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How AI can help AP with invoice processing

Introduction

When artificial intelligence, or AI, is applied to accounts payable, it can enable faster, more robust, and more accurate processes that save finance teams time, money, and headaches.

But what is AI, exactly? Defined broadly, artificial intelligence is software that gives machines the ability to interpret and react to situations like a human. It learns by processing large amounts of data to find patterns, then tests its analysis to develop new understanding.

Have you ever noticed the product recommendations that pop up when you add an item to your shopping cart online? How about your car or phone navigtion system re-routing your drive to avoid upcoming road hazards? Or your spam filter removing unwanted emails? These features are some of the more common uses of AI, today.

AI is powered by a several different fields. Machine learning describes mathematical models that allow the software to learn from experience, as people do, so that it can make meaningful predictions about future events. Computer vision makes it possible for computers to see and interpret the visual world. Semantic analysis helps computers use logic to make inferences based on the context of the words to detect such things as emotions and sarcasm. Natural language processing uses all of these in order to understand and respond to text — for example, creating chatbots that can automatically respond to customers who visit your website.

These basic building blocks of AI work together to power AI-based applications. How can they be applied to AP to improve invoice processing?

The building blocks of AI

MACHINE LEARNING

Can computers learn from experience like humans do? With machine learning (ML), the answer is yes.

It all starts with **algorithms**, which are finite sequences of instructions for solving a problem or executing a task, like finding the answer to a basic division problem or baking a cake from a recipe. These algorithms are then "trained" by giving them huge databases of information and expert human input to create **models**. Models use this input to replicate a decision a team of experts might make when provided with the same information. Creating a framework of mathematical models enables computers to make predictions based on past experience. **Deep learning** is one prominent subfield of machine learning. Deep learning uses complex models called neural networks to help computers more effectively analyze images and understand text the way a human brain might.

All of these technological advances have enabled advances in AI-based applications like self-driving cars and industrial robots. Ride-sharing apps use machine learning to predict what areas will have high demand for rides and at what time, so drivers are more likely to be available. Online retailers use ML models to analyze customer purchasing behavior, recommend other products they're likely to buy, and forecast demand. These companies also use ML to get items to consumers faster, by predicting what customers will order and placing these products in the most efficient spots in their warehouses, reducing time to fulfillment.

COMPUTER VISION

Computer vision enables computers to identify visual objects, extract useful information, and categorize what they see. There are a wide variety of applications for computer vision today. When Stanford University researchers trained algorithms to detect skin cancer using images, the algorithms were just as accurate as dermatologists. John Deere pioneered a semi-autonomous combine harvester that uses computer vision to find the most efficient path through crops and evaluate the quality of the grain being harvested. In manufacturing, computer vision can be used to find defective products before they are shipped to customers.

SEMANTIC ANALYSIS

From the time they're babies, humans learn how to use contextual clues to better understand the meaning of words and phrases. Context is what makes jokes funny and sarcasm bite. Words taken out of context can be confusing, hurtful, or even dangerous. Semantic analysis helps computers understand the true meaning of a word or phrase within the proper context by using logic to reason from specially-designed models. It enables businesses to extract specific, useful information from data, even when it is "unstructured."

Structured data is in an easy-to-read format, like numbers or words sorted into columns in a chart or table. Unstructured data appears in all kinds of formats, like text and images in a social media post, the name of a business that is incorporated into a logo, or even a handwritten note. The ability to read unstructured information is particularly useful for brand management, for example — companies can use semantic analysis to evaluate and understand customers' changing perceptions of their brand based on social media mentions or product reviews.

NATURAL LANGUAGE PROCESSING

Like semantic analysis, natural language processing (NLP) is focused on understanding text. NLP uses many of the building blocks of AI described above, including machine learning, deep learning, and semantic analysis, to more effectively program computers to process, analyze, understand, and respond to text. "Intelligent assistants" like Siri and Alexa rely on NLP to communicate effectively with users. NLP also has a variety of business applications, such as chatbots that can automatically respond to website visitors. NLP can also help recruiters find more relevant and more diverse candidates by looking for applicable experience on resumes and ensuring job descriptions are free of bias.

5 reasons you need AI in your AP process

Problems inevitably pop up in even the most rigorous AP process, from fraud, to duplicate payments, to unmatched POs, to late payments, and more. Whether these issues are occasional or persistent, they're costing your company a lot of money that can be difficult, if not impossible, to get back. AI-powered accounts payable processes makes it significantly easier to detect and prevent common and costly issues when auditing.

Here are five ways AI helps finance teams manage the AP process more efficiently.

