



CODECELL-CMPN,VESIT

SYRUS HACKATHON 2025

Category Code: C6

Problem Statement Title: Cross-Border Trade & International Finance

Team Name: CodeMongers

Institute Name: Vivekanand Education Society's Institute of Technology



Idea / Approach details (& implemented features)

Problem:

Global trade is slow, costly, and risky due to:

1. Manual invoice processing delays shipments.
2. Unclear tariffs & duties lead to unexpected costs.
3. No structured supplier risk assessment.
4. FX volatility causes financial instability.
5. Compliance verification is complex and time-consuming.

Our Approach: An **AI-powered Trade Risk & Financing Profiler** Automates document analysis, risk assessment, and supplier selection to streamline global trade.

Data Extraction – AI reads invoices, extracts product details & pricing.

Supplier Matching – Identifies suppliers based on cost, risk & compliance.

Tariff & Duty Analysis – Calculates total landed costs for each supplier's country.

Risk Assessment – AI evaluates supplier risks (FX volatility, trade barriers).

Automated Compliance Checks – Screens suppliers against global sanction lists.

Smart Procurement Decisioning – Recommends the best supplier & trade route.

Key Features:

1. AI Invoice Extraction
2. Supplier Risk Analysis
3. Tariff & Duty Analysis
4. Procurement Optimization
5. Compliance Screening
6. FX Risk Forecasting



Innovation (Showstopper)

What Makes This a Game-Changer?

Instant AI-Powered Trade Analysis

Before: 61+ hours per shipment wasted on manual compliance.

Now: AI automation reduces this to just minutes.

Cost-Effective Decision-Making

Before: Trade costs reached 4% of transaction value in developing countries.

Now: AI-driven supplier and route optimization cuts costs

Risk-Free International Trade

Before: Businesses suffered 10% annual profit losses due to FX volatility.

Now: AI forecasts trends and suggests hedging strategies, eliminating unnecessary losses.

Automated Global Supplier Matching

Before: 50% of businesses lacked data-driven trade insights.

Now: AI matches suppliers instantly and provides real-time procurement plans



Tech Stack

Backend:



Frontend:



APIs:



Moov.io watchman / open sanctions (Facilitates sanctions screening and compliance checks against restricted lists, reducing financial and legal risks.)

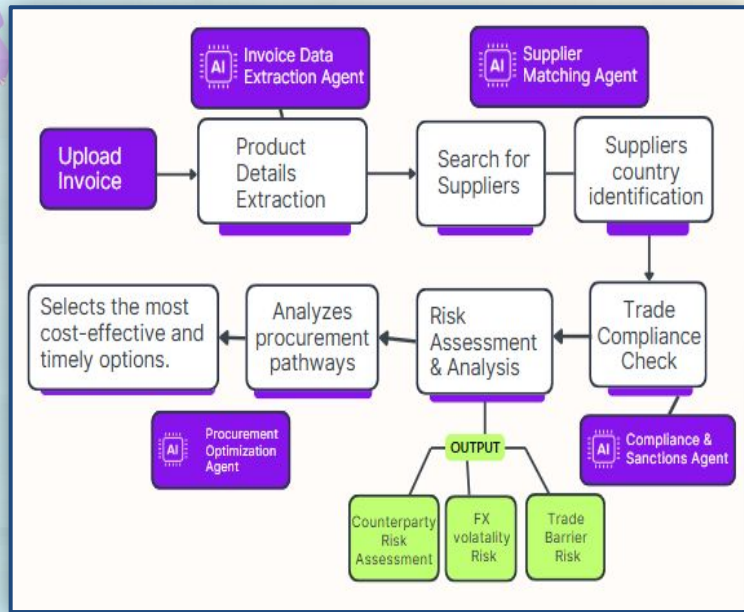
AI integration:



UPTIQ AI console



Implementation/Prototype/Use Case Diagram (screenshots)



The screenshot shows the 'Procurement' section of the platform. It has tabs for 'Supplier Recommendations', 'Alternative Routes', and 'Procurement Plans'. The 'Alternative Trade Routes' tab is active, displaying a table of AI-suggested alternative routes to optimize costs and reduce risks.

Route	Transit Time	Cost	Risk Level	CO2 Emissions	Actions
China → USA (Direct)	18-22 days	\$55	Medium	High	View Details
China → Vietnam → USA	24-28 days	\$5	Low	Medium	View Details
EU → USA (Direct)	12-15 days	\$555	Low	Medium	View Details
India → Middle East → EU	20-25 days	\$5	Medium	Medium-High	View Details
Japan → Mexico → USA	22-26 days	\$55	Low	Medium	View Details


The screenshot shows the 'Counterparty Risk Assessment' section. It has tabs for 'Counterparty Risk', 'FX Volatility Risk', and 'Trade Barrier Risk'. The 'Counterparty Risk' tab is active, displaying a table of comprehensive risk analysis of trading partners.

