

# Invoices meet their match with AI

Using artificial intelligence to gain insights, improve efficiency, and close the talent gap in accounts payable





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# Introduction

Every invoice contains the potential for efficiency and insight. All too often, though, the humble but important invoice delivers just the opposite.

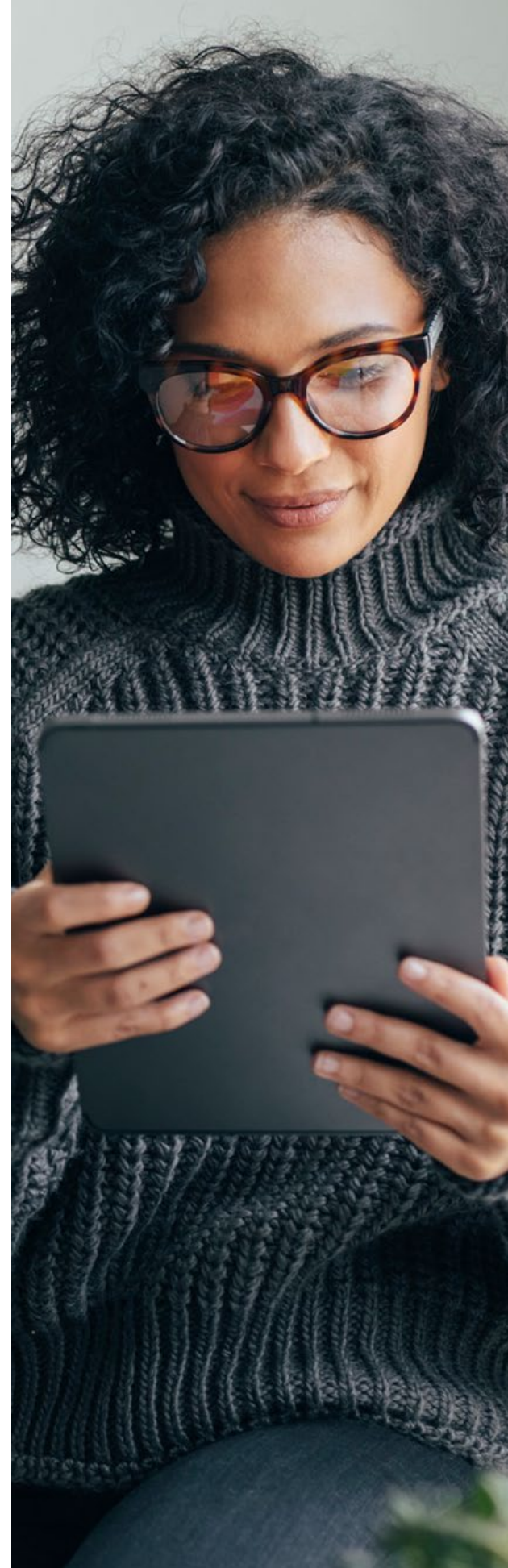
It's no secret that invoices and accounts payable consume time and money, weighed down by labor-intensive and error-prone processes, including paper, spreadsheets, and emails. No one, especially AP team members, finds the paper chases and manual keying gratifying. It's a system leading to delays, mistakes, and missed opportunities for companies.

Yet, the process rolls on amid growing responsibilities. "While accounts payable teams (AP) are under pressure to manage approvals or deliver timely data insights, they are also facing new challenges to support new initiatives such as hybrid/remote work and sustainability," observes the Institute of Finance & Management (IOFM) in a recent report.<sup>1</sup>

## Gaining efficiency and confidence in AI

Nearly two-thirds of global finance leaders – 64% – report they're under pressure to control costs and get the most from their resources.<sup>2</sup> AP is a good place for them to focus efficiency efforts, as controllers rank it the most time-consuming, labor-intensive, and paper-intensive finance function.<sup>3</sup>

At the same time, they tell us they're more comfortable with AI (though most confess they need to know more about it) and expect the technology to be an impactful tool for forecasting, automating tedious tasks, raising efficiency, and improving risk management effectiveness. As they position their companies for growth, their optimism about AI's benefits is reflected by rising investment in cutting-edge technologies to contend with change.<sup>4</sup>



### Sources

- 1., 3. [How Automation Reduces the Cost of Invoice Processing and Disbursements](#), a report sponsored by SAP Concur, Institute of Finance & Management, 2023.
2. [Empower the Future of Work with Intelligent Travel and Expense Solutions](#), a commissioned study conducted by Forrester Consulting on behalf of SAP Concur, May 2023.
4. [SAP Concur CFO Insights: Repositioning for Growth](#), March 2024.



