End-To-End Invoice Processing Automation at Land O'Lakes

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1 Abstract

This white paper details the success that Land O'Lakes is having with their automated invoice processing system termed Fusion. By leveraging Oracle WebCenter Imaging and Business Process Management (BPM) Suite 11g, Land O' Lakes has been able to standardize their accounts payable (AP) invoice process and reduce the amount of manual steps inherent in the old paper-driven invoice process, expediting reviews and approvals through robust workflow. With the help of by leveraging Oracle WebCenter Partner Fishbowl Solutions, Land O' Lakes has realized an end-to-end invoice processing system that has increased efficiency, reduced costs, and enhanced visibility into overall process.

2 Target Audience

This white paper is intended for accounts payable managers and operators that are looking to understand the benefits of an image-enabled business process. It provides use case detail from Land O' Lakes on the challenges of a paper-based invoice processing system, and how Oracle provides an integrated solution to reduce paper from the process and automate the manual steps. It should also be read by Oracle WebCenter administrators and power users, as well as JD Edwards and other Oracle ERP IT staff, to understand how the various pieces of end-to-end invoice processing system come together to automate invoice processing – all based on Oracle technologies.

3 Introduction – Executive Overview

On the farm and in the market, Land O' Lakes is providing America's farmers, ranchers and consumers with quality products and services since 1921. Land O' Lakes is a growing company with a rich history of serving America's farmers and marketing America's favorite dairy products. Today, this farmer-owned cooperative extends its reach from coast-to-coast and to more than 50 countries worldwide. As Land O' Lakes continues to grow the need for manageable accounting, efficient process, and timely payments on invoices also expands.

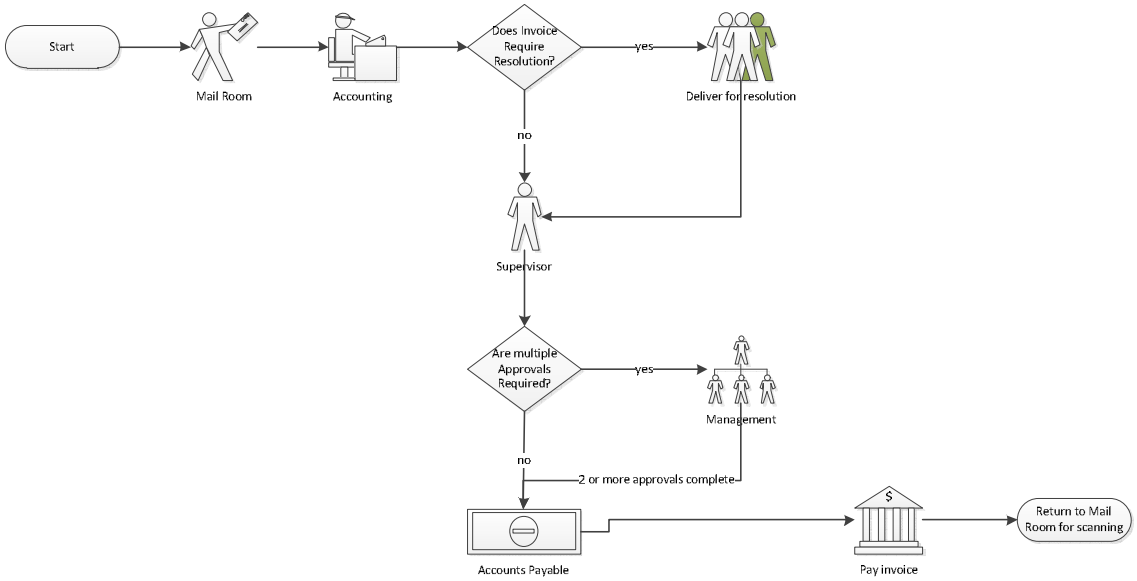
Land O' Lakes teamed with Fishbowl Solutions to develop an automated accounts payable imaging solution which would replace their current manual paper accounts payable process. Process re-engineering took place to design a solution that would incorporate various Oracle technologies which work together to allow for a process that is efficient, electronic, and allows for growth of the company and process.

4 Business Case

Land O' Lakes, like many companies, manages their accounts payable with a paper invoicing process. Efficiency in the process was lacking, and with Land O' Lakes' continuous growth across multiple business units, it was crucial to find a more efficient and manageable form of accounts payable processing. However, without being able to identify the bottlenecks

throughout the invoice lifecycle while inhibiting growth decisions, Land O' Lakes faced a challenge on identifying how to improve the AP process.

