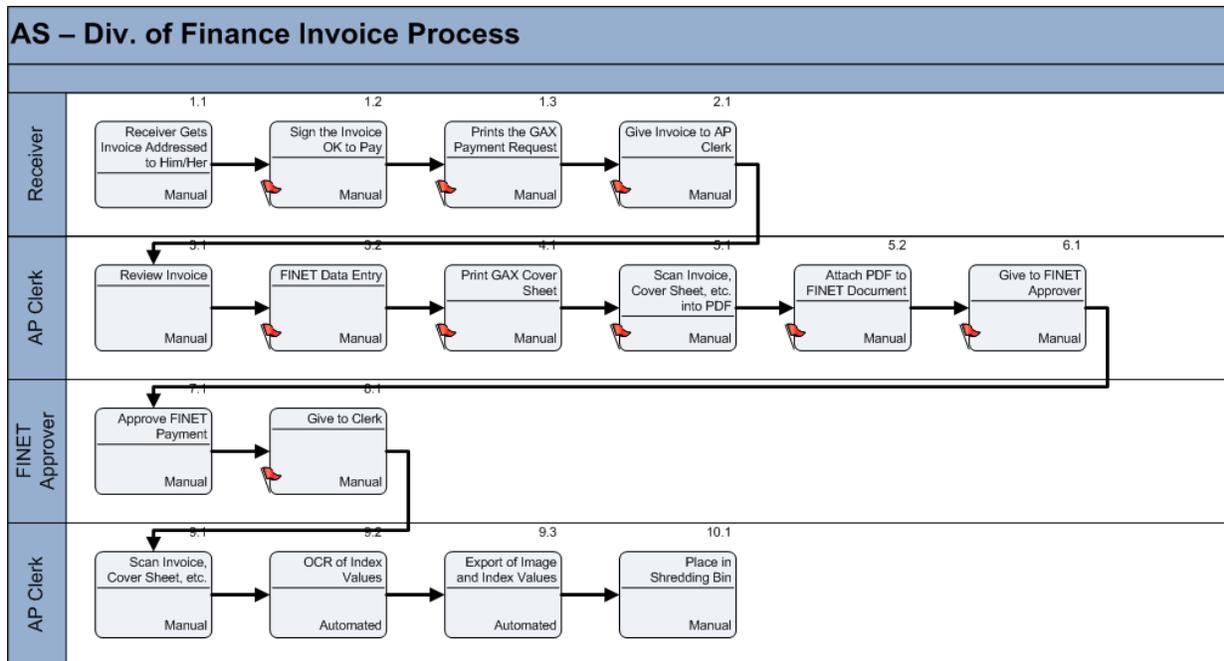
Central Invoice Receipt (vendors send to AP)	0
Front-End Scanning	0
Automated Extraction Technologies	0
Approval Workflow	0
Score	0 / 4

Systems

PO System	FINET
When Do They Scan	Both pre-payment and back-end
Scanning Technology	Attaching in FINET and Kofax 7.5
Scanner	Imagistics copier and Fujitsu desktop scanner
Electronic Repository	FINET and Content Manager

Process Diagram

 = Manual Process & Automation Opportunity



Notes

Utah Electronic Payables Project

Right now they're doing a parallel of scanning into Content Manager (after payment) and attaching into FINET (PDF).

Vendors usually put the approvers name on the invoice.

Agency	Admin Services, DFCM Construction
AP FTE	1.1
Invoice Volume (Monthly)	380

Automation Best Practices Table

Central Invoice Receipt (vendors send to AP)	0
Front-End Scanning	0
Automated Extraction Technologies	0
Approval Workflow	0
Score	0 / 4

Systems

PO System	AiM
When Do They Scan	Back-end
Scanning Technology	CapturePerfect 3.0
Scanner	Canon DR9050C
Electronic Repository	ProjectWise

Notes

CapturePerfect 3.0 scans as PDF into a folder on clerk's desktop, who then drags into the ProjectWise folder and renames the file by its GAX number. She uses patch-codes separator sheets on the scanner.

They handle two types of invoices – construction and regular.

