Payment Curiosities and Anomalies in Accounts Payable

An NTT DATA perspective on plugging profit leakage

NTT DATA welcomed Dell Services into the family in 2016. Together, we offer one of the industry's most comprehensive services portfolios designed to modernize business and technology to deliver the outcomes that matter most to our clients.

Introduction

With improved networking between purchasing, vendors, payments and reporting, accounts payable (AP) has transformed in the digital age from a traditional cost center into a profit center. But even as it influences revenue streams, challenges remain.

AP handles thousands of incoming documents, and the AP clerk is expected to enter, verify and match data on these documents — often non-standard, incomplete or inconsistent — to others in the system. Despite the best training and processes, data entry errors do occur, especially when the data is on disparate, incompatible systems. And in AP, this could mean excess payments, incorrect taxes and, ultimately, profit leakage. If you've ever tried to recover excess payments, then you know how difficult this can be. This white paper details NTT DATA's predictive analytics approach to tackling key challenges of AP. We'll explore a text mining-based statistical model used to identify duplicate payments and transactional errors.

The current state of AP

Duplicate payments are a common challenge faced by AP departments, regardless of a company's size or industry. It's estimated that 80% of organizations lose up to 2% in duplicate payments annually.[1] Manual data entry also leads to invoice errors, and 58% of invoices are still keyed in manually into financial or enterprise resource planning (ERP) systems.[2]

Companies spend anywhere between three to seven days to resolve an invoice error.[3] This impacts the vendor relationship and can lead to a missed early payment discount (EPD), a penalty for late payment and/or the possibility of a vendor withholding shipments until the full payment is confirmed, disrupting business operations.

The main reason for duplicate payments is receipt of duplicate invoices. If the payment is delayed, vendors may send a second invoice just to be sure. When this is combined with inconsistent invoice numbering, the second invoice gets posted as well. The "exact match" technique of duplicate detection built into most ERPs often fails to catch the small difference in invoice number or amount.

Predictive de-duplicator

The convergence of AP and analytics can help reveal anomalies and curiosities in invoice data to fix these profit leakages. And this is exactly what we did at NTT DATA Business Process Outsourcing (BPO) Services. Using transactional data from invoice processing, we developed a predictive de-duplicator (PDD) using Python. The PDD is integrated with an SQL database for text mining labeled data.

It works on historic data and draws predictive trends and probabilistic scores for transactions. When PDD is plugged into an AP department's data entry module online, it provides an alert for possible duplicates. A probability score threshold is set to make the check realistic and robust.

Our PDD solution:

- Employs distance measures using a statistical model to identify invoices that might be duplicates
- Factors for even differences of human commission (such as typing errors)
- Uses labeled data (the statistical model is "taught" by human observers) and can be re-trained with new data
- Improves detection rates of identifying duplicate payments
- Provides additional insights to operations on nature of invoices and high-risk vendor payments

The process design allows for the PDD to be offline as well. When offline, the model generates a report based on transactions processed during the day. The NTT DATA Business Process Management System (BPMS) workflow tool then routes these transactions to a special audit queue to be verified by a quality associate.

The PDD also runs on daily transactional data to extract possible errors. The check is performed on invoice amount, tax amounts, non-purchase order maverick spend, supplier site, and payment method and terms to identify possible errors in data entry. Again, a threshold is set based on the appetite for operational risk versus the cost of rework. The transactions are then routed by the BPMS workflow to the special audit queue for further review.

The use of text mining, advanced analytics and visualization for unstructured, historic AP data provides new perspectives into business and operations. The possibilities are endless, and we are well on our way to getting AP on a digital drive.

About the author:

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1 "Duplicate Payments: An Ounce of Prevention, a Pound of Cure," Institute of Finance and Management IOFM Benchmark studies, February 2016. https://www.theaccountspayablenetwork.com/best-practices/best-practices-payments/duplicate-payment-prevent/

2 "How Prevalent Is Manual Invoice Processing?" APQC Open Standards Benchmarking Survey on Accounts Payables and Expense Reimbursement. October 2016. https://www.apqc.org/knowledge-base/documents/how-prevalent-manual-invoice-processing

3 "Invoice Resolution Shouldn't Take a Week," APQC Open Standards Benchmarking Survey on Accounts Payables and Expense Reimbursement. April 2016. https://www.apqc.org/knowledge-base/documents/invoice-resolution-shouldn-t-take-week