Previous state for processing of an invoice:



Land O' Lakes accounting managers experienced challenges due to latency in the process, locating lost invoices, and retrieving the invoice from storage for audit purposes. The users experienced difficulties knowing who has the invoices in a pile on their desk. The automated accounts payable imaging solution provides the following benefits:

- The image for the invoice would be available for viewing electronically while processing
- Data entry would occur as the invoice is processed
- Image would be available to route between business units electronically with role-based access
- Electronic approval, editing and redaction of the invoice will be allowed for those with authorized access
- The lifecycle of an invoice will be captured and allow for measurement from management
- Integration with four JDE ERP systems and Fusion On Demand, providing a central location for data associated with the image
- Repository will allow viewing of images and metadata from departments outside of AP

5 Technology Case

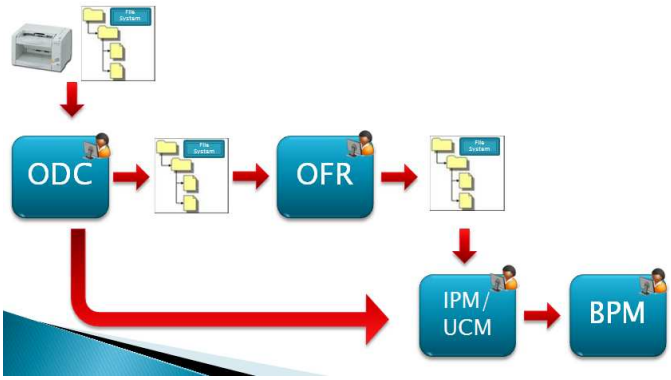
Land O' Lakes has been utilizing Oracle Document Capture for creating an electronic version of the invoice for years. The image was stored in IBPM and was scanned into Oracle's Capture system. Although this system created an electronic version of the image, it did not assist with any process improvements by providing the accounting team the means to create and automated and electronic process for invoice resolution, approval, and processing.

Users at Land O' Lakes had reported issues due poor performance from the old hardware which was no longer supported. Performance was poor due to software which had difficulties handling the volume of metadata. Users of the old, unsupported version of Oracle Capture reported issues related to the recognition server crashing during high volume periods such as month end.

The need for upgraded software was clear, along with the implementation of Oracle Forms Recognition and Business Process Management Suite 11g workspace to create the full business process automation. Land O' Lakes leveraged Oracle WebCenter Capture 10g, Oracle Forms Recognition, Oracle WebCenter Content: Imaging 11g, and Oracle Business Process Management Suite 11g to create the automated process for accounts payable.

Technology	Advantage
Oracle WebCenter Capture 10g (ODC	• Allows for scanning of paper documents • Allows for importing of electronic files • Reduction of manual metadata invoicing
Oracle Forms Recognition (OFR)	• Character Recognition • Capturing fields such as Invoice Number, Invoice Date, Invoice Amount, and Supplier Name without manual entry
Oracle WebCenter Content: Imaging 11g (I/PM)	• Central repository for image and metadata • The advanced viewer feature of the 11g version of I/PM allowed for redaction, sticky notes, updating of metadata, and electronic approval of the image • Security is handled at both the application level and the document level
Oracle Business and Process Management Workspace (BPM)	• Customized workflow that would route the invoice based on specific metadata values • Allows for tracking changes on an invoice, reporting, and metrics tracking provides management tools and information needed for further process improvements. • UI is extensible • BPMN is standards-based • Common IDE for development

System Process Flow:



6 Implementation

6.1 ODC

Oracle WebCenter Capture 10g required a server and local installation. Land O' Lakes had a need for a way to import electronic files, as well as scan the paper invoices. Land O' Lakes used the following features of ODC for their process:

- Scan Profiles with Macros to eliminate the need to index in ODC for standard scanned invoices
- Import Jobs with Macros to route the invoice based on the network folder it was placed on
- Index Profiles for documents that will not go through OFR
- Direct Commit Driver 11g to commit documents directly to I/PM
- File Share on the network for electronic batch folders

Oracle WebCenter Capture places committed batches on a network share for retrieval from OFR.

6.2 OFR

Oracle Forms Recognition (OFR) comes with an AP solution out of the box, which Land O' Lakes leveraged. Vendor information needed to be provided to OFR in order to assist with character recognition and validation of the vendor on the invoice. Land O' Lakes utilized the following methods to pull the information from the ERP systems:

- PL/SQL batch jobs which pull the necessary vendor information from 3 JDE systems.
- AS400 Vendors were pulled through an RPG program.
- Fusion On Demand utilized a custom view to place the vendor information on a table on the cloud.

