



CODECELL-CMPN, VESIT

SYRUS HACKATHON 2025

Category Code: C6

Problem Statement Title: Cross-Border Trade & International Finance

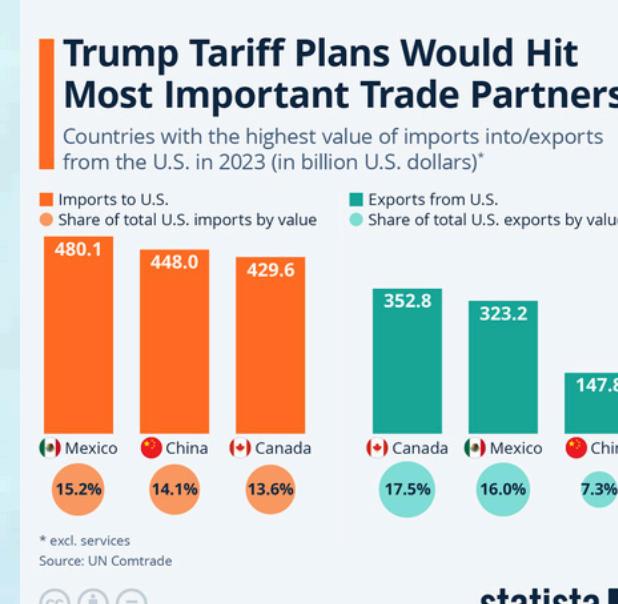
Team Name: Hashcode

Institute Name: Vivekanand Education Society's Institute of Technology

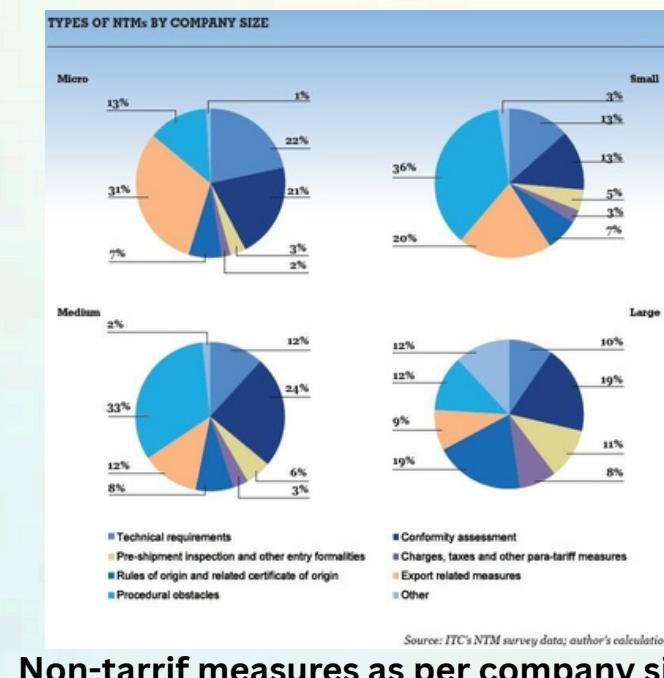


Statistics

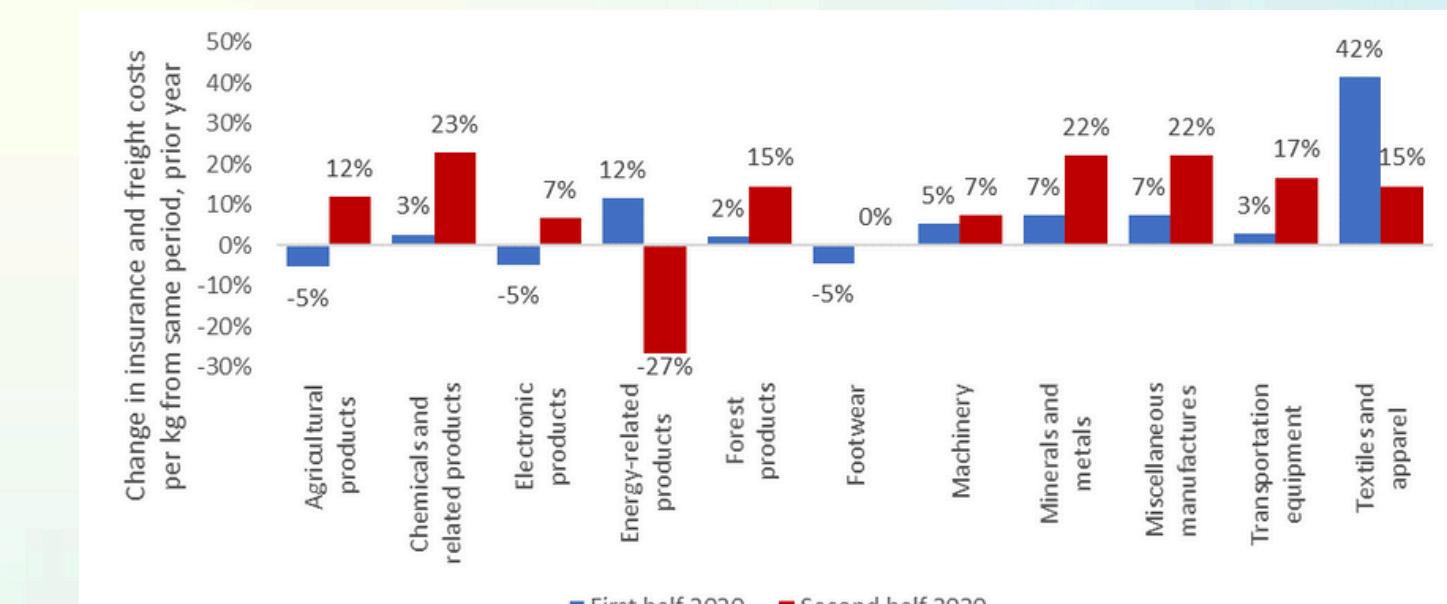
- **High Compliance Costs:** Up to 20% of a trade's value goes into compliance and admin expenses. ([Link](#))
- **Tariff Losses:** Policies like Trump's tariffs have led to \$150 billion in annual losses due to inefficiencies. ([Link](#))
- **More Trade Barriers:** Over 1,200 new trade restrictions have made global trade more complex.