1 IMPROVE DATA EXTRACTION

In many finance departments, even those with some degree of automation, invoices may be dealt with differently depending on myriad factors — what vendor submitted it, how much money it's for, whether someone on your team is out on vacation, when the invoice is due, etc. AI introduces consistency as well as an additional layer of oversight, streamlining your invoice audit process. AI can dramatically increase the coverage, accuracy, and efficiency of invoice data extraction over existing approaches like optical character recognition (OCR) and manual keying. Computer vision, NLP, and deep learning extract line-items, header level data, and visual images like supplier logos without the need for human intervention.

2 ACCURATELY VALIDATE AND CATEGORIZE INVOICE DATA

When categorizing invoices, most users and finance teams pick the easiest category to recall or the most convenient high-level spend category. AI understands what is being paid for on the invoice and can map it to the right spend category. Using computer vision, it can match each line to its respective PO and can even match multiple invoices to the same PO lines. It understands the content, context, and history of the data, so it can predict and assign GL account segments with 100% guaranteed accuracy, even for non-PO invoices. When the AI is unsure, it asks for manual confirmation — after training on just 2-3 samples, it's learned the process.

3 STAY COMPLIANT

Staying compliant with relevant laws and regulations isn't always easy, but noncompliance can come with significant financial and reputational consequences. Many countries have enacted anti-bribery and corruption laws, making it illegal to exchange "anything of value" with government officials and other politically exposed persons (PEPs). And governments are becoming more diligent about adjudicating vilolations. In the U.S., fines related to violations of the Foreign Corrupt Practices Act averaged $259.5M in 2021, according to the SEC, though new enforcement laws are expected to result in corporate penalties closer to those of 2019 ($2.66B) and 2020 ($2.79B), in the near future.

While, of course, any rational company wants to follow the rules, doing so can be deceptively difficult, as numerous lists exist and they are constantly evolving. For example, there is no one, easy-to-reference database of PEPs. AI helps by automatically cross-checking vendors and individuals on invoices against dozens of lists of debarred suppliers, sanctioned organizations and individuals, and any other entities with whom you want to avoid doing business. It then flags any matches and does so *prepayment*, so you avoid regulatory violations, fines, and the associated damage to your company's reputation.

AI also helps organizations comply with healthcare-specific laws like the FCPA, or Sunshine Act, in the U.S., which discourages inappropriate financial relationships between the healthcare industry and medical providers. These laws require careful documentation of payments or "transfers of value" between companies and covered recipients, such as drug and device manufacturers or physicians and teaching hospitals. AI can automatically identify medical professionals and entities in your company's spend, in order to ensure that you properly report any remuneration.

4 AUDIT EVERYTHING BEFORE YOU PAY

Auditing 100% of invoices before they're due might seem like an unattainable goal. With AI, this becomes a reality. AI makes it possible to review 100% of your invoices prior to payment for common risk factors. The system automatically approves low-risk invoices for payment and flags the rest for manual review. And it does so while other invoices are processed in parallel, so you have results in minutes, rather than days, meaning you can pay suppliers sooner and capture early-payment discounts.

5 DETECT FRAUD

With partial audits, it's not hard for fraud to easily and repeatedly slip through the cracks. Once you discover the problem, there has probably already been significant leakage. False invoices from shell companies, criminals impersonating vendors, suppliers purposely sending duplicate invoices — AI helps prevent fraud from compromizing your AP process.

Conclusion

Artificial intelligence for finance helps your business take the accounts payable process from stressful to streamlined. Only AI can read, understand, and make independent decisions on invoices based on your policies and its own, deep finance expertise, and do so with guaranteed accuracy. It speeds up overall AP operations by automatically processing and paying the majority of invoices, reducing the number of invoices finance teams have to manually review. Busy teams can audit all spend, ensure invoice compliance, and take advantage of savings opportunities, before payment and at scale. Finance AI gives you more time to spearhead strategic initiatives and ensure the financial health of your business, now and into the future.

About AppZen

AppZen is the leader in Finance AI software, empowering autonomous finance operations for modern finance teams. Our patented artificial intelligence software accurately and efficiently processes information from thousands of data sources so that organizations can better understand internal spend and make smarter business decisions. It seamlessly integrates with existing expense and accounts payable workflows to read, understand, and make real-time decisions based on your unique spend policies, leading to faster processing times and fewer instances of fraud or duplicate spend. Global enterprises, including one-third of the Fortune 500, use AppZen's Expense Audit and Autonomous AP products to replace manual finance processes and accelerate the speed and agility of their businesses. To learn more, visit us at www.appzen.com.

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