Although automation and AI will alter processes and roles, experts see the technology complementing AP teams instead of replacing them. Human intervention is still required to apply expertise, experience, and judgment. AP professionals will supply a guiding hand to AI-driven solutions, providing oversight and using their know-how and business knowledge to teach it and help it improve.

Solutions containing AI comb massive amounts of data to get better, which is why such tasks as plucking and categorizing details from invoices provide rich opportunities for improvement. With all the promises made around AI, experience and resources matter. [Invoice Capture](#), a service extension from SAP Concur that weaves AI into other proven scanning tools, is based on years of AI and machine learning development and a wealth of data. The intention, as with other AI-infused solutions designed just for business, is to help realize AP's potential for efficiencies and insights.

“Businesses have come to a resounding realization – a robust AP operation can be a strategic powerhouse capable of delivering tangible value, enhancing bottom-line performance, and optimizing overall operations,” Andrew Bartolini, founder and chief research officer of Ardent Partners, says in a 2024 report.<sup>6</sup>

## The hopes of AI

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Where CFOs expect AI to have an impact:<sup>5</sup>

87%

More accurate forecasting

64%

Mundane tasks automated

61%

Improved efficiency

### Sources

5. [SAP Concur CFO Insights: Repositioning for Growth](#), March 2024.

6. [Accounts Payable 2024: BIG Trends and Predictions](#), Ardent Partners, a report sponsored by SAP Concur, 2024.



## Relieving the staffing squeeze

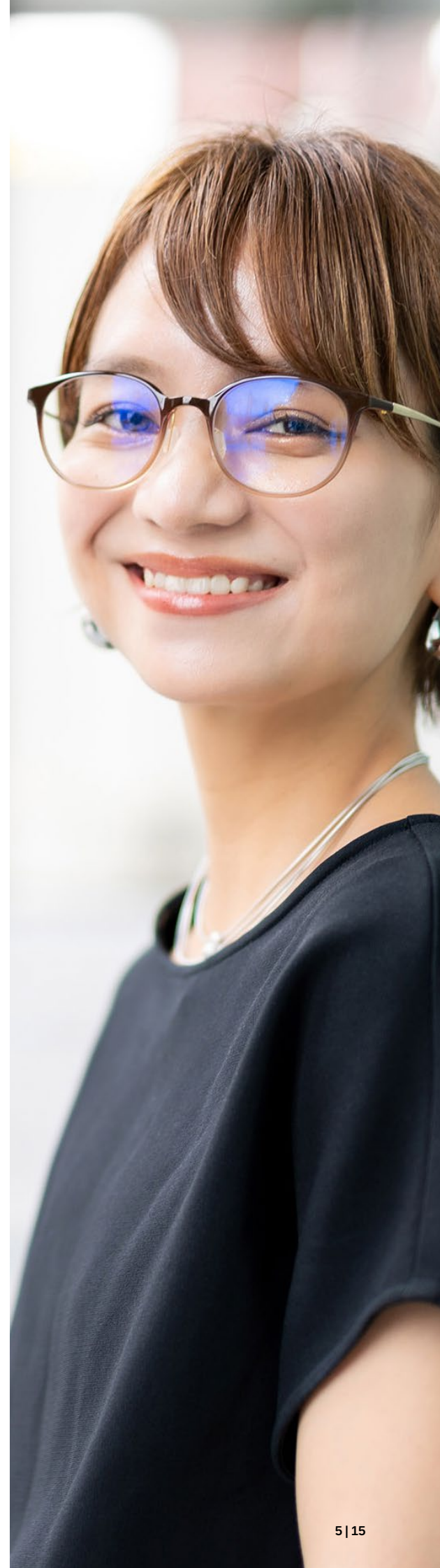
The problem is accountants and other AP team members are hard to find. Fewer students are studying accounting at colleges in the U.S. and UK, instead seeking careers in other fields seen as more exciting, lucrative, and lasting. The workforce is also retiring and aging, with an estimated 75% of U.S. CPAs nearing retirement age<sup>7</sup> and over-50 employees being one of the top age groups leaving the U.K. workforce.<sup>8</sup>

