

MAXIMIZING THE THREE-WAY MATCH

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Maximizing the Three Way Match

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Executive Summary

Departments and agencies throughout the State of Ohio are tasked with being good stewards of the taxpayers' money. Increasing efficiency and decreasing costs of accounting processes are two things that fiscal departments can do to assist in this mission. Match Makers has chosen to examine one of the most time consuming and costly processes in accounting, accounts payable. Specifically we examined the three-way match process which is the matching of the purchase order, invoice and receiving report.

The three-way match process is performed differently throughout the state and so we have examined the numerous ways currently utilized by different state agencies. Our group consists of members from five different agencies and we quickly discovered that none of our agencies performed the three-way match process the same way. There is an automated process available through OSS and OAKS, however, only three agencies are utilizing this method. We reached out to other agencies through a survey and then by conducting interviews with Subject Matter Experts (SMEs) to obtain a better understanding of why agencies were not using the automated method.

We discovered that each agency has its own unique needs and processes with regard to three-way match. We also learned that there were multiple reasons why agencies do not use the automated method available through OAKS. We quickly realized that there would not be a "one size fits all" solution.

Match Makers recommends four solutions to assist agencies in increasing efficiency and lowering the cost of performing the three-way match. It is doubtful that agencies could completely automate this process however; the use of one or a combination of the following suggestions would be beneficial. The first recommendation is a cost benefit feasibility study on utilizing available technology, such as optical character recognition in conjunction with OAKS. The second recommendation is the utilization of a program that can be interfaced with OAKS. This option is for agencies that have an inventory management system. The third recommendation is the need for more training on the current OAKS automated process. There appears to be a lack of awareness of this process in agencies throughout the state. The final recommendation is the recently introduced E-Settlement process. In this process, suppliers enter their own invoices into OAKS. While still in the early phase, this seems to be an alternative that would appeal to both suppliers and agencies.

The implementation of these suggestions can assist agencies in becoming more efficient and decrease costs when processing accounts payable. Improvements in processes allow more funds to be used by each agency in carrying out its mission for the residents of the State of Ohio.

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Introduction – Problem Statement

The accounts payable function is the most labor intensive of all accounting functions, which makes it an excellent source for cost savings. Manual three-way match is a large portion of the accounts payable workflow. Automation of three-way match is a way to reduce labor cost, reduce missed discounts, improve prompt payments, and reduce errors; yet state agencies have been slow to adopt this technology. Our project will address the current utilization of three-way match processes throughout a variety of state agencies including centralized processing offered through Ohio Shared Services. We plan to evaluate the strengths and weaknesses of those processes, identify the barriers agencies perceive to utilizing the three-way match, and to evaluate current and innovative technology driven systems or processes that provide for the automation of three-way match. After reviewing the data collected and reviewing the perspectives from fiscal practitioners throughout state agencies, we will propose solutions to optimize automated accounts payable processes that would provide more efficient and cost-effective accounting control processes.

Background

As the name suggests, three-way match denotes the matching of three documents. The three-way match is a payment verification method used when processing an invoice received from a vendor. The purpose of the three-way match is to avoid incorrect or fraudulent payments (Averkamp).

To carry out the match the purchase order, receiving report and invoice are compared to one another. Accounts payable compares the invoice received from the supplier to the quantity on the receiving report and the quantity, price and terms of the purchase order (Bragg). When everything agrees or “matches” then the invoice can be paid.

While three-way match has been identified as a best practice, the burden of the labor necessary to accommodate needed to be overcome. The introduction of optical scanning equipment, predefined invoices and receiving forms, Enterprise Resource Planning (ERP) systems that can reconcile receiver documents, purchase orders, and invoices has addressed the labor weakness. An example of a technological solution is the “COR360” that presents a solution to “reduce invoice processing times by 70% with invoice matching software (Corcentric). This will automatically route matched invoices to the company’s ERP or AP system, thereby eliminating the need for processor involvement.” The COR360 is one of many system solutions that blends optical character recognition technology or Intelligent Character recognition with ERP systems to meet the best practice objective of three-way match without the labor burden.