Utah Electronic Payables Project

Construction invoices must go to the architect first before they come to the state. The invoices are sent from the contractor straight to the architect and it must be signed by the contractor and notarized before it's sent to the architect. The architect is the first signature on the invoice. The project manager also signs the invoice then sends to AP.

For construction invoices, vendors are required to submit an "Application and Certificate for Payment" downloaded from the state's website ("pay app" for short). That is the invoice for construction bills and the contractors are required to use it as the invoice. Non-construction vendors use their own invoice form.

AP clerks usually have to interpret a lot of the information on the construction invoices.

About a year ago they explored a system for automating the pay app but some contractors were opposed to it (because there was a charge per invoice) and the Attorney General's office would not sign off on it because it requires physical signatures.

Agency	Admin Services, Purchasing
AP FTE	.3
Invoice Volume (Monthly)	160

Automation Best Practices Table

Central Invoice Receipt (vendors send to AP)	1
Front-End Scanning	0
Automated Extraction Technologies	0
Approval Workflow	0
Score	1 / 4

Systems

PO System	-
When Do They Scan	Pre-payment
Scanning Technology	Saves as PDF
Scanner	Canon copier

Utah Electronic Payables Project

Electronic Repository	SQL application (local disk)
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Notes

The General Services Manager gets the mail and usually takes them to the Division of Purchasing for signatures.

They have a homegrown imaging system they call FINET Documents, on a SQL Server.

Agency	Admin Services, Fleet Operations
AP FTE	1
Invoice Volume (Monthly)	Manager didn't know

Automation Best Practices Table

Central Invoice Receipt (vendors send to AP)	1
Front-End Scanning	0
Automated Extraction Technologies	0
Approval Workflow	0
Score	1 / 4

Systems

PO System	FINET
When Do They Scan	They do not scan
Scanning Technology	
Scanner	
Electronic Repository	Paper file

Notes

They do not scan; they keep full paper trails (they stopped scanning 2 or 3 years ago). This was an internal decision. He said they were spending too much time scanning. They had to cut costs and this was an area they decided they could do without.

Technology Services

Agency	DTS
AP FTE	2.25
Invoice Volume (Monthly)	900

Automation Best Practices Table

Central Invoice Receipt (vendors send to AP)	1
Front-End Scanning	0
Automated Extraction Technologies	0
Approval Workflow	0
Score	1 / 4

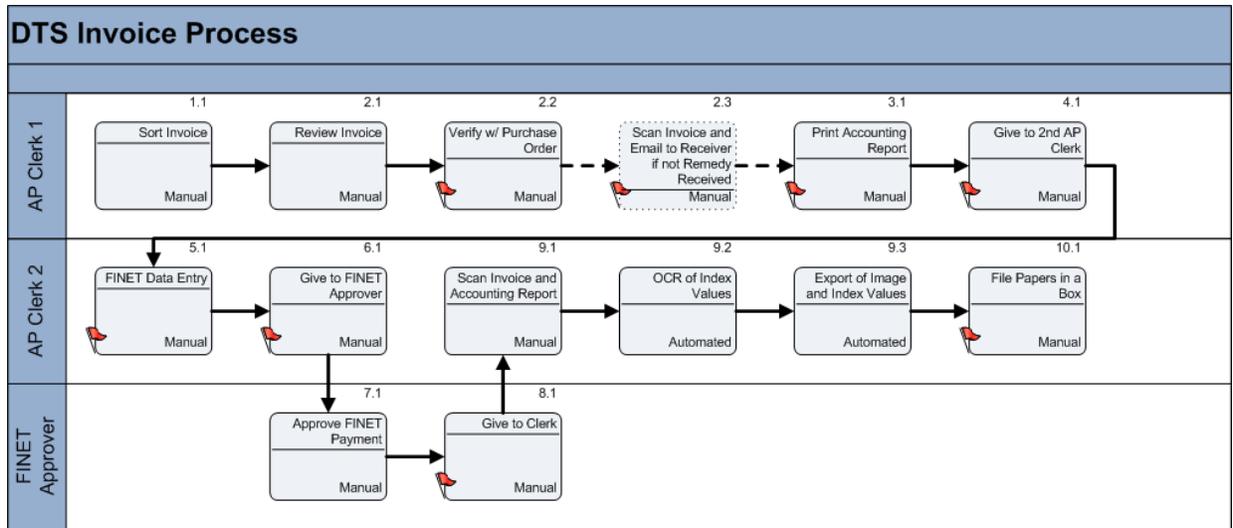
Systems

PO System	FINET and Remedy
When Do They Scan	Back-end
Scanning Technology	Kofax
Scanner	Fujitsu
Electronic Repository	Content Manager

