Automated Invoice Processing and Normalisation with scan2x

1. Use Case Overview

Goal
To automatically ingest multiple supplier invoices in various formats, analyse and extract all relevant invoice data, normalise it to a standard format, and pass it on to downstream systems (e.g., ERP or accounting applications) for further processing.

Primary Actor
- Accounts Payable Clerk (AP Clerk) or Document Processing Operator

Supporting Actors
- **Scanning Hardware** (if physical documents are scanned)
- **Downstream Systems** (ERP, Accounting software, other workflow systems).

2. Stakeholders and Interests

Accounts Payable Department
- Wants to reduce manual data entry and minimise errors.
- Needs a reliable and automated method to process invoices quickly.

Finance Management
- Requires accurate and timely invoice data for budgeting, forecasting, and cash flow management.

IT Department
- Responsible for maintaining the integration between Scan2x and downstream systems.
- Ensures data is processed securely

Suppliers
- Provide invoices in various formats (PDF, scanned images, electronic files) that need to be captured and processed without delays.

3. Preconditions

System Configuration
- Scan2x is installed, configured, and accessible to authorised users.
- Normalised invoice data fields (e.g., invoice number, date, supplier name, net amount, tax, total amount) are defined in the system.

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User Access
- The AP Clerk or Operator has valid credentials and sufficient permissions to upload or scan invoices.

Downstream System Integration
- Mappings exist between normalised invoice fields in Scan2x and the corresponding fields in the downstream system.
- Network connectivity is established between Scan2x and the downstream system.

4. Triggers

Manual Trigger
- The AP Clerk initiates the process by scanning physical documents or uploading digital invoice files to Scan2x.

Automated Trigger
- Invoices arrive in a monitored email inbox or watch folder, and Scan2x automatically ingests and begins processing them.

5. Main Success Scenario (Basic Flow)

1. User or Automated Process Uploads Invoices
- Multiple invoices (paper scans or digital PDFs) are fed into Scan2x via a scanning device, drag-and-drop interface, or automated folder/email ingestion.

2. Document Classification
- Scan2x automatically identifies each invoice's supplier or format by analysing unique identifiers such as logos, layout, or text patterns.
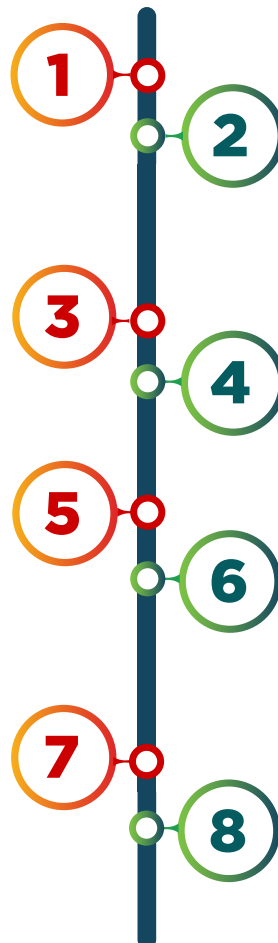
3. Data Extraction
- The system extracts critical invoice data (e.g., supplier name, invoice number, date, line items, tax rates, totals) using OCR, machine learning, or pattern matching.

4. Data Validation
- The system checks for anomalies (e.g., missing values, invalid dates).
- If any data is unclear or outside expected thresholds, Scan2x flags it for user review or correction.

5. Normalisation
- Extracted data is converted into a standard, normalised schema (e.g., consistent date format, currency format, field naming).

6. Mapping to Downstream System
- Using predefined mappings, Scan2x prepares a data packet that aligns the normalised invoice fields with the fields required in the downstream system (ERP/Accounting software).

7. Data Export/Posting
- Scan2x securely transfers the normalised and validated data to the downstream system via API, direct database insert, or file export.
- A confirmation or reference ID is returned to Scan2x, indicating successful posting.

8. User Notification
- The AP Clerk or Operator receives a confirmation within Scan2x.
- The newly processed invoices can be viewed and tracked in both Scan2x and the downstream system.

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6. Alternative Flows and Exceptions

Trigger:
A document fails to match any existing supplier template.

Action:
System routes the document to an "Unrecognised" queue. An Operator must manually classify and train Scan2x to recognise this new invoice layout in the future.

**Unrecognized Document
(Alternative Flow)**

Trigger:
Essential fields (e.g., invoice total) are missing or incorrectly read.

Action:
The Operator receives a notification to review and correct the data within Scan2x before proceeding. Once corrected, normal workflow continues.

**Data Extraction Errors
(Alternative Flow)**

Trigger:
Network connectivity or API issues prevent posting to the downstream system.

Action:
Scan2x queues the data and retries periodically. If repeated failures occur, the Operator is alerted for manual intervention.

**System Integration
Failure (Exception)**

7. Postconditions

Successful Posting
- All invoices have been processed, normalised, and transferred to the downstream system.
- Users can view a confirmation log and audit trail within Scan2x.
- The downstream system reflects the new invoice entries ready for payment or further workflow steps.

Error Handling and Notifications
- Any invoices flagged during the process remain in a review queue until resolved.
- All errors are logged, and relevant personnel are alerted.

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8. Benefits and Outcomes

- **Increased Efficiency:** Reduction of manual data entry and faster invoice processing times.

- **Accuracy and Consistency:** Normalisation ensures a uniform data format for all suppliers' invoices.

- **Reduced Errors:** Automated extraction and validation minimise human oversight and clerical mistakes.

- **Better Audit Trails:** Full visibility into the invoice journey from ingestion to posting in the downstream system.

Use Case Summary

By leveraging Scan2x's powerful document classification, data extraction, and normalisation capabilities, organisations can streamline their entire accounts payable workflow, from receiving supplier invoices to posting them into an ERP or other accounting systems. This ensures accuracy, efficiency, and transparency in invoice processing.

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