“Staffing shortages have led to a very real ‘war for talent,’” Ardent Partners notes in its 2024 trends and predictions report. “The stakes for finding, attracting, and hiring the right talent remain high. Record-low unemployment numbers coupled with all-time high job openings have led to struggles for many companies. This war for talent has emerged with many companies increasingly pressed to staff basic operations.”<sup>9</sup>

Increasing AI use for accounts payable functions, as part of a broader automation initiative, promises to help cover the talent gap. That’s just one of many complementary benefits AI can bring. Improved efficiency, accuracy, compliance, spending visibility, cost control, cash flow, analytics, and insights are among the others.

### Sources

7. [How Much of a Threat Is the talent shortage to the Accounting Profession](#), Accountancy Age, 2024.
8. [What’s Creating the Talent Shortage?](#), Institute of Chartered Accountants in England and Wales, 2023.
9. [Accounts Payable 2024: BIG Trends and Predictions](#), Ardent Partners, a report sponsored by SAP Concur, 2024.



## The challenge for AP today

Invoices arrive electronically, via email and PDF, and, still, on paper. Many lack such key details as purchase order numbers, tax IDs, and contact info. Or they contain incorrect prices, quantities, and net amounts. Suppliers use all kinds of invoice formats, ones that meet their needs but not yours, variations that challenge optical character recognition (OCR) and other traditional automation technologies. And suppliers keep changing, with 30% annual vendor turnover.<sup>10</sup> Each step slows processing and payments, consuming time and frustrating both suppliers and AP teams.

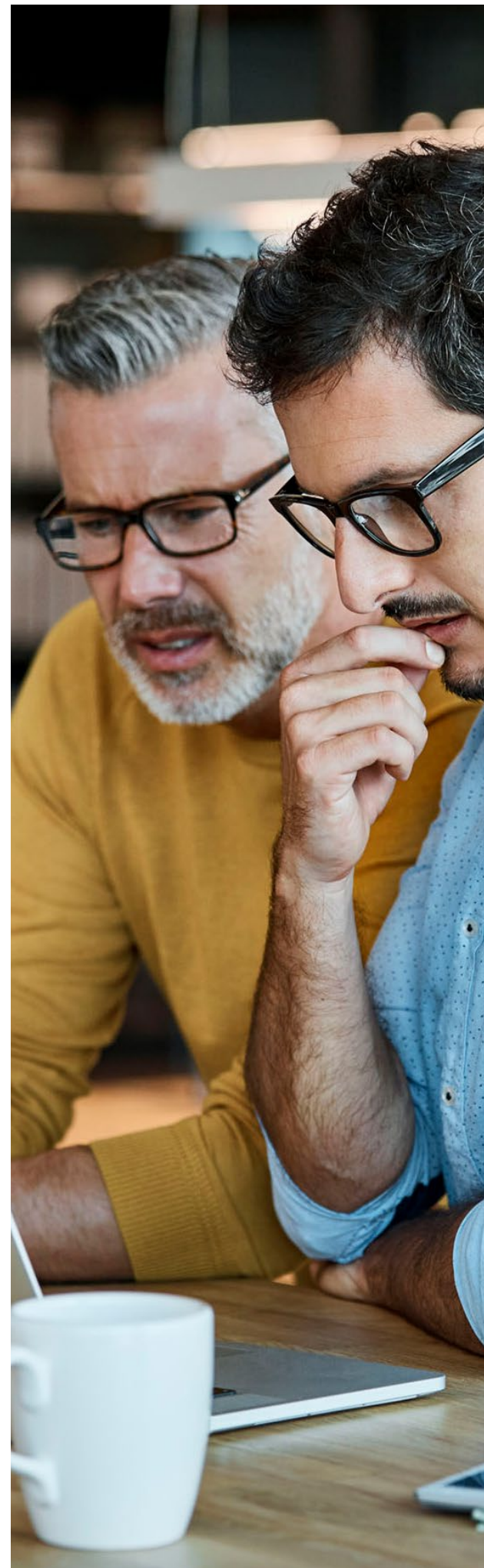
AP teams are left to untangle the details by poring over the invoices, tapping their institutional knowledge, making phone calls, tracking approvers, and spending a good deal of time going back and forth. But when they determine the answers, they must key the details into their systems with a fallible tool – human hands – performing a repetitive, monotonous, and often hurried manual task. From even the most expert of AP teams, the mistakes flow downhill into invoice management systems and onto the ledgers of company ERP (enterprise resource planning) systems.

