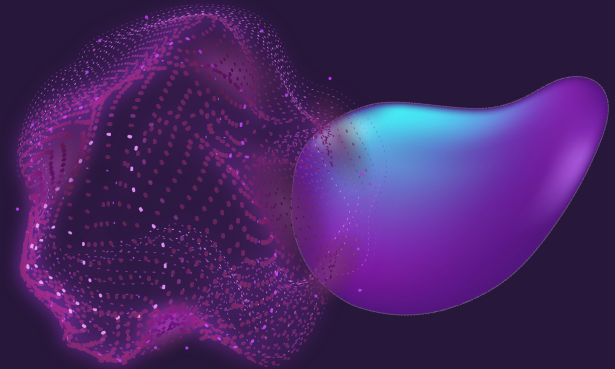
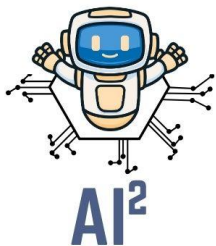




AI²

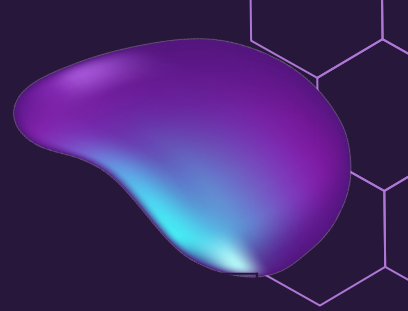
Artificially Intelligent Invoices



Team Copper
Fall 2025



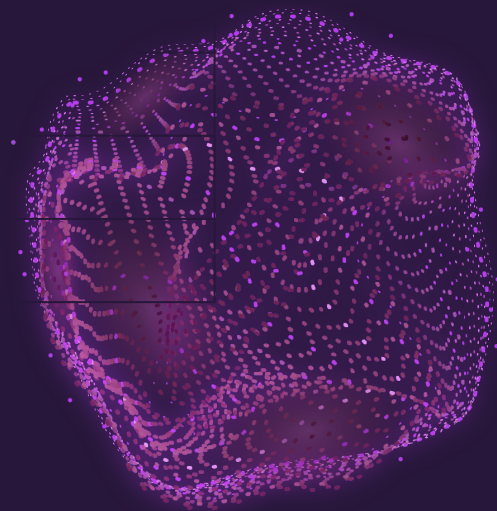
Table of Contents



<u>4</u>	Meet the Team	<u>14</u>	Solution Characteristics
<u>5-7</u>	Background	<u>15</u>	Solution Process Flow
<u>8</u>	Problem Statement	<u>16-17</u>	What it Will Do
<u>9</u>	Who is Affected	<u>18</u>	What it Will Not Do
<u>10</u>	Problem Characteristics	<u>19-32</u>	Competition Matrix
<u>11</u>	Current Process Flow	<u>33</u>	Major Functional Components
<u>12</u>	Our Solution	<u>34</u>	Major Functional Components Diagram
<u>13</u>	AI ² and ADS	<u>35</u>	Development Tools

Table of Contents Cont.

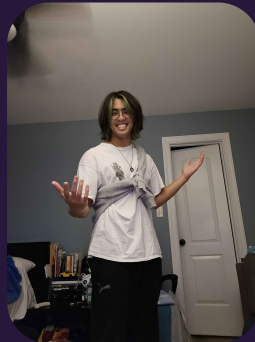
<u>36-40</u>	User Risks
<u>41-43</u>	Customer Risks
<u>44-50</u>	Technical Risks
<u>51-54</u>	Security Risks
<u>55-57</u>	Legal Risks
<u>58</u>	Conclusion
<u>59</u>	Glossary
<u>60</u>	References



Meet The Team



Dusan Djordjevic
Project Lead



Julian Diaz
Back-End Developer



Lynda Salinas Ascanova
Webmaster



Savannah Todd
Webmaster



Tommy Fuller
Full Stack Developer



Craig Grubb
Software Developer
and Database



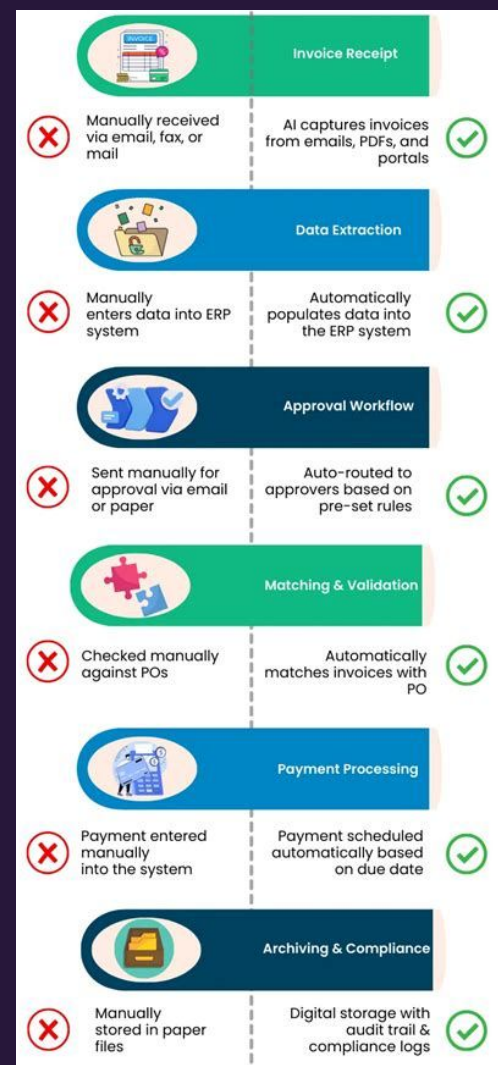
Michael Nimitz
Software Developer
and Database



Quin Elson
Front-End Developer

Background

- ◆ Manual invoice processing is still widespread across a variety of industries: Approximately 90% of companies rely on manual processing
- ◆ Cost per invoice: \$12-\$40 (manual) as opposed to \$3-\$6 (automated) [3]
- ◆ Turn around time: 10-15 days for manual processing vs. less than 5 days with an automated system
- ◆ Errors are made an estimated 1%-3% of the time when manual processing is used, which can strain business relationships
- ◆ Overall: Manual processing is expensive, slow, and prone to errors



Background

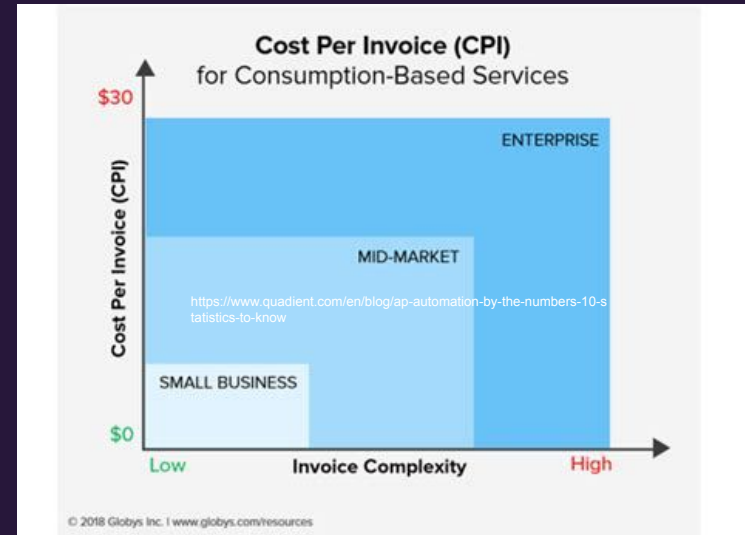
- ◆ 96% of employees report dissatisfaction with the AP tools that they have been provided with [4]. There is clearly a deficiency with the tools currently available.
- ◆ A Gartner study found that 59% of accountants make several financial errors monthly, and cited that many of these mistakes are caused by overextension at work [6].
- ◆ As part of the AP team, accountants and their coworkers would have their workload greatly reduced by automating invoice processing, with studies showing an 80% increase in productivity after adopting AP Automation [7].
- ◆ Automating invoice processing would not only let AP employees shift their focus back onto work utilizing their special skills, and reduce accounting errors, it would greatly boost employee morale as well.



[5]

Background ADS Case Example

- ◆ ADS processes 150,000 invoices annually from ~3,000 individual suppliers
- ◆ A small team of around 6 staff members handle invoices that are received in a variety of formats PDFs, spreadsheets, etc.
- ◆ Manual handling leads to
 - Delays and payment backlogs
 - Errors (duplicates, mismatches, etc.)
 - Staff overload due to (needless stress over inefficiency)
- ◆ Bottom Line: supplier frustration, compliance risks and potential penalties



Problem Statement

- **Accounts Payable (AP) manual processing** is costly and inefficient. Between labor costs, printing and mailing expenses, and accounting for errors, each manually processed invoice can cost between \$12 and \$40, which adds up across thousands of invoices. A manually processed invoice takes an average of 14.6 days to process.
- **Every year, ADS receives over 150,000 invoices from about 3,000 suppliers.** These invoices arrive mostly by email and come in many different formats (PDFs, scans, spreadsheets, etc.). The AP team, only 6 people, must manually review each invoice and compare it to the company's Purchase Order. This magnifies the issues of AP manual processing, leading to a high workload, potential for errors, delays, and difficulty with taking in more work.



Who is Affected



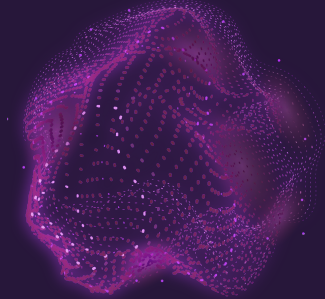
- **Users**
 - ◆ ADS Accounts Payable team, AP manager, and Finance/Accounting leadership are all looking to automate simple, common invoices.
- **Customers**
 - ◆ ADS, the company itself would be willing to provide compensation for a satisfactory product.
- **Stakeholders**
 - ◆ Vendors connected with ADS, ADS Finance, and ADS executives would all experience shorter turnaround times and more effective use of labor with automation of common, simple invoices.



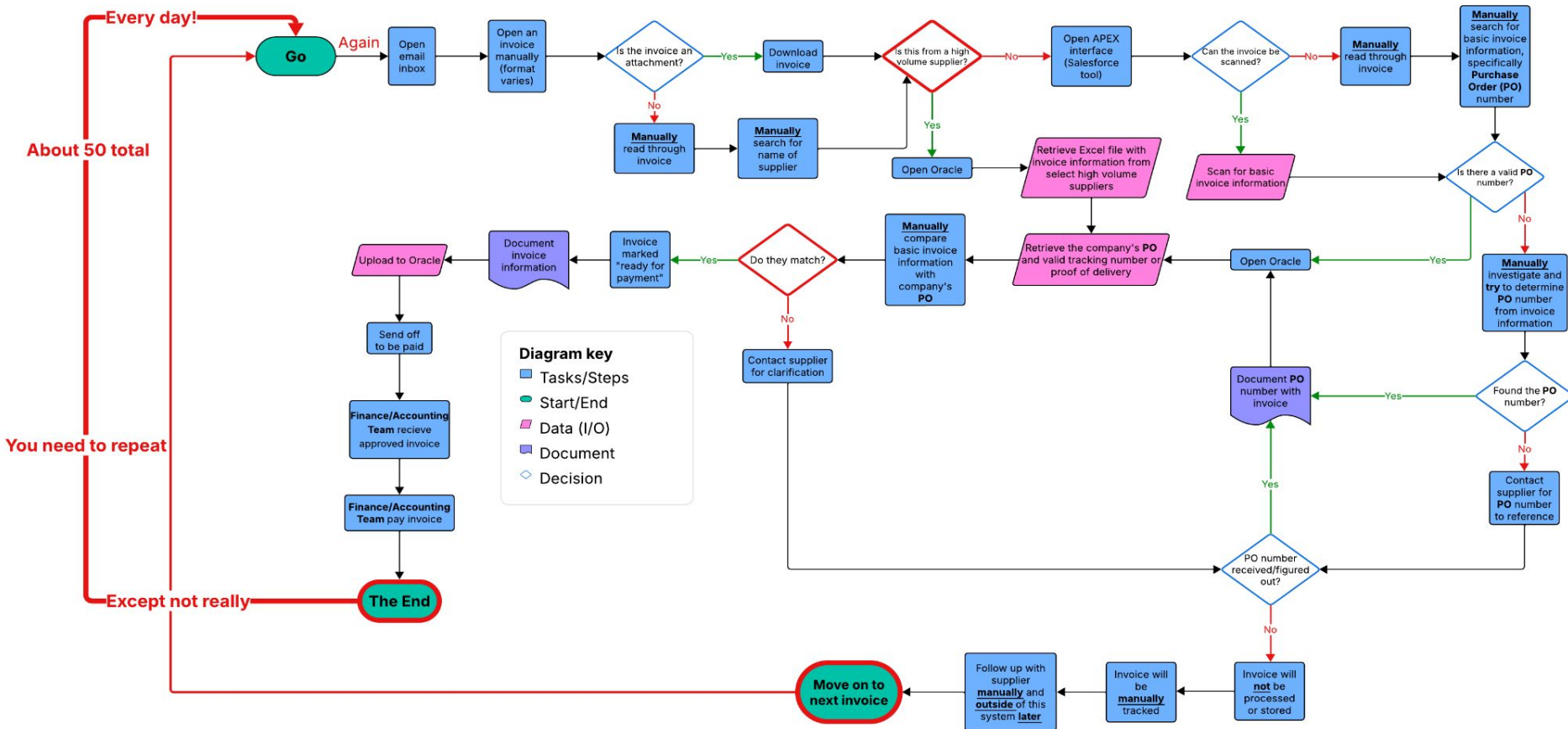
Problem Characteristics



- ◆ **Excessive Labor Hours:** Labor accounts for 62% of total AP processing costs, mostly consisting of repetitive checking rather than value-added work
- ◆ **High Error Potential:** 39% of invoices contain errors, and $\frac{1}{3}$ of businesses suffer from making duplicate payments
- ◆ **Delays:** Invoices take an average of 14.6 days to process, payments slowed down due to backlogs, leading to missed discounts and late fees
- ◆ **Scalability:** Already high pressure on the AP team makes it difficult for the company to take on additional clients, limiting financial growth

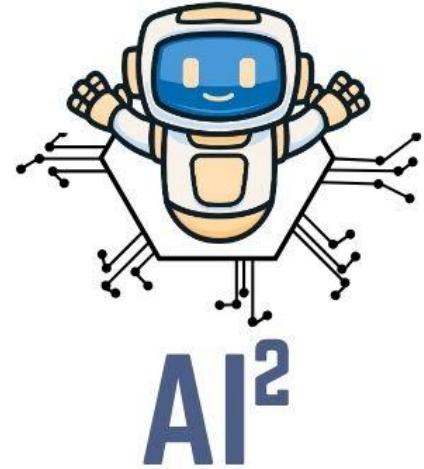


Current Process Flow



Our Solution: AI²

- ◆ AI² is a web-based platform that helps organizations manage high volumes of invoices with greater speed, accuracy, and transparency.
- ◆ Designed to integrate into existing financial workflows, it streamlines repetitive processing, prioritizes exceptions, and continuously adapts to diverse invoice formats across industries.
- ◆ By reducing manual workload while preserving oversight, AI² enables faster payments, fewer errors, and stronger financial compliance.