Counterparty	Location	Risk Score	Risk Level	Last Updated
Global Traders Ltd	Singapore	32	Low	2 days ago
Eastern Imports Co.	China	68	Medium	5 days ago
Atlantic Shipping	United Kingdom	45	Low	1 week ago
Mediterranean Exports	Brazil	87	High	3 days ago
Northern Supplies	Canada	29	Low	Today

The screenshot shows the 'Partner Compliance Status' section. It has a search bar and a filter button. The table displays monitoring compliance status of trading partners.

Partner	Location	Status	Last Checked	Issues	Actions
Global Traders Ltd	Singapore	Compliant	2 days ago	None	View Details
Eastern Imports Co.	China	Pending	5 days ago	Documentation incomplete	View Details
Atlantic Shipping	United Kingdom	Compliant	1 week ago	None	View Details
Mediterranean Exports	Brazil	Non-Compliant	3 days ago	Sanctions list match	View Details
Northern Supplies	Canada	Compliant	Today	None	View Details

In case of Uptiq category - Your Uptiq Agent (explain in detail)



INVOICE DATA EXTRACTION AGENT	SUPPLIER MATCHING AGENT	COMPLIANCE & SANCTION AGENT	PROCUREMENT OPTIMIZATION AGENT
Extract Text From Invoices ↓ Format Extracted Data ↓ Validate Extracted Data	Query Supplier Databases ↓ Evaluate Supplier Options ↓ Identify Supplier Location ↓ Store Supplier Data	Verify Against Sanction Lists ↓ Ensure Regulatory Compliance ↓ Assess Supplier Risk	Analyze cost saving opportunities ↓ Optimize Procurement Agreements ↓ Monitor Supplier Performance



Uptiq Agents



main agent

main-agent-6069

Try Agent

Basic Config

Overview Sub Agents Workflows Knowledge PII Masking Secrets & Variables Agentic App Widgets Integrations Triggers Tags

Modular components within an AI Agent, designed to handle specific tasks or actions within their defined scope.

Not sure what are sub agents? [Learn more](#)



Procurement Optimization Agent

procurement-optimization-agent-1641

Scope

The Procurement Optimization Agent is tasked with scrutinizing procurement data to identify quality, budget-friendly alternatives. The agent analyses factor...

IC Model

GPT 4 Turbo

Intents :

Optimize Procurement Strategy

+ Add New Intent



Compliance & Sanctions Agent

compliance-sanctions-agent-8921

Scope

This task targets the verification of supplier data against global compliance and sanction lists such as Moov.io Watchman and Open Sanctions to maintain...

IC Model

GPT 4 Turbo

Intents :

Verify Supplier Compliance

+ Add New Intent



Supplier Matching Agent

supplier-matching-agent-1731

Scope

The Supplier Matching Agent uses structured invoice data to select optimum suppliers, based on product detail, cost, and availability. Using supplier directories, i...

IC Model

GPT 4 Turbo

Intents :

Match Suppliers to Invoice Data

+ Add New Intent



Invoice Extractor Agent

invoice-extractor-agent-7505

Scope

Firstly, clearly define the core task: extracting key details from invoices such as supplier name, invoice number, date, total amount, product descriptions, quantities, un...