Process Diagram

 = Manual Process & Automation Opportunity

Utah Electronic Payables Project



Notes

AP staff looks at the invoices then verifies that the PO in Remedy checks out with the invoice. If it doesn't show as received in Remedy, the tech will scan the invoice and email it to the receiver who replies back.

They have made the decision to eventually discontinue using FINET's PO system. Remedy was selected because of its PO approval capabilities.

They don't technically perform 3 way matching but would like to because of all the computers they handle.

They measure AP clerks' performance against accuracy and processing time in number of days:

Tech	Count of Invoice #s	Ave of % of invoices within 3 business days	Ave of Accuracy of Payments	Ave of % of invoices scanned within 5 business days
A	31	93.55%	96.77%	100%
B	604	100.00%	99.67%	100%
C	264	96.97%	96.21%	100%
Grand Total	899	98.89%	98.55%	100%

The tech enters date of when he/she starts working on the invoice in a spreadsheet.

Corrections

Agency	Corrections, Finance Bureau
AP FTE	6
Invoice Volume (Monthly)	2000

Automation Best Practices Table

Central Invoice Receipt (vendors send to AP)	1
Front-End Scanning	0
Automated Extraction Technologies	0
Approval Workflow	0
Score	1 / 4

Systems

PO System	FINET
When Do They Scan	Pre-payment
Scanning Technology	Save as PDF
Scanner	Multi-functional copier
Electronic Repository	FINET

Notes

They have two people in Payroll and a small portion of their job is to handle employee reimbursements.

Utah Electronic Payables Project

Agency	Corrections, Utah Correctional Industries
AP FTE	3
Invoice Volume (Monthly)	655

Automation Best Practices Table

Central Invoice Receipt (vendors send to AP)	1
Front-End Scanning	0
Automated Extraction Technologies	0
Approval Workflow	0
Score	1 / 4

Systems

PO System	Navision
When Do They Scan	They do not scan
Scanning Technology	
Scanner	
Electronic Repository	Paper file

Notes

They hard file what Navision prints and the FINET payment document.

They've had Navision since December 2006.

For PRC payments they key data into both Navision and FINET.

There is a PO for all invoices.

There is a receiving document that they fill out online in Navision.

Human Services

Agency	Human Services, Child and Family Services
AP FTE	.5
Invoice Volume (Monthly)	40

Automation Best Practices Table

Central Invoice Receipt (vendors send to AP)	0
Front-End Scanning	0
Automated Extraction Technologies	0
Approval Workflow	0
Score	0 / 4

Systems

PO System	Manual/spreadsheet
When Do They Scan	Pre-payment
Scanning Technology	Paper Port
Scanner	Fujitsu
Electronic Repository	FINET

Notes

The Accounting Technician takes care of payments for this office, and CONTRACTS for all regions. Invoices are sent to the individuals and those individuals are all over the state. Those individuals will either deliver them to her or interoffice/mail them to the accounting tech.

The invoices then come to the front desk, front desk separates the envelopes (they don't open the envelopes), and the invoices are put in the accounting tech's mailbox.

Here with their limited amount of payments that they process, it's very smooth. They have a good filing system and tracks when things come in.

They attach in FINET and keep hard copy file.

They have two systems that they make payment from – FINET and USSDS.

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USSDS is difficult to use (a very old system), one of the reasons for keeping USSDS is they fear the learning curve. They're currently trying to re-write USSDS.

Agency	Human Services, Executive Directors Operations
AP FTE	1
Invoice Volume (Monthly)	40

Automation Best Practices Table

Central Invoice Receipt (vendors send to AP)	1
Front-End Scanning	0
Automated Extraction Technologies	0
Approval Workflow	0
Score	1 / 4

Systems

PO System	-
When Do They Scan	They do not scan
Scanning Technology	
Scanner	
Electronic Repository	Hard copy filing

Notes

Invoices first go to the technician who sends them out for the receiver to approve. They don't track the date it was received, just sends it out. The invoice is sent back to the technician for entry into FINET.

