E-book

RPA, Machine Learning, and AI: What Every CFO Needs to Know

Sage

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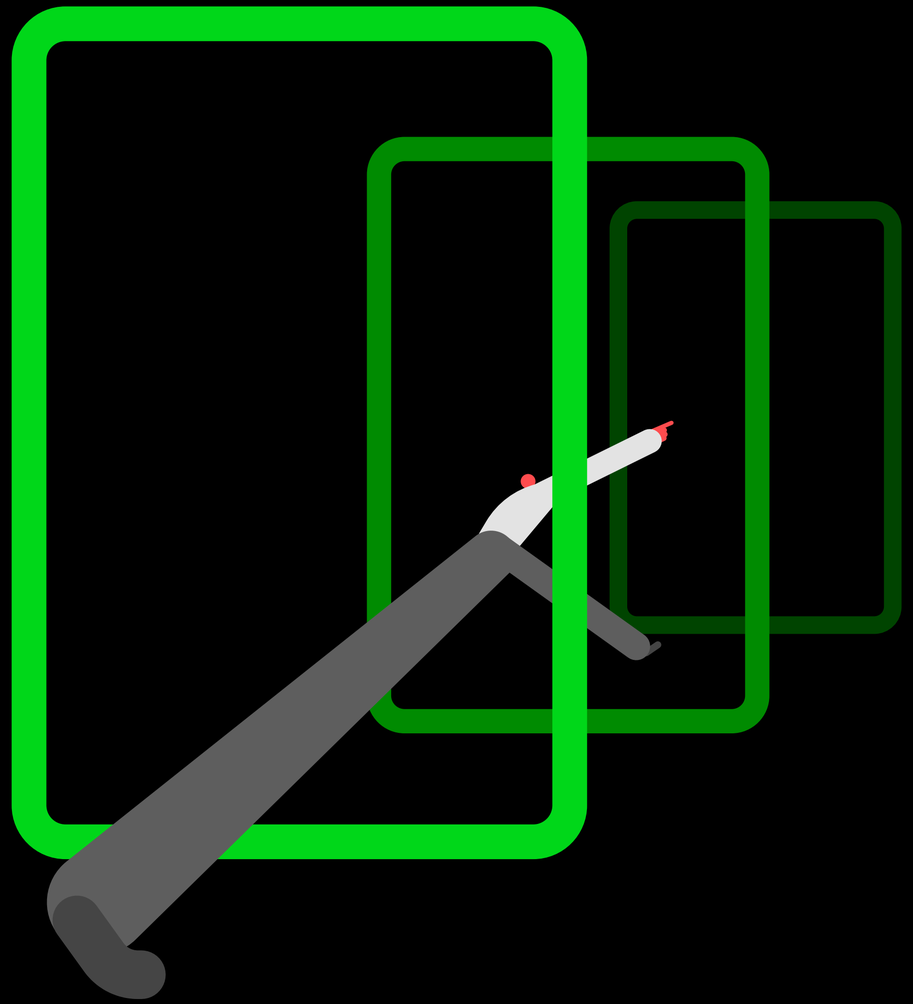

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Introduction

How can you take the risk out of big decisions? Well-prepared CFOs now have several options to improve the quality and speed of their reporting and controls by automating their financial and accounting processes. In this eBook, we'll examine these and explain their differences, with a focus on three cutting-edge approaches leveraged by best-in-class finance organizations in fast-growth companies.

- Robotic process automation
- Machine learning
- Artificial intelligence

We'll also look at which accounting processes make the most sense to automate and where automation has risk of being more disruptive than productive, and we'll share the results of what some recent CFO surveys have said on automation adoption.

Lastly, we'll look at options for financial management or accounting platforms, including QuickBooks and Sage Intacct, and how these compare in terms of delivering the automation that accounting teams need to streamline operations.

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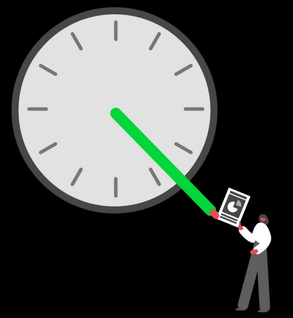
Why automate finance processes?



In short, the goal of any automation initiative is to move from being manual to being strategic, by reducing the effort required to move information within the organization and, where applicable, sharing the information with trading partners (customers on the demand side and vendors on the supply side).

