

The Impact of Artificial Intelligence on Content Management



A White Paper from
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Introduction

Artificial Intelligence has begun to touch every aspect of our everyday lives, from suggesting specific treatment for illness to driving our vehicles. The impact of AI on our society is viewed as both a blessing and a curse. While AI is providing insight to many long-term medical and research projects, as well as driving our vehicles, it is also predicted to impact 47 percent of traditional workplace occupations¹.

ADVANCES IN COMPUTING POWER

At its core, AI is made possible by the increase in computing power capabilities, which provide for actionable decisions, categorization, and linking of data. This linking of data is streamlined through open database interfaces such as web services.

The same advances in computing power and integration capabilities that has led to the rise of AI have also had a major impact on document management systems. When the imaging industry was in its infancy, desktop PC and scanner connectivity could not process a TIFF image in a timeframe that made the solution viable. Disk storage was very expensive and slow. Many times, optical disks were used to store images in a jukebox given that large-capacity hard drives were not available. In addition to hardware and storage



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limitations, communication bandwidth was an issue. In many cases, connectivity between terminals consisted of 56 KB lines which were slow and unreliable, causing delays and system stability issues.

An additional limitation to early imaging systems was the lack of integration into back-office systems. Most dispatch and accounting systems utilized proprietary databases and relied on flat-file transfers, or index data had to be re-keyed between systems. These systems were limited to scan, store and print functions and passive workflow capabilities. As PCs gained computing power, the cost of mass storage has lowered and high-speed networking has proliferated. The lowering of these barriers has made document imaging a standard technology within the transportation industry.

¹<https://www.templafy.com/blog/artificial-intelligence-in-the-workplace/>

DATABASE INTEGRATION

Nearly ten years ago, non-image data ushered in the next generation of imaging solutions: content management. Content management has provided the ability to not only store images, but also to transfer and store data from disparate databases, applications, and photographs into the system. The database connectivity also allowed for the automated process to apply document indexes to an image, eliminating the rekeying of data and allowing further process improvements and reduced processing time.

Through imaging and content management, transportation companies saw major productivity gains and reduction in labor needs. The same productivity and labor reduction gains were realized within the customer service aspect of the transportation industry. Providers had to staff the department with enough individuals to manually retrieve documents, fax, or make copies to mail to the client in a timely fashion. Through document imaging and content management, the customer service process has been streamlined and made more cost-efficient with instant access to information via online tools.

INTEROPERABILITY BETWEEN DISPARATE SYSTEMS

While imaging and content management solutions streamlined the process, these systems lacked interoperability between disparate back office systems. Additionally, they were deficient in being able to formulate response workflows, nor could they learn to identify exceptions and create processes within other mediums such as Web portal content. This is where true AI technology can provide the advanced capabilities that carriers need to automate their back-office processes. These systems are most often utilized in the accounting and customer service functions. As “Big Data” permeates the transportation industry, AI has been used to manage the overwhelming amounts of

data for telematics, routing, load tender management, billing, and settlements — along with other functions that are required to operate a transportation company.

In this whitepaper, we will explore how AI can be used to make data-related decisions in systems throughout the enterprise to adjudicate transactions that fall within standard tolerances and create response workflows to begin the resolution process for standards that exceed the tolerance. Using AI, it is possible to determine the reason a transaction is out of standard and create a specific response for each exception. This ability goes beyond determining that the transaction is out of standard, but identifies and performs specific actions to correct the issue. As such, these corrections require the interoperability between systems through the use of AI. This capability not only improves productivity by eliminating the need for an individual to manually review exceptions then classify each transaction for resolution, but ensures greater accuracy by minimizing the potential for human error when processing those transactions.



What Do Traditional, Non-AI-Based Systems Cost Your Company?

It's estimated that companies lose 20 to 30 percent in revenue every year due to inefficiencies related to process and content management². Advancements in content management solutions have helped transportation companies drive efficiency gains in their back offices with content management. Many times, these systems can't provide information concerning system operability, which requires companies to view critical decision-making data from spreadsheets. Given these limitations, a transportation provider may be as much as 40 percent less efficient than their competitors — even though they employ a content management solution³. The individuals reviewing and reacting to spreadsheets typically are knowledge workers performing a managerial function and commanding a higher wage. By automating the processing of the data contained in spreadsheets, the knowledge workers can focus on their specific duties rather than reviewing data and determining their priorities.



