

# Automating The Accounts Payable Process

Richard Fishburn

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This document has been written by the author with AI used to improve structure and grammar but not for content generation.

| Version     | Date       | Description                                                                                                          |
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| Version 1.0 | 23/01/2025 | Stockists & Distributors, Food Supply, Construction & Import / Export: Purchasing, Delivery, Goods In, and Invoicing |
| Version 1.1 | 27/02/2025 | Adds Education, Requisition, Self Billing, Payment Terms and expands various existing topics.                        |
| Version 1.2 | 25/02/2026 | Adds Enterprise Modules, IDP Vendors as Middleware, Accuracy Claims and 'What is a Whitepaper'.                      |
| Version 1.3 | N/A        | Draft edits                                                                                                          |
| Version 1.4 | 28/08/2026 | Adds foreword, e-Invoicing and accounts receivables                                                                  |

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## About the Author

Richard Fishburn, Head of Technical Consulting at Spectrum Digital, has been designing, implementing, and supporting transactional document automation and business process change projects since 2006. In his current role, he leads the pre-sales function, focusing on process discovery, solution demonstrations, business case development, and proposal generation. His experience in accounts payable automation spans a diverse range of organisations, including stockists, distributors, food supply, construction firms, educational institutions, and many others.

## Foreword

The Purchase-to-Pay automation landscape has changed quite a bit since I started delivering invoice processing solutions some 12+ years ago. Most recently, the advent of Artificial Intelligence in the form of Large Language Models and the UK's move towards e-Invoicing have had the biggest impact. The choice between using purpose-built, deterministic neural networks and machine learning versus Large Language Models is complex and not a one-size-fits-all decision. e-Invoicing promises to reduce the burden of data capture and moves the focus to business process management, something I've long advocated for. These should be considered process improvement projects foremost, with automation applied only to the optimised process. e-Invoicing will not reduce the need for data validation and enrichment or human-in-the-loop exception handling. The same problems will exist in the new landscape as in the old: suppliers will make mistakes, invoices won't match orders, and people will need to decide the outcomes.

## Executive Summary

The Purchase-to-Pay (P2P) process can range from simple and forgiving to highly complex and challenging, often shaped by the core activities of the organisation it supports. These variations result in a wide range of requirements that a Finance team may have when considering automation and process improvement. Some operations are well-suited to more "off-the-shelf" solutions, while others require tailored, process-driven approaches to handle complex data capture, matching, and exception handling.

While complexity is not always tied directly to an organisation's sector, certain industries often present more demanding requirements, including:

- Stockists and distributors.
- Food supply.

- Construction.
- Import / Export activities.

To determine the level of complexity your organisation faces you first need to understand your existing processes. Factors such as the types of purchases you make, how those purchases are managed, and your goods receipting practices all play a crucial role in shaping the end-to-end P2P process. Using this document, you will be able to assess what level of solution you require to achieve your desired results.

## Introduction

### Context / Background

Accounts Payable automation projects tend to lean heavily on technology and tools such as intelligent document processing, OCR, AI and workflow automation. However, these projects should be recognised primarily as process management projects. While Technology plays a critical role the success of such projects heavily depends on how the Purchasing team manages orders, where deliveries are made, what role the Goods In team plays and what the types of spend are.

The Purchase-to-Pay process varies significantly across organisations and is often influenced by the organisation's core activities. It's important to understand how your teams perform their tasks, what types of purchases you're making and what affect your existing processes have on your project goals.

This document explores both processes and tools, while also highlighting considerations specific to different vertical markets.

### Purpose

This document is designed to provide customers and partners with Richard's perspective on the AP process, highlighting the role of automation and process management in enhancing efficiency and effectiveness within the Finance Department.

This whitepaper will evolve over time to address a broad range of topics within the AP domain. It begins with foundational concepts and gradually progresses to more complex and less frequent scenarios.

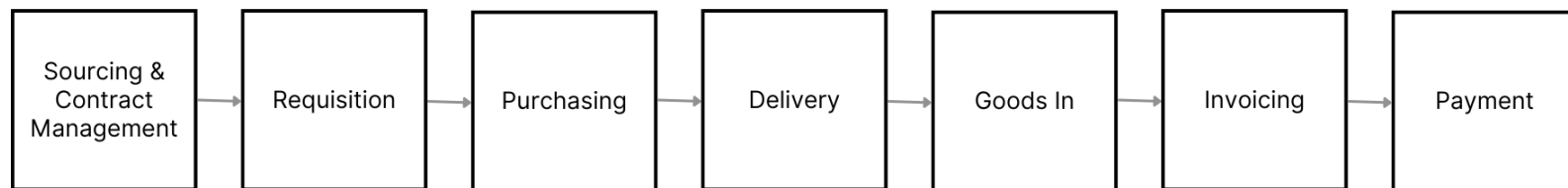
It can be used to help guide partners and potential customers through the buying and planning process.



I have kept the language used intentionally simple to aid understanding.

# Accounts Payable Process

## Key Process Steps



While Accounts Payable (AP) projects often concentrate on the Finance team, particularly the Purchase Ledger team, the contributions of the Sales, Purchasing, Project Management and Goods In teams are too significant to overlook.

Purchase requisition processes help manage spending by enforcing budgets and enabling structured approvals.

The Purchasing and or Sales team are often responsible for entering purchase order data into the ERP system, enabling the generation of supplier orders.

The Goods In team handles the physical inspection of deliveries to warehouses, branches or depots and ensures they are booked into the ERP system against the relevant purchase orders.

Additional processes, typically managed by project teams, may include deliveries made directly to site, sub-contractors being engaged to provide services and materials, and equipment hire charges.

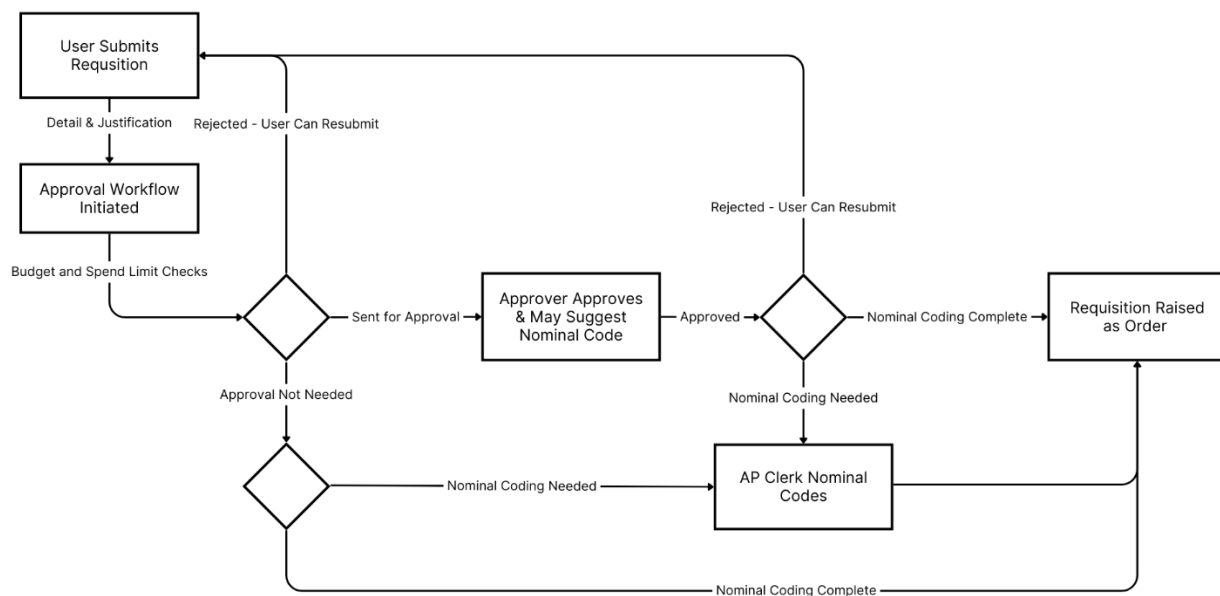
The way purchasing and receipting tasks are performed and the accuracy of data entry can have a significant impact on the level of automation that can be achieved. Moreover, these teams are often involved in exception handling when pricing, additional charges or quantities deviate from expectations. Engaging these teams early in the project can lead to smoother implementation and more successful outcomes.

## Requisition

A purchase requisition process enables an organisation to control purchase requests and approvals effectively. It is particularly useful in environments where many users make frequent, small purchases or where strict budget adherence is required.

Oftentimes users submit requests through email or document-based forms. These requests should then follow an approval workflow based on spend levels, budgets, and predefined business rules. If items are not selected from a product catalogue, nominal coding may be required. Additionally, approvals may be tiered, with multiple approvers involved as costs increase.

A simplified illustration of this process is provided below.



Once the requisition process is complete, an order should be generated in the accounting system to facilitate invoice matching and reporting. Without automation in place this may require re-keying the data from the initial request.

Managing requisitions via email can be inefficient, error-prone, and difficult to oversee, making it challenging to maintain transparency and accountability.

Requisition processes play a significant role in the education sector, particularly in managing budgets and ensuring accurate nominal code allocation.

## Purchasing

An important part of the P2P process is understanding how the Sales & Purchasing team manages basic ordering steps and keeps pricing information up-to-date. Different types of purchases often require different practices, and some deviations are unavoidable.

The aim should be to put good processes in place that help minimise these deviations, making purchasing activities more consistent and efficient.

### Types of Purchase

Examine both PO and Non-PO based purchases. Non-PO based purchases can include:

- Contractual spends such as vehicle leases.
- Renewals such as software licensing.
- Overheads such as utility bills.