IC Model

GPT 4 Turbo

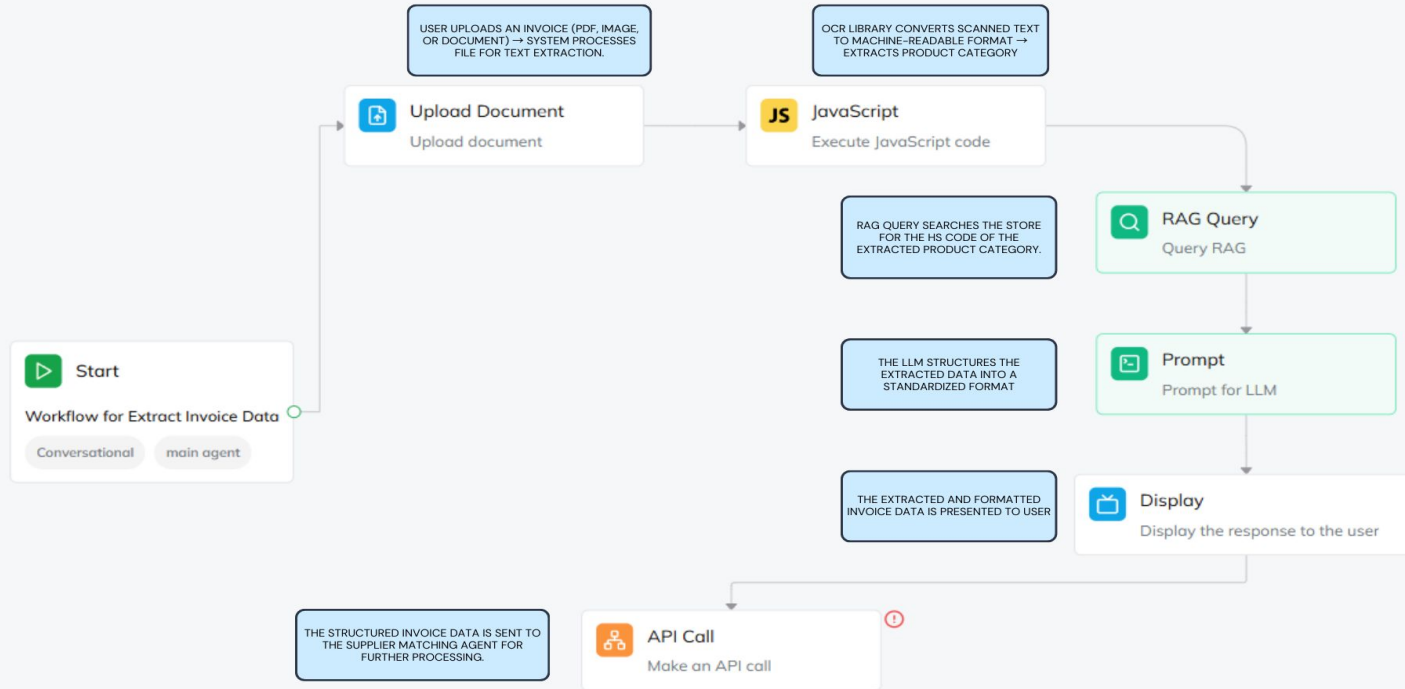
Intents :

Extract Invoice Data


+ Add New Intent



Uptiq Agent Workflow



Javascript Node code



```
async function processInvoice(invoiceFile) {
  if (!invoiceFile) {
    return { error: "No file uploaded." };
  }

  try {
    // Convert PDF to text using Uptiq's built-in text extraction
    let extractedText = await uptiq.extractText(invoiceFile);


    // Simple pattern to extract product names, quantities, and prices (Modify as needed)
    let productMatches = extractedText.match(/(\d+)?\s*((\w\s)+)\s*(\d+\.\d{2})?/g);

    if (!productMatches) {
      return { error: "No products found in the invoice." };
    }

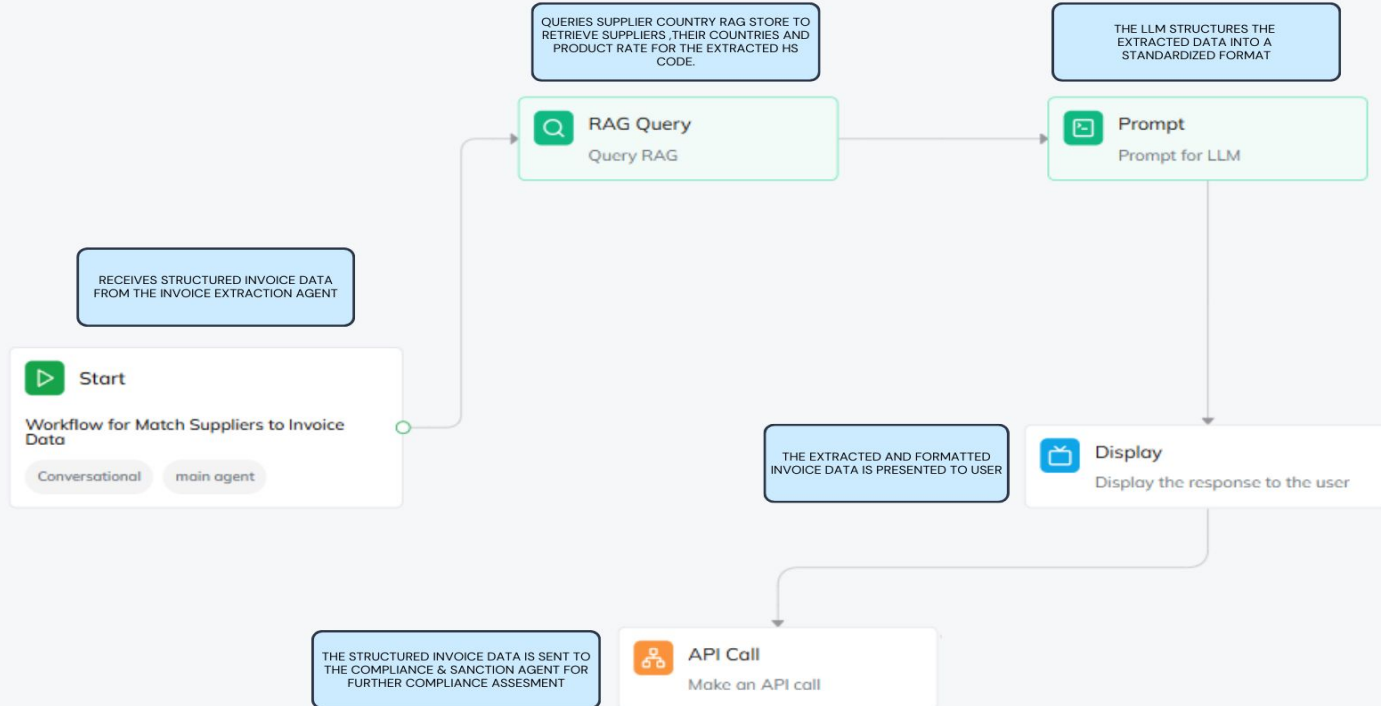
    // Convert extracted data into structured format
    let products = productMatches.map(item => {
      let parts = item.trim().split(/\s+/);
      return {
        quantity: isNaN(parts[0]) ? null : parseInt(parts[0]),
        productName: parts.slice(1, -1).join(" "),
        price: isNaN(parts[parts.length - 1]) ? null : parseFloat(parts[parts.length - 1])
      };
    });

    // Output structured product data to be used by the RAG query
    return { products: products };
  } catch (error) {
    return { error: error.message };
  }
}

// Call the function and pass the result to the next step
processInvoice(input.file).then(result => output(result));
```