AI² and ADS

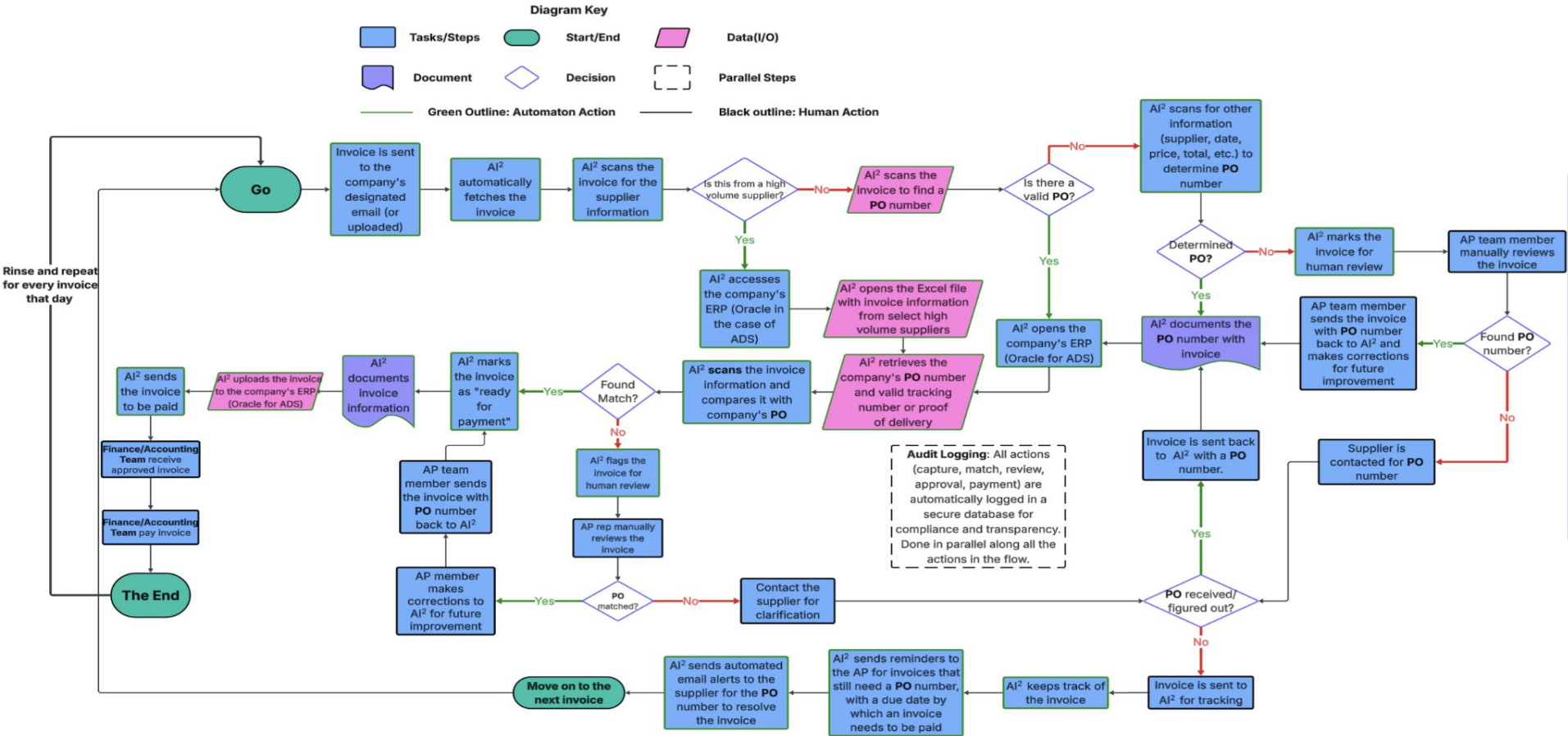
- ◆ For ADS specifically, AI² would relieve pressure on a small Accounts Payable team that currently faces over 600 invoices per day. The pressure will continue to grow as the company scales, leading to mistakes like mismatched data or “overreceipts”.
- ◆ By automating intake and matching, while routing edge cases for staff review, the system reduces backlogs and errors without removing human oversight.
- ◆ This allows ADS to accelerate payment cycles, strengthen supplier relationships, and improve overall financial health — outcomes that mirror the benefits other organizations can expect across the industry.



Solution Characteristics

- ◆ **Efficiency – Automated Invoice Capture and Organization**
 - All invoices are automatically captured from email and structured for review, reducing manual file handling.
- ◆ **Accuracy – Smart and Fast Matching**
 - AI² automatically compares invoices to purchasing orders, accelerating processing while minimizing errors and backlogs.
- ◆ **Adaptability – Learning from Corrections**
 - The system improves by learning from staff interventions, reducing redundant work and enabling staff to focus on complex cases.
- ◆ **Transparency – Auto Logging and Compliance**
 - Every invoice and action is tracked in the database, ensuring auditability, compliance, and organizational trust.
- ◆ **Scalability – Beyond just ADS**
 - Designed to adapt to new vendors, formats, and even other companies beyond ADS.

Solution Process Flow



What it Will Do

- ◆ **Email Intake and Storage:** Emails will be taken upon arrival and be sorted and prioritized.
- ◆ **Volume Handling:** AI² will considerably reduce the manual processing of individual invoices.
- ◆ **AI PO Matching:** Invoices will be matched to their corresponding purchase order.
- ◆ **AI Confidence Scoring:** Scoring system based on certainty of correct purchase order to invoice matches.
- ◆ **Error Matching:** PO matches with lower confidence scores will be prioritized for human intervention.
- ◆ **Continuous Learning from Human Interaction:** System updates matching based on staff corrections.
- ◆ **Supplier Notifications:** AI² will send email alerts to suppliers.
- ◆ **AP Team Reminders:** AI² will send reminders to the AP team.

What it Will Do

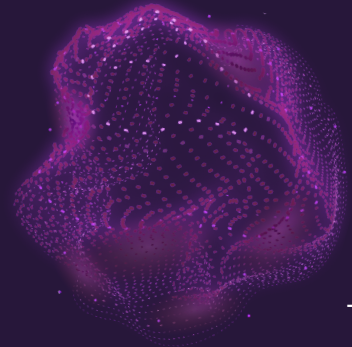
- ◆ **Audit Logging:** Invoices and system decisions are saved in a database for subsequent reviews.
- ◆ **Error Reduction:** Strain on the AP team will be reduced, leading to less mistakes.
- ◆ **Quick Implementation:** Easy for client to plug in and begin using.
- ◆ **Tailored for client:** Specially configured to meet the needs of client.
- ◆ **Long-tail vendor handling:** Streamlines monitoring of invoices from vendors supplying lower-frequency products.
- ◆ **Easily customizable:** Staff will be able to make tweaks to prioritize certain invoices.
- ◆ **Adaptable:** Customizations can be made at any time.
- ◆ **Timeliness:** Automation allows AP team to shift focus to other tasks.



What it Will Not Do



- ◆ AI² will not instill a prioritization system for emails that are not invoice-related. The system will be set up to make priority-related decisions based on the invoice confidence scores, which will not translate to other email content.



Competition Matrix

	AI ²	Tipalti	SAP Concur	QuickBooks	Manual Processing
Volume handling	■	■	■	■	■
Error reduction	■	■	■	■	■
Less human interaction	■	■	■	■	■
Timeliness	■	■	■	■	■
AI PO matching	■	■	■	■	■
AI confidence scoring	■	■	■	■	■
Continuous learning from past corrections	■	■	■	■	■
Quick implementation	■	■	■	■	■
Tailored for client	■	■	■	■	■
Long-tail vendor handling	■	■	■	■	■
Easily customizable	■	■	■	■	■
Adaptable	■	■	■	■	■

Competition Matrix

	AI ²	Tipalti	SAP Concur	QuickBooks	Manual Processing
Volume handling	■	■	■	■	■
Error reduction	■	■	■	■	■
Less human interaction	■	■	■	■	■
Timeliness	■	■	■	■	■
AI PO matching	■	■	■	■	■
AI confidence scoring	■	■	■	■	■
Continuous learning from past corrections	■	■	■	■	■
Quick implementation	■	■	■	■	■
Tailored for client	■	■	■	■	■
Long-tail vendor handling	■	■	■	■	■
Easily customizable	■	■	■	■	■
Adaptable	■	■	■	■	■

Competition Matrix

	AI ²	Tipalti	SAP Concur	QuickBooks	Manual Processing
Volume handling	■	■	■	■	■
Error reduction	■	■	■	■	■
Less human interaction	■	■	■	■	■
Timeliness	■	■	■	■	■
AI PO matching	■	■	■	■	■
AI confidence scoring	■	■	■	■	■
Continuous learning from past corrections	■	■	■	■	■
Quick implementation	■	■	■	■	■
Tailored for client	■	■	■	■	■
Long-tail vendor handling	■	■	■	■	■
Easily customizable	■	■	■	■	■
Adaptable	■	■	■	■	■

Competition Matrix

	AI ²	Tipalti	SAP Concur	QuickBooks	Manual Processing
Volume handling	■	■	■	■	■
Error reduction	■	■	■	■	■
Less human interaction	■	■	■	■	■
Timeliness	■	■	■	■	■
AI PO matching	■	■	■	■	■
AI confidence scoring	■	■	■	■	■
Continuous learning from past corrections	■	■	■	■	■
Quick implementation	■	■	■	■	■
Tailored for client	■	■	■	■	■
Long-tail vendor handling	■	■	■	■	■
Easily customizable	■	■	■	■	■
Adaptable	■	■	■	■	■

Competition Matrix

	AI ²	Tipalti	SAP Concur	QuickBooks	Manual Processing
Volume handling	■	■	■	■	■
Error reduction	■	■	■	■	■
Less human interaction	■	■	■	■	■
Timeliness	■	■	■	■	■
AI PO matching	■	■	■	■	■
AI confidence scoring	■	■	■	■	■
Continuous learning from past corrections	■	■	■	■	■
Quick implementation	■	■	■	■	■
Tailored for client	■	■	■	■	■
Long-tail vendor handling	■	■	■	■	■
Easily customizable	■	■	■	■	■
Adaptable	■	■	■	■	■

Competition Matrix

	AI ²	Tipalti	SAP Concur	QuickBooks	Manual Processing
Volume handling	■	■	■	■	■
Error reduction	■	■	■	■	■
Less human interaction	■	■	■	■	■
Timeliness	■	■	■	■	■
AI PO matching	■	■	■	■	■
AI confidence scoring	■	■	■	■	■
Continuous learning from past corrections	■	■	■	■	■
Quick implementation	■	■	■	■	■
Tailored for client	■	■	■	■	■
Long-tail vendor handling	■	■	■	■	■
Easily customizable	■	■	■	■	■
Adaptable	■	■	■	■	■

Competition Matrix

	AI ²	Tipalti	SAP Concur	QuickBooks	Manual Processing
Volume handling	■	■	■	■	■
Error reduction	■	■	■	■	■
Less human interaction	■	■	■	■	■
Timeliness	■	■	■	■	■
AI PO matching	■	■	■	■	■
AI confidence scoring	■	■	■	■	■
Continuous learning from past corrections	■	■	■	■	■
Quick implementation	■	■	■	■	■
Tailored for client	■	■	■	■	■
Long-tail vendor handling	■	■	■	■	■
Easily customizable	■	■	■	■	■
Adaptable	■	■	■	■	■

Competition Matrix

	AI ²	Tipalti	SAP Concur	QuickBooks	Manual Processing
Volume handling	■	■	■	■	■
Error reduction	■	■	■	■	■
Less human interaction	■	■	■	■	■
Timeliness	■	■	■	■	■
AI PO matching	■	■	■	■	■
AI confidence scoring	■	■	■	■	■
Continuous learning from past corrections	■	■	■	■	■
Quick implementation	■	■	■	■	■
Tailored for client	■	■	■	■	■
Long-tail vendor handling	■	■	■	■	■
Easily customizable	■	■	■	■	■
Adaptable	■	■	■	■	■