PO spends can include but are not limited to:

- Stock items for resale.
  - Common stock items.
  - One-off requests.
- Project costs:
  - Sub-contractor costs.
  - Material purchases.
  - Equipment hire.
- Import costs:
  - Transport.
  - Duties.

## Purchasing Processes

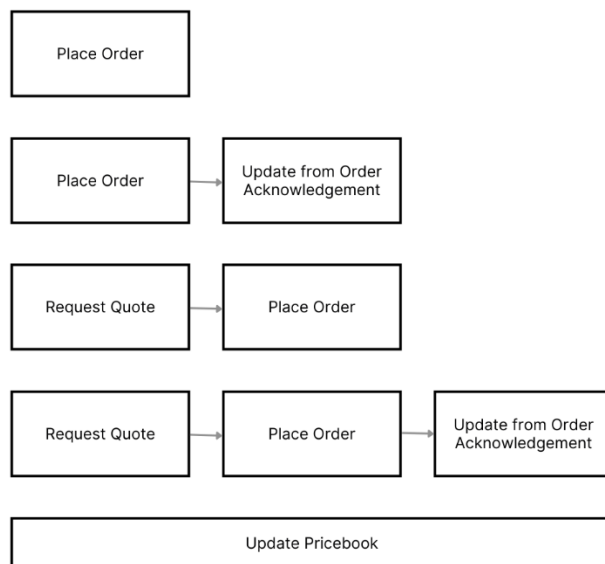
### *Handling Non-ERP Orders*

One of the most challenging practices in purchasing is failing to raise orders in the ERP system for PO type spends. When orders are written in paper order books or sent directly via email without proper follow-up, it significantly limits the options for automation though it doesn't make automation impossible.

Even without formal orders in the ERP system, automation can still provide value. Invoices can be captured and digitally processed, significantly reducing the need for manual data entry. Additionally, workflow tools can be utilised to enable and streamline approval processes, ensuring efficiency and consistency.

### *Managing Orders Entered in the ERP System*

Purchasing practices commonly fall into one of these four processes:



The type of purchase usually dictates which process is undertaken. For stockists and distributors that may have many fast-moving lines the emphasis is likely to be on placing orders when replenishment reports suggest the time is right. Working in this way requires the Purchasing team be on top of price book adjustments.

Some customers may request non-stocked items as a one-off and the supplier may act as the sourcing agent for the purchase. In this case the supplier may request quotes before placing an order with their own supplier. This is a sensible approach to ensuring one-off purchase costs are fully understood.

Many purchasing teams will monitor order acknowledgements that suppliers will send on receipt of new orders. The supplier may communicate latest pricing, stock availability and delivery timescales. The Purchasing team can then update the order with the latest pricing.

## Pricing

The accuracy of pricing, along with the organisation's willingness to accept slight variances within defined tolerances, significantly impacts how often Sales, Purchasing & Project teams need to review invoices and handle exception tasks.

Maintaining accurate and up-to-date price books is essential, as is implementing purchasing processes that align with the nature of the purchase. For infrequent purchases, obtaining quotes is crucial, while for more regular purchases, checking order acknowledgments helps ensure accuracy. These practices lead to improved pricing accuracy and a reduction in exceptions.

## Additional Charges & Discounts

Beyond the items being ordered, additional charges often apply. These may include:

- Carriage:
  - Out-of-area delivery charges.
  - Weight-based charges.
- Surcharges.
- Small order charges.
- Fuel and maintenance charges.

The accuracy with which these charges are included on the order can play a significant role in exception handling. In many cases, these charges are not known at the time of ordering but can be managed by incorporating updates from order acknowledgements.

Deviations can be addressed by identifying these charges on the invoice and applying tolerances to account for discrepancies or missing charges, helping to minimise exceptions and maintain process efficiency.

Surcharges frequently need to be incorporated into the cost of sale. These charges must be clearly identified on the invoice, reviewed for approval if not included in the original order, and may need to be allocated across the cost of goods. In some cases, surcharges are itemised against specific invoice lines, while in others, they appear as a general charge on the invoice.

Discounts can be applied at either the line level or the document level. There may be multiple discounts available per line, sometimes up to three. The supplier may provide unit prices either before or after discounts, and the order line may or may not reflect the net amount.

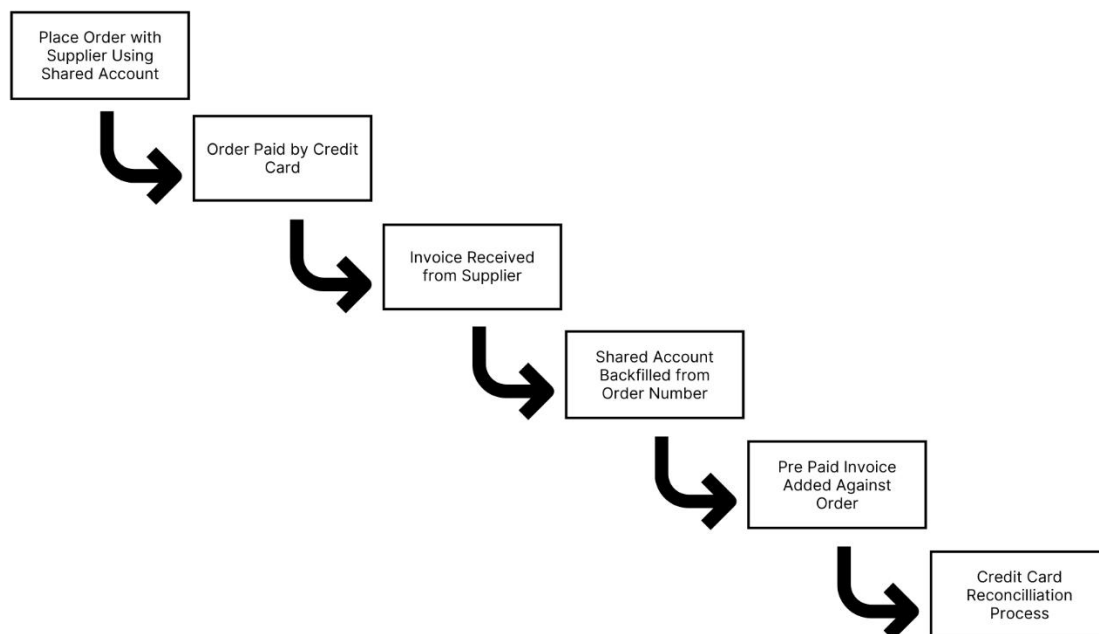
## Shared Accounts / Credit Card Payments

Some Purchasing teams rely heavily on credit card transactions to fulfil one-off customer requests. This approach is often used to reduce the administrative burden of onboarding new suppliers or setting up credit accounts.

Typically, an order is raised against a shared account, payment is made via credit card, and the order is marked as paid. However, this can lead to complications when the supplier issues an invoice, as the details on the invoice may not match the shared account.

One way to address this is by backfilling the shared account details from the order number, ensuring consistency between the records. Additionally, credit card statements must be checked against orders and invoices to ensure the statement balances accurately.

Organisations handling large volumes of credit card transactions may benefit from implementing additional reconciliation tools. These tools can automate the process of balancing credit card statements, saving time and reducing errors.



## Sub-Contractor & Hire Orders

Organisations can use subcontractors to meet the demands of a project. Subcontractor orders are typically structured around deliverables, milestones, or phases of work, rather than physical goods. As a result, these orders may not follow the traditional format of product, quantity, and unit price and may have unique payment terms.



Additionally, subcontractor orders can involve differing tax considerations, such as those required under the Construction Industry Scheme (CIS). Ensuring the order is properly entered against the correct tax codes can help reduce administrative burden during the invoicing process.

Hire orders are typically linked to a hire period rather than a traditional quantity. These timeframes are often extended, and site staff may not communicate these changes back to the original order, creating potential discrepancies. They are also often subject to additional charges such as fuel, movement and collection fees.

## Landed Costs

Organisations importing goods from abroad often use the services of specialist hauliers to manage the pickup and delivery of their goods. These hauliers may also assist with essential paperwork and additional charges, helping to simplify the process for the customer. Many different charges may need to be accounted for such as:

- Transport costs.
- Fuel surcharges.
- Handling fees.
- Customs duty.
- Import licences.
- Documentation charges.

This requirement often results in two separate orders needing to be processed: one for the goods and another for the haulier charges. Haulier costs must be split across relevant charge codes and allocated to the goods to ensure the true cost of sale is accurately realised.

Some ERP systems can automate this allocation, while others rely on users to manually calculate and distribute costs, typically based on line value, weight, volume, or a flat charge. The accuracy and structure of the orders, combined with the capabilities of the ERP system, can introduce complexities to process automation projects.

## Delivery

### Into Warehouse

Goods are typically delivered directly to the customer's warehouses or depots. In most cases, the correct location will have been specified on the order. The supplier handles the physical delivery, while the customer's Goods-In team is responsible for checking the items to ensure the delivery is complete and free from obvious defects.

### Direct To Site

Project-based organisations often require goods to be delivered directly to the site. This can introduce challenges with receipting, as site staff may not have established processes for recording goods received against the order in the ERP system.

In some cases, this results in additional approval steps or requires site staff to send delivery notes to central administrative teams, potentially causing delays in booking the goods into the system.

## Goods-In

The Goods-In process typically involves the following steps:

- Physically unloading goods.
- Inspecting the goods:
  - Packaging checks.
  - Temperature checks.
- Verifying the quantity or volume of goods matches the order.
- Entering data into the ERP system as a goods received note linked to the order.

In some cases, the Goods-In team may not handle ERP data entry directly. Instead, physically checked delivery notes are sent to administrative teams for processing. This can lead to delays in receipting and needs to be considered during the invoicing process.