- **AI Investment:** In 2024, 37% of VC funding went to AI startups, showing trust in tech solutions.
- **Operational Delays:** Manual paperwork causes errors, delays, and even shipment seizures due to compliance issues. ([Link](#))



Graph showing Trump's tariff plans



Non-tariff measures as per company size



Graph showing impact of COVID on freight transportation services



Approach details & implemented features



We propose our solution, “*Kubera*” automates trade finance using AI for document verification, real-time financing adjustments, and risk mitigation. It reduces cash flow gaps for SMEs and enhances lender risk assessment dynamically.

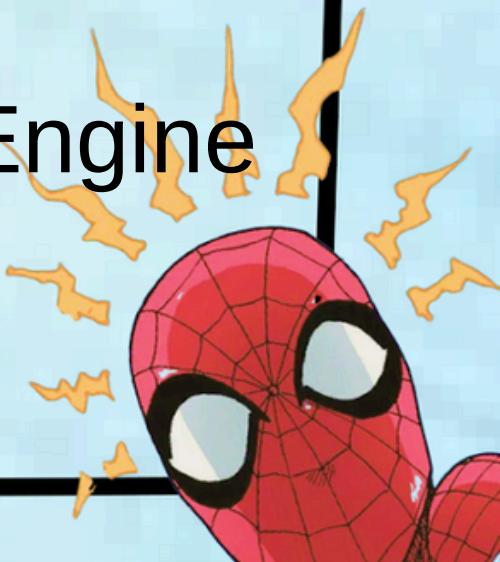
Implemented Features:

Done :