Once the data has been placed on the tables in the ERP systems an ETL Tool pulls the data to the database which holds all tables that are associated with the imaging solution. OFR is configured to pull the data from the database through a batch job which is scheduled within OFR.

6.3 Fusion Application Solution

One of the key elements of this project was the requirement to provide Fusion Applications image of the invoice which is used within the Finance Pillar. Fishbowl solutions developed a custom java API which would place a copy of the image in a separate folder for a Fusion FTP job to pick up. The FTP job place in the Fusion On Demand system, and associate it with a matching invoice for a specific purchase order.

6.4 Imaging 11g File Share

After OFR has processed the image and captured the associated metadata, it places the metadata in a .txt file which includes the name of the tiff image file associated with the metadata. Oracle WebCenter Content: Imaging 11g (I/PM) has an out of the box utility called the Input Agent. Land O' Lakes has configured the input agent to check the file share every minute and process the invoices into a specific application. The Input Agent checks the document and metadata into I/PM and associates it with a specific application in I/PM.

6.5 Oracle WebCenter Content: Imaging 11g

Once an invoice is checked into Oracle WebCenter Content: Imaging 11g (I/PM), either via Input Agent or the direct commit from ODC, it is available to be viewed. Users at this time are able to add annotations, sticky notes, redactions, approvals, etc. within I/PM. Land O' Lakes has also configured the application, which is specific for the Accounts Payable department, to kick of the BPM workflow, which is where the users do the majority of the processing and resolution on invoices.

6.6 Business Process Management Suite

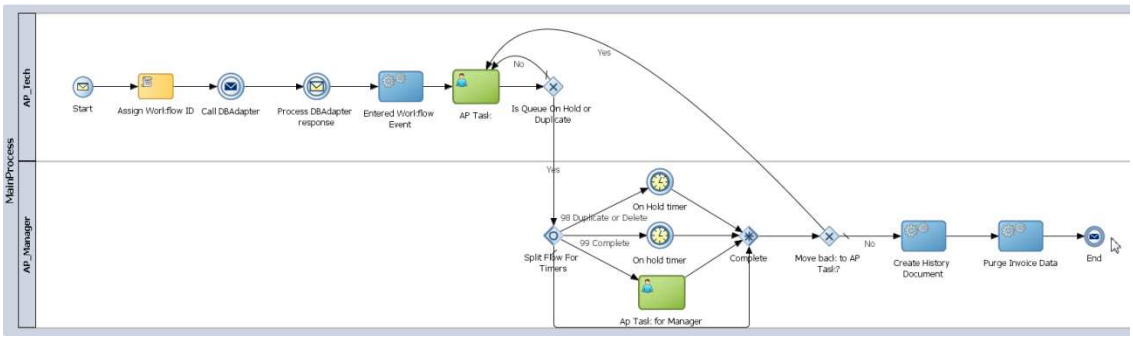
The Business Process Management (BPM) Suite provides the BPM Workspace ADF application. Accounting clerks utilize the workspace for routing the invoice through various departments for resolution on issues and validate data on the invoice which was extracted from OFR. Management is able to see the amount of work that is being done by their staff, view metrics, and check on invoices when vendors inquire on status from one central location.

Land O' Lakes, with the help of Fishbowl Solutions, has leveraged ADF for the task forms used in the BPM. Fishbowl Solutions integrated ADF Forms with Oracle's IPM API's to allow users to view the image from IPM at the same time they work their tasks in BPM Workspace. This tool has eliminated the need for the stack of paper invoices on each accounting clerk's desk.

Fields within the ADF form are customized and perform lookups or have drop downs that are associated with the field. Data for these fields are held within the database, and are retrieved through the BPEL configuration. As events stemming from processing an invoice take place they are captured and placed on a table within the database. Once the invoice has completed the workflow process an XML history document is created and checked in as a supporting document to the original invoice in I/PM.

Land O' Lakes utilizes the BPEL process which is a series of DBAdapters. The adapters route the invoice, assign the priority based on a vendor's priority value from a table within the database, and insert the record into the BPM workflow. Below is the BPEL process.

Land O'Lakes installed BPM in a clustered environment to provide scalability and high performance. BPMN, BPEL, and ADF are all developed within Oracle's JDeveloper. The BPMN workflow currently is designed as follows:



6.7 JDE & Fusion Application Integration

Land O' Lakes utilized custom servlets and ETL jobs to retrieve all metadata from the ERP systems and update the document metadata in I/PM.