It's also common for delivered quantities to differ from the original order, such as:

- Items on back order, resulting in partial deliveries.
- Goods sold by volume or weight, where actual quantities may vary slightly from the ordered amount.

## Quality Inspections

In certain industries, additional quality checks are required after goods have been received. Examples include:

- **Food products:** Testing for allergens, gluten content, or similar quality measures.
- **Textiles:** Assessing quality, consistency, and colour accuracy.
- **Electrical items:** Testing functionality to ensure they perform as expected.

These additional checks may result in goods needing to be returned if they fail to meet the required standards. When this occurs, the details must be recorded in the ERP system, typically through the issuance of debit notes.

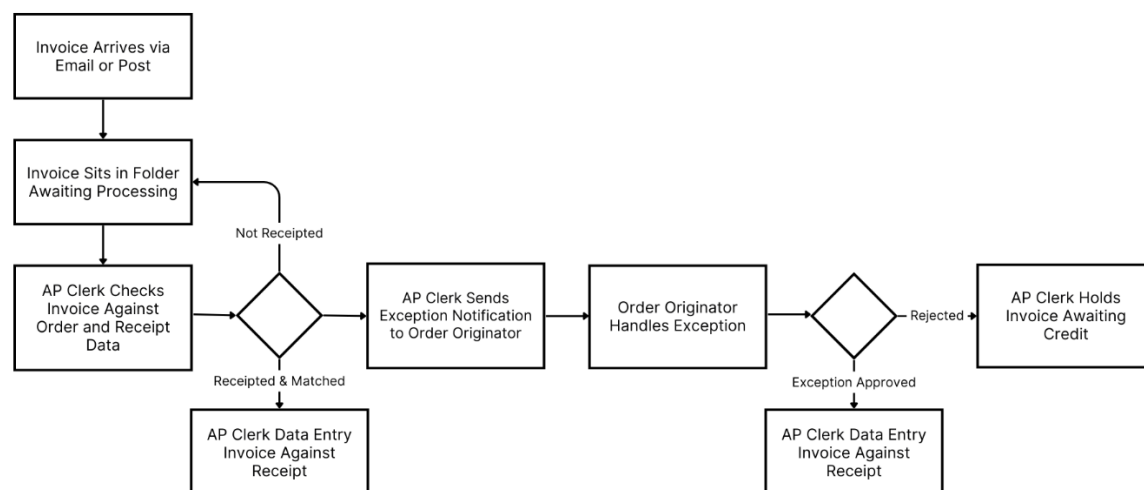
## Invoicing

Invoice processes are often still conducted on paper, with emailed invoices printed and physically circulated around the business between in-trays. This may include practices such as rubber-stamping invoices with the received date and manually annotating them with nominal codes, exceptions, and approvals.

Some organisations have adopted slightly more modern approaches, such as storing electronic invoices in Windows folders and using email as a basic workflow tool.

### *PO Based Invoices*

In a traditional purchase order (PO)-based invoice process, the invoice is manually handled, reviewed, and data-entered by multiple individuals throughout its lifecycle. A simplified illustration of this process is provided below.

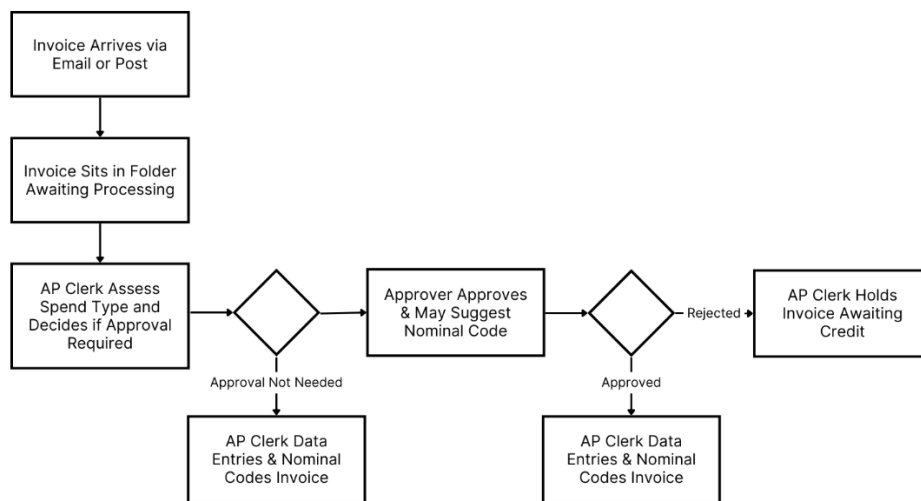


The main steps in the process typically involve:

- The Accounts Payable (AP) clerk verifying the invoice data against the order and receipt information.
- The order originator addressing any resulting queries.
- The final data entry process to record the invoice in the system.

### *Overhead / Expense Invoices*

In a traditional overhead / expense-based invoice process, the invoice is manually handled, reviewed, and data-entered by multiple individuals throughout its lifecycle. A simplified illustration of this process is provided below.



The main steps in the process typically involve:

- The AP clerk verifying the invoice data and deciding whether it requires approval.
- The approver approving or rejecting as required.
- Nominal Coding & final data entry process to record the invoice in the system.

### *Haulier Invoices*

Invoices for international freight often require a specialised data entry process to ensure that charge items are accurately allocated as a cost of sale against the imported goods. This involves matching the supplier's charge codes with the corresponding charge items on the order and, in some cases, performing calculations to distribute costs. These distributions are typically based on line value, weight, volume, or a flat charge.

Common examples of charge codes include:

- **DDEL:** Destination Land Freight.
- **FRT:** Freight.
- **DDOC:** Destination Admin Fee.
- **BAF:** Bunker Adjustment Factor.

AP clerks often rely on their experience to guide them through processing these invoices. In some cases, manual calculations may be required during data entry to ensure accuracy.

### *Sub-Contractor Invoices*

Sub-Contractor invoices often require a specialised data entry process to ensure items are correctly assigned the correct VAT rates and codes and that invoices are ready to pay against a project milestone. The orders they are for are often not receipted in a traditional manner and some level of payment may be retained until inspections are completed.

Some services will be subject to reverse VAT which applies when the responsibility for accounting for VAT shifts from the supplier to the customer. Instead of the supplier charging and collecting VAT, the customer calculates and reports it on their own VAT return. This ensures that VAT is correctly accounted for and helps prevent fraud.

Construction Industry Scheme and reverse VAT should be accounted for by using the correct VAT codes and material / labour definitions on the relevant order, but this cannot always be relied upon due to human error. Invoices should include wording such as:

“Reverse charge: customer to account for VAT to HMRC.”

Subcontractors under CIS should issue invoices for the net amount after deductions (20% for registered subcontractors or 30% for unregistered) and clearly indicate that CIS deductions apply.

### *Hire Invoices*

Hire invoices often require a specialised data entry process due to their unique characteristics. These invoices are typically subject to varying measurements of quantity and frequent changes. They also often include additional charges such as fuel, delivery,

collection, damage, cleaning and operator costs. Some of these may not be accurately known at point of order and may be completely absent.

The AP clerk must match the hire timeframe stated on the invoice to the original purchase order, which may use a different unit of measure. Additionally, hire periods are often extended by site staff without updates to the original purchase order, and in some cases, hire items may be moved between sites without notice.

As a result, AP clerks may need to seek more frequent approvals to address discrepancies between the order and the invoice, adding complexity to the process.

### *Self-Billing Invoices*

Self-billing invoices are a type of invoicing arrangement where the buyer, rather than the supplier, generates the invoice for goods or services received. This approach is commonly used in industries with frequent, recurring transactions or where suppliers may struggle with accurate and timely invoicing.

To implement a self-billing arrangement, both parties must agree to the process in advance, typically through a formal self-billing agreement. The buyer is responsible for ensuring that invoices are generated accurately, including the correct VAT treatment, pricing, and quantity details. Since the supplier does not issue their own invoices, they must verify that self-billed invoices align with their records to avoid discrepancies. Regular reconciliation and communication between buyer and supplier are essential to maintaining accuracy.

Self-billing can improve efficiency, particularly in industries such as construction, logistics, and manufacturing, where multiple small transactions occur regularly. However, compliance with tax authorities is critical. HMRC requires self-billing agreements to meet specific criteria, such as including VAT registration details and maintaining records for audit purposes. Despite the advantages, businesses must ensure they have the appropriate controls and validations in place to prevent errors and maintain supplier trust.

A typical self-billing process may include the following steps:

- **Goods/Services Received:** The buyer receives goods or services from the supplier.
- **Generate Invoice:** The buyer creates an invoice on behalf of the supplier.
- **Validate Invoice:** The buyers accounting system applies pricing, VAT rules, and checks against the purchase order.
- **Match with Supplier Agreement:** Buyer ensures the invoice aligns with the agreed self-billing terms.

- **Send Invoice to Supplier:** The invoice is shared with the supplier for review.
- **Supplier Reviews & Accepts:**
  - If correct, the supplier approves the invoice.
  - If discrepancies are found, it enters a **dispute resolution** process.
- **Payment Processing:** Approved invoices are submitted to accounts payable for payment.
- **Payment Issued:** The supplier is paid, and the process concludes.

## Credit Notes

When a supplier makes a pricing error, an exception is raised, and the task owner identifies that a pricing adjustment is needed. In such cases, a credit note may be requested to reduce the amount payable on the invoice and correct the pricing issue.

It is common for customers to wait until the credit note is received before processing the invoice. This approach allows the invoice and credit note to be processed together, ensuring the correct payment is made during the payment run.

## Debit Notes

When items are returned to the supplier, the customer typically raises a debit note to document the return. Debit notes are used because they reflect a reduction in the quantity of items, not just a price adjustment.