Competition Matrix

	AI ²	Tipalti	SAP Concur	QuickBooks	Manual Processing
Volume handling	■	■	■	■	■
Error reduction	■	■	■	■	■
Less human interaction	■	■	■	■	■
Timeliness	■	■	■	■	■
AI PO matching	■	■	■	■	■
AI confidence scoring	■	■	■	■	■
Continuous learning from past corrections	■	■	■	■	■
Quick implementation	■	■	■	■	■
Tailored for client	■	■	■	■	■
Long-tail vendor handling	■	■	■	■	■
Easily customizable	■	■	■	■	■
Adaptable	■	■	■	■	■

Competition Matrix

	AI ²	Tipalti	SAP Concur	QuickBooks	Manual Processing
Volume handling	■	■	■	■	■
Error reduction	■	■	■	■	■
Less human interaction	■	■	■	■	■
Timeliness	■	■	■	■	■
AI PO matching	■	■	■	■	■
AI confidence scoring	■	■	■	■	■
Continuous learning from past corrections	■	■	■	■	■
Quick implementation	■	■	■	■	■
Tailored for client	■	■	■	■	■
Long-tail vendor handling	■	■	■	■	■
Easily customizable	■	■	■	■	■
Adaptable	■	■	■	■	■

Competition Matrix

	AI ²	Tipalti	SAP Concur	QuickBooks	Manual Processing
Volume handling	■	■	■	■	■
Error reduction	■	■	■	■	■
Less human interaction	■	■	■	■	■
Timeliness	■	■	■	■	■
AI PO matching	■	■	■	■	■
AI confidence scoring	■	■	■	■	■
Continuous learning from past corrections	■	■	■	■	■
Quick implementation	■	■	■	■	■
Tailored for client	■	■	■	■	■
Long-tail vendor handling	■	■	■	■	■
Easily customizable	■	■	■	■	■
Adaptable	■	■	■	■	■

Competition Matrix

	AI ²	Tipalti	SAP Concur	QuickBooks	Manual Processing
Volume handling	■	■	■	■	■
Error reduction	■	■	■	■	■
Less human interaction	■	■	■	■	■
Timeliness	■	■	■	■	■
AI PO matching	■	■	■	■	■
AI confidence scoring	■	■	■	■	■
Continuous learning from past corrections	■	■	■	■	■
Quick implementation	■	■	■	■	■
Tailored for client	■	■	■	■	■
Long-tail vendor handling	■	■	■	■	■
Easily customizable	■	■	■	■	■
Adaptable	■	■	■	■	■

Competition Matrix

	AI ²	Tipalti	SAP Concur	QuickBooks	Manual Processing
Volume handling	■	■	■	■	■
Error reduction	■	■	■	■	■
Less human interaction	■	■	■	■	■
Timeliness	■	■	■	■	■
AI PO matching	■	■	■	■	■
AI confidence scoring	■	■	■	■	■
Continuous learning from past corrections	■	■	■	■	■
Quick implementation	■	■	■	■	■
Tailored for client	■	■	■	■	■
Long-tail vendor handling	■	■	■	■	■
Easily customizable	■	■	■	■	■
Adaptable	■	■	■	■	■

Competition Matrix

	AI ²	Tipalti	SAP Concur	QuickBooks	Manual Processing
Volume handling	■	■	■	■	■
Error reduction	■	■	■	■	■
Less human interaction	■	■	■	■	■
Timeliness	■	■	■	■	■
AI PO matching	■	■	■	■	■
AI confidence scoring	■	■	■	■	■
Continuous learning from past corrections	■	■	■	■	■
Quick implementation	■	■	■	■	■
Tailored for client	■	■	■	■	■
Long-tail vendor handling	■	■	■	■	■
Easily customizable	■	■	■	■	■
Adaptable	■	■	■	■	■

Major Functional Components

User Interface

- **User Interface**
 - Website application and extension
- **Frequency Query**
 - Filter invoices -> PO based on frequencies, do they match?
- **Data-Field suggestions**
 - Based on pattern-recognition or context

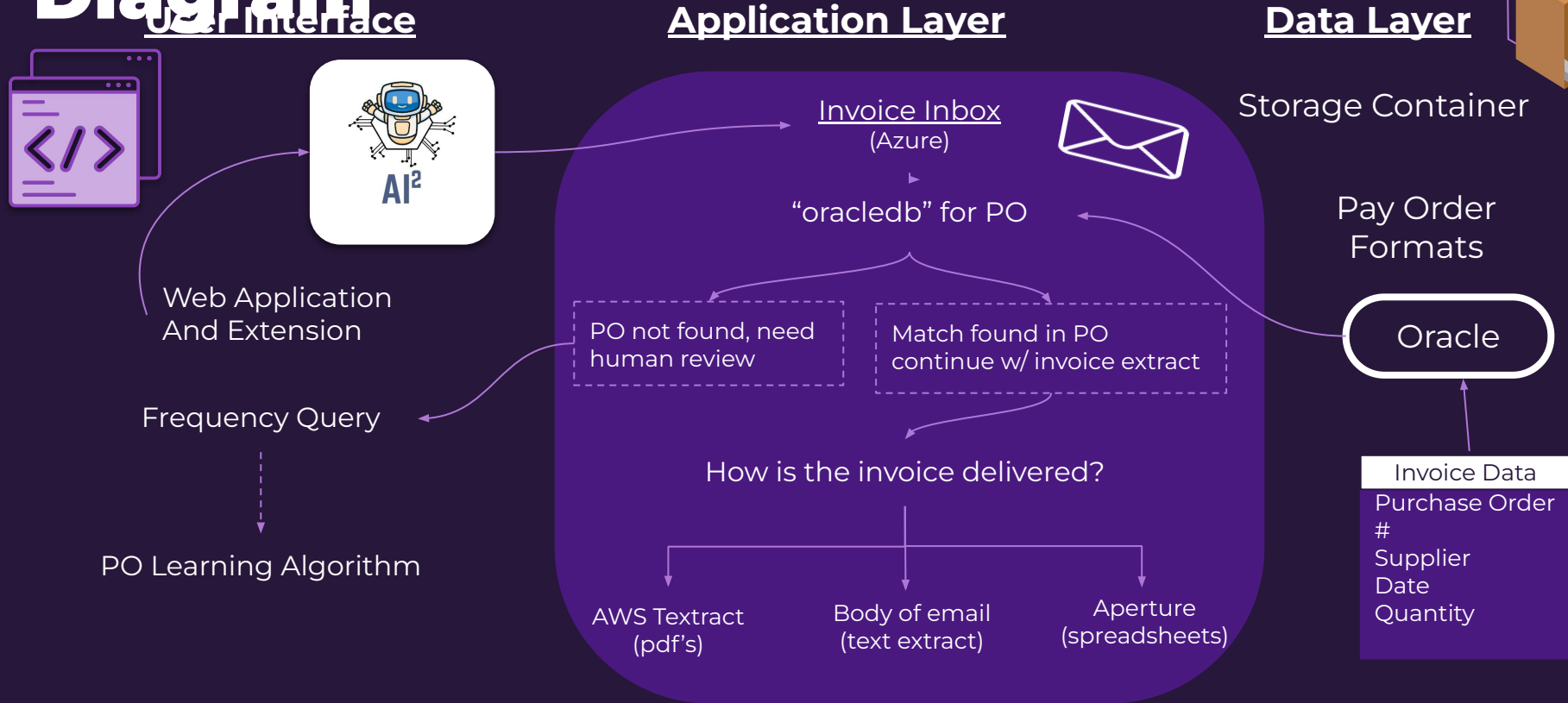
Application Layer

- **Invoice Inbox**
 - Azure (Microsoft Rest Api)
- **AWS Textract (pdf's)**
- **Aperture (spreadsheets)**
- **oracledb driver to access PO's**

Data Layer

- **Storage Container**
 - Cloud storage (Oracle)
 - Invoice's
 - PO'S
- **Record of previously used invoice formats**
 - And the ability to edit them

Major Functional Components Diagram



Development Tools

- ◆ Communication: Discord
- ◆ IDE: VSCode
- ◆ Version Control: Github
- ◆ Website: Github Pages
- ◆ Team Management: Clickup



User Risks

Risk

Impact

- ◆ **R1:** Unassigned Low Confidence Invoices

Mitigation

- ◆ **M1:** Flagged invoices routed to manual review queue

Likelihood

Very Low Low Medium High Very High

Very High				R1	
High					
Medium					
Low			M1		
Very Low					

Legend

High Risk

Medium Risk

Low Risk

User Risks

Risk

Impact

- ◆ **R2:** Workflow disruption during transition

Mitigation

- ◆ **M2:** System integrates with existing ADS tools

Likelihood

	Very Low	Low	Medium	High	Very High
Very High				R1	
High			R2		
Medium		M2			
Low			M1		
Very Low					

Legend

High Risk

Medium Risk

Low Risk

User Risks

Risk

Impact

Very Low Low Medium High Very High

- ◆ **R3:** Delayed Human Review of Flagged Items

Mitigation

- ◆ **M3:** Offering real-time ingestion, auto-flagging, and reminders to the AP team

Likelihood

Very High
High
Medium
Low
Very Low

Very High	Medium Risk	Medium Risk	High Risk	High Risk	High Risk
High	Medium Risk	Medium Risk	High Risk	High Risk	High Risk
Medium	Low Risk	Medium Risk	Medium Risk	Medium Risk	High Risk
Low	Low Risk	Low Risk	Medium Risk	Medium Risk	Medium Risk
Very Low	Low Risk	Low Risk	Low Risk	Medium Risk	Medium Risk

R1
R2
R3
M2
M3
M1

Legend

High Risk Medium Risk Low Risk

User Risks

Risk

Impact

- ◆ **R4:** Overdependence on automation

Mitigation

- ◆ **M4:** Confidence scoring will trigger human review automatically

Likelihood

	Very Low	Low	Medium	High	Very High
Very High				R1	
High			R2, R4	R3	
Medium		M2	M3		
Low		M4	M1		
Very Low					