The information is based on data exchange, and it's important to distinguish data as unstructured or structured. Structured data is exchanged in a precise, defined format, such as electronic data interchange (EDI). The beauty of EDI is that each EDI-compliant system knows exactly what it's exchanging. For example, an EDI 810 transaction is an electronic invoice, and the fields on an EDI 810 file are mapped between trading partners, so each knows exactly what's included. All parties know what information goes where with no human intervention required unless there's an error. It's a great way to eliminate any data friction. While EDI is the preferred data exchange format in manufacturing, retail, and transportation and logistics, many industries do not use EDI.

Unfortunately for many CFOs, much of the information coming into their departments is found in unstructured data, and that might include paper, PDFs, email, and the like. While some of the data may be in a digital format, getting the information from one system to another without automation requires manual, repetitive processes including data entry, reconciliations, and exception management. These are time-consuming, error-prone methods of data exchange, that can delay the close by days or weeks.

Business-process automation reduces errors and improves accuracy. More accuracy helps cut costs and saves time. Automation enables better integration with other business applications and business partners, and allows for the bidirectional sharing of information, so you can better manage your supply chain and transactions with trading partners. A single connected system that integrates easily with other cloud-based systems helps eliminate time-consuming manual processes and takes full advantage of the connectivity and digital features of today's smart devices and applications. Introducing automated digital processes for functions such as timesheets, expense claims, and billing can quickly improve efficiency, enhance accuracy, cut costs, and prevent revenue leakage.

Financial-process automation is also a great step for CFOs looking to accelerate their digital transformation journey. Automation reduces friction, streamlining the data exchange with other businesses, including lenders and banks. Lacking automation, you don't have the functionality to adopt digital transformation in other areas of your business. When you move away from manual and traditional-based processes, you can unlock more potential across your organization. Your company can be in a better position to manage cash flow, inventory, budgets, accounts payable, accounts receivables, days sales outstanding, and order metrics, while lowering your operating expenses.

Robotic process automation

Robotic Process Automation (RPA) describes a software development kit that allows non-engineers to quickly create software robots (commonly known as “bots”) to automate rules-driven business processes and replace human efforts to complete tasks. Software bots mimic human activities such as logging into IT systems and copying and pasting data across systems. Unlike other automation solutions, RPA generally requires minimum integration with the existing IT setup.

Think of RPA as being a type of macro that you might create in a spreadsheet. RPA deals with discreet, repetitive tasks, such as data entry, that typically occur at the start of a process, so RPA can play a significant role in automating these types of processes. Finance leaders using labor-intensive processes can potentially boost productivity and save time and money with RPA tools. This has put it top-of-mind with IT departments, accounting departments, and other business executives evaluating how technology can enhance efficiencies with business initiatives such as outsourcing and shared-service centers.

RPA works well for any type of task that can be easily performed where there are clear conditions associated with carrying it out, such as: “If true, do this; if false, do that.” That’s as far as RPA can go—these tools can’t learn, so if something changes within a specific task, the tool can’t perform the task without being reprogrammed—for example, a form field is renamed, or a data source changes—the RPA bot will have to be reconfigured to continue to work properly. That said, it’s a great tool for automating mundane, transactional tasks and should be part of any CFO’s automation strategy when used in concert with machine learning and artificial intelligence.

Machine learning

Machine learning is a type of artificial intelligence that uses data and algorithms to imitate the way that humans learn. Unlike RPA, ML enables systems to learn from data without being explicitly programmed. It processes data and learns from the data on its own, without human intervention, and it improves its accuracy as it learns. One example of ML in action is an Amazon product recommendation, based on what you've viewed or purchased. The ML algorithm learns from your history to make these recommendations.

For accounting departments, ML finds and groups documents using image recognition for automated categorization. As discussed, these documents contain unstructured data, but ML uses algorithms to determine what looks like documents such as timesheets, expense reports, and invoices. The algorithms can process electronic documents, including those that are digitized using scanners. This makes categorization much faster as compared with a manual process. For example, ML tools can receive an invoice, match it to a purchase order using two- or three-way match, determine the GL code and park the invoice in a batch of payments to release pending final approval.

As noted, RPA can handle tasks such as invoice processing by automating the manual parts of the process, including invoice retrievals and downloads, and then attaching these to a folder. However, it would require some help from machine learning to finish the job. ML steps in to read the invoices and extract the required information, which might include supplier name, invoice number, due date, and any information the algorithm is programmed to ask to extract before handing it back to RPA to create the invoices in the system. Some other examples of accounting processes well-suited for automation using ML algorithms include expense reporting and bank reconciliations.