²<https://www.entrepreneur.com/article/286084>

³<https://www.digitalistmag.com/future-of-work/2018/03/19/>

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Industry Challenges

LOAD TENDER MANAGEMENT

In today's fast-paced transportation marketplace, many decisions are made concerning a load tender long before an order is created in a dispatch system, including decisions revolving around the following: equipment and driver availability, ability to meet a pick-up window, service-level agreements, and special endorsements. These decisions are made more complicated and labor-intensive when tenders are being received via email, fax, internet load boards or call-ins. Electronic Data Interchange (EDI) allows carriers to accept or reject load tenders electronically, which reduces manual labor and service failures and provides an accurate account of rejected load tenders. Despite its advantages, EDI is still underutilized within the industry. According to a recent report, only 34 percent of purchase orders are transmitted electronically in North America⁴, and this percentage is reduced with smaller carriers. With more paper involved in the load tender process, there is a greater chance of lost documents and customer service failures. In addition, management lacks visibility to the number of tenders offered and the reasons for rejection.

This is where an automated workflow solution utilizing AI technology can be employed to streamline the processing of paper-based load tenders. Through the use of Optical Character Recognition (OCR), load tenders received via fax or email are processed and the content is entered into applications that identify the shipper, commodity, quantity, pick-up, drop-off, and other data needed to create a move within the dispatch system. Based on acceptance criteria, AI will create an EDI file for the dispatch system and notify the shipper of the turndown or acceptance of the load tender. In addition, management is afforded greater visibility to

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turn down and acceptance rates — information that is crucial to data-driven decision-making. This process eliminates manual data entry, improves customer service, and more efficiently manages the load tenders through automated workflows.

INVOICE PROCESSING

When a billing document is received, the document is processed through OCR and the data gained through this process is compared with that in the dispatch system. If the AI solution detects a failure in the validation of data such as dispatch status, driver and equipment status, rating, or OS&D, the status can be changed to process the transaction or the solution will place the transaction in workflow for resolution. This allows a transportation provider to staff their billing departments to only process exceptions – and as such, AI becomes the primary billing provider.

In addition to providing billing functions, AI can detect late or missing paperwork and send alerts to drivers

⁴https://en.wikipedia.org/wiki/Electronic_data_interchange

INVOICE PROCESSING, cont.

via mobile communications, text message, or email. In addition, reports are sent to managers for further actions based on the length of time the paperwork is missing. If paperwork is required to settle with the driver, this function keeps the driver informed of potential missed settlements based on paperwork.

The use of mobile capture applications has made the AI process even more efficient. These applications have made a significant impact on the capturing of documents, data, and photos, with near-real-time submission of these items into back office systems. With AI powering the mobile application, the process is even more efficient.

When a driver captures the necessary images of documents at the point of delivery, AI-supported workflows can process the documents automatically, then bill the shipper and settle with the driver almost instantaneously. AI can also send documents to individuals within the shipper and consignee relationship based on commodity and delivery codes, further reducing the reliance on manual labor. With a mobile application supported by AI workflow technology, transportation companies can achieve seamless interoperability among their various disparate systems to improve productivity and reduce the costs associated with manual data entry.



ACCOUNTING FUNCTIONS

AI is helping transportation providers automate and gain insight to their financial processes. The various applications for AI-based workflows include: procurement, accounts payable, and invoice resolution and collections.

Procurement

Many transportation providers do not have automated systems associated with their procurement processes. In many cases, the only time a purchase order is created is after an invoice from a vendor is received. This practice is fraught with revenue leaks through inflated invoices — and lacks the internal checks and balances that are crucial to ensuring accuracy.

Through a mobile- and Web-based procurement system, AI can monitor purchasing processes throughout the transportation enterprise. An AI-based workflow process allows for the implementation of a purchase requisition system, which ensures that purchases are approved prior to the purchase rather than waiting for approval from the appropriate personnel. Out of standard invoices are automatically identified and placed in workflow for review and possible rejection. The AI technology can also track costs for specific parts and products, and restrict the creation of purchase orders for out of tolerance pricing without prior review.

AI solutions can also track pricing between individuals and specific vendors. If purchases are consistently above average, you can create rules that route requisition for the specific vendor to review price quotes prior to the acquisition. AI-based procurement systems reduce costs for the purchasing process, eliminate invoice creep from the vendor, and reduce invoice conflict with vendors based on the purchase order document.

ACCOUNTING FUNCTIONS, cont.