Legend

High Risk

Medium Risk

Low Risk

User Risks

Risk

Impact

Very Low

Low

Medium

High

Very High

- ◆ **R5:** Resistance or Misuse of the System

Mitigation

- ◆ **M5:** Offering transparent logs to build trust and accountability

Likelihood

Very High

High

Medium

Low

Very Low

Very High				R1	
High			R2, R4	R3	
Medium		M2	M3		R5
Low		M4	M1, M5		
Very Low					

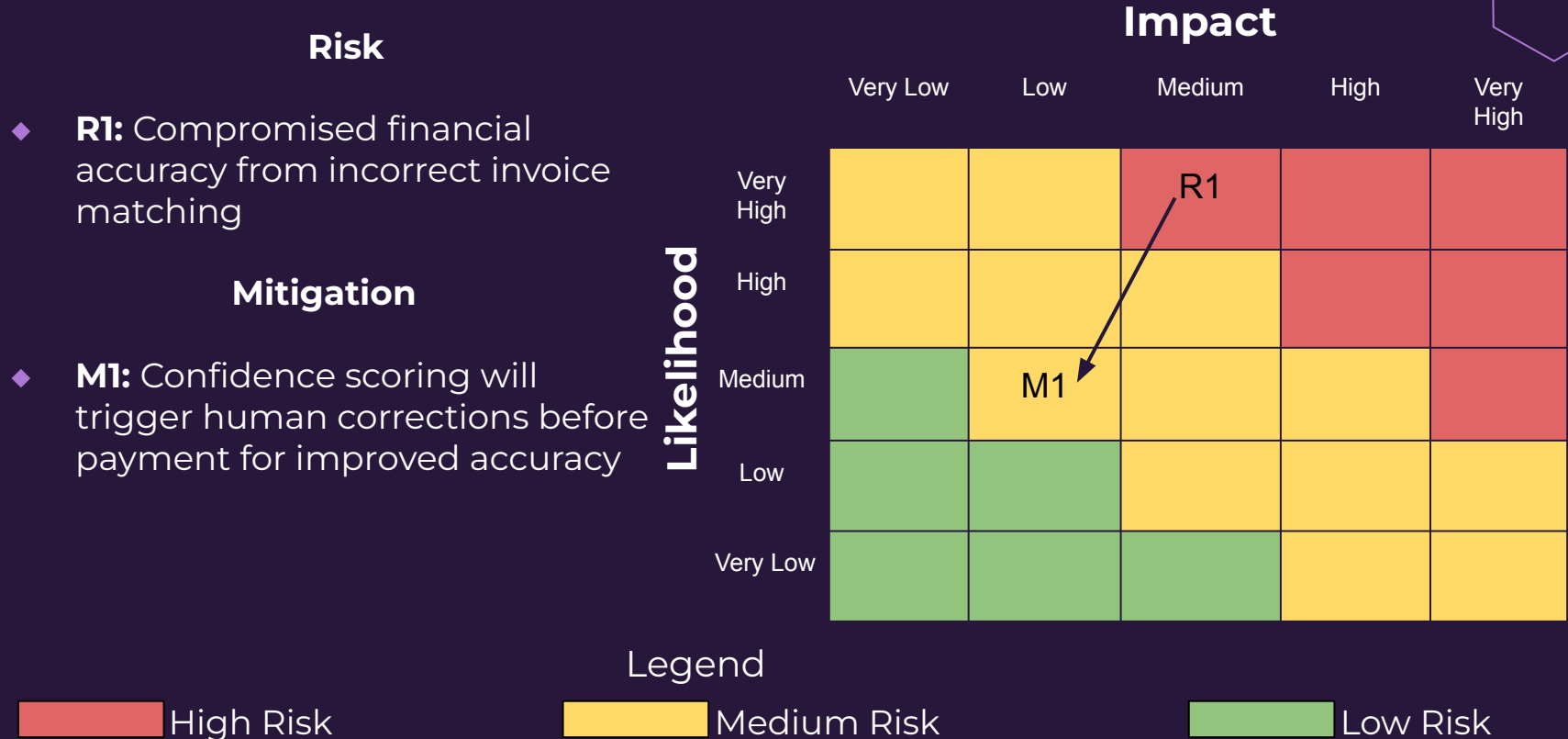
Legend

High Risk

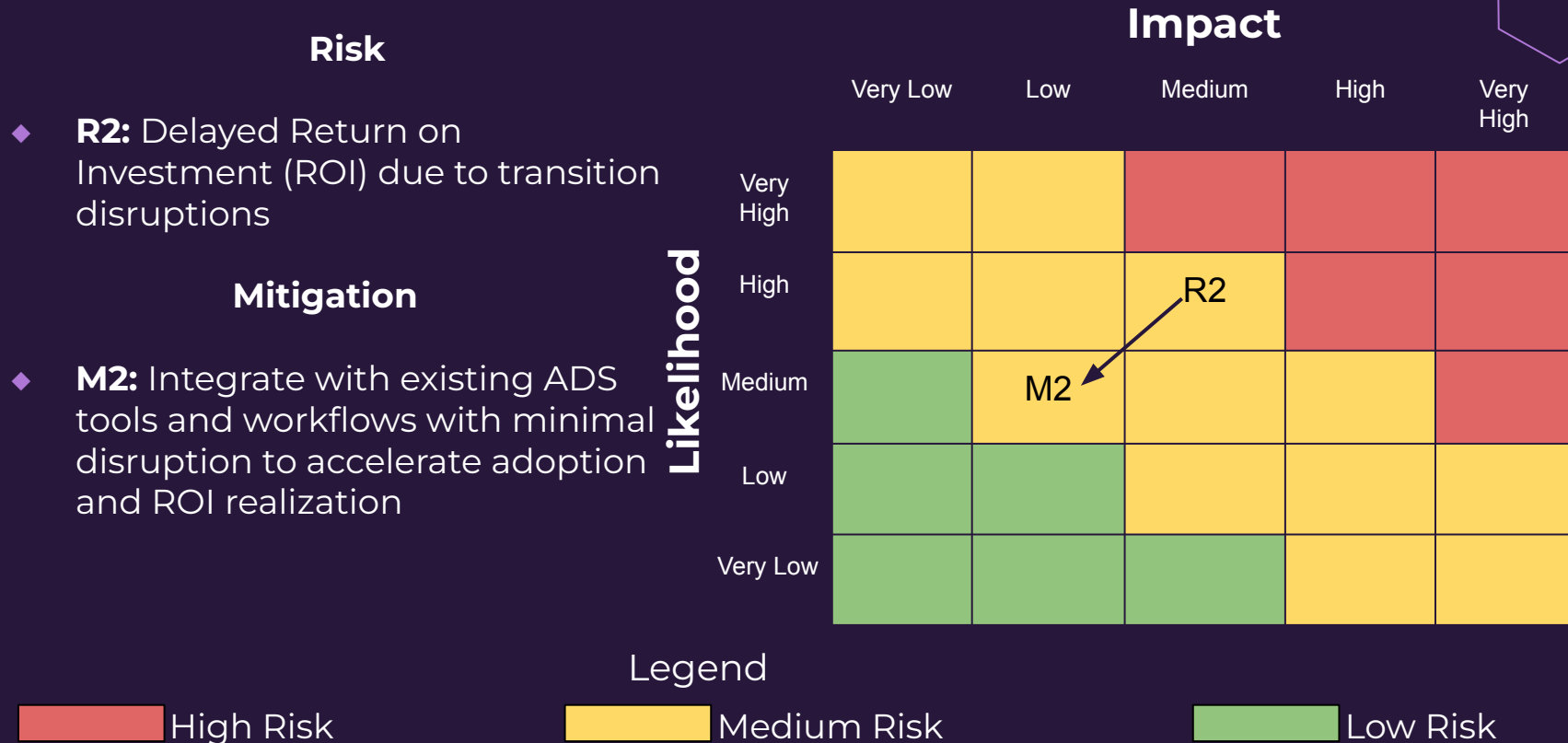
Medium Risk

Low Risk

Customer Risks



Customer Risks



Customer Risks

Risk

Impact

- ◆ **R3:** Strain on vendor relationships from missed or late payments

Mitigation

- ◆ **M3:** Offering automated intake and supplier alerts

Likelihood

	Very Low	Low	Medium	High	Very High
Very High					
High					
Medium					R3
Low			M3		
Very Low					

Legend

High Risk

Medium Risk

Low Risk

Technical Risks

Risk

- ◆ **R1:** Optical character recognition (OCR) and parsing errors

Mitigation

- ◆ **M1:** Multi-engine OCR with validation rules

		Impact				
		Very Low	Low	Medium	High	Very High
Likelihood	Very High					
	High				R1	
	Medium					
	Low			M1		
	Very Low					

Technical Risks

Risk

- ◆ **R2:** Low accuracy for edge cases

Mitigation

- ◆ **M2:** Confidence ratings to include human reviews

		Impact				
		Very Low	Low	Medium	High	Very High
Likelihood	Very High					
	High		R2		R1	
	Medium					
	Low	M2		M1		
	Very Low					

Technical Risks

Risk

Impact

- ◆ **R3:** Integration failures

Mitigation

- ◆ **M3:** Robust APIs that include sandbox testing

		Very Low	Low	Medium	High	Very High
Likelihood	Very High					
	High		R2		R1	
	Medium			R3		
	Low	M2		M1		
	Very Low		M3			

Technical Risks

Risk

Impact

- ◆ **R4:** Scalability

Mitigation

- ◆ **M4:** Microservice architecture

Likelihood

	Very Low	Low	Medium	High	Very High
Very High					
High		R2		R1	
Medium			R3	R4	
Low	M2		M1		
Very Low	M4	M3			

Technical Risks

- ◆ **Risk**
 - ◆ **R4:** Model drift
- ◆ **Mitigation**
 - ◆ **M4:** Continuous retraining and KPI monitoring

		Impact				
		Very Low	Low	Medium	High	Very High
Likelihood	Very High					
	High		R2		R1	
	Medium			R3 R4		
	Low	M2	M4	M1		
	Very Low		M3			

Technical Risks

Risk

Impact

- ◆ **R5:** AI black box

Mitigation

- ◆ **M5:** Include confidence scores and extracted source fields in logging

Likelihood	Impact				
	Very Low	Low	Medium	High	Very High
		R2		R1	
			R3 R4		
Low	M2	M4	M1 R5		
Very Low		M3 M5			

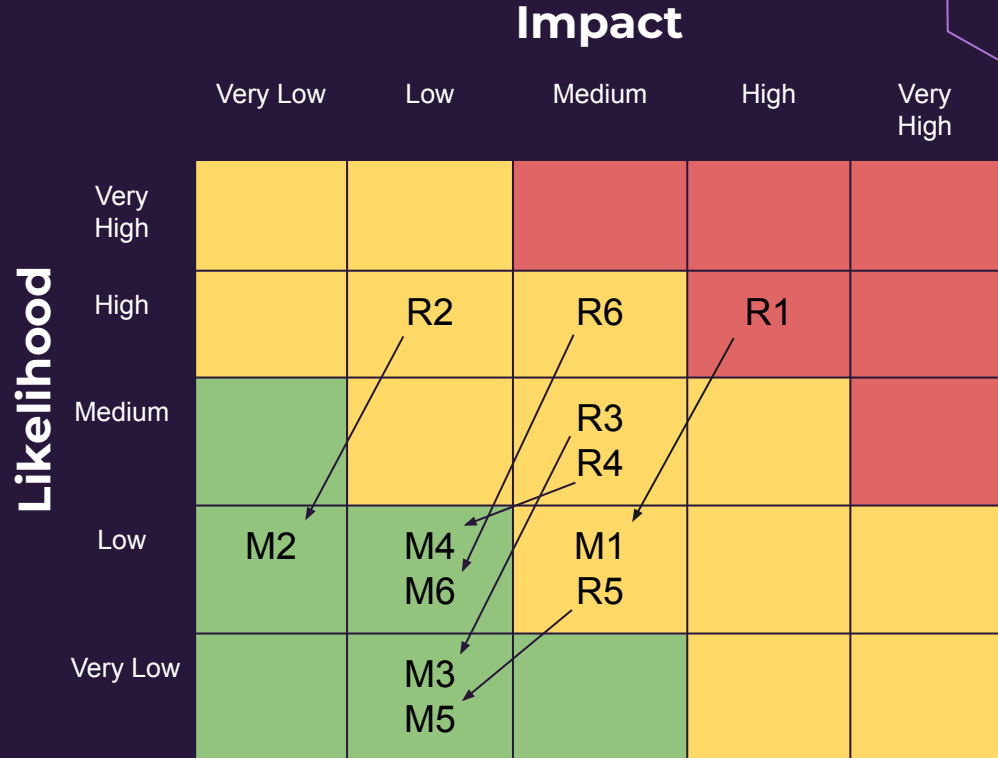
Technical Risks

Risk

- ◆ **R6:** Excessive manual corrections

Mitigation

- ◆ **M6:** Progressive machine learning



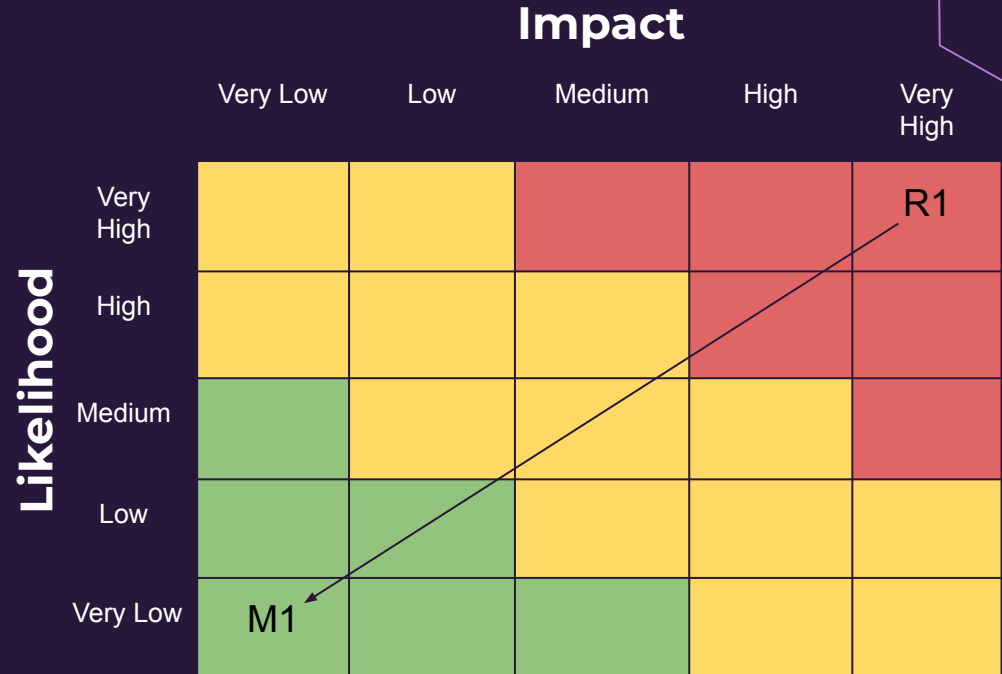
Security Risks

Risk

- ◆ **R1:** Data confidentiality

Mitigation

- ◆ **M1:** End-to-end encryption, multi-factor authentication, and clear role-based security groups