“The problem is compounded when invoice errors are detected late during the approval cycle, resulting in late payments. Late payments can result in penalties, missed opportunities to capture early pay discounts, telephone calls and emails from frustrated suppliers, and difficulty forecasting cash and spending,” the Institute of Finance & Management report notes. “Undetected duplicate payments and other payment errors can chip away at profits.”<sup>11</sup>

### Sources

10. SAP Concur Internal Data.

11. [How Automation Reduces the Cost of Invoice Processing and Disbursements](#), a report sponsored by SAP Concur, Institute of Finance & Management, 2023.





## Seeking efficiency and automation ...

The uncertainties of recent years certainly have not gone away, but companies are positioning themselves – and investing in – growth after a period where efficiency and flexibility were paramount. One focus for finance leaders is putting money toward cutting-edge technologies, as 63% reported in early 2024.<sup>12</sup>

Accounts payable is a target for AI, automation, and improvement AI and automation because its labor-intensive but important processes have made it slower to adopt technology. It's a rich target, too, since it costs AP departments four times as much to process an invoice if they lack automation and consistent processes.<sup>13</sup>

Automation covers a lot of ground and many functions. For AP, full automation should include solutions that immediately scan invoices using OCR, other text-reading tools, and machine learning – a form of artificial intelligence. The technology also automates each stage of the AP process from approvals to matching invoices to goods and services received to making payments. The data automation gathers readily integrates into the company's other business systems, creating a single source of financial information. Reports are easily generated and deliver an accurate and timely view of cash flow.

The gains from better technology and workflows can be substantial. AP departments with end-to-end automation and consistent processes report that just 7% percent of their transactions need correcting.<sup>15</sup>

“Businesses cannot afford to be held back by the inefficiency, uncertainty, and risk of manual and semi-automated AP processes,” the IOFM report concludes.<sup>16</sup> “Every spend moment means more in times like these. Automation enables AP departments to significantly reduce the cost of invoice processing and disbursements, drive efficiency and productivity for businesses of all sizes to grow and thrive, no matter the economic situation.”

## Where businesses use AI

65%

journal/bookkeeping

59%

financial planning

50%

monitoring for fraud<sup>14</sup>



### Sources

12., 14. [SAP Concur CFO Insights: Repositioning for Growth](#), March 2024.

13., 15., 16. [How Automation Reduces the Cost of Invoice Processing and Disbursements](#), a report sponsored by SAP Concur, Institute of Finance & Management, 2023.

### ... And addressing the people problem

Numbers alone can spur businesses to automate in pursuit of efficiency, speed, and compliance. Another more basic numbers game is also involved: Too few people are willing, able, and available for AP and other finance roles.

The reasons are many. The pandemic drove employees to reassess their personal values and their market value, with some seeking a better work-life balance or leaving their current companies for new employers. Yet others opted for different careers or even retirement. The shifts come on top of a longer-standing challenge for businesses looking to fill spots on accounts payable and other finance teams.

In the U.S., the number of U.S. students studying accounting in college has steadily dropped since 2016 and the number of CPA test takers has been declining since 2007.<sup>17</sup> In the U.K., overall student membership in accounting organizations has fallen,<sup>18</sup> and the labor force has shrunk in the wake of Brexit.

No matter the location, some common challenges come into play for AP and finance. They include lower pay than other business fields (though it's rising), long hours, prolonged and costly paths for education and certification, and the perception that the field is a bit stuffy. Trade groups and big accounting firms are engaged in multiple efforts to address the issue and attract young people to the profession.