Through system interoperability, procurement systems are tightly integrated into accounts payable workflows and back-office accounting systems. According to Expense Management, labor costs typically consume 62% of total accounts payable department costs — labor that is related to invoice conflict resolution with a vendor⁵. As previously mentioned, the procurement system will reduce invoice conflict through the issuance of purchase orders. With the use of an Accounts Payable workflow, out of standard invoices can automatically create alerts to vendors that a payment is placed on hold pending a review, which eliminates a manual step in the clerical process. Additionally, invoices that do not have a PO associated with the purchase can be placed in a workflow for approval based on business rules such as the dollar amount of the item being purchased. This capability greatly streamlines the invoice approval process and provides KPI information on procurement compliance across the enterprise.

Accounts Payable

Additional productivity gains can be realized through an AI integration between the procurement system, accounts payable workflow, and the back office accounting system. Such integration points include detecting duplicate invoices, placing payments “on hold” for short shipments or OS&D claims, and integrating the GL codes from workflow indexes into the accounting system. This capability eliminates the need to manually enter GL codes — which reduces the time to process and improves the accuracy of the data.

As with Load Tender Management, AI-based OCR processing provides a significant improvement in processing time and data entry accuracy. Invoices can be directly imported from emails or scanned when received in the mail. Once imported, the AI OCR

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process will read data contained within the invoice and provides the information to the accounts payable workflow and the back-office accounting systems. If the data contained on the invoice matches the data in the control systems, the GL Codes are applied and the invoice is adjudicated based on predetermined rules within the accounting system. Conversely, out of standard invoices are managed through the accounts payable rules.

Through AI solutions, the labor spent in the accounts payable processing activities can be reduced to the cost required to manage the exception from the accounts payable AI system. In addition to labor savings, transportation companies can reduce costs through lower cost procurement, realized net income terms, and improved payment processing for vendors.

Invoice Resolution and Collections

An additional accounting process where AI has a significant impact is invoice resolution. Through AI

⁵<https://www.cfo.com/expense-management/2015/06/metric-month-accounts-payable-process-cost/>

ACCOUNTING FUNCTIONS, cont.

interoperability between the back office accounting system and invoice resolution workflow application, applied cash can be monitored for payments that are out of tolerance either under or over the invoice amount. For example, if an invoice is underpaid, the invoice and supporting documents are placed in a workflow for review, and once in workflow, the transaction is audited to determine if the short payment was the result of a billing error or a short payment by the shipper.

If the short pay was the result of a billing error, the auditor would select a reason code for the error, such as: wrong rate, assessorial charge, and special billing instructions that should not be on the invoice. Once the billing error is selected, AI will notify the person that billed the account and their supervisor. This information can then be used for a coaching session to improve customer service going forward. The transaction would then be corrected in the accounting system through a write-down on the account.

If the short pay was determined to be a result of the shipper not paying the invoice in full, the auditor would select reasons for the short pay. The result may be that the shipper did not pay an assessorial expense, surcharge or tax, or general short pay. Based on the reason code, the transaction would reenter the invoicing workflow to create a supplemental bill to collect the short pay charge.

If an overpayment is detected, the transaction and supporting paperwork is gathered in the workflow queue. In addition, other open invoices are gathered for review. The auditor can then review other outstanding invoices to determine if the over-invoice amount is part of another outstanding invoice. Based on the determination, the cash can be applied to the proper accounts or the transaction can be placed in a research queue for review with the client's accounts payable department.



Conclusion

It is not enough to simply have a content management system in order to provide the cost savings and customer service the transportation industry is demanding. AI and system interoperability will minimize cost-based labor, which will allow transportation industry providers to apply labor savings to more profit-oriented tasks like improving customer service, and investing in drivers and equipment improvements.

If your organization is simply storing documents in shared files supported by manual processes, there is certainly room for improvement. The key is to

understand that without AI, regardless of the size of your organization, you will be limiting your growth potential and the ability to serve your customers more quickly and with less effort than your competitors.

You've seen the benefits of automating your back office — now you can experience them in your own organization. EBE Technologies offers a first-class imaging and workflow solution supported by AI technology, with superior imaging, OCR, and integration capabilities. Contact us today to get started!

EBE Technologies:

A Leader in the Transportation Industry

EBE is the leading provider of Transportation-Specific Content and Process Management Applications. Serving over 600 clients, EBE has made a positive impact throughout their organizations in the areas of billing, settlements and accounts payable; recruiting, onboarding, safety, risk and training; carrier management, fleet maintenance and mobile and data capture.

Our next generation of workflow solutions allow our clients to work by exception to maximize productivity, control costs, and increase profits across the Enterprise through the use of automated workflows based on AI technology. Our integrated approach positions our clients to maximize their legacy system investments while extending the value of EBE's solution portfolio.