The debit note is often linked to the original order in the accounting or ERP system, ensuring the stock position is accurately updated. Once the supplier accepts the return, they issue a credit note to confirm the adjustment. This credit note is then matched against the debit note in the accounting system, completing the reconciliation process.

# Introducing Automation

## Types of System

Relevant automation systems tend to come in three distinct offerings:

### IDP Vendors

The number of IDP vendors is steadily increasing, particularly in the cloud-native and AI space. These vendors typically enable integrators to send documents via API and receive structured data in return. This output can be integrated directly into ERP systems, especially where the ERP supports exception handling or workflow automation. These systems:

- Work well for organisations with capable IT or development teams.
- Are best utilised alongside an ERP with workflow capabilities or when integrated into a workflow platform.
- Typically address only the need for data extraction.
- May have limited document type support.
- Increasingly support traditional machine learning, AI data extraction and one touch training.

While IDP vendors offer scalable, API-driven document processing, they typically focus solely on data extraction and require additional integration effort to fully support workflow automation and exception handling.

### Entry-Level "Off-the-Shelf" Invoice Processing Systems

These systems are designed for basic requirements and usually feature a single user interface for all tasks. They handle data extraction and workflow but tend to be:

- Rigid in their approach and workflow.
- Less customisable.
- Limited in their ability to manage non-standard invoice types and complex query handling.

While they are straightforward to implement, they may struggle to address more advanced or unique organisational needs.



## Intelligent Automation Platforms

These systems integrate intelligent document processing with traditional business process management and workflow tools, offering highly flexible and adaptable solutions. These systems can:

- Address a wide variety of document types and processes.
- Use multiple user interfaces, as different tools are brought together to form a cohesive solution.
- Expand beyond AP to support other departments and processes, handling both transactional and ad hoc documents.

However, they require significant planning and delivery management to unlock their full potential. Despite the higher initial effort, they are among the most capable and adaptable options available.

## Enterprise-Level Purchase-To-Pay Systems

Enterprise-level systems provide a combination of modular and advanced functionality in one user interface. Alongside purchase invoicing, they often include additional modules for sourcing, contract management, and other complementary processes.

Key characteristics include:

- A focus on specific end-to-end processes, such as Purchase-to-Pay (P2P).
- Advanced modules to support enterprise-level needs, such as sourcing and contract management.
- Limited flexibility for managing documents and processes outside of their primary focus.

While robust and well-suited for targeted needs, they may lack the adaptability to handle broader or non-standard requirements.

## AI, Large Language and Agentic Models

Early forms of AI have been integrated into Intelligent Document Processing (IDP) tools for many years. Technologies such as deep machine learning, convolutional neural networks, transformers, and language models now play a major role in extracting and processing data for downstream use.

Agentic models, go a step further by acting as full knowledge workers. They not only perform data extraction but also understand the underlying business process, the rationale behind the extraction, and the broader context of the accounts payable workflow.

This document explains the role of AI in templateless data capture, two- and three-way matching, nominal coding, and payment terms.

## The Role of ERP Data

The availability and accuracy of data within the ERP system can be important for achieving high levels of automation. Automation tools can enhance existing datasets by adding valuable information, such as:

- Identifying overhead-only suppliers.
- Marking suppliers / requisitions / orders / projects as subject to CIS or reverse VAT.
- Providing unit-of-measure calculations.
- Improving match rates for invoices and purchase orders.

However, ERP data is prone to becoming outdated, subject to entry errors, and often incomplete. To maximise automation success, it is essential to:

- Identify the datasets required for automation.
- Understand their purpose within the process.
- Analyse them for completeness and accuracy.

By ensuring robust and reliable data, organisations can improve automation rates and streamline processes.

## Supplier Data

Supplier data plays a key role in identifying the correct supplier account code to use during invoice processing. Intelligent document capture solutions are often configured to synchronise supplier data on a scheduled basis. This data may include:

- Supplier ID - usually a numeric ID for this specific supplier.
- Supplier Account Code - usually an alphanumeric, descriptive code.
- Name - the suppliers name normalised to remove LTD etc.
- Street Address 1
- Street Address 2

- City
- County
- Post Code
- VAT Number - normalised to remove spaces and add country codes.
- IBAN
- Bank Account Number
- Sort Code
- Default Nominal Code
- Default Approver
- Supplier Type - can be used to denote subcontractor, overhead etc.
- Business Unit

Certain data points can be compared against text on the invoice to establish a match. To improve accuracy, the data should be normalised, accounting for variations such as the inclusion of "Ltd" in names or missing VAT number prefixes like "GB."

An accuracy score can be assigned to matches, with some data points (e.g., VAT number or IBAN) weighted more heavily than others. Matches can also be validated against captured order data or backfilled as needed.

This approach is especially useful when:

- The same supplier account is used across multiple business units.
- Duplicate supplier accounts exist in the system.

By leveraging synchronised and normalised supplier data, organisations can improve matching accuracy and streamline invoice processing.

## Order Data

Order data is essential for performing two-way and three-way matching with received invoices. The availability and structure of order data can vary significantly depending on the ERP system and the type of purchase. For example, the data needed for stock or material-based purchases will differ from that required for hire or subcontractor purchases.

Typically, order data is organised into two core datasets:

1. Order Header

## 2. Order Lines

These datasets provide the foundational information needed to facilitate accurate matching and streamline the invoice processing workflow.

### *Order Header Data*

The order header typically contains various data points, including:

- Order ID - usually a numeric ID for this specific order.
- Order Number - can be alphanumeric this is issued to supplier.
- Order Date
- Carriage Cost
- Supplier ID
- Total Net Value
- Total VAT Value
- Gross Value
- Currency
- Business Unit
- Depot / Branch
- Expected Delivery Date
- Order Originator - the person the order is associated with.

Some of this data is crucial for identifying and comparing information on the invoice, while other fields support downstream processing.

- **Order Originator:** Often the primary task owner for exceptions, particularly pricing-related issues.
- **Expected Delivery Date:** Useful during receipt matching to determine when an item is overdue for receipting.
- **Carriage Costs:** May appear in the order header or as a separate item within the order lines.

By leveraging the appropriate data points, organisations can improve matching accuracy and streamline exception handling.

### *Order Line Data*

Order line data typically exhibits the greatest variance in data points, depending on the type of purchase. For material or stock purchases, the core data points should include:

- Order Line ID - usually a numeric ID for this specific order line.
- Stock Code - the customers stock / product code.
- Supplies Stock Code - this specific supplier stock / product code.
- Description
- Order Quantity
- Unit Price
- Line Total
- Unit of Measure Description - such as 'HUND', 'KG', 'COIL', 'EACH'.
- Unit - typically numeric such as '100'.
- VAT Code
- State - such as 'Complete' or 'Live'

Other datapoints for specific types of purchase could include:

- Duration - typical for equipment hire purchase such as '4'.
- Duration Units - such as 'WEEKS', 'DAYS'.
- Start Date
- End Date
- Classification - such as labour / materials for sub-contractors.
- Retention Value
- Completion Stage

Order line data is essential for matching invoice lines to order lines and, subsequently, to receipt lines as well as identifying exceptions. The use of various matching techniques relies heavily on the accuracy and completeness of this data, which directly impacts match success and automation rates.

To improve matching and automation outcomes:

- **Monitor Price Changes:** Regularly update pricing to reflect current agreements.

- **Utilise Order Acknowledgements:** Ensure data is aligned with supplier-confirmed details.
- **Focus on Accurate Data Entry:** Maintain precision when entering order line details into the system.

By managing these elements effectively, organisations can significantly enhance the efficiency of their processes.

## Receipt Line Data

Receipt data is often similar to the Order Line Data. It is used to match the invoice line data to receipt line data and identify exceptions. Core data points should include:

- Receipt Line ID - usually a numeric ID for this specific receipt line.
- Order Line ID - usually a numeric ID for the associated order line.
- Receipt Number / Code - the receipt identification number.
- Delivered Date
- Delivered Quantity
- Delivered Unit Price
- Receiver Name - the username of the person booking the goods in
- Unit of Measure
- Location
- Status - such as 'Pending', 'Accepted', 'Rejected'

Certain types of purchases and part deliveries can result in quantity differences between the order and receipt. For example:

- **Materials sold by volume or weight:** Slight variances can occur due to loading practices.
- **Partial deliveries:** Suppliers may deliver part of an order based on their stock availability, leaving the remainder on back order.

Some ERP systems allow the unit price to be updated during the booking-in process, ensuring that records reflect the most accurate cost information. Additionally, certain data points, such as the receiver name, are critical for assigning exception tasks to the appropriate individuals or teams downstream in the process.

By accurately capturing and managing receipt data, organisations can streamline matching processes, reduce errors, and address exceptions more efficiently.

## Existing Transaction Data

Existing transaction data is primarily used to identify duplicates and look for attempted fraud. By cross-referencing new invoice data against historical transactions, organisations can reduce errors, prevent overpayments, and maintain compliance. Core datapoints include:

- Transaction ID - usually a numeric ID for this specific transaction.
- Supplier Invoice Number
- Supplier Invoice Date
- Supplier Account Code
- Type - such as 'Invoice' or 'Credit'
- Total Net Value

Duplicate transactions can arise from:

- Re-submission of the same invoice by the supplier.
- Internal data entry errors.
- Variations in invoice numbers due to formatting differences (e.g., spaces, hyphens, or leading zeros).

By comparing key fields such as supplier invoice number, date, and net value, organisations can identify potential duplicates. Advanced systems may normalise data to account for minor differences, such as inconsistent formatting, and assign a confidence score to flag potential matches.

