

Machine Learning and Artificial Intelligence in Accounts Payable Automation

Machine Learning and Artificial Intelligence are on top of the hype curve, especially when we are talking about automation. In fact, these topics are the most popular ones in our blog. That's why we decided to bring our knowledge and understanding of these technologies together in a white paper that we hope will benefit your finance process development initiatives and Accounts Payable professionals in particular.

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1. ML, AI, AP – What's Behind The Acronyms

As a type of artificial intelligence (AI), machine learning (ML) uses data to teach itself. The software runs on algorithms, finding patterns in data to continually learn and improve. Machine learning is prevalent across industries and has become a game-changer in many ways, from **furthering immunology research to fight cancer** to **protecting animals from poachers** and **uncovering credit card fraud in real time**, among other examples.

And it's no different for Accounts Payable (AP). There is a lot of structured data in the AP process that can be used for machine learning purposes. The same technologies that are enabling insights and improvements in many other areas of business are also enhancing and improving AP productivity, speed, and accuracy. Machine Learning is embedded in a highly automated AP process, there's nothing a user needs to do. It's part of the AP automation product, working for the user behind the scenes to bring automated intelligence into the AP process – helping optimize operations and unlock the game-changing value of AP automation at scale.



Complete AP Automation as a Goal

Many AP teams may set up an OCR or scanning solution to digitize their invoices, hoping that this will help bring efficiency to the team's process. Digitizing invoices, whether it's through an OCR tool or Capture as a Service, is not truly enough to establish undeniable efficiency in an accounts payable process. Solutions that will create real improvements to the AP process will need to automate the process from end-to-end, continuously optimizing with new and advanced technology such as machine learning.

After you integrate Optical Character Recognition (OCR) technology and enable your ERP's basic automation workflows, you've maximized the AP automation capabilities provided by your ERP. Unfortunately, this basic level of automation still leaves most businesses with loads of manual touchpoints. Still, many companies must match PO invoices, code invoices, route, review, and approve manually, creating touchpoints that AP staff must handle. AI-enabled automation learns the ins and outs of the AP processes and leverages ever-evolving automation to reduce burdens throughout an organization.



Typical Machine Learning Use Cases

By applying machine learning technology to AP, companies can gain tremendous benefits. The AI technology can quickly learn how the organization processes invoices and can leverage that information to recommend or auto-apply processing rules to both new and past vendors. Additionally, it can improve AP workflow automation by intelligently routing invoices based on keywords, coding, and vendor information. When it comes to allocating costs in an organization, it can automatically code vendor invoices using historical patterns and complex suggestions, removing redundant manual invoicing processes. All these improvements significantly speed up the entire accounts payable process, and at the same time, frees up staff to engage in more critical or value-added tasks. It is worth noting that implementing an AI-based AP automation doesn't mean that there's less control in your AP processing; on the contrary, there is much more. The system will automatically handle the basics and manual steps and uses intelligent dashboards to notify AP staff of exceptions. The users oversee the automated controls embedded into the AP system – the machine strictly operates according to the rules and structures that have been defined within your process.

Machine learning provides a greater level of accuracy in recognizing invoice data captured through **optical character recognition (OCR)** and reduces human errors which can show up throughout the process. In addition, machine learning has the intelligence to recognize duplicate invoices and detect other potential signs of fraud, which, unfortunately, is continually increasing.

Intelligent integration with ERPs like **Dynamics 365 Finance** enables users to leverage the rich data that resides there (e.g., vendor registers, tax codes, product receipts, POs, etc.) to further efficiency and significantly reduce the time it takes to process invoices.

2. Behind The Next Corner

The future functionality of machine learning in finance will help:

- Close gaps in financial processes to provide clearer and more holistic insights
- Create easily accessible snapshots of the financial state of an organization
- Generate more precise financial projections for the future
- Provide structure for more efficient cash management
- Reap the benefits of real-time up-to-date bookkeeping

What new applications can we expect soon? One of the more fascinating improvements relates to 3-way matching, but it does require to rethink the concept of matching.

3-way matching is an old, long-used method in AP automation. It allows to automate invoice approvals by comparing three different documents – the purchase order, the goods receipt note, and the invoice – to validate the accuracy of all three. Usually, all of them consist of lines, and we talk about line-level matching. In conventional matching, invoice lines are manually compared against their ordered and received counterparts. Any discrepancy would fail the matching and require a time-consuming investigation. There are no grey scales in this philosophy; for instance, the item numbers used by the buyer and the vendor are different, the lines do not match. Because the rules are stringent, this process leads to unnecessary exceptions and can be very frustrating.

Artificial Intelligence helps us look at this more mercifully, out-of-the-box. The ultimate goals of AP automation are to reduce manual work, increase accuracy and just plain and simple – save money. So, let's look at how matching could be done in a more light and intelligent manner:

The conventional way involves manually adding stagnant rules that block the matching mechanically, which leads to cumbersome exception handling. With line-level optical character recognition (OCR) and AI, we can allow intelligence to recognize a problem in the line-level items and only pinpoint the real exceptions that require action. This will help reach a higher level of touchless AP automation and concentrate human focus on action items that have a higher financial significance than typical non-matched line items.

Example 1:

Conventional: 3-way matching is off due to a price increase on one item. The process will pause until the discrepancies are investigated, found, and fixed.

With AI: By using digitalized invoice data and AI, the price difference is detected and automatically corrected. After signing off the price change, then the invoice is routed out for payment.

Example 2:

Conventional: The vendor adds an unknown amount of freight charges on each invoice. The 3-way matching cannot pass and will need manual processing.

With AI: Freight charge is detected and automatically populated when it is within tolerance. The invoice is automatically approved for payment.