Re: PO policies, this is an area that has been loose; some of their offices require them, but not all of them do.

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Agency	Human Services, Juvenile Justice Services
AP FTE	2
Invoice Volume (Monthly)	1333

Automation Best Practices Table

Central Invoice Receipt (vendors send to AP)	0
Front-End Scanning	0
Automated Extraction Technologies	0
Approval Workflow	0
Score	0 / 4

Systems

PO System	Hardcopy/spreadsheet
When Do They Scan	They do not scan
Scanning Technology	Save as PDF
Scanner	Multi-functional copier
Electronic Repository	FINET

Notes

They're a mixed bag. They have Admin located at main office, then some others around the state. Each office handles its own FINET entry.

Support Services Coordinator (SSC) approves payments. Generally the SSC is not onsite, so the office enters into FINET then sends hardcopies to the SSC office.

After the SSC approves the payment, he/she sends the paperwork back to the offices where they use State Archives (there is never any scanning).

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Agency	Human Services, Office of Recovery Services
AP FTE	.7
Invoice Volume (Monthly)	300

Automation Best Practices Table

Central Invoice Receipt (vendors send to AP)	0
Front-End Scanning	0
Automated Extraction Technologies	0
Approval Workflow	0
Score	0 / 4

Systems

PO System	They do not use a PO system, generally never use POs
When Do They Scan	Back-end
Scanning Technology	Kofax
Scanner	Canon DR-2580C
Electronic Repository	Content Manager

Notes

They are really happy with Content Manager.

They are concerned about controls (e.g., email approvals that act as a receiver approval and/or "PO" authorization).

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Agency	Human Services, Substance Abuse and Mental Health
AP FTE	1
Invoice Volume (Monthly)	125

Automation Best Practices Table

Central Invoice Receipt (vendors send to AP)	1
Front-End Scanning	0
Automated Extraction Technologies	0
Approval Workflow	0
Score	1 / 4

Systems

PO System	FINET
When Do They Scan	Back-end
Scanning Technology	Save as PDF
Scanner	Multi-functional copier
Electronic Repository	Network folder (F drive)

Notes

They decided against Content Manager because of the cost.

Natural Resources

Agency	Natural Resources, Admin
AP FTE	.3
Invoice Volume (Monthly)	93

Automation Best Practices Table

Central Invoice Receipt (vendors send to AP)	0
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Front-End Scanning	0
Automated Extraction Technologies	0
Approval Workflow	0
Score	0 / 4

Systems

PO System	Manual (PO book), warehouse uses an Access database
When Do They Scan	Pre-payment
Scanning Technology	Saves as PDF
Scanner	Canon multi-functional copier
Electronic Repository	FINET and hard copy file

Notes

They feel pretty good about their simplified system.

Agency	Natural Resources, Wildlife Resources
AP FTE	3.5
Invoice Volume (Monthly)	1540

Automation Best Practices Table

Central Invoice Receipt (vendors send to AP)	1
Front-End Scanning	0
Automated Extraction Technologies	0
Approval Workflow	0
Score	1 / 4

Systems

PO System	Manual (PO book)
When Do They Scan	Pre-payment
Scanning Technology	Saves as PDF
Scanner	Multi-functional copier

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Electronic Repository	FINET
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Notes

They've been doing this for a little while now and gone through a few audits and everything was fine and... it's been working pretty well for them.

Invoice volume in the survey (1,540) covers all 6 regional offices.

Agency	Natural Resources, Water Rights
AP FTE	.33
Invoice Volume (Monthly)	175

Automation Best Practices Table

Central Invoice Receipt (vendors send to AP)	1
Front-End Scanning	0
Automated Extraction Technologies	0
Approval Workflow	0
Score	1 / 4

Systems

PO System	-
When Do They Scan	They do not scan
Scanning Technology	
Scanner	
Electronic Repository	Hard copy file

Notes

They do not have a PO policy, they only do a PO if the vendor wants to have one. Most of their stuff is either recurring or is bought through a contract. He thinks maybe 50 POs for all of 2010.