Existing transaction data can also help detect fraudulent activities, such as:

- **Invoice Manipulation:** Inflated amounts, altered dates, or false supplier details.
- **Duplicate Claims:** Submission of the same invoice multiple times with slight modifications.
- **Phantom Suppliers:** Invoices from non-existent or unverified suppliers.

Fraud detection tools can leverage patterns in existing data to identify anomalies, such as unusually high amounts or repetitive invoice submissions from the same supplier within a short timeframe.

## Tax Code Data

ERP systems often vary in how they handle tax codes, making it essential for automation tools to accurately identify and apply the correct tax code ID when posting tax values. This dataset ensures that the appropriate VAT rates are associated with the corresponding tax code IDs, enabling accurate and compliant tax processing. Core datapoints include:

- Tax Code ID - usually a numeric ID for this specific tax code.
- Tax Code Description
- Tax Rate - such as '20' or '5', specific to a countries tax rules.
- Country Code

## Capturing Data from Documents

The ability to extract information from invoices and convert it into standardised, structured data is central to automating the invoice process. While traditional tools like Optical Character Recognition (OCR) still play a role, advanced systems leveraging text layer technology and AI-based data extraction are becoming more prevalent.

Despite this shift, many organisations still deal with a small number of paper-based invoices, and some PDF invoices lack the necessary text layer for digital extraction. Systems that can combine multiple data capture techniques provide the flexibility to handle the widest range of invoice formats and requirements.

## Semi-Structured Nature of Purchase Invoices

Purchase invoices are considered semi-structured documents. While the content is largely consistent such as supplier information, invoice lines, invoice numbers, and dates the layout varies significantly between type of product or service ordered, suppliers and ERP systems. The goal of a data capture solution is to create consistent key-value pairs, regardless of these variations.

For example, consider the invoice number:

- **Labels:** The same data can be labelled differently, such as:
  1. Invoice Number.
  2. Inv No.
  3. Document Number.
- **Position:** The invoice number is often located near the top of the page, close to other data points like the invoice date.



- **Associations:** Data capture systems recognise how data points relate to each other, such as the proximity of the invoice number to its label or related fields.

Modern data capture solutions are trained on countless permutations of invoice layouts, enabling them to efficiently identify and standardise data across diverse designs. By combining AI models, machine learning, operator base feedback, pattern recognition, and contextual analysis, these solutions can adapt to variations and ensure accurate data extraction.

## Improving Data Capture Results

When an organisation follows best practices for purchasing and goods-in processes, the accuracy of data capture depends largely on the efficiency of the capture engine. To achieve optimal results, the data capture engine should incorporate user input and continuously train its model based on feedback.

### *Key Steps in the Capture Process*

1. **Apply Existing Logic:**

The capture engine uses pre-existing AI and machine learning models to extract data.

2. **Assess Results and Identify Exceptions:**

The system evaluates extracted data and flags exceptions for further review.

3. **Incorporate User Feedback:**

User input is requested for exceptions, with feedback used to improve the capture model.

4. **Track Automation Rates:**

Automation performance is monitored to measure efficiency and identify areas for improvement.

5. **Create Templates for Complex Cases:**

For edge cases or complex layouts, templates or customised processing rules may be required.

### *Templateless Capture*

Modern data capture solutions are designed to leverage AI and machine learning to deliver high accuracy with minimal reliance on templates or extensive training. However, certain scenarios such as complex layouts or missing data may necessitate:

- **Operator Based Training:** For improving models via user feedback.

- **Template Creation:** For handling unique or challenging invoice designs.
- **Customised Processing Rules:** To address specific organisational needs.

### *Centralised Template Libraries for Edge Cases*

Some of the most effective systems also feature centralised template libraries. These libraries allow templates to be shared and applied across multiple instances of the software, ensuring consistency and reducing duplication of effort.

By integrating user feedback, leveraging advanced AI models, and providing robust template management for edge cases, organisations can significantly improve data capture accuracy and efficiency, even in complex scenarios.

### Header vs Line-Item Capture

Some basic invoice processing systems are limited to capturing header-level information and cannot extract line-item details. This limitation can significantly reduce the accuracy and automation potential of the invoice processing workflow. Typically, these systems capture only:

- Supplier Name
- Invoice Number
- Invoice Date
- Order Number
- Total Net Value
- Total Tax Value
- Gross Amount

While header-only capture may suffice for service-oriented companies or when dealing with overhead and expense invoices, it is often inadequate for businesses involved in stocking and reselling goods. Capturing line-item data such as item descriptions, quantities, unit prices, and line totals is essential for accurate order and receipt matching as well as downstream exception handling.

Implementing a system capable of line-item data capture enhances the ability to:

- **Perform Detailed Invoice Matching:** Align invoices with purchase orders and receipts at the line level to ensure accuracy.

- **Detect Discrepancies:** Identify variances in pricing, quantities, or product descriptions that may indicate errors or fraud.
- **Improve Decision-Making:** Access granular data to inform purchasing strategies and supplier negotiations.

Therefore, for organisations managing physical goods, investing in advanced data capture solutions that include line-item extraction capabilities is crucial for operational efficiency and accuracy.

Core fields for capture at line level such include:

- Order Number - to facilitate consolidated invoices for more than one order.
- Stock Code
- Description
- Quantity
- Unit of Measure
- Unit Price
- Unit Price Denominator
- Discount % 1 - suppliers often have multi-level discounts.
- Discount % 2
- Discount % 3
- Discount Value
- Total Net Value
- Tax Percentage - suppliers will sometimes provide goods with differing tax %.
- Tax Value
- Gross Value
- Currency
- Surcharge - market conditions can lead to frequently changing pricing.

Additionally, more comprehensive header and footer fields should include:

- Business Unit Group - to allow for the customers group structure
  - Business Unit Name
  - Address Line 1

- Address Line 2
- City
- Postcode
- Supplier Group
  - Address Line 1
  - Address Line 2
  - City
  - Postcode
  - Bank Account
  - Sort Code
  - IBAN
- Tax Group                      - to allow for goods with differing tax %.
  - Tax Rate
  - Tax Value
  - Net Value
- Surcharge                      - if not applied at line level.
- Carriage
- Discount                      - if not applied at line level.
- Due Date
- Invoice Type                      - such as 'Invoice' or 'Credit'.
- Currency

Pre-defining which suppliers require header-only capture versus line-item capture can be advantageous. For example, certain invoice types, such as utility bills, may only need header-level data extraction. By marking these invoices for header-only capture, organisations can streamline processing and improve overall efficiency.

This approach ensures that resources are focused on invoices that require detailed line-item extraction while simplifying the handling of less complex invoices.

## Customised Data Capture

Advanced solutions will allow the addition of custom fields that can be trained to capture additional data as required.

## Validating and Correcting Data

Suppliers do not always provide all the necessary data required for accurate invoice processing, leading to challenges. For example:

- **Major Online Retailer Example:** I have seen invoices from major online retailers where the invoice lines include the unit price including tax, the tax rate, and the line total but omit the unit price excluding tax.
- **Inconsistent Order Numbers:** Some suppliers remove prefixes like "PO" from order numbers, while others retain them, creating inconsistencies.
- **System Constraints:** ERP systems may impose limitations, such as a maximum length of ten characters for supplier invoice numbers, requiring adjustments.

Addressing these issues involves two key stages:

1. **At Point of Capture:** Normalise and validate data during the capture process, such as recalculating missing values (e.g., unit price excluding tax) or standardising order numbers.
2. **In the Downstream Workflow:** Resolve inconsistencies through automated workflows, ensuring compliance with system constraints.

By proactively validating and correcting data at these stages, organisations can improve processing accuracy, reduce exceptions, and enable better integration with downstream systems.

## Validating Data

Data validation ensures that captured and processed data is accurate, logical, and compatible with integration into the ERP system. Common examples of data validations include:

- $\text{Total Net} + \text{Total Tax} = \text{Total Gross}$ .
- $\text{Unit Price} \times \text{Quantity} = \text{Line Total}$ .

- $\text{Cost of Goods} + \text{Additional Charges} / \text{Discounts} = \text{Total Net}$ .
- $\text{Invoice Unit Price} = \text{Order Unit Price}$  (within tolerance).
- $\text{Sum of Line Tax} + \text{Additional Charge Tax} = \text{Total Tax}$  (accounting for rounding).
- $\text{Invoice Supplier Account Code} = \text{Order Supplier Account Code}$ .

These types of data validations are crucial to maintaining data consistency and identifying discrepancies that could lead to processing errors.

When exceptions arise, they should be flagged and routed to the appropriate system user or team for resolution, ensuring that potential issues are addressed promptly and accurately. By implementing robust validation checks, organisations significantly reduce errors and improve overall process efficiency.

## Missing Data

Automation can play an important role in correcting missing data by applying business or supplier-specific rules to complete incomplete data where possible. Common examples of missing data and how it can be addressed include:

- **Missing Line Values:**
  - For example, a missing unit price without tax can be calculated using a simple formula based on the unit price with tax and tax rate.
- **Missing Supplier Account Codes or Business Unit Account Codes:**
  - These can often be backfilled using reference data from the order number or other linked records.
- **Missing Unit of Measure:**
  - The appropriate unit of measure can sometimes be inferred from the line description text.
- **Missing Unit Price Denominator:**
  - This can be calculated using predefined "blind" conversions from order line reference data.

By automatically replacing missing data points through intelligent rules and calculations, organisations can significantly improve automation rates and reduce manual intervention, streamlining the overall process.

## Normalising Data

ERP systems often require data to be presented in a consistent format to ensure accurate processing. Exchanging transactional data in an incorrect format can lead to errors, delays, and unnecessary manual intervention.

One of the most common examples of this challenge is found in date formats. Suppliers frequently use various formats, such as:

- **DD/MM/YYYY**

Example: 14/01/2025.

Common in the UK and many other countries.