Rich Winning, Chief Financial Officer of Ohio Department of Transportation, suggested the topic of three-way match as a Capstone project to one of the members of the Matchmakers team. Our group consists of members from Ohio Department of Transportation (ODOT), Ohio Public Defender’s Office (OPD), Ohio Department of Developmental Disabilities (DODD), Ohio Department of Mental Health (DMH), and Ohio Department of Veterans Services (DVS). Within

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our group, one department uses three-way match for some purchases using Ohio Shared Services (OSS)

and OAKS, one agency performs the three-way match outside of the OAKS system, one agency does not use OAKS and two agencies which use OAKS but do not use the automated three-way match process . We realized that this topic lent itself to further research.

Only two of the 28 agencies and departments who use OSS have fully adopted the use of three-way match using OAKS. This topic is also on OBM's Financial Management Workgroup list of projects, but is currently on hold.

Research Strategies

Research for the project was conducted using three methodologies: Survey/Questionnaire, Subject Matter Expert Interviews, and document review and professional publications. Each of the methods was chosen for its ability to reach a wide range of stakeholders, provide targeted information about current processes, or to enhance understanding of opportunities to improve efficiency of current practices. The design and objective of each type of research is described below, while findings and analysis are provided in later sections of the paper.

Survey

The survey consisted of six questions regarding current utilization of three-way match processes by state agencies. The team decided to use an electronic survey to gather information because an electronic survey allowed the survey to be distributed quickly to a large pool of respondents. In an attempt to gather information from a diverse sample of state agencies, the survey was directed to employees from different functional areas of fiscal offices. In recognition that the size of a state agency and the structure of a fiscal office (centralized or decentralized) can affect the effectiveness of a three-way match process, the survey was distributed to representatives of a wide range of state agencies.

The first purpose of the survey was to identify state agencies currently utilizing a three-way match process for payment processing, determine how many of these three-way match processes are automated, and establish which of these state agencies utilize Ohio Shared Services three-way match processing. The survey also asked respondents to identify any perceived barriers and any benefits to utilizing three-way match in OAKS.

The survey questions were as follows:

1. Does your Agency or Department utilize electronic three-way match with OSS?
Yes or No
2. Does your Agency or Department utilize three-way match in OAKS without OSS involvement? Yes or No
3. Does your Agency or Department utilize a different system besides OAKS to achieve an electronic three-way match? Yes or No
4. If you use another system, what is the name of the system utilized for three-way match?

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5. What are the barriers, if any, in utilizing three-way match in OAKS?
6. What are the benefits, if any, in using three-way match in OAKS?

Subject Matter Experts

Subject matter experts (SMEs) were chosen as key informants. The goal of the SME interviews was to identify current and best practices related to utilization of three-way match, to identify and explore barriers to utilization, and to identify opportunities for expansion, adoption, or improvement of three-way match processes in state government. Representatives from the Ohio Department of Transportation, Department of Public Safety, Opportunities for Ohioans with Disabilities, and the Department of Mental Health were selected based on the fact that they have, currently are, or are considering utilizing some form of automated three-way match in their account payable process. Additionally, representatives from Ohio Shared Services and the Office of Budget and Management were interviewed for their expertise on the history of three-way match utilization by state agencies and on future opportunities for expansion of automated three-way matching.

Academic Research

Review of professional publications was incorporated into the research in order to assess the strengths and weaknesses of current best practices from private industry. Additionally, this outside research was used to gather information about innovative technology-driven systems or processes available for automated accounts payable processes. These best practices and innovation opportunities were then used to develop proposed solutions for optimizing the utilization of automated three-way match process by state agencies.

Findings

Survey Results

As mentioned above, a six-question survey was sent to a variety of fiscal employees from a variety of agencies. The survey was first sent out to 109 people and we received fourteen responses. The response was lower than anticipated. We received feedback that the survey may not have reached enough people and did not explain the background or purpose of the survey. A second survey was sent to 148 people and we received 22 responses. This survey was sent out from the Ohio Fiscal Academy's email address and did include an explanation that this was a capstone project. The response was once again very low and several of the respondents commented that they did not know what the term three-way match meant. It was apparent from the poor responses and the comments that we should have included the definition of the three-way match in the introduction of the survey.

Subject Matter Expert Interviews

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Match Makers conducted interviews with several SMEs, the first being John Palermini, Business Operations Lead Ohio Shared Services. John provided a great deal of data on the utilization of the automated three-way match process in OAKS.

According to John Palermini, prior to the OAKS FIN 9.2 upgrade we had much greater success with the three-way match. The OAKS FIN 9.2 upgrade caused a major bug that, to his knowledge, has not yet been fixed and is limiting the success of the three-way match function.