The invoice comes to them first and stays with them. They will call or email the user. Whatever they say back in the email is the receipt. Sometimes the user will have sent in the packing slip too.

UDOT

NOTE: UDOT is split into four regions (R1 – R4) plus a “Complex” and “TOC” region. Complex handles FINET approvals for TOC. Generally all six offices handle payments the same way. Information in this report pertains to the Complex office only.

Agency	UDOT, Complex Region
AP FTE	5.8
Invoice Volume (Monthly)	1,352

Automation Best Practices Table

Central Invoice Receipt (vendors send to AP)	0
Front-End Scanning	0
Automated Extraction Technologies	0
Approval Workflow	0
Score	0 / 4

Systems

PO System	FINET
When Do They Scan	Back-end
Scanning Technology	Kofax Capture 9.0
Scanner	Fujitsu scanner
Electronic Repository	ProjectWise

Notes

They don’t technically 3-way match. For inventory payments, when their warehouse receives something, they print out the PO, mark what is received, stamp it, enter the RC into FINET, and write the RC document ID on the PO. They send the PO (with the RC info on it) and the invoice over to AP to be paid. If AP needs to check the RC, they’ve got the document ID to query with in FINET.

For invoices received from Project Managers

- Prior to the project manager sending payment request to AP via interoffice, he/she compiles the following hard copies:
 - First, the consultant sends the invoice to the PM for approval
 - PM approves the invoice by signing it
 - A summary sheet that includes
 - The month and the year
 - The project
 - The contract number
 - Basic description
 - Consultants signature

For invoices from the warehouse

- The warehouse sends the invoice to AP along with the FINET PO printed out and verification (stamped) that it's been received.

They have a vendor interface for contractor projects called ESS-Lite or EPM, which is a homegrown system, it serves as a vendor portal. Columns in the interface that the vendor sees include:

- Project #
- Description
- Pay Est. #
- Value of Work Earned
- Less Retainage
- Amount Paid
- Processed Date (this is not the paid date, the payment date will be a few days later)

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Education

Agency	Education
AP FTE	13 (more scrubbing needed)
Invoice Volume (Monthly)	(this needs to be nailed down more, so many lines)

Automation Best Practices Table

Central Invoice Receipt (vendors send to AP)	1
Front-End Scanning	.5 (depends on the group)
Automated Extraction Technologies	0
Approval Workflow	1
Score	2.5 / 4

Systems

PO System	C8 (internally developed)
When Do They Scan	Both front-end and back-end
Scanning Technology	Saving as PDF and Kofax
Scanner	MFPs and Fujitsu
Electronic Repository	BASE system (BLOBs) and EMC ApplicationXtender

Notes

Users at Education are satisfied with their custom workflow system created by their developers. They would not be able to function without it due to the number of approvals needed--up to six approvals necessary--for their invoices.

Workforce Services

Agency	Workforce Services
AP FTE	3.4

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Invoice Volume (Monthly)	1,100
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Automation Best Practices Table

Central Invoice Receipt (vendors send to AP)	1
Front-End Scanning	1
Automated Extraction Technologies	0
Approval Workflow	1
Score	3 / 4

Systems

PO System	FINET
When Do They Scan	Front-end
Scanning Technology	Avaflow Capture
Scanner	Fujitsu scanner
Electronic Repository	Content Manager