- Automated Document Processing
- Geopolitical Risk Sentinel
- Language-Agnostic Trade Hub
- Finance Negotiator
- Risk Assessment

To be implemented :

- Fraud-Proof Workflows
- Adaptive Credit Scoring
- Dynamic Financing Terms Engine
- Smart Route Optimization



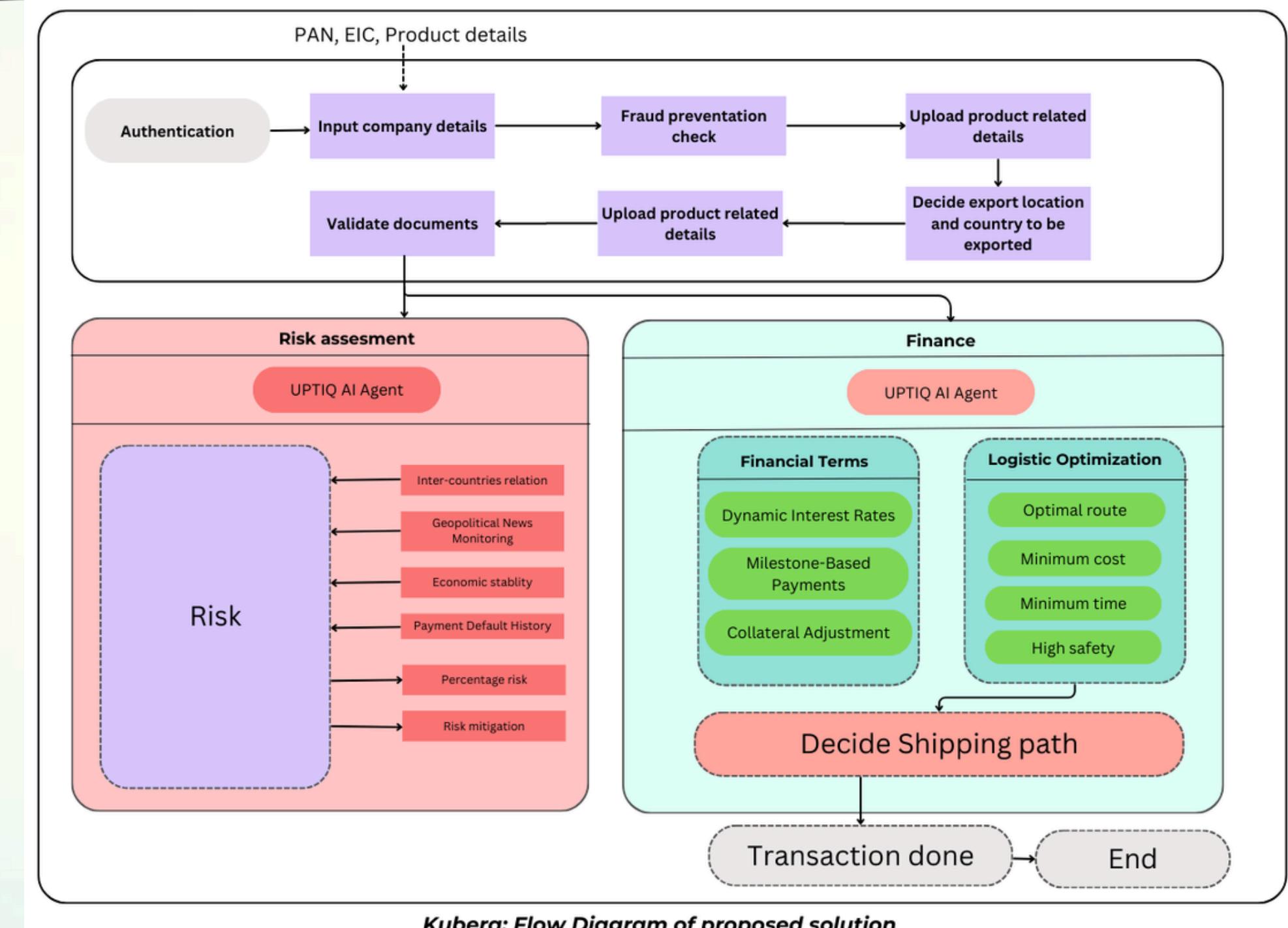
Flow Diagram

Authentication & Verification: Users input company details, which undergo fraud prevention checks and document validation to ensure compliance.