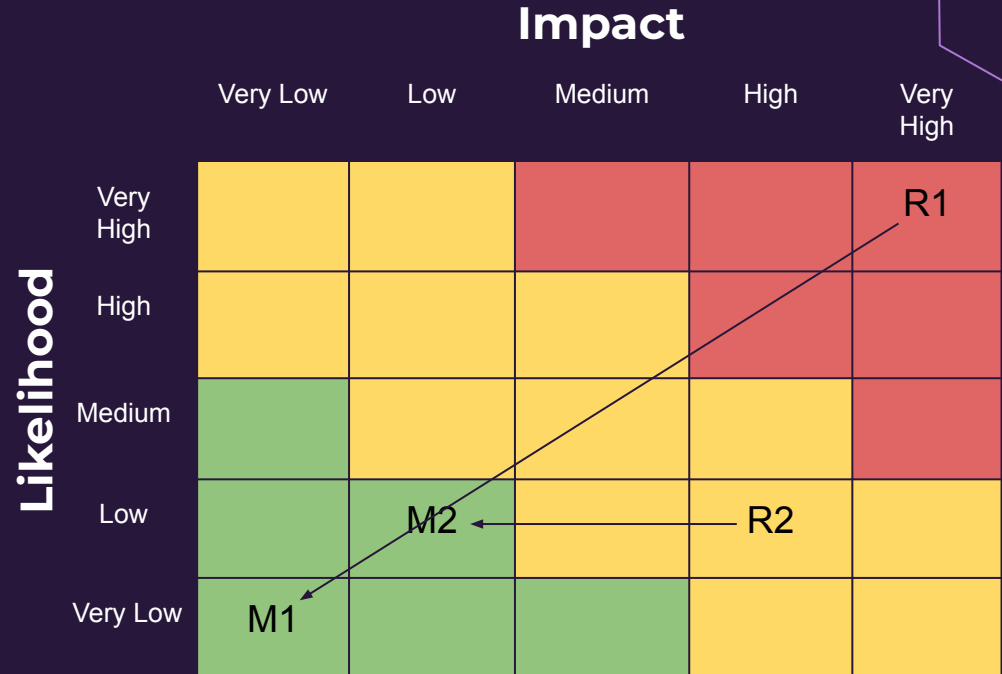
Security Risks

Risk

- ◆ **R2:** Data residency

Mitigation

- ◆ **M2:** Provide region-specific data hosting



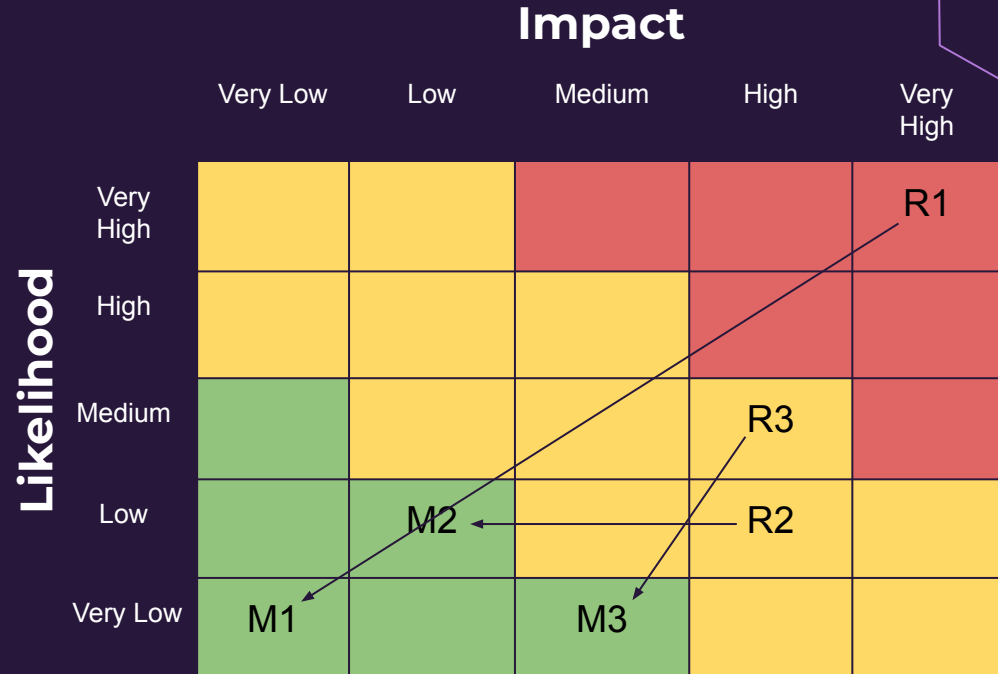
Security Risks

Risk

- ◆ **R3:** Supply chain attacks

Mitigation

- ◆ **M3:** Malware scanning on all libraries



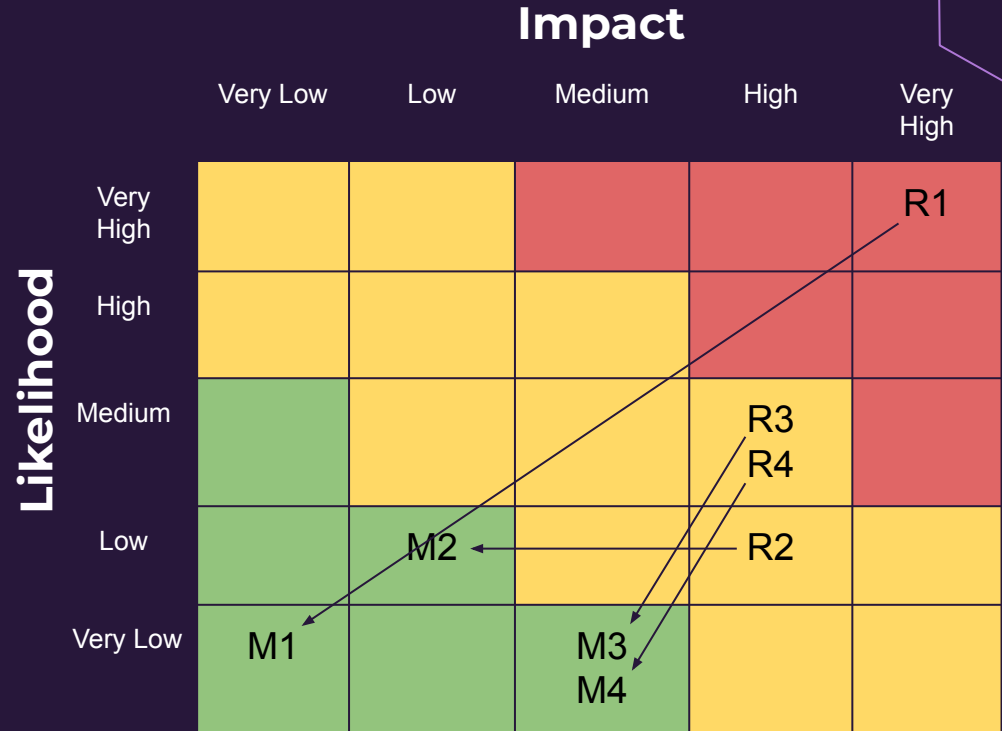
Security Risks

Risk

- ◆ **R4:** Model poisoning

Mitigation

- ◆ **M4:** Separate production data from training data, applying data validation before retraining



Legal Risks

Risks

- ◆ **R1:** Machine-generated incorrect results leading to financial loss

Mitigations

- ◆ **M1:** Keep human-in-the-loop for low-confidence cases, maintain full audit trails, define liability boundaries in contracts, consider professional liability insurance

		Impact				
		Very Low	Low	Medium	High	Very High
Likelihood	Very High					
	High					
	Medium				R1	
	Low		M1			
	Very Low					

Legal Risks

Risks

- ◆ **R2:** Clients' financial data may become vulnerable

Mitigations

- ◆ **M2:** Encrypt all data at rest and in transit, enforce role-based access

		Impact				
		Very Low	Low	Medium	High	Very High
Likelihood	Very High					
	High				R2	
	Medium	M2			R1	
	Low		M1			
	Very Low					

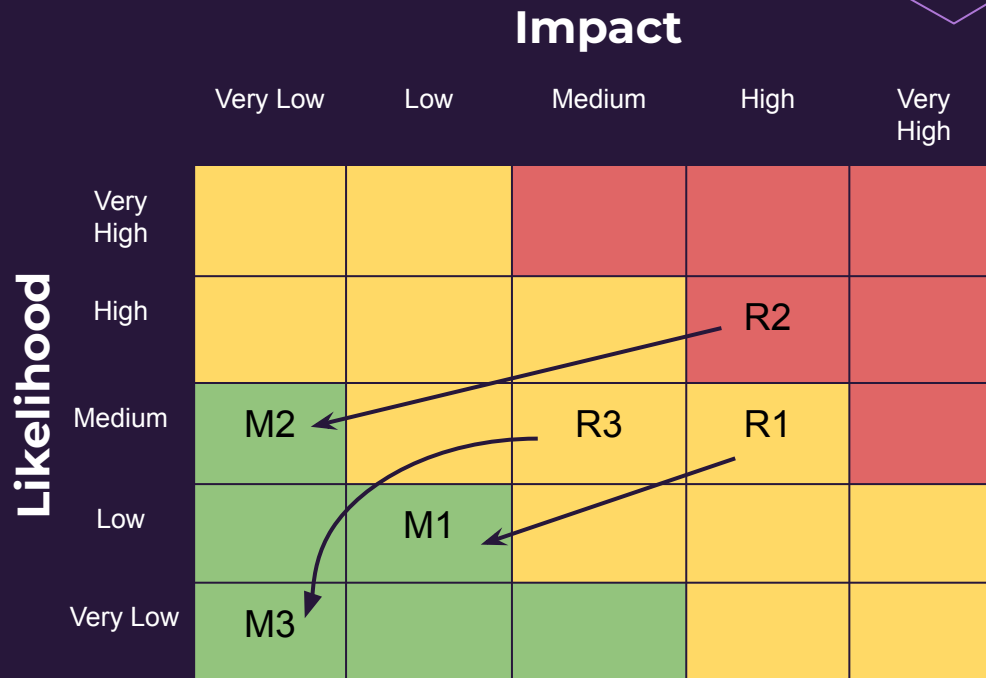
Legal Risks

Risks

- ◆ **R3:** Noncompliance with financial record-keeping laws can result in fines or failed audits

Mitigations

- ◆ **M3:** Implement automated record retention, ensure immutable audit logs, conduct regular compliance checks



Conclusion - Squaring up AI ²

- ◆ **The Problem**
 - Manual invoice processing costs organizations time, money, and accuracy
- ◆ **Our Solution**
 - AI² automatically compares invoices to purchasing orders, accelerating processing while minimizing errors and backlogs.
- ◆ **The Difference**
 - Reduce processing costs by up to 80%
 - Easily scale AP operations
 - Free AP teams to focus on strategic, value-added work

Glossary

- ◆ **Atlantic Diving Supply (ADS):** An American federal contractor company that researches and provides equipments and logistics solutions to the Department of Defense, Federal Agencies, and First Responders.
- ◆ **Purchase Order:** The order list ADS sends to suppliers.
- ◆ **Invoice:** A list of goods sent or services provided, with a statement of the sum due for these; a bill.
- ◆ **Accounts Payable (AP):** The amount still outstanding that a business owes for goods and services purchased on credit, which typically comes due at intervals of 30, 45, 60, or 90 days, depending on the repayment terms.
- ◆ **Oracle:** The system of record for ADS.
- ◆ **APEX:** A strongly typed, object-oriented programming language that Salesforce developers use to execute flow and transaction control statements on the Salesforce platform.
- ◆ **Salesforce:** A robust Customer Relationship Management (CRM) platform allowing businesses to manage their customer relationships efficiently
- ◆ **Supplier:** A person or organization that provides something needed, such as a product or service.
- ◆ **Vendor:** A person or company offering something for sale.

User Roles

User Role	Responsibilities	Permissions
Administrator	◆ Adjust AI² configurations to meet company needs ◆ Review previous AI² decisions to monitor general performance ◆ Ensure integrated systems remain compatible	◆ Full System Access (read/write, modify). ◆ Can manage configurations, user accounts and integrations
AP Team Member	◆ Manually review invoices with low-confidence matches or no matches ◆ Follow up on AI² reminders prior to their due dates ◆ Note corrections for inaccurate matches to improve AI²	◆ Limited data access to assigned invoices and queues ◆ Accesses to AI² to make corrections for future accuracy.

User Roles Cont.

User Role	Responsibilities	Permissions
Compliance Officer	◆ Reviews audit logs for regulatory and financial compliance ◆ Verify that invoice handling adheres to internal policies and external frameworks (e.g., FedRAMP, DoD RMF). ◆ Oversee data retention, access logs, and encryption practices.	◆ Read-only access to audit trails and financial summaries. ◆ No modification rights.
AI Model Trainer	◆ Monitor model accuracy and retrain AI² using anonymized invoice data. ◆ Evaluate false matches and adjust model parameters or retraining schedules. ◆ Work with administrators to ensure model updates comply with data governance rules.	◆ Access to anonymized datasets only. ◆ No Access to live invoice or PO data.

User Stories

Administrator

As an Administrator, I want AI² to authenticate users through ADS's Okta SSO system so that access is secure, compliant, and consistent with ADS's existing authentication policies.

As an Administrator, I want to adjust AI²'s configurations—such as confidence score thresholds, routing rules, and notification preferences—so that the system aligns with the company's changing policies and workflows.

As an Administrator, I want to automatically assign incoming invoices to AP team queues based on supplier names, and reassign suppliers between queues when workloads are uneven, so that invoice processing is evenly distributed.

As an Administrator, I want to connect AI² to ADS's Outlook inbox using Microsoft Graph API and to Oracle NetSuite through the Alteryx API so that invoices can be automatically pulled, processed, and synced with existing systems.

User Stories

Administrator Cont.

As an Administrator, I want to view dashboards summarizing AI²'s matching accuracy, queue performance, and integration health so that I can monitor efficiency, detect errors, and ensure compliance with CMMC and FedRAMP guidelines.

As an Administrator, I want AI² to be hosted in a FedRAMP-compliant AWS GovCloud environment and maintain audit logs of all user and system actions so that the solution adheres to government security frameworks and can pass compliance reviews.

As an Administrator, I want to receive automatic alerts when integrations fail or when invoice routing encounters errors so that I can take corrective action promptly and maintain operational continuity.

User Stories

AP Team Member

As an AP Team Member, I want AI² to automatically pull invoice emails and attachments from the shared Outlook inbox using the Microsoft Graph API so that I can see all new invoices in one central dashboard without manually downloading them.

As an AP Team Member, I want AI² to flag invoices with low confidence scores and display the potential mismatched fields so that I can correct the data and help the AI learn over time.

As an AP Team Member, I want to view all invoices from my assigned suppliers in a personalized queue so that I can easily track, review, and complete my assigned workload.

User Stories

Compliance Officer

As a Compliance Officer, I want to perform routine reviews of AI²'s audit logs so that I can confirm that AI² is adhering to internal policies.

As a Compliance Officer, I want to verify that invoice handling adheres to federal and state regulatory requirements and guidelines (including but not limited to FedRamp and DOD RMF) so that I can ensure that AI² is maintaining compliance.

As a Compliance Officer, I want to ensure that invoice and user data is encrypted both at rest and in transit so that I can ensure AI² maintains required data protection standards under CMMC and FedRamp.

As a Compliance Officer, I want to generate periodic compliance and audit reports summarizing access, invoice activity and data handling practices, so that I can document adherence to regulatory requirements.

As a Compliance Officer, I want AI² to log all configuration or policy changes made by the administrators, so that I can ensure accountability and verify that no unauthorized adjustments compromise compliance.