- **MM/DD/YYYY**

Example: 01/14/2025

Common in the United States.

- **YYYY-MM-DD**

Example: 2025-01-14

ISO 8601 format, often used in databases, APIs, and international systems.

- **DD-MMM-YYYY**

Example: 14-Jan-2025

Used in some formal documents or systems to avoid ambiguity with month and day.

Other examples can be found in numeric values:

### Decimal Separators

- **Period (.):**

- Example: 1,234,567.89

- Common in the US, UK, and many other countries.

- **Comma (,):**

- Example: 1.234.567,89

- Used in many European and Latin American countries.

- **No Separator:**

- Example: 1234567.89
- Occasionally seen in databases or systems with strict character limits.

Normalising data is essential for ensuring accurate processing in ERP systems, as inconsistencies in formats can cause errors and delays. By addressing these inconsistencies, organisations can improve data accuracy and reduce manual intervention.

## Matching Methods

Whilst 3-Way matching is often considered superior, the most efficient automation systems are designed to accommodate both 2-Way and 3-Way matching, depending on the specific scenario. The level of automation achieved in either case depends on the data capture technology, matching service, and exception handling process employed.

### 2-Way Matching

2-Way matching refers to the process of matching an invoice, either at the header or line level, to an order. At its most basic, a header-based 2-Way match involves extracting an order number from the invoice, matching it to data in the ERP system, and comparing the invoice cost with the order cost. For some organisations, this level of matching may provide sufficient certainty to confirm that the invoice is both expected and accurately priced.

Many organisations will require additional approval from the order originator to verify that the materials have been received, or the service has been delivered.

At the line-level, this process extends to matching individual items on the invoice to corresponding items on the order to validate both unit pricing and quantities. The line-level approach offers greater visibility into any exceptions, but the continued absence of a receipt check often means that an additional approval step is still necessary.

Whilst 2-Way matching may be acceptable in certain scenarios, it often results in increased exception handling and additional approval tasks compared to situations where receipts are available, enabling a 3-Way match to be performed. Even common scenarios such as part deliveries are likely to cause exceptions in a 2-Way match process.

### 3-Way Matching

3-Way matching incorporates an additional step of matching the invoice to the receipt. The details recorded on the receipt will depend on the ERP system and the receipting practices in place. At its most basic, the quantity of items received is recorded against the corresponding order line.



Typically, it is expected that an invoice will be issued for the specific items delivered, with any items on back order and delivered at a later date generating a separate invoice. Some ERP systems allow receipts to be recorded with updated pricing, which can then be included in the invoice matching process.

In certain scenarios, organisations may purchase bulk items where the delivered quantities vary from the original order due to loading practices. These adjusted quantities can also be recorded on the receipt and used for more accurate invoice matching.

## Automating Matching

Some systems require matching stock codes from the invoice to the order. While effective in some cases, this approach can limit the automation rate, particularly when the supplier uses a different code than the customer. There are numerous scenarios to consider during the matching process. Basic matches at the line level should include:

- Stock code on invoice matches the stock code on order item.
- Stock code on invoice matches supplier's stock code linked to the customer's stock code in the ERP system.
- Quantity and unit price on invoice match the quantity and unit price on order (creating a unique combination).
- Quantity and unit price on invoice match the quantity and unit price on receipt and/or order (creating a unique combination).

Beyond these basic matches, advanced solutions may incorporate:

- Tolerance-based matching for unit prices and quantities.
- AI-based description matching between the invoice line description and the order line description.
- Known unit of measure (UOM) calculations for delivered versus stocked items.
- 'Blind' or unknown UOM calculations for delivered versus stocked items, by assigning missing UOMs or pricing units.
- Extraction of stock codes from stock code descriptions.
- Conversion of carriage costs to and from line items.

- Consolidated line items, where a single item is ordered or invoiced multiple times on separate lines.
- Hire period matching.

Known UOM calculations rely on the stock code listing the appropriate conversion rate. In contrast, 'blind' or unknown UOM calculations strategically apply conversions without requiring a matched stock code.

Systems should also enable the converted quantities and unit prices from the invoice to be exported to the ERP system to ensure accurate downstream processing.

They should also have the capability to convert charges listed at the line level on the invoice into header items on the order and vice versa. For example, carriage charges may appear as a header item on the invoice but as a line item on the order, or the reverse. In such cases, the system must be able to accurately convert these charges to ensure alignment between the invoice and the order. Similarly, discounts applied at either the header or line level on the invoice or order may also require conversion to maintain consistency and accuracy.

## Payment Terms

Payment terms can dictate when an invoice is due or if there are early settlement discounts available.

### Standard Payment Terms

- **Net 30, Net 60, Net 90, etc.** – Payment is due within the specified number of days after the invoice date (e.g., Net 30 means payment is due in 30 days).
- **End of Month (EOM)** – Payment is due at the end of the month in which the invoice is received.
- **Month Following Invoice (MFI)** – Payment is due a specific number of days after the end of the month in which the invoice was issued (e.g., 30 MFI means payment is due 30 days after month-end).

### *AI Payment Terms*

Natural language processing allows AI systems to interpret the term on the invoice and create a payment date from the term.

| <b>Term</b>        | <b>Meaning</b>              | <b>Invoice Date</b> | <b>Payment Date</b> |
|--------------------|-----------------------------|---------------------|---------------------|
| Net 60             | + 60 days from invoice date | 10/01/2025          | 11/03/2025          |
| Pay within 10 days | + 10 days from invoice date | 10/01/2025          | 20/01/2025          |
| 30 MFI             | + 30 days after month end   | 10/01/2025          | 02/03/2025          |

## Early Payment Incentives

- **2/10 Net 30** – A 2% discount is available if the invoice is paid within 10 days; otherwise, the full amount is due in 30 days.

## AI Payment Incentives

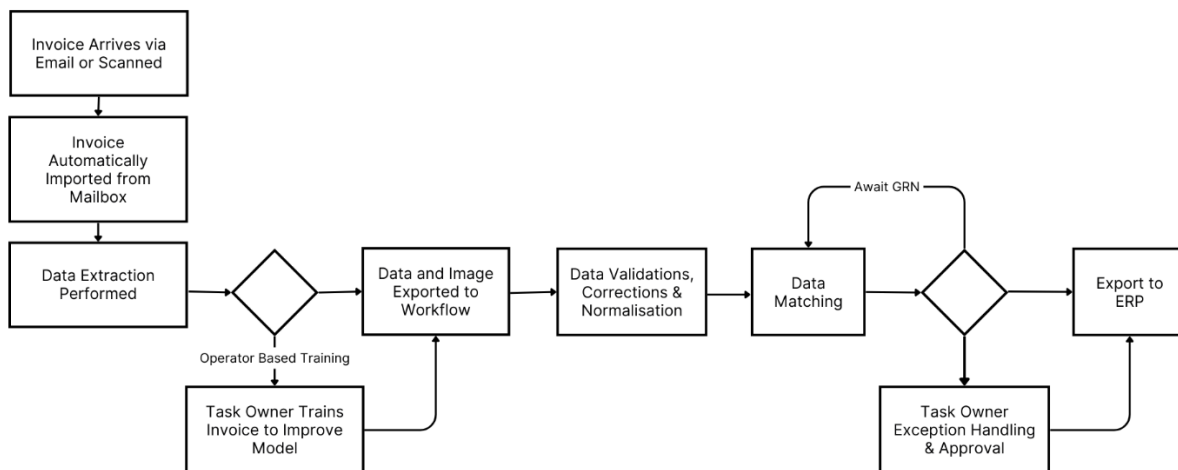
Natural language processing allows the AI systems to interpret the settlement discount term and prioritise the invoice accordingly. This can then be used to drive reporting, bring the invoice to the attention of the ap team or even alter payment schedules.

## Workflow / Business Process Management

Workflow or Business Process Management defines how requisitions, exceptions and approvals are managed.

## Exception Handling & Approval Workflows

In this highly simplified process map, the key steps within the automated Accounts Payable workflow are illustrated.



Most organisations will typically require separate workflow paths to handle:

- Stock / PO invoices.
- Overhead / expense invoices.
- Credit Notes.

Non-PO invoices often require approval and nominal coding. However, a portion of this process can be automated using tiered approval levels and AI or pattern-based coding, enabling greater efficiency and accuracy.

Some systems offer the flexibility to customise the process to meet specific business needs, including:

- Defining the workflow based on purchase types, such as stock, materials, labour, hire, subcontractor, or haulier.
- Assigning task ownership using data from the invoice, order, receipt, or project information.
- Adding custom, rule-based tasks tailored to business requirements.
- Incorporating custom, rule-based task outcomes to address specific scenarios.
- Configuring the types of exceptions that need to be managed.
- Setting up customised approval rules to align with organisational policies.

Organisations may have straightforward requirements or be willing to adapt to a system's predefined processes, modifying their own workflows accordingly. Entry-level "off-the-shelf" systems typically offer limited flexibility, whereas intelligent automation platforms provide much greater adaptability.

Automation platforms integrate specialised data capture tools with business process management tools, combining the strengths of both to enhance efficiency and usability. Designed for process improvement projects, these platforms are highly flexible, enabling the automation and management of a wide variety of documents and processes. They can be expanded into related processes such as purchase requisition or completely unrelated processes such as employee onboarding.

In contrast, enterprise-level Purchase-to-Pay systems, while less flexible in terms of workflow customisation, often include specialised modules such as sourcing and contract management. However, these systems are typically limited to handling processes and documents within the accounts payable function, making them less suitable for broader use cases.