Risk Assessment with UPTIQ AI Agent: Evaluates geopolitical risks, economic stability, payment default history, and mitigation strategies to assess trade risks.

Finance Optimization: Determines financial terms like **dynamic interest rates**, **milestone-based payments**, and **collateral adjustments** for better trade financing.

AI-Driven Decision Making: The system integrates AI insights to decide the **best shipping path**, completing the transaction securely and efficiently.



RAG for cross border trade

[_\(Doc Link\)](#)

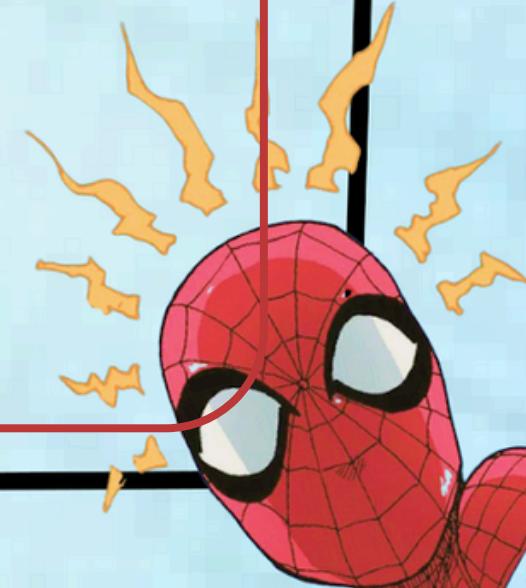
Problem : Cross-border trade finance is inefficient and costly due to manual documentation processing, outdated risk models, and slow financing approvals, causing high compliance costs, shipment delays, and cash flow gaps for SMEs.

How ?

- Automated Compliance & Documentation
- Risk Assessment & Fraud Detection
- Dynamic Financing Terms
- AI-Powered Trade Assistance
- Real-Time Alerts

Why ?

- Reduces Manual Work
- Improves Decision-Making
- Enhances Efficiency & Accuracy
- Supports SMEs & Lenders
- Bridges the Trade Finance Gap



Implementation and Result

Cross-Border Trade & Finance Assistant

Debug Mode

List the items i can not export from india.

MQ

****Prohibited Items for Export from India****

As per the Directorate General of Foreign Trade (DGFT), Ministry of Commerce and Industry, Government of India, the following categories of items are prohibited from being exported from India:

1. Wildlife and Animal Products:
 - Wild animals, their parts, and products (e.g., rhino horns, tiger skins)
 - Unprocessed ivory, animal rennet, and certain animal fats/oils
2. Nuclear and Strategic Materials:
 - Nuclear materials, radioactive substances, and related equipment
 - Certain strategic materials (e.g., titanium, certain alloys)
3. Defense and Military Equipment:
 - Arms, ammunition, firearms, and explosives
 - Military vehicles, equipment, and accessories
4. Antiquities, Art, and Cultural Heritage.

Type here...

MQ

Saved Prompts

Implementation and Result

Cross-Border Trade & Finance Assistant

Debug Mode

I am farmer from Nagpur, Maharashtra. I want to export Oranges to USA. Give me details of the rules and regulations

MQ

Exporting Oranges from India (Nagpur, Maharashtra) to the USA: Rules and Regulations

1. Regulatory Bodies Involved

- India:
 - Agricultural & Processed Food Products Export Development Authority (APEDA), Ministry of Commerce & Industry
 - Directorate of Plant Protection, Quarantine & Storage (DPPQS), Ministry of Agriculture
- USA:
 - United States Department of Agriculture (USDA)
 - Animal and Plant Health Inspection Service (APHIS)

2. Pre-Export Requirements

1. Registration:
 - Register your farm/orchard with APEDA.
 - Obtain a Packing House registration (if you have one) or associate with a registered Packing House.