Automation using RPA tools and machine learning algorithms work well with predefined processes and knowledge, but together these can't interpret situations where there's more complexity.

Automation using artificial intelligence

Gartner defines AI as advanced analysis and logic-based techniques, including machine learning, to interpret events, support and automate decisions, and take actions. By themselves, RPA and machine learning algorithms aren't intelligent as these are deterministically programmed so that a given input produces a given output. AI expands the scope of what automated systems can do, allowing these to mimic human thought and deal with higher degrees of complexity.

AI thinks and learns from patterns in data and gets smarter over time resulting in increased predictive accuracy. It can make human-like decisions such as classifying ambiguous unstructured data, matching transactions, and detecting outliers.

By providing examples, you can train AI just like you would train a human. The more examples provided, the smarter it gets, and it learns from mistakes. It automates complex tasks that would have otherwise been unfeasible to automate. This opens the doors to new and greater applications of automation.

AI isn't at all about Isaac Asimov's *I, Robot* and the machines taking over. Its true value is as an augmentation to human work and freeing up time to let humans focus on strategic, higher-value work. Indeed, AI needs humans to ensure the decisions it's making are based on the right data sets, otherwise AI can fall into the classic garbage-in-garbage-out pit of uselessness.

One way to think about RPA, ML, and AI is as an automation continuum. For simple, repetitive and highly manual processes where rules are easily defined, RPA can handle the task. For more complex tasks where there's more variability in the data, machine learning can help. For tasks where more intelligence is required—where the data is more nuanced, more variable, or requires a higher level of machine cognition—AI is up to the task, though its ability to handle massive amounts of data with rapidity can't replace human intelligence (or at least not today).

To be clear, machine learning is a subset of artificial intelligence, but AI applies machine learning as part of higher, more complex problem solving. While you can employ ML without AI, you can't employ AI without ML.

Attribute	Robotic process automation	Machine learning	Artificial intelligence
Relative ease of set-up	Simple	Moderate	Complex
Relative ability to handle complexity	Low	Medium	High
Relative adaptability	None	Medium	High
Learns as it goes		✓	✓
Simulates human behavior	✓	✓	✓
Simulates human thought			✓
Use case examples	Repetitive data entry with simple "if/then" rules	Automated recognition and categorization of data types	Outlier detection; exception management; human-machine interactions; automation using large, complex data sets

Automation: Putting it all together

Research from Accenture shows that about a fifth of finance leaders are today using AI. Recently, we conducted surveys among attendees at the Gartner CFO & Finance Executive Conference and the CFO Leadership Conference to better understand what benefits these finance leaders are experiencing using automation. The benefits most noted by respondents included:

- Saving time
- Reducing costs
- Increasing trust in the accuracy of financial data
- Getting real-time insights
- Spending more time on strategic tasks
- Reducing headcount
- Retaining and attracting top talent
- Increasing revenue

According to McKinsey, finance leaders can fully automate 42% of finance activities and mostly automate a further 19%. These processes focus on transactional activities, and the areas most suited for automation include:

- General ledger operations
- Cash disbursement
- Revenue management
- Financial control and external reporting
- Tax
- Financial planning and analysis

Also, according to McKinsey, some of these activities specifically include:

- Accounting
  - Automating complex journal entries
  - Performing account reconciliations
  - Managing and applying allocations
  - Maintaining fixed-asset accounts
- Accounts payable
  - Entering unstructured data
  - Performing two- or three-way matching
  - Processing expense-approval requests
  - Completing AP audits
- Accounts receivable
  - Generating and validating invoices
  - Applying cash
  - Analyzing and processing disputes
  - Creating reports
- Financial analysis and planning
  - Building standard reports
  - Consolidating and validating budget and forecast inputs
  - Gathering and cleaning data for analysis
- Payroll
  - Flagging time-sheet errors and omissions
  - Auditing reported hours against schedule
  - Calculating deductions
  - Matching data across multiple systems

Automation: AI-powered timesheets

As an example, let's look at how automation helps with creating timesheets, based on actual user experience. For project-based timesheets, reporting professionals can use an automated assistant to do the grunt work of combing through their calendar, email, and files to reconstruct their work week. The people save time to review, adjust, and submit.

Traditional timesheets require tedious reconstruction of activity across many sources. It's unrealistic to expect that every minute will be captured, and delays in closing, billing, and gaining insights are inevitable. Also, traditional timesheets cause extra reconciliations.