## Requisition Workflows

Requisition workflows often start with an e-Form for digital data entry and then define the structured approval process for purchase requests, ensuring compliance with organisational policies and budgets. These workflows typically route requisitions through

predefined approval levels based on factors such as spend thresholds, department budgets, and business rules. Approvals may follow a tiered structure, escalating to higher authority levels as costs increase.

Automation systems can apply rule-based approvals, automatically routing requests to the appropriate approvers based on the predefined criteria. AI-powered tools can assist with nominal coding or suggest the appropriate budget categories, minimising errors and ensuring consistency. Additionally, integration with finance and ERP systems allows real-time budget checks, preventing overspending before requisitions are approved.

## Nominal Coding

Whilst PO-based invoices typically derive their nominal or GL coding from the ordered items, overhead or expense-based invoices without a PO may require additional coding steps. Traditionally managed manually by the Finance team, there are now several more automated approaches available:

- Default supplier-related nominal codes.
- AI-driven coding:
  - Based on previously coded invoices.
  - By matching invoice line descriptions with nominal code descriptions.

## AI Nominal Coding

The success of AI-driven options largely depends on the complexity of the nominal code structure and the level of variation in purchases. At a minimum, AI-based systems should provide users with a list of potential matches, ranked and sorted by accuracy.

When suppliers provide a wide range of goods and services, and the customer has a large nominal code structure, AI can be used to help speed up the process. By analysing how specific invoice lines have been coded in the past, AI can identify patterns and learn to apply the appropriate coding for future transactions, improving accuracy and efficiency.

Alternatively, the AI model can be trained on the entire nominal code structure, using natural language processing to match invoice line descriptions with nominal code descriptions. While this approach can be less accurate, it does not depend on previously coded invoices. To address ambiguity, the system may present a shortlist of potential matches, allowing the user to make the final selection.

More specialised AI models are being developed to function as full knowledge workers, offering a deeper understanding of the nominal coding process. Trained on large datasets

and designed with a narrower focus than generic large language models, these agentic systems provide exceptional accuracy. They promise to deliver precise results with minimal human oversight and intervention.

## Nominal Coding Requisitions

AI is becoming increasingly important in supporting nominal code allocation within the requisition process. It applies similar methods to those used for coding invoices, ensuring consistency and accuracy. This is particularly relevant in the education sector, where purchases are often ad hoc rather than sourced from predefined product catalogues. As a result, items must be manually assigned nominal codes based on their nature, rather than relying on predefined coding linked to specific products.

## Systems Integration

Regardless of the type of automation tool used, it must integrate seamlessly with your chosen ERP or accounting system. This integration is essential for extracting required datasets and posting transactions to the appropriate ledgers. The type and quality of integration are largely determined by the ERP's capabilities, as well as the expertise and resources of the vendor.

Tools may come with pre-configured connectors for major ERP systems, offering integration out of the box. Additionally, some vendors may develop custom connectors tailored to specific requirements, either for an additional fee or as part of the overall project costs.

## Flat File Exchange

The weakest integrations typically rely on flat file exchanges, such as CSV, XML, or JSON files, which are generated by the automation tool and then imported into the ERP. These integrations are one-way, offering little to no visibility into the outcome once the file is exchanged. Additionally, they often require users to manually execute the file import, which can lead to inefficiencies and errors. Flat file exchange is simple to implement, but it lacks immediate feedback, meaning errors may only be caught later in the process. Many legacy systems still rely on flat file transfers as they may not support modern API-based integration.

## API's

Stronger integrations leverage modern technologies such as SOAP and REST APIs, enabling two-way communication between systems. These APIs not only provide real-time updates and improved visibility into outcomes but also handle failures and logging far more

effectively than flat file exchanges. However, they require more development effort and can have complexities like authentication and rate limits.

## Robotic Process Automation

Where direct integration is not possible, Robotic Process Automation (RPA) can be used to bridge the gap by mimicking user interactions through the system's general user interface. This approach allows automation of data entry and retrieval in systems without API or file-based integration options. While RPA can be a flexible solution, it depends on UI stability and may require maintenance if the interface changes.



## e-Invoicing

The European Commission defines e-Invoicing as follows:

“Electronic invoicing is the exchange of an electronic invoice document between a supplier and a buyer. An electronic invoice (eInvoice) is an invoice that has been issued, transmitted and received in a structured data format which allows for its automatic and electronic processing, as defined in Directive 2014/55/EU.”

Source: European Commission, “What is eInvoicing?”, available at: <https://ec.europa.eu/digital-building-blocks/sites/display/DIGITAL/What%2Bis%2BeInvoicing> (accessed 28 August 2026).

A PDF sent by email may be electronic but is not an e-Invoice.

A good example of a correctly formatted and delivered e-Invoice uses the Peppol BIS Billing 3.0 format. This is a structured UBL 2.1 XML format. It is based on the European EN 16931 e-Invoicing standard and is already widely used for automated invoice exchange.

The following is a simplified illustration of the type of structured data contained in an e-Invoice. A production e-Invoice would need to conform to a recognised syntax and validation standard, such as Peppol BIS Billing 3.0.

```
<Invoice>
  <ID>INV-1001</ID>
  <IssueDate>2026-08-28</IssueDate>
  <DueDate>2026-09-27</DueDate>
  <InvoiceTypeCode>380</InvoiceTypeCode>
  <DocumentCurrencyCode>GBP</DocumentCurrencyCode>

  <AccountingSupplierParty>
    <Name>Example Supplier Ltd</Name>
    <CompanyID>GB123456789</CompanyID>
  </AccountingSupplierParty>

  <AccountingCustomerParty>
    <Name>Example Buyer Ltd</Name>
    <CompanyID>GB987654321</CompanyID>
  </AccountingCustomerParty>

  <InvoiceLine>
    <ID>1</ID>
    <Description>Invoice processing services</Description>
    <InvoicedQuantity>10</InvoicedQuantity>
    <PriceAmount>100.00</PriceAmount>
    <LineExtensionAmount>1000.00</LineExtensionAmount>
  </InvoiceLine>

  <TaxTotal>
    <TaxAmount>200.00</TaxAmount>
```

```
</TaxTotal>

<LegalMonetaryTotal>
  <TaxExclusiveAmount>1000.00</TaxExclusiveAmount>
  <TaxInclusiveAmount>1200.00</TaxInclusiveAmount>
  <PayableAmount>1200.00</PayableAmount>
</LegalMonetaryTotal>
</Invoice>
```

The e-Invoicing platform ensures that invoice data is exchanged in a structured, machine-readable format that both the supplier and customer have agreed to and can recognise. This removes the need for data capture from PDFs and eliminates one of the hurdles to efficient automation.

## Types of e-Invoicing Model

Different countries have adopted varying approaches to e-Invoicing, broadly falling into three models:

### Post-Audit Model

Invoices are exchanged directly between supplier and buyer, with tax authorities auditing transactions retrospectively. This is the traditional model currently used in the UK, where e-Invoicing is permitted but is not yet mandatory. The UK Government has announced that mandatory e-Invoicing for all VAT invoices will begin in April 2029.

### Clearance Model

Invoices must be submitted to and approved by a government platform before being issued to the buyer. This provides real-time tax visibility and is used in countries such as Italy and several countries across Latin America.

### Continuous Transaction Controls (CTC) / Hybrid Models

A combination of direct exchange and real-time reporting to tax authorities. Invoices may be exchanged between parties but must also be reported or validated through a central system. This model is becoming increasingly common across Europe.

### Four-Corner (Peppol) Model

The four-corner model is a decentralised approach in which a supplier and buyer exchange invoices through their respective Peppol service providers. The supplier sends the structured e-Invoice to its provider, which routes it through the Peppol network to the buyer's provider and into the buyer's financial system.

Peppol provides the common formats and protocols required for interoperability. This allows organisations to exchange e-Invoices without requiring a separate direct integration with every trading partner.

The UK Government has announced Peppol as the core interoperability network for UK e-Invoicing, although the detailed implementation requirements are still being developed.

## Impact on Purchase-to-Pay Automation

e-Invoicing primarily impacts the first stage of the invoicing process: how the invoice is received.

Importers and exporters should expect to continue receiving PDFs and other non-structured invoices from overseas suppliers that do not use compatible e-Invoicing systems. As a result, businesses operating internationally may need to support both structured e-Invoices and conventional invoice formats for the foreseeable future.

The following points will apply:

- UK VAT invoices received as compliant e-Invoices will no longer require traditional data extraction.
- P2P automation platforms are likely to sit between the Peppol network and the customer's ERP system.
- Existing process steps will still apply, including:
  - Validating, correcting and enriching received invoice data
  - Matching invoice data to order and receipt data
  - Performing unit-of-measure conversions
  - Identifying pricing, quantity and additional-charge exceptions
  - Handling human-in-the-loop exceptions
  - Applying nominal coding to non-order-based invoices
- Some ERP and Accounting systems will adopt process management into their core offering
  - Some will do this well.
  - Others will not.

P2P automation platforms will therefore remain important for some time to come, supporting the processes and exceptions that e-Invoicing and ERP systems alone will not fully address.

# Other Automation Opportunities

## Supplier Statement Reconciliation

Supplier statement reconciliation is often one of the most time-consuming tasks for the Accounts Payable function. The process involves reviewing each line of the supplier statement and matching it to transactions in the purchase ledger. Key activities include identifying missing invoices, verifying inconsistent values, and addressing invoices on hold or under query.

Automated systems can significantly streamline this process by flagging discrepancies and enabling direct communication with suppliers, reducing manual effort and improving efficiency.

## Credit Card Statement Reconciliation

Credit card reconciliation is a critical but often time-consuming task for the Accounts Payable function. The process involves matching transactions on the credit card statement with internal records, such as purchase orders, invoices, or expense reports. Key activities include:

- Verifying each transaction against supporting documentation.
- Identifying unapproved or unrecognised charges.
- Resolving discrepancies, such as incorrect amounts or missing invoices.
- Allocating charges to the correct accounts or cost centres.