Still, the result is that 84% of U.S. and UK CFOs face a sizable talent shortage within their accounting and finance teams,<sup>19</sup> and 90% of UK accounting and finance employers report major challenges hiring and recruiting.<sup>20</sup>

“Nearly half (47%) of CFOs believe employee burnout around hours and menial tasks, as well as accounting and finance employees changing careers, are notable factors in the quickly evaporating talent pool,” CFO Dive reports.<sup>21</sup>

Another factor to overcome centers on views about technology. “The misconception that automation might replace human roles in accounting fosters uncertainty among potential candidates,” according to the UK’s AccountingWEB.<sup>22</sup> “Experienced professionals should emphasise the transformative role of emerging technologies, using those to enhance the employee experience rather than a threat to accountants.”

“The talent shortage is a challenge that inhibits finance leaders’ ability to pivot and meet the increasing need to provide the strategic data and insights companies require, as headcount forces them to concentrate on immediate and basic functions instead of taking a longer-term strategic approach,” says Chris Juneau, Head of SAP Concur Market Strategy. “AI-infused solutions will help them to do both and make the AP role more engaging and fulfilling.”

#### Sources

17. [Pool of Accounting Graduates Continues to Shrink in U.S., AICPA Report Finds](#), The American Institute of CPAs, 2023.

18. [Accountancy membership grows but student numbers fall](#), AccountingWEB, 2023.

19., 21. [84% of CFOs Continue to Face Significant Talent Shortages](#), CFO.com, 2023.

20., 22. [Looming Talent Gap in the Accounting Industry and Your Action Plan](#), AccountingWEB, 2024.



# The answer is in the invoice

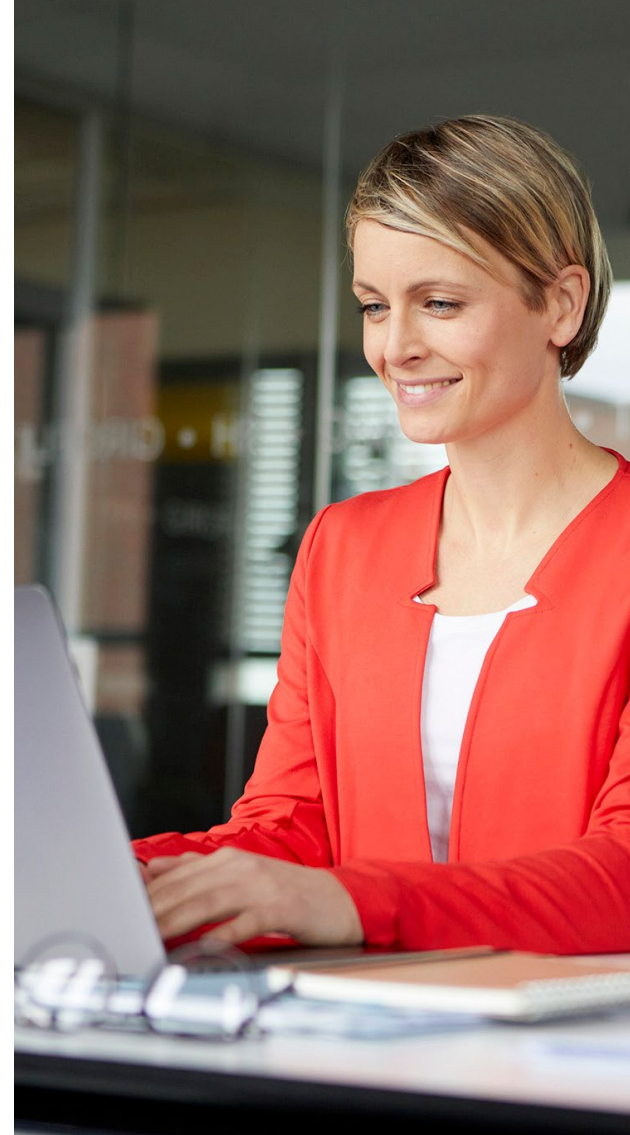
For businesses, there's power in the details. Many of the details are found in invoices. Ones affecting cash flow, control, strategy, planning, and spotting and reducing fraud.

“From transaction details to invoice status, payment terms, spend data, T&E records, and cash flow insights – AP serves as a repository of valuable information,” says Bartolini of Ardent Partners.<sup>23</sup>

The trick, of course, is corralling that information. Humans, no matter how proficient, cannot gather and input the information completely, accurately, and quickly – at least not without throwing a hard-to-justify number of hours at the challenge. Even then, it's matter of making tradeoffs of time and money.