Uptiq Agent Workflow





RAG STORE

HS-mapper

RAG Details: HS-mapper

Vector Store
HS-lookup

No. of Candidates
5

Generation LLM
GPT 4o

Vector Store : HS-lookup

Data Store
HS_ids

Database
MongoDB

Embedding Model
OpenAI - text-embedding-3-
large

Distance Strategy
Cosine Similarity

Data Store : HS_ids

No. of data sources
1

Metadata Extraction
Workflow
-

Filter Fields
-

Enable PII Masking
NO



RAG STORE

RAG > RAG Containers

Supplier Country Extraction RAG

 RAG Details: Supplier Country Extraction RAG ...

Vector Store


Supplier Country Vector Store

No. of Candidates

20

Generation LLM

GPT 4o

 Vector Store : Supplier Country Vector Store ...

Data Store

Supplier Country Data Store

Database

MongoDB

Embedding Model

OpenAI - text-embedding-3-large

Distance Strategy

Cosine Similarity

 Data Store : Supplier Country Data Store ...

No. of data sources

1

Metadata Extraction Workflow

-

Filter Fields

-

Enable PII Masking

NO

Data Sources:



Imports_Exports_Dataset

CSV File - 2.56 MB

Chunking Strategy: - Recursive Character Splitting

[View Chunks](#)



[Upload File](#)



PII MASKING FOR INVOICE AGENT

Overview Sub Agents Workflows Knowledge **PII Masking** Secrets & Variables Agentic App Widgets Integrations Triggers Tags

PII Masking

Ensures personally identifiable information (PII) data is protected during interactions with the AI agent.

How does PII Masking work? [Learn More](#)



Address

Recognizes addresses in the text



Zip Code

Recognizes zip codes in the text



Full Name

Recognizes full names in the text



Date

Recognizes dates in the text



Time

Recognizes time in the text



Email

Recognizes email addresses in the text



Phone Number

Recognizes phone numbers in the text



SSN

Recognizes social security numbers in the text



Custom Patterns

05_d7a051b0d65d4e11_masking_patterns

+ Create



uma

How was feedback from mentoring was incorporated

After the feedback and mentoring round, we implemented PII masking in the Invoice Agent as advised by our mentors to safeguard personal data and enhance security. Additionally, based on their suggestions, we developed two RAG containers—one for HS code mapping and another for supplier data. We integrated the HS code mapping container into the Invoice Agent to improve product classification analysis. Furthermore, we initiated the development of two new agents: the Supplier Agent and the Compliance Check Agent, ensuring that we incorporated our mentors' guidance into our approach.



Future Objectives

1. Supplier Matching Agent

Resolve storage constraints for proper RAG integration.

Optimize retrieval for better supplier classification

2. Compliance & Sanctions Agent

Integrate compliance APIs and implement risk scoring.

Retrieve past compliance reports and generate summary insights

3. Procurement Optimization Agent

Design workflow to analyze cost, quality, and supplier performance.

Implement predictive recommendations for procurement decisions.