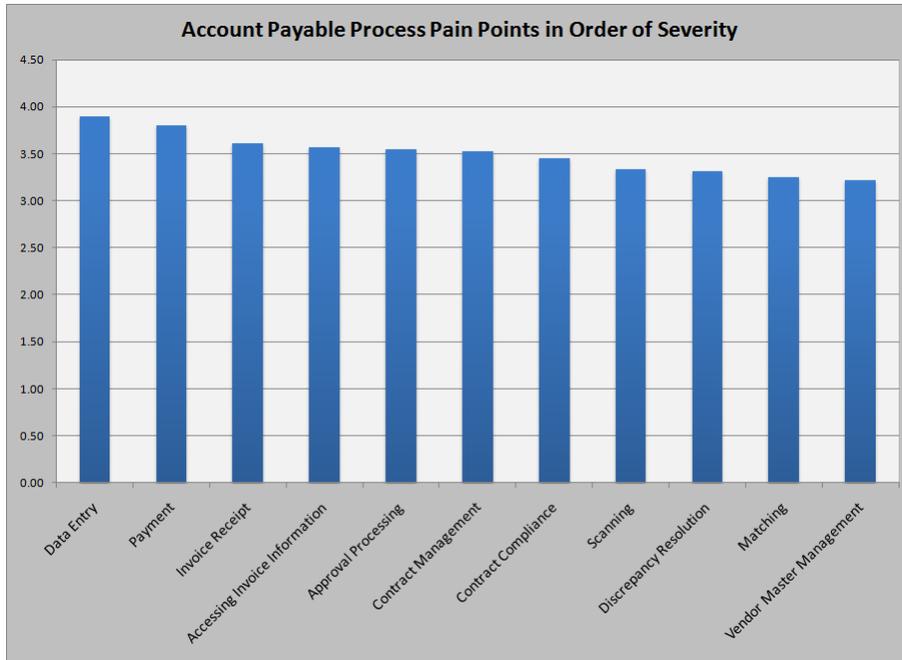
Notes

They really like Content Manager.

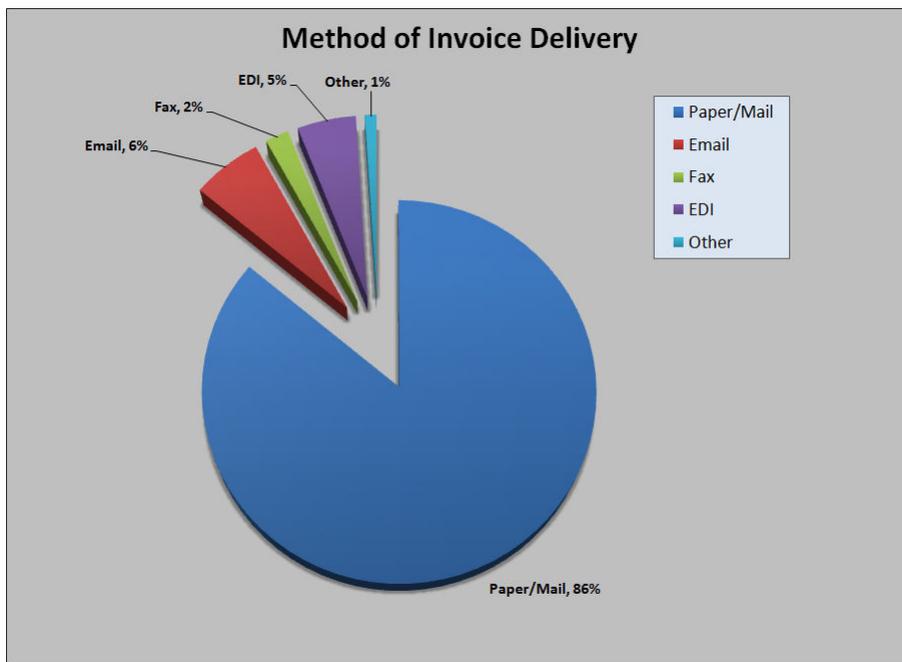
They really like Avaflow because they remember how painful data entry into FINET used to be.