Since October 2009, OSS has heavily pushed the use of receipts using the receiving module in OAKS as an efficient method for agencies to use the three-way match in OAKS. There are a number of benefits to using the receiving module, including:

- as long as the receipt, invoice, and purchase order match up the agency does not have to physically approve a voucher
- creating a receipt is easy and takes just a few short steps.
- the ability to create partial receipts.
- the Receiving Module ties into the Asset Management module, which can help agencies to better track their assets.
- multiple receipts can be used on one voucher. This allows agencies to create weekly receipts but still use a monthly invoice. OSS just pulls in the number of receipts that match the invoice.

Only two agencies have fully adopted the use of three-way match in OAKS (DAS & BWC). Other agencies are dabbling in the process, but not on the scale as DAS & BWC. The Department of Health most recently has revisited their position on three-way match and are exploring reengineering their internal processes, which would allow them to take better advantage of the functionality.

Ohio Shared Services believes that the following issues have created problems in agency adoption of the automated three-way match process:

1. Agency must know the amount of the invoice in order to create a receipt
2. Purchase order has to be set up properly according to how the vendor bills
3. Granting staff access to receiving module
4. OSS associates making errors when matching receipts to invoice

During the interview, OAKS system issues with three-way match were discussed. According to OSS, the biggest system issue prior to the OAKS FIN 9.2 upgrade is in the length of the decimals in the receiving module do not match the length of decimals in accounts payable module. This could (and did) lead to rounding issues that caused the receipt to not match the invoice. The discrepancy was on average .01 or .02 cents. State Accounting finally agreed to pay the additional pennies if the difference was truly a rounding issue. This issue was most encountered with personal service contracts, because the vendor timekeeping system was slightly different from the state timekeeping system. BWC actually worked with their vendors

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either to synchronize their system with OAKS or to round the invoice to match OAKS. The biggest system issue post 9.2 upgrade is the system now allows the same receipt to be used multiple times.

The next SMEs interviewed were John George, Shared Services Associate, Barbara Boggs, Business Transformation Analyst and Diane Hare, Business Transformation Analyst of OSS. This interview also included a demonstration of the receiving module in OAKS by Kelli Whalen, Business Administrator 3 of the Ohio Department of Public Safety. We discussed the use of the receiving module in OAKS with the OSS staff and they indicated that the error rate for this process is approximately 1-2%. When using this process, invoices may be overpaid or underpaid if the associated PO was set up by quantity rather than dollar amount. The system allows for rounding errors and this is not acceptable for agencies with federal funding who must pay invoices to the penny. OSS has tried to use optical character recognition at two different times in the past. It did not meet expectations, as the error rate was almost as high as the manual processing rate.

Kelli Whalen of DPS gave us a demonstration of the receiving process in OAKS. The process was shown for creating a receipt by amount and creating a receipt by quantity. DPS has centralized the receiving process by having the purchasing person (located in the Columbus central office) who entered the PO obtain the receipt and enter it into OAKS. DPS has locations in all 88 counties and decided not to have these employees enter the receipts.

Ms. Whalen also pointed out some of the limitations of this system in OAKS. Issues occur when no packing slip is received or the receiver does not match the invoice. If the receiver does not match, the transaction is rejected back to the vendor without a clear reason. Fiscal then sends the invoice back to purchasing to resolve the issue. Another issue is that one receipt cannot be matched to two invoices. Another issue is that there is not inventory management module in OAKS, which would be very useful to agencies with inventory. This causes the need for an additional system to track inventory. The last impediment mentioned by Ms. Whalen is that suppliers must have the correct information on invoices i.e. PO number. Missing or incorrect information will cause the transaction to be approved manually.

Match Makers interviewed Therese Dyer, CFO of Opportunities for Ohioans with Disabilities (OOD). Ms. Dyer commented that the three-way match in OAKS was not useful because it was not tied to an inventory item. Consumables cannot be tracked through OAKS so receiving the item through OAKS does not produce any value. Ms. Dyer also stated that a true three-way match requires different individuals to enter the purchase order and receipt. Segregation of duties is critical to prevent fraud when utilizing the automated three-way match capabilities in OAKS. Ms. Dyer recommended E-settlement as an alternative to three-way match.