User Stories

AI Model Trainer

As an AI Model Trainer, I want to document model training guidelines so that other members of my team or future AI Model Trainers have a standardized process to follow.

As an AI Model Trainer, I want to retrain AI² so that I can continuously improve upon AI²'s pattern recognition.

As an AI Model Trainer, I want to periodically assess AI²'s outputs so that I can evaluate how they align with company expectations and predetermined metrics.

As an AI Model Trainer, I want to clean and anonymize invoice data so that I can use it for retraining purposes.

As an AI Model Trainer, I want to collaborate with administrators so that I can guarantee that model updates remain compliant with data governance rules.

As an AI Model Trainer, I want to monitor model accuracy so that I can assess AI² is meeting internal standards.

As an AI Model Trainer, I want to adjust model parameters and/or retraining schedules so that I can help AI² improve accuracy.

Feature Table

Category	Feature	Administrator	AP Team Member	Compliance Officer	AI Model Trainer
Invoice Intake and Processing	Outlook Email Integration (Graph API)				
	Invoice Parser and Data Extractor				
	Smart PO Matching System / Algorithm				
Queue Assigning and Routing	Supplier-Based Assigning and Routing System				
	Queue Assignment Dashboard				

Feature Table Cont.

Category	Feature	Administrator	AP Team Member	Compliance Officer	AI Model Trainer
AI Model Management	Model Training and Deployment Pipeline				
	Model Version Control				
	AI Performance Dashboard				
System and Configuration Maintenance	Admin Configuration Dashboard				
	System Health and Performance Dashboard				
	Error Logging and Recovery Module				

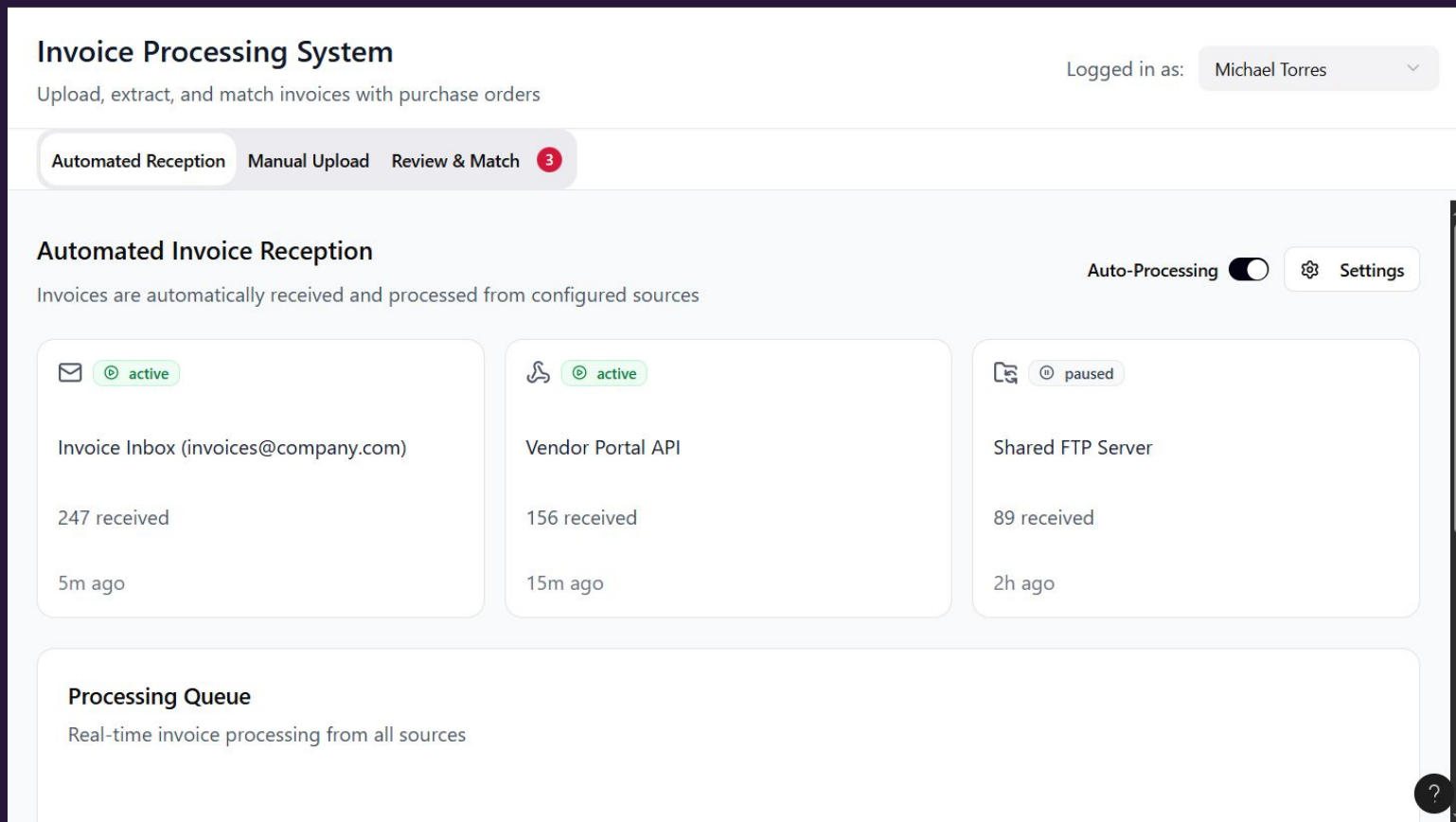
Feature Table Cont.

Category	Feature	Administrator	AP Team Member	Compliance Officer	AI Model Trainer
Notification System	Automated Supplier Notifications				
	Automated AP Team Reminders				
Confidence Scoring and AI Learning	AI PO Matching				
	AI Confidence Scoring Module				
	Continuous Learning From Human Interaction				
	Human Review Panel				

Feature Table Cont.

Category	Feature	Administrator	AP Team Member	Compliance Officer	AI Model Trainer
Compliance and Security Monitoring	Encryption Verification Tool				
	AWS GovCloud Integration Tool				
	Audit Log Management System				
	Compliance Changelog System				
	Auto Generated Compliance Report				
	Compliance Regulations Monitoring Tool				

User Interface Mockups



Human Review

Invoice Processing System

Upload, extract, and match invoices with purchase orders

Logged in as: Michael Torres

Automated Reception

Manual Upload

Review & Match 3

Queue Overview

Confidence Distribution

Low (<50%)

Med (50-79%)

High (≥80%)