But by eliminating manual, email-based, and spreadsheet-bound processes, businesses can get a better handle on the details and improve control. With an automated AP function, they improve their ability to:

- See the state of spending, which allows them to maximize working capital, identify trends, and address cash flow issues.
- Put detailed spend controls in place while automatically applying spend policies and targeted approval rules to each invoice, improving policy compliance and reducing overspending.
- Establish audit trails of expenses and user activities and quickly adjust controls.
- Spot and reduce fraud by matching accurate, complete information to purchase orders and delivered goods.
- Fend off scams from email-based attacks, phishing attempts, and account takeovers.
- Provide data that helps the company manage cash flow and budgets more effectively while enabling better forecasting and planning.
- Receive early payment discounts while avoiding late payment fees, which bolsters the bottom line while fostering healthier supplier relationships.



AP teams with end-to-end automation and consistent workflows process over 2X as many invoices per FTE as peers without those advantages.

IOFM report, 2023<sup>24</sup>

## Sources

23. [Accounts Payable 2024: BIG Trends and Predictions](#), Ardent Partners, a report sponsored by SAP Concur, 2024.
24. [How Automation Reduces the Cost of Invoice Processing and Disbursements](#), a report sponsored by SAP Concur, Institute of Finance & Management, 2023.



Replacing manual processes with automated ones is a start, because having a connected system for AP and other finance functions establishes a single source of data where invoice and other details can reside, no matter the source. Automated tools such as OCR – in tandem with human oversight – help build completeness and efficiency. But OCR can only go so far – it makes mistakes and AP teams must continuously feed it templates to accommodate the wide variety of invoices that arrive.

Intelligent solutions that use AI for invoice capture promise to build on existing automation. Guided and informed by humans, AI tools can learn as they go, reduce handling time, expand completeness, adapt to policy shifts, and accommodate invoices in virtually every form in which they arrive.

“AI has the potential to channel an entirely new level of innovation that will enable both AP professionals and their leaders to transform the tactical and strategic activities of the function (such as invoice receipt and processing, as well as B2B payment scheduling and working capital optimizations), while also tapping a currently underutilized repository of AP information, data, and insights,” the Ardent Partners report predicts.<sup>26</sup>

### AI Technology ...

- Captures **10X** the number of errors and fraud
- Reduces audit time **up to 90%** when used for initial investigation of expense reports<sup>25</sup>

#### Sources

25. SAP Concur Internal Data.

26. [Accounts Payable 2024: BIG Trends and Predictions. Ardent Partners](#), a report sponsored by SAP Concur, 2024.



## How invoice capture works

The strength of AI resides in its ability to sort through massive amounts of data, far more information than any single person – or team of people – could ever look over, no matter how diligent and curious they are. The technology doesn't get tired, run out of hours, or have to cover for a co-worker on vacation or when a job goes unfilled.

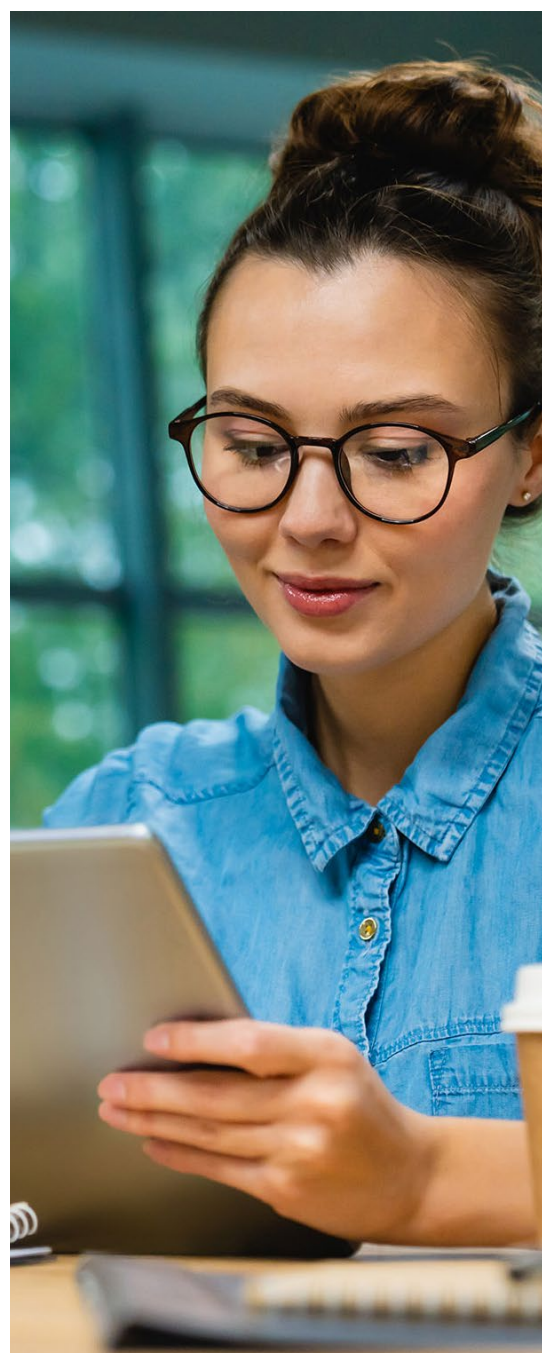
AI spots patterns and learns from its mistakes, allowing it to skip a step like the invoice templates that AP traditionally uses. Because it knows what to look for, it remembers customer-specific invoice variations and, in effect, builds its own template instead of a team member having to create one. It builds on human expertise and institutional knowledge, taking in the guidance provided by humans.