Steps outlining the integration process:

1. A custom servlet takes the metadata out of I/PM and inserts it into a table on the database.

2. ETL batch jobs take the metadata, locate the invoice in JDE, and bring back the metadata associated with vouchers and payments.

3. An ETL batch job provides the invoice metadata from I/PM to Fusion.

4. A Fusion ESS job uses this information to locate the invoice in Fusion and places the metadata associated with the invoice it in a custom view for retrieval by the ETL job.

5. Once the ETL jobs have completed a custom servlet updates the documents in I/PM with the additional metadata. This process will repeat for 10 days on an invoice, at that time if no match is found in the ERP system, it will update the field of "status" in I/PM which indicates to management that resolution is needed.

The integration allows for a central location for viewing of all metadata associated with the image and easy resolution on invoices that have issues or have not been paid in the time frame required.

7 Future Opportunities

Future phases of the Land O' Lakes end-to-end invoice process will be to incorporate complete integration with the JDE ERP systems. This will allow accounting users to have a "one stop shop" to fully process an invoice from entry to payment. Development of database maintenance forms via ADF (Application Development Framework) will be deployed to a portal like environment, which will allow the users to maintain the database tables that are used for drop downs or lookups within the process. Additional roles and process "swim lanes" will be added to create further efficiencies between departments and teams at Land O' Lakes. The last key enhancement is the implementation of single-sign-on, which will eliminate the need for users to sign into BPM and I/PM while processing invoices.

8 Lessons Learned

There is no such thing as a perfect solution and every good project creates opportunities to learn for future projects. Below are the top 10 lessons learned from the end-to-end invoice process automation project at Land O' Lakes:

1. Allow plenty of time for process re-engineering before you begin design or development, this will decrease or eliminate re-work of development tasks.

2. While designing the system, think from a user's perspective. Will they want all upper case values? Should you add pick lists within searches or indexed fields? What would make their job easier?

3. Know your data as changing data types in I/PM, ADF, or BPM is difficult. This is especially relevant when data retention is needed.

4. I/PM limits numeric fields to 10 characters, utilize the alpha data type for numeric values that may expand past that length.

5. Provide your SOA administration team training on administering the BPM environment.

6. OFR does not support active directory groups, plan adequate time to train your security administration tasks on the OFR setup process.

7. Develop a purge script for BPM instances to save valuable space in your SOA database.

8. Request original invoices to use during OFR testing. This will provide you the best results while training the system.

9. Where in-house knowledge is not available, hire experts on the software to not only help develop but also train your IT team on administration of the environment.

10. Request limitations on clustered environments from Oracle before you begin configuration of the environment.

Land O' Lakes had the opportunity to learn many valuable lessons from the project that was specified for AP. These lessons will be incorporated in future projects which utilize Oracle Fusion Middleware technologies.

9 Conclusion

Land O' Lakes needed an accounts payable process that fit their continuous growth to ensure accurate and timely payments to vendors. The new AP process has helped eliminate much of the paper that made its way around the corporate campus for invoice processing, and efficiencies are continuing every day. Oracle Fusion Middleware technology stack leaves many process improvement opportunities to be capitalized on at Land O' Lakes with endless benefits.

10 Glossary

ADF	Application Development Framework
AP	Accounts Payable
AS/400	JD Edwards World IBM server
BPEL	Business Process Execution Language for Web Services
BPM	Business Process Management Suite 11g
BPMN	Business Process Management and Notation (Industry Standards)
ERP	Enterprise Resource Planning System
ESS job	Extended Oracle Enterprise Scheduler Job which allows support, automation, and scheduling of different job types including: Java, PL/SQL and spawned processes, distributed across nodes in a server cluster. Oracle Enterprise Scheduler runs these jobs securely, and provides monitoring and management through Fusion Applications Control.
ETL tool	Extract, Transform, Load. The tool refers to three separate functions combined into a single programming tool used to manage databases.
Fusion Applications	Oracle Fusion Applications are a portfolio of software products including financial, human resources, payroll, order management, manufacturing management, supply chain management and customer relationship management functions, developed/integrated by Oracle, which includes multiple services and applications.
GL	General Ledger
I/PM	Oracle WebCenter Content: Imaging 11g
IT	Information Technology
JDE	JD Edwards ERP system
ODC	Oracle WebCenter Capture 10g
OFR	Oracle Forms Recognition
PL/SQL	Procedural Language/Structured Query Language- Oracle Corporation's procedural extension language for SQL and the Oracle relational database.
RPG	Report Program Generator programming language
Servlet	A small program that runs on a server.
XML	Extensible Markup Language