Automated systems can enhance the reconciliation process by:

- Importing and extracting data from credit card statements.
- Automatically matching transactions with purchase data and invoices.
- Highlighting discrepancies for review and approval.

By reducing manual effort and ensuring accurate allocation, automated credit card reconciliation helps organisations improve efficiency and maintain better financial control.

# Beyond the Purchase Ledger

## Sales Order Processing

Sales order processing shares similarities with invoice processing in its reliance on accurate data capture, exception handling and integration with ERP systems. Both processes involve extracting structured data from semi-structured documents, such as purchase orders and invoices, and validating it against existing datasets. Automated solutions for sales order processing can enhance efficiency by capturing order details, checking them against stock levels and pricing, and flagging discrepancies, much like how invoice automation systems identify exceptions and validate invoice data.

## Remittance Processing

Customer remittance processing aligns closely with invoice processing in its focus on accurate data capture and reconciliation. Both processes require extracting structured data from semi-structured documents, such as remittance advices, and matching it to existing records. Automated solutions streamline remittance processing by identifying payments, matching them to outstanding invoices, and flagging discrepancies for review mirroring how invoice automation systems validate and reconcile invoice data.

## Accounts Receivable Automation

Arguably the largest growth area for AI agent automation is in accounts receivable, both from a billing support and collections perspective. It is now possible to automate much of the accounts receivable inbox, with agents responding to customer enquiries, providing invoice and payment information, handling billing disputes, performing customised outreach and heavily reducing debtor days.

For an automation platform, this includes monitoring incoming correspondence, identifying the customer and invoices involved, checking payment and account status, and responding using information drawn from the ERP system. Agents can also segment customers, tailor communications accordingly, manage routine reminders, request missing information, allocate incoming payments and escalate genuinely complex issues to the appropriate member of the finance team. Human-in-the-loop edits and decisions can then be captured and used to improve future classifications, responses and collection strategies. This provides a practical example of how automation can extend beyond transaction processing into ongoing customer and cash management.

## In Conclusion

Automation tools for accounts payable projects differ significantly in their core functionality and the levels of automation they can achieve. Comparing systems can be challenging due to vendors' inconsistent definitions of success. The complexity of an organisation's purchase-to-pay process will depend on its core activities, which in turn shape its system requirements.

Each of the three main types of automation tools has a valuable role to play, ranging from simple solutions to more customised or specialised systems. Process automation platforms offer a robust, scalable, and future-proof solution. These platforms provide the flexibility to handle a wide range of processes and documents, integrate seamlessly with existing systems, and adapt to evolving business needs. By leveraging advanced capabilities such as AI-driven data capture, workflow customisation, and intelligent exception handling, automation platforms deliver higher automation rates and better overall efficiency.

Treating accounts payable automation as a process improvement project and utilising a process automation platform significantly enhances the likelihood of success. This approach not only meets current requirements but also positions organisations to respond effectively to future challenges and opportunities, maximising the return on investment.

Look for vendors with relevant industry experience in your sector, those that offer a strong on-boarding experience and consider whether you require further process improvement capability in other areas of your business.

## Industry Terms and Definitions

| Term                               | Definition                                                                                                                                   |
|------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------|
| Accounts Payable (AP)              | The department within a company responsible for processing supplier invoices and making payments.                                            |
| Purchase-to-Pay (P2P)              | The end-to-end process covering procurement, order management, goods receipting, and invoice processing.                                     |
| Enterprise Resource Planning (ERP) | A software system that integrates various business functions, including finance, procurement, inventory, and sales, into a unified platform. |
| Purchase Order (PO)                | A formal document issued by a buyer to a supplier authorising the purchase of goods or services at agreed prices and terms.                  |
| Non-PO Invoice                     | An invoice received from a supplier that does not have an associated purchase order, often requiring additional approvals.                   |
| Goods Received Note (GRN)          | A record confirming the receipt of goods from a supplier, typically used for matching invoices against received stock.                       |
| Three-Way Matching                 | A process that verifies an invoice by matching it to the corresponding purchase order and goods receipt to ensure accuracy before payment.   |
| Two-Way Matching                   | A simplified verification process that matches an invoice to a purchase order but does not validate goods receipting.                        |
| Invoice Exception Handling         | The process of managing discrepancies between invoices, purchase orders, and receipts, which may require manual intervention.                |

|                                       |                                                                                                                                                                    |
|---------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Optical Character Recognition (OCR)   | A technology used to extract text and data from scanned or digital invoices for automation and processing.                                                         |
| Intelligent Document Processing (IDP) | An advanced form of OCR that combines artificial intelligence (AI) and machine learning (ML) to extract, validate, and classify data from invoices.                |
| Templateless Capture                  | An AI-driven approach to data extraction from invoices that does not require predefined templates, allowing for greater flexibility in processing varying formats. |
| Nominal Coding (GL Coding)            | The classification of financial transactions into specific accounts within a company's general ledger for accurate reporting.                                      |
| Reverse VAT Charge                    | A mechanism where the recipient of goods or services accounts for VAT instead of the supplier, commonly used in industries like construction.                      |
| Construction Industry Scheme (CIS)    | A UK tax scheme requiring contractors to deduct money from subcontractor payments and pass it to HMRC.                                                             |
| Supplier Statement Reconciliation     | The process of verifying supplier statements against a company's accounts payable records to identify missing invoices, duplicate payments, or discrepancies.      |
| Credit Card Reconciliation            | The process of matching credit card transactions with purchase records to ensure accuracy and prevent fraud.                                                       |
| Automated Invoice Processing          | The use of software to capture, validate, match, and approve invoices without manual intervention.                                                                 |
| Electronic Data Interchange (EDI)     | A standardised method for electronically exchanging documents such as invoices,                                                                                    |



|                                   |                                                                                                                                                               |
|-----------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                   | purchase orders, and remittance advice between businesses.                                                                                                    |
| Tolerance Matching                | A process where minor differences between invoices and purchase orders (such as slight price variations) are automatically accepted within predefined limits. |
| Landed Costs                      | The total cost of acquiring goods, including purchase price, shipping, customs duties, and handling fees.                                                     |
| Subcontractor Invoice             | An invoice issued by a subcontractor, often requiring special treatment due to industry-specific regulations, milestone payments, or tax requirements.        |
| Hire Invoice                      | An invoice related to the rental of equipment or services, often with variable timeframes, additional charges, and fluctuating costs.                         |
| Debit Note                        | A document issued by a buyer to a supplier requesting a credit for returned goods or overcharges.                                                             |
| Credit Note                       | A document issued by a supplier to a buyer acknowledging a refund or correction of an invoice.                                                                |
| Exception Handling Workflow       | A predefined process for resolving invoice discrepancies, approvals, and rejections using automation tools.                                                   |
| Business Process Management (BPM) | A methodology for optimising and automating business processes, including invoice processing and approval workflows.                                          |
| REST API / SOAP API               | Interfaces used for integrating automation solutions with ERP or accounting systems, enabling seamless data exchange.                                         |

# About Spectrum Digital

Spectrum Digital, based in Hull, East Yorkshire, is a pioneer in digital automation, driving innovation for over 15 years.

## Our Expertise

We specialise in delivering personalised automation solutions tailored to the unique needs of our clients. Our offerings encompass a wide range of services, including:

- **Business Process Management:** Optimising business processes to enhance productivity and efficiency.
- **Intelligent Document Processing:** Implementing machine-learning and AI based capture technology to extract and manage information from various sources.
- **Robotic Process Automation (RPA):** Automating repetitive tasks to improve efficiency and reduce operational costs.
- **Multimodal AI Solutions:** rapid development, evaluation, and deployment of multimodal AI solutions across various data types, including imaging, video, text, audio, and structured data.
- **Business Intelligence:** Utilising advanced analytics to provide real-time data insights, enabling informed decision-making.
- **Document Management:** Providing systems that allow for the secure capture, tracking, storage, and retrieval of electronic documents.
- **Integration Services:** Developing connectors across various Enterprise Resource Planning (ERP) platforms, including prof.ITPlus, P4, SAP, Sage, Microsoft Dynamics, Syteline, QuickBooks, NetSuite, iScala and Xero.

## Industry Applications

Our solutions cater to a diverse array of industries, such as:

- **Finance:** Automating activities within finance and accounts departments, improving every step of the end-to-end process.
- **Sales:** Utilising automation to remove repetitive tasks, allowing sales teams to focus on revenue-generating activities.

- **Logistics:** Enhancing efficiency in warehouses and distribution centres through automation processes.
- **Wholesale & Distribution:** Optimising supply chain processes, invoice processing, and document handling.
- **Construction:** Managing subcontractor invoices, CIS compliance, and complex procurement workflows.

## Client Success

Our commitment to excellence is reflected in the success of our clients.

<https://spectrumdigital.tech/case-studies/>

## Why Choose Spectrum Digital?

- **Proven Experience:** Over a decade of innovation and successful project delivery.
- **Tailored Solutions:** Customised services designed to meet the specific needs of each client.
- **Comprehensive Support:** From consultation to implementation and beyond, we provide end-to-end support.

## What Is a Whitepaper

In the opinion of the author, whitepapers should primarily serve as a knowledge-sharing tool. They should present information in an largely unbiased manner, enabling the reader to make informed decisions based on factual data. A whitepaper should not lean towards a specific product, solution, or vendor, as the author must recognise that readers' requirements will vary significantly.

In the case of this whitepaper, I have consciously chosen not to mention any specific brands or attribute any particular technology. Instead, I encourage the reader to conduct their own research based on the themes and topics discussed.