Summary of Surveys

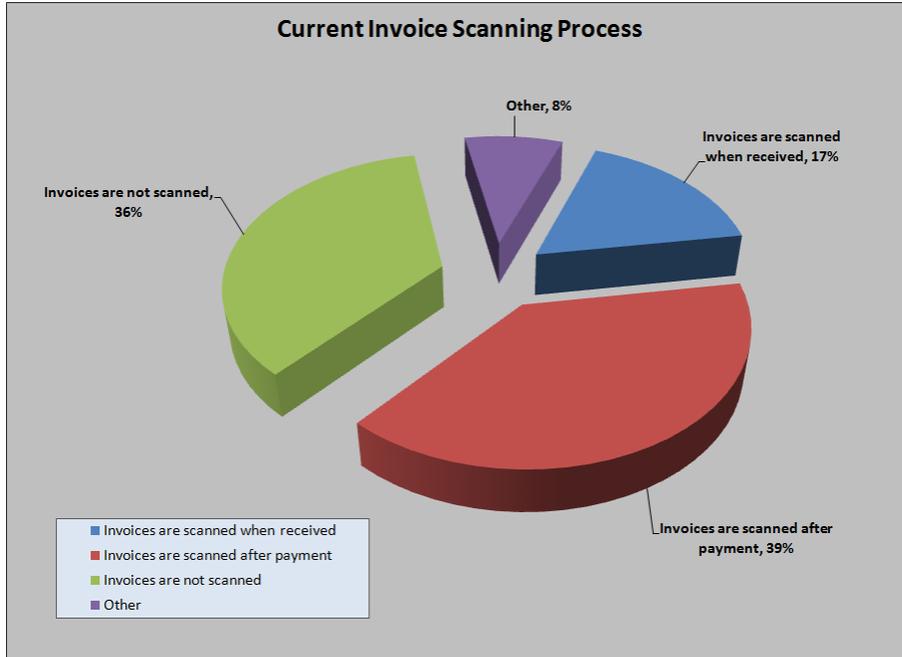
Question: Rate the pain level these activities are causing your AP department (Scale: 1-5)



Question: How are invoices currently received?

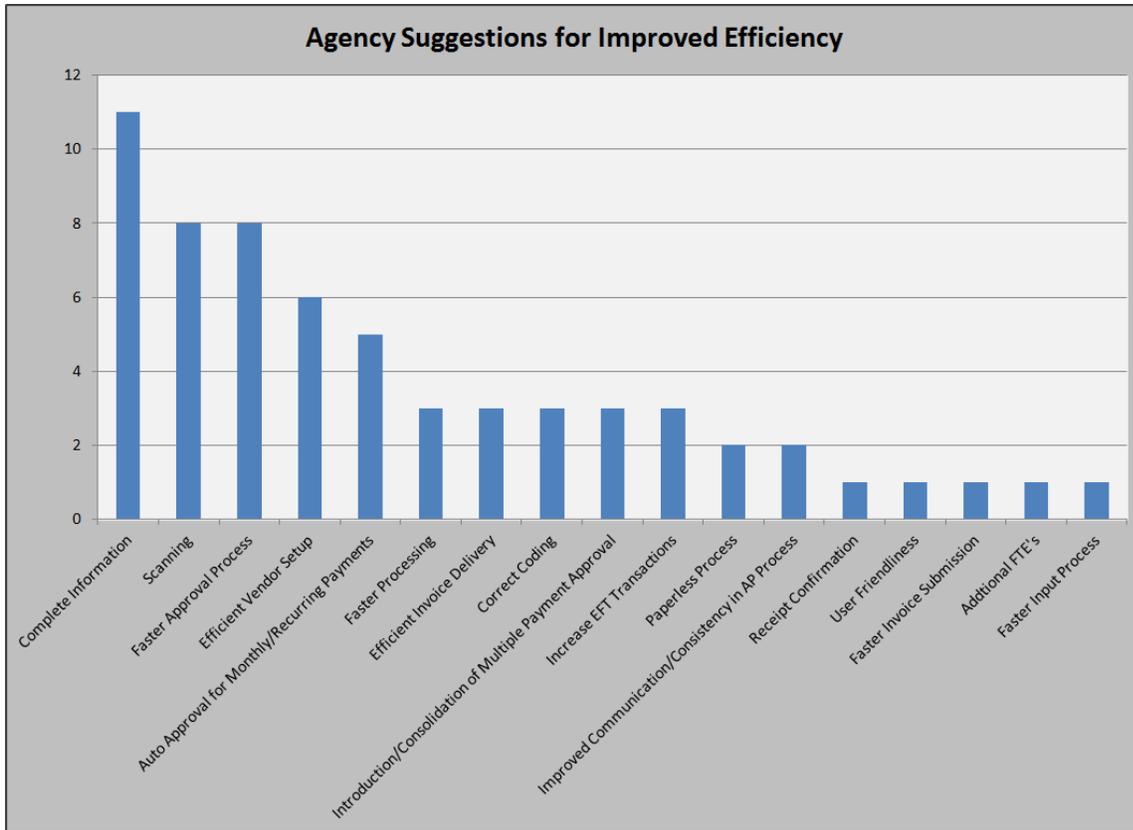


Question: How do you currently image/digitize invoices?