AI-powered timesheets process timesheets in just minutes and capture every minute for highly accurate billing, utilization, and estimating. AI-powered timesheets provide continuous insights, so accounting leaders can close on time, bill on time, and recommend resource allocation based on real-time data. The data is continuously synchronized and reconciled for scale.

Not only does this save time, but the automated digital assistant (based on actual experience):

- Logs 16.8% more billable time
- Submits timesheet entries almost 13 days earlier
- Sees 100% of the time accounted for with 57% of activities prepopulated with required dimensions, such as clients and projects, with 95% accuracy

By freeing people from performing mundane, repetitive tasks, automation lets them focus on higher value work.

AI in popular cinema

Over the years, Hollywood has come up with some interesting takes on artificial intelligence, with some less than benevolent. Here's a short list of classics.

2001: A Space Odyssey

A.I. Artificial Intelligence

Ex Machina

Free Guy

Her

I, Robot

Interstellar

Short Circuit

Blade Runner

Star Trek: Generations

Star Wars

The Day the Earth Stood Still

The Matrix

The Terminator

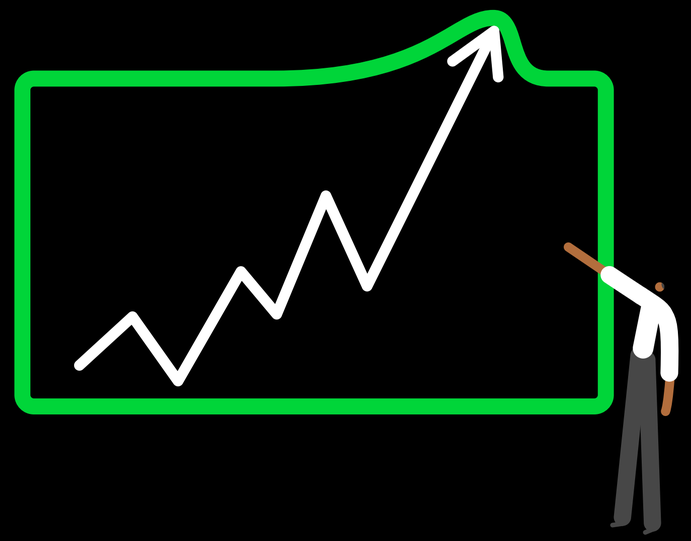
Automation: Outlier detection

Another example of AI in action is outlier detection. AI learns transaction patterns and can flag new transactions that don't match these patterns. Every line item, dimension and amount undergo review within minutes of being entered, and the entry process itself is automatable. AI provides information as to why something is flagged, so there's no guesswork. This provides greater accuracy and trust in the data without having to wait for the close.

Outlier detection is based on a model using historical data from a company to build the algorithms so decisions can be made on known data trends. Each transaction is evaluated against the historical norm, just like a human worker would do. When the system evaluates a transaction and detects it to be outside the norm, it generates a notification for human intervention. AI also looks at what happens to transactions after humans are notified, so it learns whether the transactions it flagged were indeed outliers to better predict the likelihood of future transactions as outliers.

AI provides for continuous accounting to eliminate the close, continuous audit to ensure trust, and continuous insights to discover the unknowns.

Automation: What's next



Today, automation is a powerful tool when incorporating robotic process automation, machine learning, and artificial intelligence. Looking ahead, some use cases for AI include:

- Continuous analytics and performance monitoring with rich data flowing through accounting systems in real time to develop data models.
- Continuous security monitoring to look for anomalies in activity that may be evidence of a malicious actor trying to gain unauthorized access, or perhaps an employee trying to do something irregular.
- Anomaly detection in real time, with alerts for inaccuracy, irregularities, or fraud.
- Recommender systems to anticipate the user experience and present user interfaces that adapt based on the ways the system learns the user likes to work.
- Conversational AI and bots that allow users to complete tasks using tools such as corporate communications platforms and digital assistants, instead of logging into accounting platforms.

As AI becomes more integrated in financial management platforms, one of the most attractive potentials is the leveraging of collective data. While the data from individual companies is secure and confidential, the patterns that AI learns collectively from a large group of companies can be applied to benefit all.

In addition, collective AI can analyze patterns across a group of like-companies and suggest ways to improve results; for example, recommending a focus on cash collection to drive high-value renewals should a company show weaker performance in this area as compared with a peer group. With more data, AI gets smarter and more intuitive to not only streamline operations but improve revenue performance in other areas.