1

2

0

Queue Status

Claimed

Available

Total Pending

1

2

3

Total Value

\$22,609

Avg: \$7,536

Performance

Avg Wait: 2.5h

Oldest: 5 days

Review Queue

Michael Torres

Available 2

My Queue 1

In Review 0

Sort by: Match Confidence

INV-2024-1923 Medium (65%) Claim

Flagged for Review

No matching PO found

Invoice Number

INV-2024-1956

Vendor

Invoice Date

Oct 29, 2024

\$ Total Amount

UI Invoice Upload

Invoice Processing System

Upload, extract, and match invoices with purchase orders

Logged in as: Michael Torres

Automated Reception

Manual Upload

Review & Match

3

Upload Invoices

Upload invoices from PDF files, Excel spreadsheets, or paste email content

 PDF Files

 Email

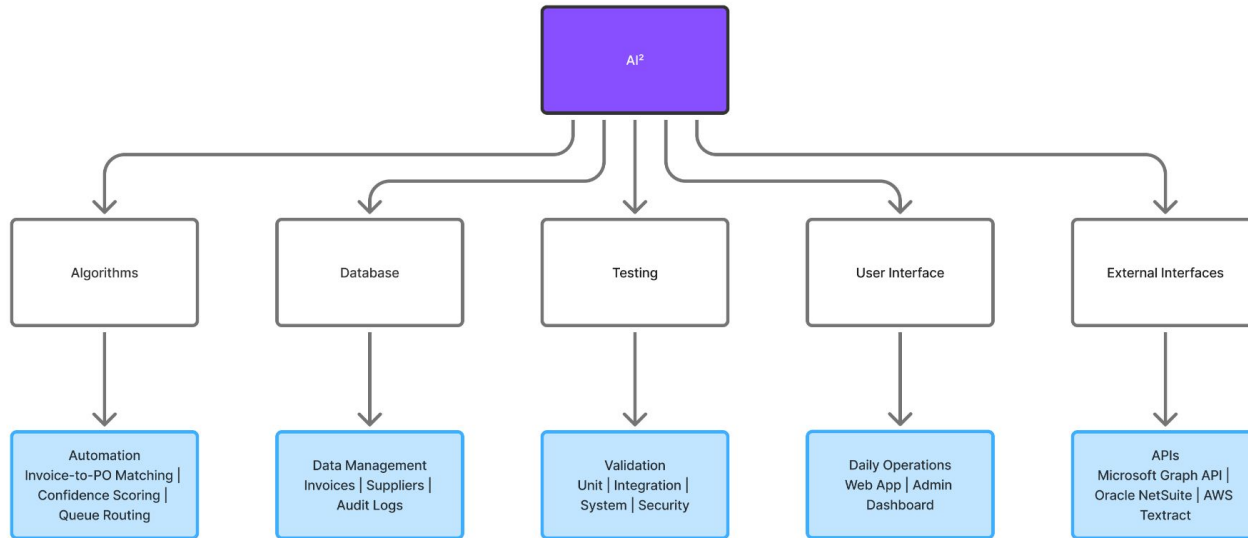
 Excel



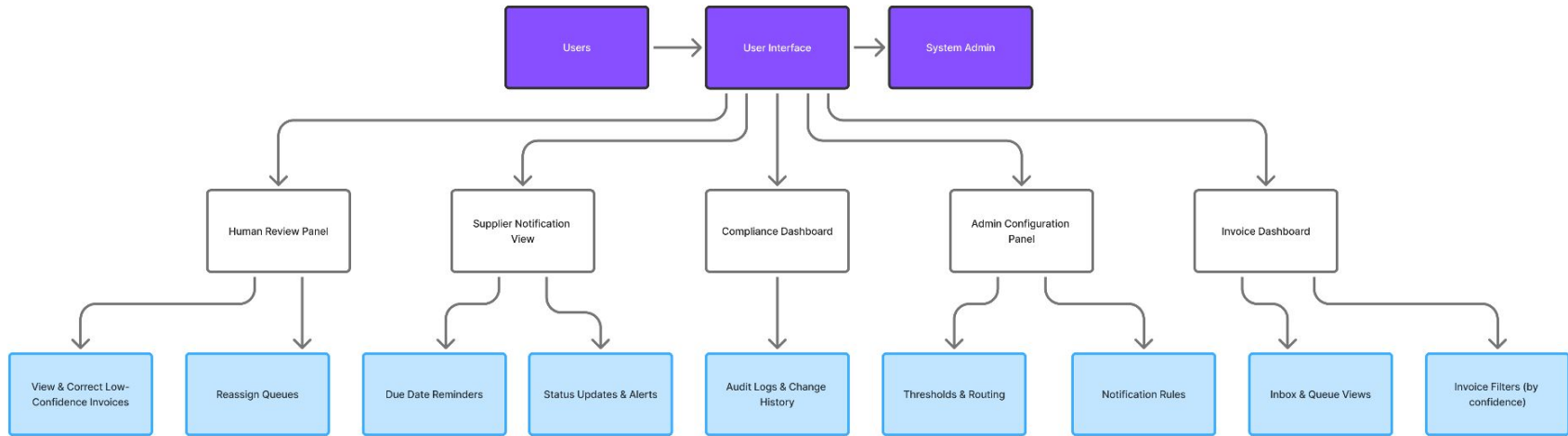
[Click to upload](#) or drag and drop

PDF files up to 10MB

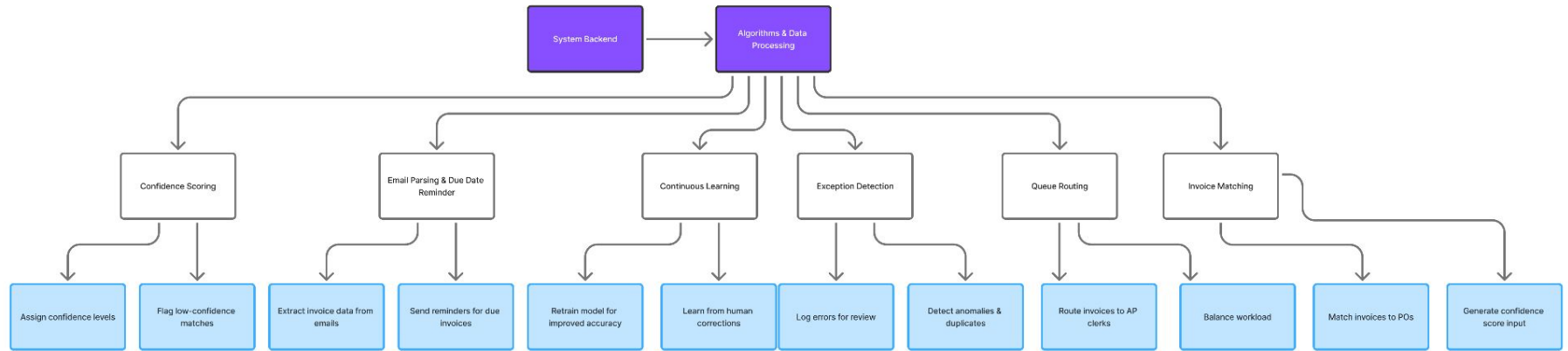
WBS: System Overview



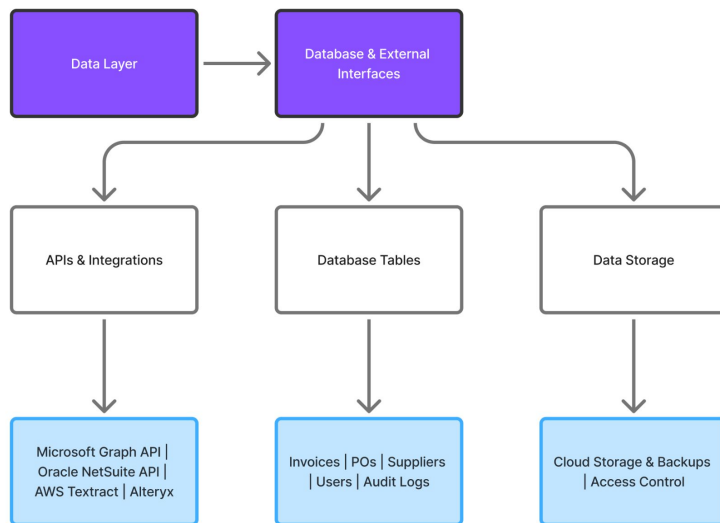
WBS: User Interface



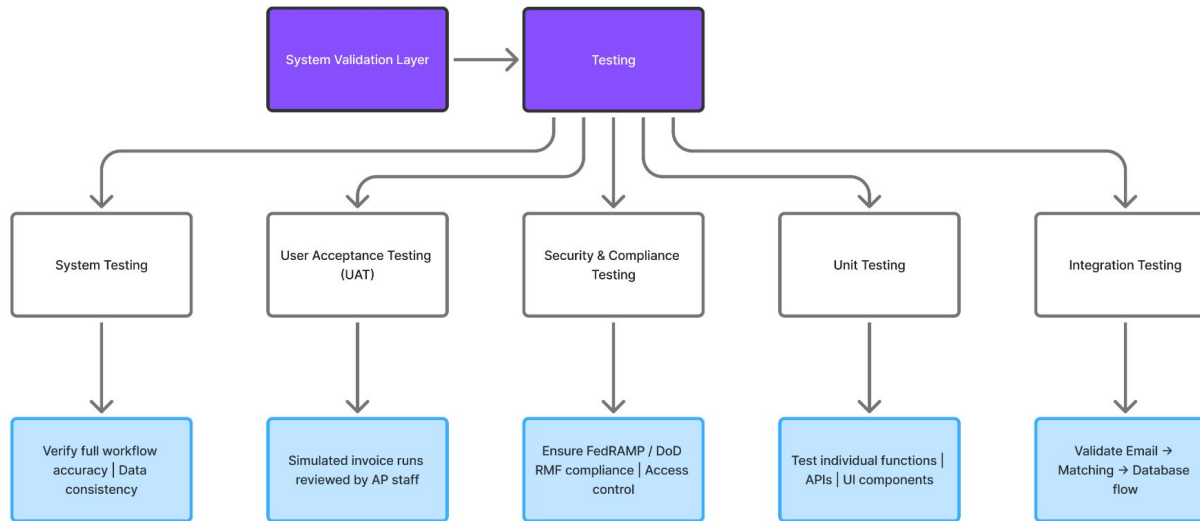
WBS: Algorithms & Data Processing



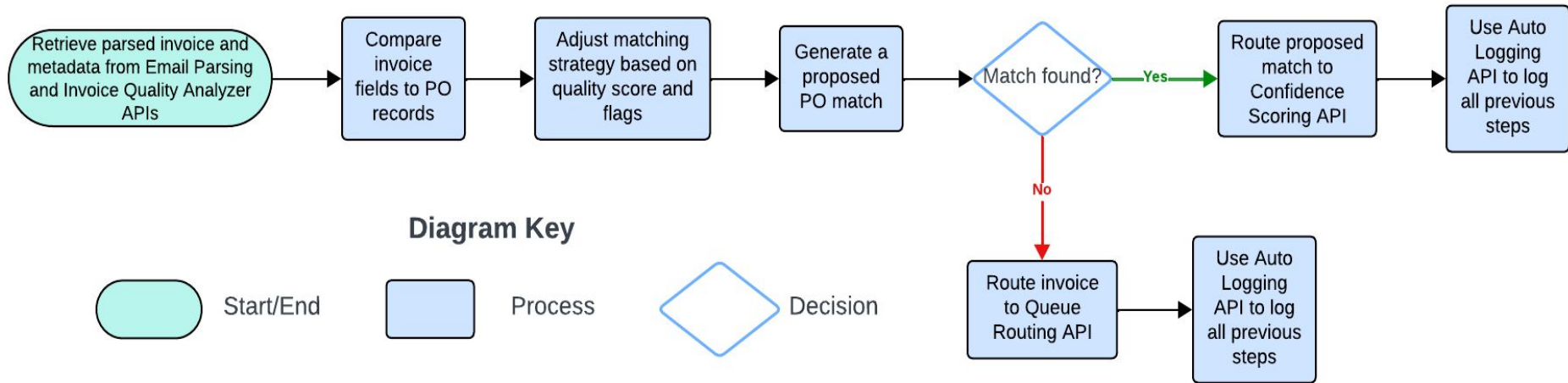
WBS: Database and External Interfaces



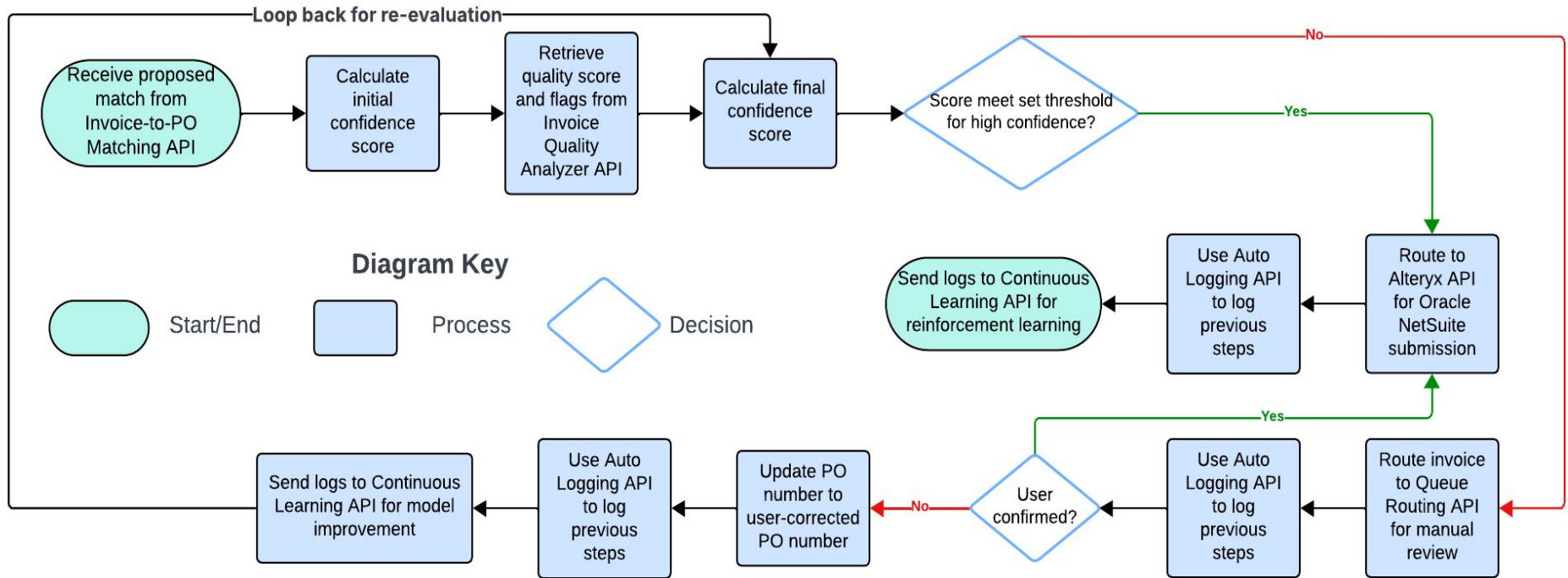
WBS: Testing and Validation



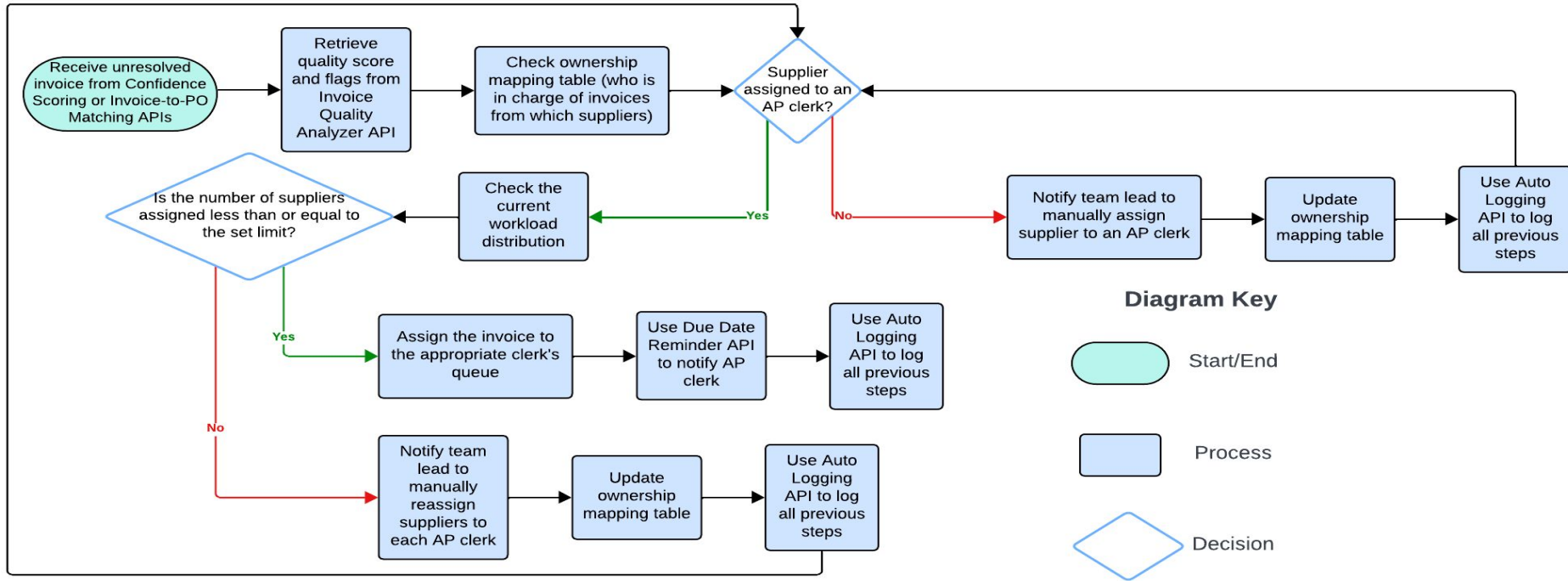
Invoice-to-PO Matching Algorithm



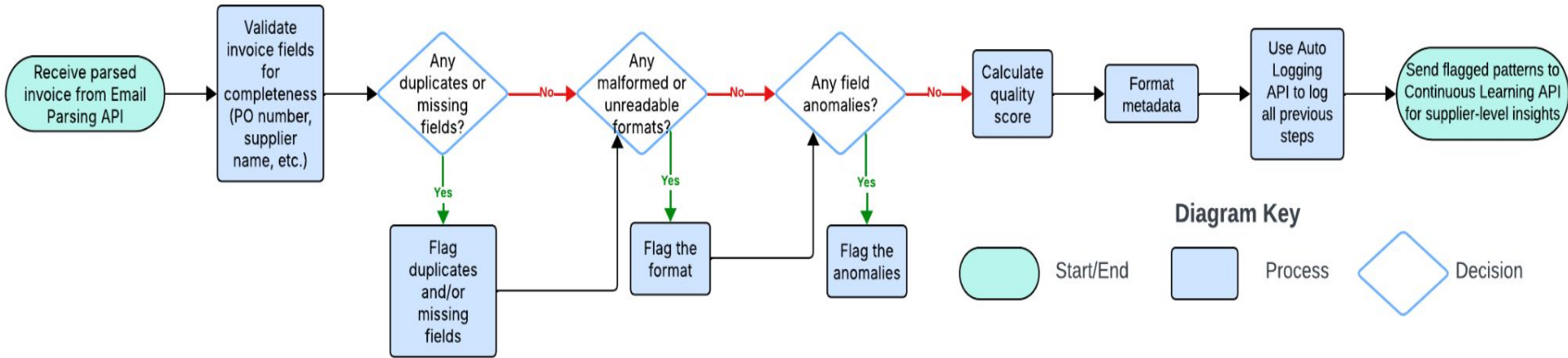
Confidence Scoring Algorithm



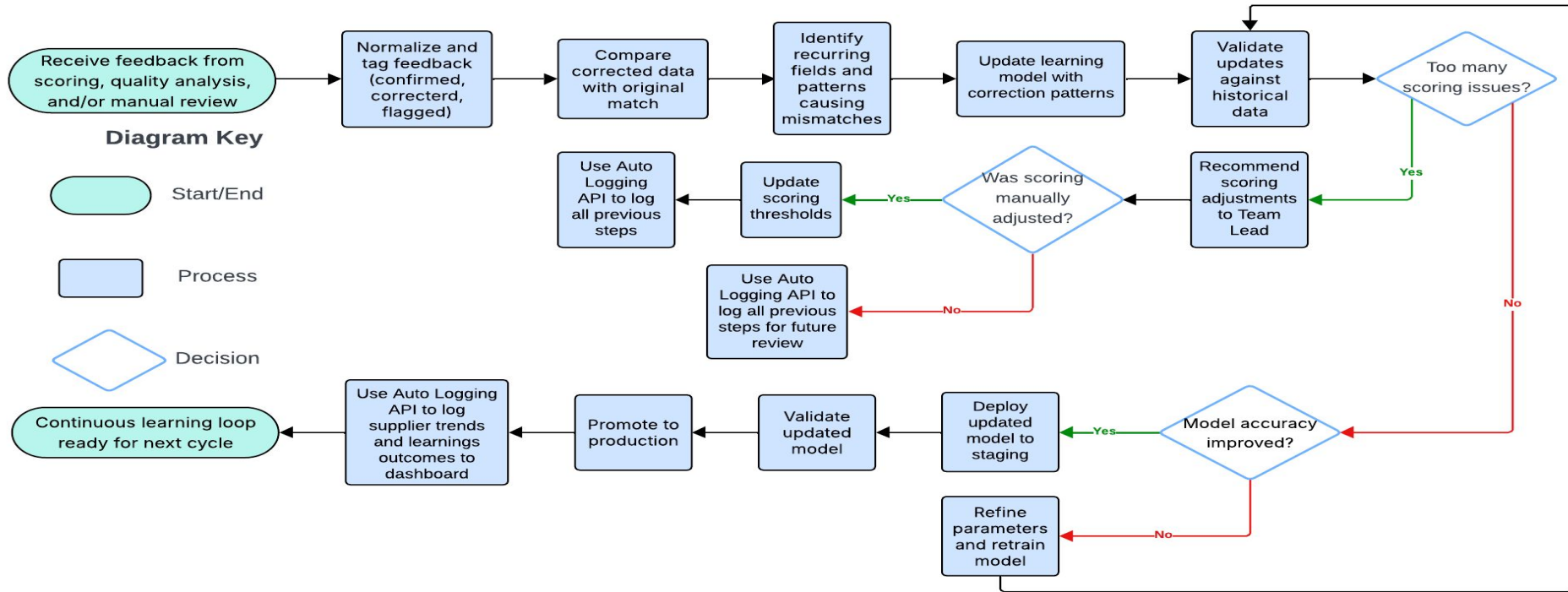
Queue Routing Algorithm



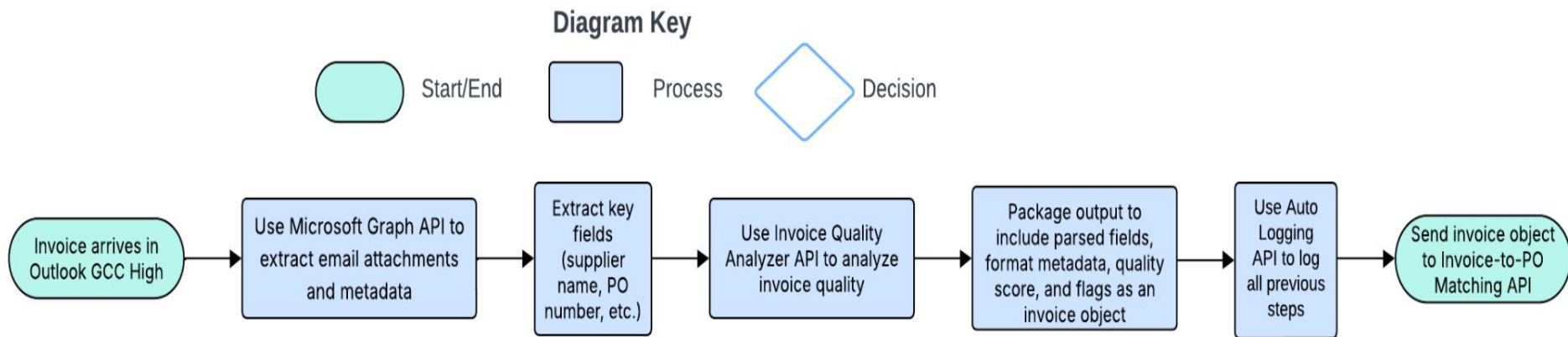
Invoice Quality Analyzer Algorithm



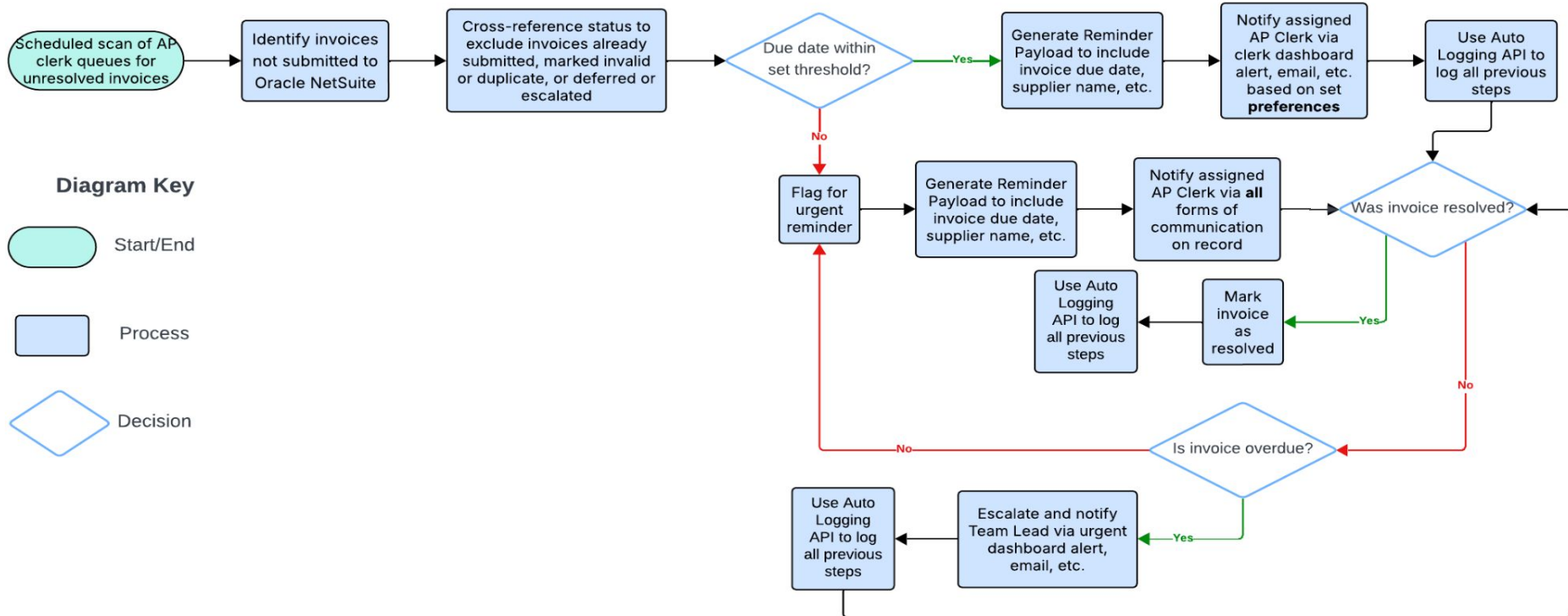
Continuous Learning Algorithm



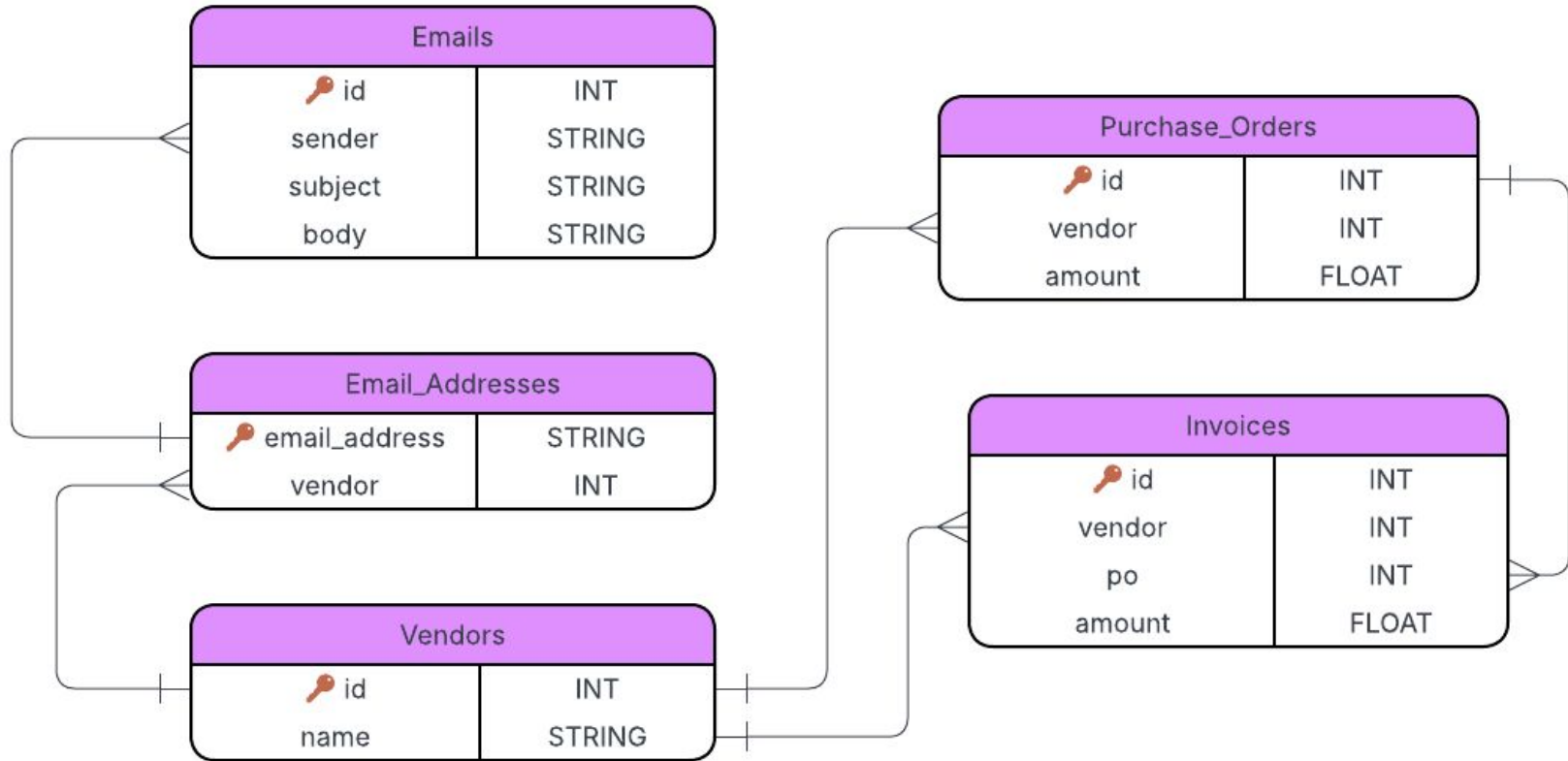
Email Parsing Algorithm



Due Date Reminder Algorithm



Database Schema



Sprint Breakdown

1. Foundation

- Basic application
- User Interface

(AP Team Member)

2. Integration

- w/ Outlook Inbox
- Oracle NetSuite

(Administrator User Story)

3. Authentication

- Integrate ADS Okta SSO (role-access)
- Security clearance

(Administrator User Story)

4. Configurations:

- Confidence thresholds
- Routing rules
- Notifications

(Administrator User Story)