Invoice Capture is a service that extends a solution, [Concur Invoice](#), and draws on the power of AI and the massive amounts of aggregated and anonymized expense and travel data SAP Concur has from years of working with and learning from customers. Invoice Capture comes at the challenge of extracting and organizing invoice data from multiple angles using multiple resources, including the experienced hand and oversight of humans.

### AP function is prime for machine learning

The technology was one of the first areas where SAP Concur incorporated AI, because invoices and AP were an ideal match for its strengths. It reads invoices – both text-based PDFs and electronic formats – with a combination of OCR and a proprietary tool called **Texttractor**. It also draws on machine learning, a form of AI that uses algorithms to dissect and learn from data and then makes informed decisions based on the knowledge it's gained.

The algorithms can learn from structured data like spreadsheet fields and templates from common bookkeeping software, as well as unstructured data like comments in and email. The technology doesn't have to be explicitly programmed and learns best from the errors it makes and from how it's corrected.



### Texttractor: Fluent in many languages

The proprietary technology is language-agnostic and can currently process: English, Dutch, German, French, Spanish, Portuguese, Danish, Finnish, Norwegian, Swedish, Italian, Czech, Lithuanian, Latvian, Estonian, Turkish, Slovenian, Romanian, Hungarian, Chinese, Japanese, and Polish.

Humans remain at the controls with Image Capture, as validation of the collected information is performed by SAP Concur, by the customer's AP team members, or by a combination of the two, with the customer choosing the approach. As the accuracy of the AI-embedded technology grows through learning, it's possible that human verification will be bypassed in some instances. But only when accuracy – and people – reaches that comfort level.

### **The steps and the benefits**

It's helpful to understand the underlying technology, but AP is a process and here's how Image Capture fits into that process and relieves businesses of the burden of rote, manual entry.

- Invoices can come electronically or by email, via a customized email address.
- Single documents can be separated into multiple invoices.
- Details captured included vendor name, invoice number, date, currency, total amount, tax, PO number, and more.
- Original emails and uploaded invoices are stored in Concur Invoice.
- Validated invoices are sent into workflows for approvals and processing for payment.

With the more comprehensive information collected, businesses achieve improvements in:

- Three-way matching of purchase orders, invoices, and bills of goods.
- Analytics for revenue forecasts and cash flow and control.
- Fraud detection by spotting patterns, exceptions, and duplicates, from fake invoices to false payments to kickbacks, to false or exaggerated employee purchases.





## How AI is being used across businesses

If you took a poll on the most exciting uses of seemingly-everywhere AI, capturing invoice data would likely land well down the list. Certainly, it would rank behind driverless cars, food-delivery robots, facial recognition, and even the one many love to hate – the algorithms feeding us product suggestions on online stores and social media.

But snagging invoice details is a targeted and controlled use, one designed to meet a business need. Its power is compounded – and most sensibly used – in tandem with automation across AP, finance, and other business functions.