Automation: Choosing the right solution

In our recent survey of CFOs among attendees at the Gartner CFO & Finance Executive Conference and the CFO Leadership Conference, we asked what type of AI they expect their finance teams to adopt. Over half of the respondents said purpose-built AI that's embedded in their financial solution and doesn't require specialized skills. With embedded AI, you don't need to be an AI expert. In fact, the user won't even know AI is behind the scenes.

We also asked about the importance of an AI strategy and roadmap in the decision to purchase a financial management system. Of those polled, 73% said it's important or very important, and nearly all said it's at least somewhat important. The most critical components of the vendor's strategy include:

- Skills and training required to use.
- Impact of the problem solved.
- Accuracy and transparency of the decisions.
- Privacy and security.

Regarding a vendor's current AI functionality, 57% of those surveyed said it's important or very important, and nearly all said it's at least somewhat important.

As you evaluate a vendor's capabilities, here are some questions to ask to ensure you're on the right track.

- Does the vendor's AI technology provide real business value (such as time and cost savings, improved profitability, increased visibility, etc.)?
- Does the vendor provide functionality that allows users to supervise and confirm AI's decisions, building trust in the results and allowing AI to learn and get smarter?
- If skills and training are a concern, does the vendor embed AI into their solution, requiring no and minimal training to use?
- Are AI's decisions clearly documented and understandable?
- Does the vendor take a privacy-first approach to building their AI functionality?
- Is the vendor an established (10+ years) multitenant SaaS solution?
- Can you trust the vendor with your data, including security, recovery, privacy, compliance with standards, etc.?

There are several financial management systems on the market today that include some form of automation. So which vendors are delivering AI today? One option is QuickBooks, but depending on the version, it may or may not have AI embedded. Some versions of QuickBooks rely on third-party add-on modules to mimic the attributes of embedded AI, at an additional cost to the user.

More problematic for QuickBooks is its inability to handle multiple entities without unique

QuickBooks instances. Using QuickBooks, each entity requires its own separate login and database instance. Multi-entity consolidations can take hours to days to complete because the data from each entity must be exported and manually combined in spreadsheets regardless of any automation within a unique instance. In an environment with multiple entities, this means its users are performing the following manual tasks, delaying the close:

- Consolidations
- Currency conversions
- Intercompany eliminations
- Revenue recognition
- Allocations and accruals for expenses
- Depreciations
- Amortizations
- Adjustments

Regrettably, automation-powered collective patterns, embedded or not, aren't there for users with multiple entities. Also, consider that some versions of QuickBooks, indeed the most feature-rich, are sold as software licenses rather than in the cloud. Since AI learns best with large amounts of data, it's important to consider the role multitenant cloud plays in its capacity to learn. With multitenant, AI learns collectively from what potentially could be thousands of companies. Think about AI that only understands a small set of transactions verses one learning from millions of transactions. QuickBooks' inability to handle multiple entities cripples AI's ability to learn. More data leads to better, smarter automation.

As compared with QuickBooks, Sage Intacct easily handles multiple entities. You can automate processes such as reconciliations, consolidations, and eliminations with ease, regardless of the number of entities. As well, Sage Intacct connects with over 10,000 financial institutions worldwide to give your team an accurate up-to-date picture of your cash, so that you reduce or eliminate reconciliations. This lets you make investment decisions in hours rather than days and spot the potential for poor cashflow, and proactively reduce DSO, before your company begins to feel its effects. Easy automated matching and reconciliation mean you can soft-close cash daily, and you can provide business leaders with accurate and current cash positions to make critical decisions in the moment.

Sage Intacct allows configurable design to bring flexibility and automation to your organization's operational workflow processes, tracking, and reporting toolsets, freeing up time to focus on strategic financial management. As your organization evolves, financial operations need to keep pace with transaction tracking procedures, internal controls, and reporting views that support the current organizational needs. Designed to evolve with your organization, the flexible and configurable architecture of Sage Intacct can be adapted to the tracking, electronic approvals, and workflow requirements for your current operational structure and provide insights to best support your mission.

More importantly, Sage Intacct is a cloud-native, multitenant financial management platform with embedded AI. Some vendors use terms such as cloud or cloud-first, whereas Sage Intacct was developed in the cloud for the cloud, and this enables it to take full advantage of collective learning using AI.

About Sage Intacct

Sage Intacct streamlines and automates processes to help finance organizations improve the accuracy, reliability, and timeliness of business-critical data. This robust and scalable cloud accounting system extends the reach of finance to encompass areas across business units, helps you plan and budget at a level that fully reflects your strategic priorities, and provides actionable insights into key performance areas—giving you the vital data to seize business opportunities in real time.

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877-437-7765