5. Queues + Flagging

- Assign invoices to AP'S
- Flagging invoices w/ low confidence for AI training

(AP Team Member)

6. Training

- Pattern recognition
 - Improve accuracy
- (AI Model Trainer)

7. Reports

- Summaries on accuracy
- Audit logs to adhere to federal + state guidelines

(Compliance Officer)

References

1. ADS Pitch Document Sample
2. Tamaro, R. (2025, March 4). *The Hidden Costs of Manual Accounts Payable and How Automation Solves Them - CASO Document Management*. CASO Document Management.
<https://caso.com/2025/03/the-hidden-costs-of-manual-accounts-payable-and-how-automation-solves-them/>
3. *AI Invoice Processing Benchmarks 2025 - Accuracy, Speed, And Cost Comparison*. (2025, September 9). Parseur. Retrieved September 27, 2025 from
[https://parseur.com/blog/ai-invoice-processing-benchmarks#:~:text=Speed%20\(according%20to%20SuperAGI\).automation%20drives%20significant%20productivity%20gains](https://parseur.com/blog/ai-invoice-processing-benchmarks#:~:text=Speed%20(according%20to%20SuperAGI).automation%20drives%20significant%20productivity%20gains)
4. Jex, S. (2024, September 24). *Accounts Payable Automation by the Numbers: 10 Statistics to Know*. Quadient.
<https://www.quadient.com/en/blog/ap-automation-by-the-numbers-10-statistics-to-know>
5. *Avalanche of E-mail Coming Out of the Computer, Overwhelming the Person*. (n.d.) 123RF. Retrieved September 29, 2025, from
https://www.123rf.com/photo_176621030_avalanche-of-e-mail-coming-out-of-the-computer-overwhelming-a-person-eps-8-vector-illustration.html
6. *Gartner Survey Shows That a Third of Accountants Make Several Financial Errors Per Week Due to Capacity Constraints*. (2024, February 21). Gartner.
<https://www.gartner.com/en/newsroom/press-releases/2024-02-21-gartner-survey-shows-that-a-third-of-accountants-make-several-error-per-weeo-due-to-capacity-constraints>
7. *Accounts Payable Automation Trends: Key Insights and Latest Statistics*. (n.d.) Kefron. Retrieved October 6, 2025, from
<https://kefron.com/2025/02/accounts-payable-automation-trends-key-insights-and-latest-statistics/?switch=us>