Also interviewed were Scott Ferguson, Matt Jeffers, Jessica Sipp-Johnson, and Duane Casto of Ohio Department of Mental Health (DMH). DMH has many personal service contracts, which often have invoices for the same amount (monthly or weekly). Their number one concern is that when there are multiple receipts for the same supplier and the same amount, the correct receipt

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is not necessarily being selected by OSS. This causes reconciliation issues. DMH would like to see OSS select the correct receipt when processing invoices.

Bridget Brubeck, Assistant Deputy Director of Ohio Business Management (OBM) was interviewed to explain the new E-Settlement process in OAKS. In this process, the supplier enters their invoice directly into OAKS rather than send to OSS or the agency. Invoices entered using this method are processed as due now and the supplier can see the status of the invoice and payment. If the receipt is entered into OAKS before, the voucher is built then no approval will be required from the agency, otherwise the voucher will appear on the worklist for agency approval. DPS and OOD have started to use E-Settlement and OBM is working closely with them and the suppliers who have started using this process. This process is still in an early stage but Ms. Brubeck is hopeful that its use will increase.

Barriers

Perceptions

From the electronic survey the most common response to the question, "What are the barriers to three-way match?" was loss of control in approving the invoice. This perception among fiscal staff of handing over invoice control to a centralized processing group and letting it go through OAKS without any approvals before payment was met with a resounding negative response. In current manual three-way match processes, the invoice drives the accounts payable workflow. If the invoice or the approval is removed a "Who moved my cheese?" reaction is inevitable (Johnson).

Internal processes would need to be adjusted in agencies so that the purchase order and receipt are driving the accounts payable function rather than the invoice. If the purchase order is correct and the receipt is entered accurately, the invoice should not need approval when matched. Approving an invoice that matches the purchase order and receipt would not add value but only extra cost to the process. All invoices that do not match the purchase order and receipt are placed on an exceptions page by OSS for agencies to address the mismatch. An invoice will not be paid if it does not match what an agency entered into the purchase order and receipt. The perception of losing control is just that, a perception. The control is still there but it has moved from the invoice to a purchase order and receipt.

Another barrier mentioned by agencies was having non-fiscal staff entering in receipts into OAKS inaccurately. There is a concern invoices would be over paid with wrong receipt information entered in by staff that do not have accounting experience. This is a valid concern and non-fiscal staff would have to be trained properly to avoid this pitfall in three-way match. Another alternative is to have fiscal staff enter in the receipt information into OAKS after the non-fiscal staff has checked in the product. The receiving function in OAKS is a simple three-step process and does not require much labor time but if done improperly invoices will be paid inappropriately.

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Inventory

There is a barrier to the three-way match in OAKS, as it does not keep track of consumable inventory. Since the OAKS system does not track consumable inventory, agencies need to enter their inventory in to another system to track the inventory. This creates double entry.

Each state agency manages their consumables differently. Agencies use their own stock numbers. These numbers go into the inventory system and are used to create a purchase order. Agencies place orders based on what items they stock. When they use these items, the inventory system reduces the inventory so that they know to order more. When the items are received and validated, the invoice can be paid and the inventory for that item is adjusted by the amount received.

An agency's stock numbers do not translate to the OAKS account codes. To create the PO multiple stock numbers would line up with one account code so the PO would need to allow multiple lines for one account code. Each item ordered needs to be on a catalog contract. The OAKS system would need a list of part codes from every vendor for every part code on the contract for every state agency. If all of the part codes for all state agencies were added to OAKS, there would be millions of part codes. A system would need to be created to map all of the part codes to an account line item.

DMH uses an inventory management system that incorporates a three-way match within its functionality and the resultant matched receipts with an approved PO and supplier invoice are subsequently interfaced with OAKS.

The exact price for some consumable items is not known at the time the PO is created and sometimes not even when item is received. OAKS would need to allow the PO price to be adjusted even after the item is received.

Consumable inventory would need to be cross-referenced to the OAKS system so the agencies could track their inventory in OAKS. This would eliminate double entry. In order to replace the inventory systems that agencies currently use OAKS would need the following capabilities. In addition, when the stock code ordered is not available the system would need to allow for substitute parts.

Another feature OAKS would need to have is the ability to update the inventory not only when stock is received through a PO but also when consumable inventory is received using a pay card. A manual adjustment would need to be permitted to adjust the inventory when items are purchased using a pay card.