Question: What are some things that would make your current invoice processing more efficient?

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Glossary

Capture: Capture primarily involves accepting and processing images of paper documents from scanners or multifunction printers. Optical character recognition (OCR) software is often used, whether integrated into the hardware or as stand-alone software, in order to convert digital images into machine readable text. Optical mark recognition (OMR) software is sometimes used to extract values of check-boxes or bubbles. Capture may also involve accepting electronic documents and other computer-based files. Invoice processing introduces a different level of complexity in that invoices look very different from vendor to vendor, and intelligent data recognition (“IDR”) is the enhanced technology for invoices, leveraging invoice knowledge bases and learning systems to improve process efficiency.

Document imaging: is an information technology category for systems capable of replicating documents commonly used in business. Document imaging is used to describe software-based computer systems that capture, store and reprint images.

Document scanning: is the action or process of converting text and graphic paper documents or other files to digital images. This "analog" to "digital" conversion process is required for computer users to be able to view electronic files.

Electronic Content Management System (ECM): is a computer system (or set of computer programs) used to track and store electronic documents and/or images of paper documents.

Integration: Many content/document management systems attempt to integrate document management directly into other applications, so that users may retrieve existing documents directly from the document management system repository, make changes, and save the changed document back to the repository as a new version, all without leaving the application. Such integration is commonly available for office suites and e-mail or collaboration/groupware software.

Indexing: Indexing may be as simple as keeping track of unique document identifiers; but often it takes a more complex form, providing classification through the documents' metadata or even through word indexes extracted from the documents' contents.

Metadata: is identifying data used to identify stored documents in an electronic content management system (ECM). Metadata is typically stored for each document. Metadata may, for example, include the date the document was stored and the identity of the user storing it. The capture system may also extract metadata from the document automatically or prompt the user to add metadata. Some systems also use optical character recognition on scanned images, or perform text extraction on electronic documents. The resulting extracted text can be used to assist users in locating documents by identifying probable keywords or providing for full text

search capability, or can be used on its own. Extracted text can also be stored as a component of metadata, stored with the image, or separately as a source for searching document collections.

Retrieval: Although the notion of retrieving a particular document is simple, retrieval in the electronic context can be quite complex and powerful. Simple retrieval of individual documents can be supported by allowing the user to specify the unique document identifier, and having the system use the basic index (or a non-indexed query on its data store) to retrieve the document. More flexible retrieval allows the user to specify partial search terms involving the document identifier and/or parts of the expected metadata. This would typically return a list of documents which match the user's search terms. Some systems provide the capability to specify a Boolean expression containing multiple keywords or example phrases expected to exist within the documents' contents. The retrieval for this kind of query may be supported by previously built indexes, or may perform more time-consuming searches through the documents' contents to return a list of the potentially relevant documents.

Storage: Storage of the documents often includes management of those same documents; where they are stored, for how long, migration of the documents from one storage media to another and eventual document destruction.

Workflow: Workflow can be complex and some document management systems have a built-in workflow module. There are different types of workflow. Usage depends on the environment the electronic content management system (ECM) is applied to. Manual workflow requires a user to view the document and decide who to send it to. Rules-based workflow allows an administrator to create a rule that dictates the flow of the document through an organization: for instance, an invoice passes through an approval process and then is routed to the accounts-payable department. Dynamic rules allow for branches to be created in a workflow process. A simple example would be to enter an invoice amount and if the amount is lower than a certain set amount, it follows different routes through the organization. Advanced workflow mechanisms can manipulate content or signal external processes while these rules are in effect.

About Dataimage

Headquartered in Salt Lake City, Utah, Dataimage offers over 25 years experience as one of the leading providers of document management solutions in the Western United States. Dataimage is an approved vendor on the State of Utah's MC1015 Master Contract for Consulting Contracting Services.