Harnessing AI to perform the laborious work and allowing the user to make the final call can provide the best of both worlds while retaining total control of the process. As a comparison, in the insurance industry, insurance claims are handled electronically by utilizing AI for fraud detection and are no longer handled by humans. Instead, the system alerts if it detects a high enough possibility of a fraudulent claim. This development has taken place because it no longer made business sense to go through all claims manually. AI brings this same common-sense approach to PO matching in Accounts Payable.

3. Prerequisites for Being Able to Benefit From AI in Accounts Payable

The term “digital,” in its most basic form, means zeros (0) and ones (1). While it may seem rudimentary, these digits are the core components of all modern-day data. If you haven’t gone digital yet, you do not have access to these basic building blocks, which are crucial in implementing advanced or artificial intelligence (AI) into the finance processes.

Structured data, which is found in spreadsheets, for example, is structured in a way that makes the information easily searchable by an automated system. Unstructured data is raw and unorganized and lacks a basic structure, which makes search and information retrieval difficult. Text files, PDF, emails, social media, and audio and video files are common forms of unstructured data. The processing system needs to receive invoices in a structured data format in order to automate invoice processing.

Processing vendor invoices is a combination of logical steps in which AI can play a significant role. Once you’ve gone digital, and begun streamlining your invoice automation process, you have taken a critical first step and are ready to begin experimenting with AI for greater benefits.

4. How Will Our Jobs Change?

It is a fact that the job descriptions in AP are changing. But the new ways of working that AP automation and AI-enabled functionality are bringing are an opportunity for improvement, not a burden. Best of all, leading AP automation solutions are easy to deploy, use and maintain and accelerate system adoption and payback.

AI and Machine Learning as part of the AP processes will shift the focus from routines to overseeing the process and handling the relevant exceptions. It frees time to concentrate on more value-adding, strategic tasks. Skilled employees will work alongside software automation and artificial intelligence to approve data analysis, guide software in the right direction, and even perform tasks that we may not know exist yet. This will require some new skills-based learning, but it is also an opportunity for AP department employees to step out from behind the curtain, develop their job descriptions, and have more meaningful jobs.

Technology plays a key role in fostering the strategic importance of accounts payable. AP is likely to remain a back-office function without the right solutions in place or executive support to pursue the proper technology. A number of leading AP teams, on the other hand, have proven that AP can provide value beyond merely efficiently processing supplier invoices.

For many years, the Accounts Payable department was considered more of a tactical function than anything else. Paying bills was their primary function and primary value to the organization. Little thought was given as to how the function could be transformed into a strategic, value-added contributor. The perception of AP is changing, as well as the realization of its greater value is becoming increasingly evident every day as well. Everyone will benefit in the long run, from the CFO down to the line-of-business manager, as the AP function leverages technology and improves the AP function and its strategic importance to the organization.

5. The Future of AP Automation With Artificial Intelligence

We have discussed the value that machine learning brings to finance and how it has become an integral part of modern AP automation solutions and other finance systems. Thanks to embedded machine learning capabilities, AP solutions can automate invoice processing by using the history and patterns of invoices. While this capability is highly beneficial, it is just the tip of the iceberg regarding the advancements which machine learning and artificial intelligence can provide.

So, what's holding us back from reaping greater benefits? Our limited imagination for new ways to apply machine learning to finance. Once we can exceed those limitations, there is no telling what we can accomplish.

We at Dooap envision machine learning will be used to remove some of the financial risks that finance teams are currently struggling with and give them a clearer picture of corporate finances. CFOs need certainty when it comes to their organizations' finances – both now and in the future – and while they are a long way from having that now, machine learning will be able to help them accomplish that in the not-too-distant future.

For example: Currently, monthly closes are based on a “best guess” basis. For the most part, finance departments operate with 29 days of uncertainty, and on the day which they close the month, they can develop a general understanding of where the company stands. But even the close at the end of the month doesn't provide total certainty. Sometimes, it's not until a couple of weeks after the close that you can look back and really know what happened. That's because it's difficult to know the true state of where the organization stands at any given moment in time. What invoices are you missing? Which projects are coming up? What payments are still missing?

Machine learning will continue to make significant improvements in data collection and accuracy. It can help fill in the gaps, so you can get a better view of where you really are and where you are headed. One way machine learning can do this is by using past data and patterns to understand the present and predict the future.

In the future of finance, we will have the capability to “close” daily and reflect an accurate financial picture every day. Consider the challenge noted above about trying to determine which invoices, projects, or payments might be missing. When you think about it, you already have access to the clues about this data. You have POs, contracts, subscriptions, emails, and travel plans that can provide insight into that information and help you fill in some of the gaps you have in your financial picture.

Another way machine learning can find key information – is through predicting human behavior. For example, which vendors typically send their invoices late? Which buyers typically pay late? Machine learning technology would be able to factor in that information to predict expenses, income, and cash flow. Armed with that information, you can decide which action to take. For example, when it comes to a late invoice, should you do an accrual for that? Or can you do a self-billing on it or proactively remind the vendor to send it?

When predicting future income and expenses, you can also include data from outside sources. For example, if your company provides products for outside services (such as landscaping or construction) you might look at weather predictions to see how that might impact sales within a given period. The insight you gain from machine learning could also help you plan staffing and improve processes. Additionally, machine learning technology can be used to remove redundant work, improve the process, and find patterns in exceptions that can be defined and standardized. This will enable even greater efficiencies.

In addition to knowing where your operations and finances are now, you need to be able to project where they will be in the future. Machine learning is a powerful tool that creates certainty in an uncertain financial world by filling in the data gaps.