OAKS would also need the ability to update inventory quantity when the items are consumed. When inventory is used for a specific job, it would need to be tracked so that the job can be charged for the items used. The implementation of a work order inventory management system would allocate the consumable items to individual jobs.

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Cost

Both survey results and SME interviews mentioned that the cost savings that a centralized three-way match system promise, have not been realized. There are a number of reasons for this, including the need to still maintain staff to complete the upfront accounting/purchasing processes, such as the pre-processing forms, and staff to make corrections for any process errors. Additionally, the high per-transaction cost that OSS currently charges was cited by several agencies. Smaller agencies seem to be impacted by the cost barrier more than large agencies. Often times accounts payable or voucher, processing is only one aspect of an employees' duties at a smaller agency, and therefore, outsourcing the voucher process to a centralized agency does not necessarily lead to a reduction in staff or payroll costs for the implementing agency. So adding a per-voucher cost actually leads to an increase in overall costs.

As noted in a benchmarking study by David Hay for the Accounts Payable Network, one of the largest variables affecting the effectiveness and efficiency of an automated three-way match system is scalability. Generally, the larger the organization, the lower the cost per invoice. In a sample of private organizations from different industries, the study found the median total cost to process an invoice was \$5.00. So for smaller state agencies, per-transaction costs can be expected to be much higher. The main driver in these costs is the need for manual intervention. Research indicates that labor costs typically make up 62% of total account payable cost (APQC). Until agencies can identify an effective way to reduce the need for manual intervention in the account payable process, many agencies do not anticipate being able to realize any cost savings. Moving to a truly automated or digitized electronic invoice processing system offers some promise, however the upfront costs of building or implementing this type of technology may be prohibitive.

Conclusion

During the course of our review of practices utilized by agencies, large and small, it was apparent that there was a significant disparity in the ways that any matching methodology was employed. Agency utilization of a three-way match ranged from a lack of awareness that three-way match was a methodology to a full implementation of a three-way match. While the methodology varied depending on the resources available, an effort to ensure that supplier vouchers were paid in an efficient manner was in place.

The effort of this research was to propose an optimization of three-way match, which would result in more efficient processing, yielding less errors while using reduced workforce and less cost. The automation of the fundamental accounting process would require several steps before a full three-way could be achieved. While Ohio Shared Services has made a process of receipt processing available, lack of understanding of three-way matching and an efficient process to facilitate that process has made the use of the three-way match less than optimal.

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Recommendations

Our research into this topic has resulted in several recommendations. Our goal was to introduce a solution that was not a “one size fits all” approach but a scalable solution that would meet the needs and resources of all state agencies.

One recommendation would be a cost-benefit feasibility study on the incorporation of a three-way match that utilizes currently available technology.

Among the benefits of utilizing current OCR and ERP technology with three-way matching is the improvement in payment accuracy, the reduction of fraud, elimination of keystroke errors, adherence to contract terms, timely processing, and without burdensome labor costs. An additional benefit is the archival of documentation of approval to purchase, the proper acknowledgement of receipt and a properly prepared invoice to pay from for any audit purposes. Proper management of tolerance levels and procurement practices for smaller purchases should ensure an efficient procure to pay system. Match rates can be monitored over time for various adjustments to the system depending on the changes in volume over the business lifetime.

The second recommendation is the utilization of a program that can be interfaced with OAKS. Some agencies, such as DMH, have had success in using an inventory management system that incorporates the three-way match. In this inventory management system, receipts are scanned into the system, subsequent to verifying item and quantity. The information is integrated with accounts payable, where receipts are matched against purchase orders. Any exceptions are researched, resolved, and corrected in the accounts payable process. Matched vouchers are interfaced into OAKS daily, referencing OAKS POs and other OAKS required fields.

The third recommendation is the need for more training on OAKS automated three-way match capabilities. The results of the survey presented to fiscal practitioners revealed the lack of knowledge concerning three-way match processes and utilizing OAKS automated process. Numerous survey respondents asked, “What is three-way match?” State accounting should develop a training program on three-way match processes and evaluate each agency’s accounts payable structure to incorporate match automation.