“Really, the greatest business benefits will come from targeted, strategic uses of AI that attack long-standing business needs and obstacles, like the time- and money-draining manual work that invoices have required,” says Chris Juneau, Head of SAP Concur Market Strategy. “No one has ever enjoyed running down numbers and typing them into their computers. The same is true of collecting receipts and filling out and auditing expense reports.”





Drawing on its data trove and decade-plus of experience with the technology, SAP Concur is infusing AI into applications where the impact is the greatest. Its parent company, SAP, is also applying the intelligent technology in companion solutions for human resources, procurement, warehouse management, and other business functions.

- **Verify** automates processes and helps human auditors perform their roles by spotting patterns, duplications, errors, and non-compliant spending. The auditors gain time to focus on higher-risk transactions.
- **Intelligent Audit** uses a combination of AI and human auditors to seek out misuse, waste, and out-of-compliance spending. As a result, finance teams can focus on more engaging work like forecasting.
- **Expenselt** operates within the SAP Concur mobile app as part of **Concur Expense**. Employees take a picture of their receipts and AI finds and interprets such relevant information as the amount, taxes, and seller. The data then automatically flows into an expense report.
- **Concur Detect solution by Oversight**, an extension of Concur Expense, audits, expenses and analyzes payments made over weeks and months for anomalies and possible fraud.

“Don’t be a “beta tester” ... “seek out vendors that aren’t new to AI/ML technologies, but have been embedding AI/ML technologies into their offerings for years.”

Katie Evans, worldwide research director, small and medium business markets, IDC<sup>27</sup>

With Invoice Capture and other intelligent automated solutions, AP teams can fulfill the broader responsibilities and role they and their companies envision.

“Many AP departments have become ‘centers of efficiency,’ but an increasing number are also focused on becoming a ‘hub of intelligence,’” says Bartolini of Ardent Partners.<sup>28</sup> “AP is solidifying its position as a trusted source of knowledge. Business leaders are relying on the function to furnish a clear and accurate depiction of the organization. ... And with the emergence of AI within AP, data will only become more important ... and valuable.”

#### Sources

27. [Accounts Payable 2024: BIG Trends and Predictions](#). Ardent Partners, a report sponsored by SAP Concur, 2024.

28. [IDC Analyst Connection: Take Action, Five Top IT Questions at SMBs and How to Address Them Now](#), sponsored by SAP Concur, doc # US5194102, 2024.



# Humans will stay involved

They are fair questions for AP professionals to ask:

- What's AI going to mean to me, my job, and my future?
- Sure, I don't like spending my days roaming through the inbox for invoices, calling suppliers for missing info, and then typing the details into our system. That can go away, but will I still be here to do the strategic, higher-value work everyone mentions?

The answer is most likely, although as with automation in general, roles will evolve. That may require additional training but cannot replace the core competencies that people bring to the business: The skills they have developed over the years on the job, and the deep institutional knowledge of the company, its markets, its operations, and the customers and sectors it serves. For those reasons, people will rule the technology instead of the other way around. Humans are, in fact, critical to the success of any AI project.

The time and resources gained from the technology will allow AP professionals to prepare and share data that enables better forecasting and budgeting. They can reposition to take on important – but often squeezed-out – initiatives like cleaning up vendor rolls. Instead of chasing more basic exceptions, they can concentrate on bigger, high-value ones and potential fraud by applying the knowledge they've carefully built over time. They can help establish robust protocols and standards for how AI is used and by whom. They can help figure out how the technology can best be applied while instituting the checks and balances businesses and proper finance require.

The goal of SAP Concur is to provide solutions that are relevant, reliable, and responsible. That dovetails with the [AI philosophy](#) of parent SAP, which is a human-centered approach that focuses on ethical use of customer data and ensures use of the technology is transparent and explainable.

“AI and machine learning can't do the work entirely on their own. It requires feedback from humans to correct course and deliver the desired outcomes. AI does its best learning by making errors and being corrected. It takes expertise, experience, and judgment to point out the right answers. And that has to come from people,” says Chris Juneau, Head of SAP Concur Market Strategy.



## Read our paper

To learn more about SAP Concur AI strategy, read our paper [Artificial Intelligence, Real Solutions for Business](#) or visit us online to learn more about [Concur Invoice](#).