The final recommendation is the use of the E-Settlement process. While it is still in early stages, E-Settlement appears to be beneficial not only to state agencies but to suppliers as well. This is a viable alternative to agencies receiving invoices from suppliers, filling out a pre-processing form and emailing both forms to OSS. This would definitely decrease time and wage costs for agencies. It also eliminates invoices being processed through OSS, which means there would be no fee from OSS. The benefits to suppliers are faster payment and the ability to monitor invoice and payment status. At the August 23, 2017 CFO Meeting, Bridget Brubeck announced that each agency will be asked to submit a supplier to participate in the E-Settlement process. Ms. Brubeck stated that this process will be beneficial to smaller, “mom and pop” suppliers and

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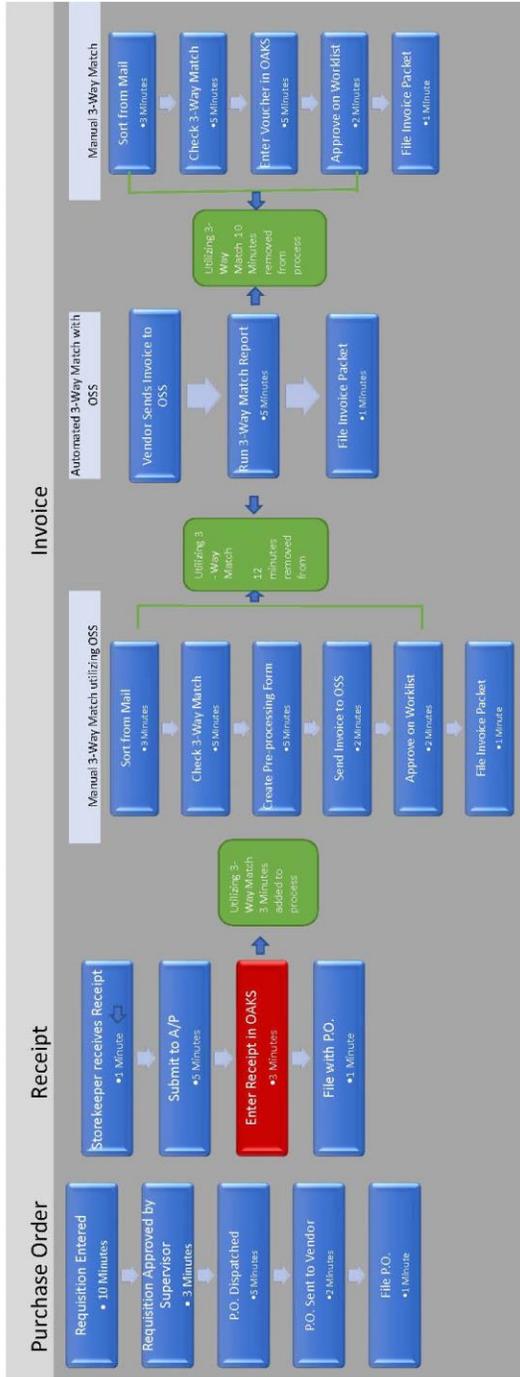
to suppliers who have the capability of uploading an XLM file into OAKS. Large, national suppliers will most likely not have interest in this process.

There is no one size fits all solution in the various technological based systems. The ultimate objective is to devise a process where the three-way match is optimized using the available technology to yield the results of accuracy and timeliness without burdening limited personnel and remain cost effective. Match Makers believes that a combination of the solutions offered may be the best solution for the State of Ohio and its agencies.

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Appendix A

Three-way Match Value Map



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References

Works Cited

APQC. "The Payoff of Electronic Payables Processing." https://www.apqc.org/knowledge-base/download/348765/K06082_Accounts%20Payable%20Process%20Cost%20per%20Invoice%20Processed.pdf. Accessed May 2017.

Averkamp, Harold. "What is the three-way match?" Accounting Coach. www.accountingcoach.com. Accessed May 2017.

Bragg, Steven. "Three-way matching." Accounting Tools. www.accountingtools.com. Accessed May 2017.

Corcentric. "Accounts Payable Invoice Processing." www.corcentric.com. Accessed 28 August 2017.

Hay, David. "Key Accounts Payable Benchmarks: Throughput, Cost and Automation." The Accounts Payable Network. <http://www.kofax.com/downloads/reports/rr-key-accounts-payable-benchmarks-en.pdf>. Accessed May 2017.

Johnson, Spencer. *Who Moved My Cheese?: An A-Mazing Way to Deal with Change in Your Work and in Your Life*. New York: Penguin Publishing Group, 1998. Print.