Type here...

MQ

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Document Generation RAG

Problem : SMBs struggle with manual, error-prone documentation under complex trade rules. This leads to inefficiencies and compliance risks. The DocGen Agent automates document generation for accuracy and security.

How ?

- Generates standardized document templates automatically.
- Crawls trusted sources to retrieve current documentation details.
- Applies smart PII masking to secure sensitive data.

Why ?

- Reduces manual work and minimizes errors in document preparation.
- Ensures compliance with international trade regulations.
- Boosts efficiency, letting SMBs focus on core business tasks.



Implementation and Result

RAG Playground

Kubera Documentation RAG

Llama 3.1 Nemotron (70B) Instruct HF

A high-frequency version of Llama 3.1 with 70 billion parameters for instruction following.

Create an Export Quotation for Indian Turmeric Powder. The product is organic, high-curcumin turmeric powder, sourced from certified farms in India. It is 100% pure, non-GMO, and free from additives, suitable for culinary, medicinal, and cosmetic use. Packaging options include bulk 25kg bags and 1kg retail packs, with private labeling available upon request. The shipment will be via FOB Mumbai Port, with a minimum order quantity of 500 kg. The quotation should include product specifications, pricing, payment terms, delivery timeline, export compliance details, and warranty/return policies.

Based on 3 sources

Export Quotation for Indian Turmeric Powder

Quotation No.: TURMERIC-EXP-001 Date: 15/03/2023 Customer Name: [Insert Customer Name] Customer ID/Vendor Code: [Insert Customer ID/Vendor Code] Address: [Insert Customer Address] Phone No.: [Insert Customer Phone Number] Email ID: [Insert Customer Email ID] GSTIN (if applicable): [Insert Customer GSTIN (if applicable)] State/Country: [Insert Customer State/Country]

Quotation For: Organic High-Curcumin Turmeric Powder Product Type: Food Grade.

Enter query

Send

History

Today

EcoCharge Solar Battery User Manual Creation

Implementation and Result

The screenshot shows a web-based RAG playground interface. The top navigation bar has a 'RAG Playground' button and a close button ('X'). The main content area features a sidebar with a character icon and a 'Kubera Documentation RAG' dropdown. The main body contains a query about creating a user export quotation for an EcoCharge Solar Battery. Below the query, a green box displays the generated response, which includes a template for the quotation with placeholders for customer information. A sidebar on the right shows a history entry for 'EcoCharge Solar Battery User Manual Creation' from today.

RAG Playground

Kubera Documentation RAG

Llama 3.1 Nemotron (70B) Instruct HF

A high-frequency version of Llama 3.1 with 70 billion parameters for instruction following.

Create user Export Quotation for the 'EcoCharge Solar Battery'. It is a 5000mAh solar-powered portable battery designed for off-grid power solutions. The device supports USB-C fast charging, has an IP67 waterproof rating, and includes an LED battery indicator. The battery life extends up to 48 hours on a full charge, and it features an automatic power-saving mode. Document sections should include specifications, installation guide, usage instructions, troubleshooting, and safety precautions

Based on 3 sources

Export Quotation for EcoCharge Solar Battery

Quotation No.: ECOSOLAR-001 Date: 22/02/2023 Customer Name: [Insert Customer Name] Customer ID/Vendor Code: [Insert Customer ID/Vendor Code] Address: [Insert Customer Address] Phone No.: [Insert Customer Phone Number] Email ID: [Insert Customer Email ID] GSTIN: [Insert Customer GSTIN (if applicable)] State: [Insert Customer State] Country: [Insert Customer Country]

Quotation For: EcoCharge Solar Battery (5000mAh, Solar-Powered, Portable)

Enter query

Send

History

Today

EcoCharge Solar Battery User Manual Creation

Negotiator for Interest Rate

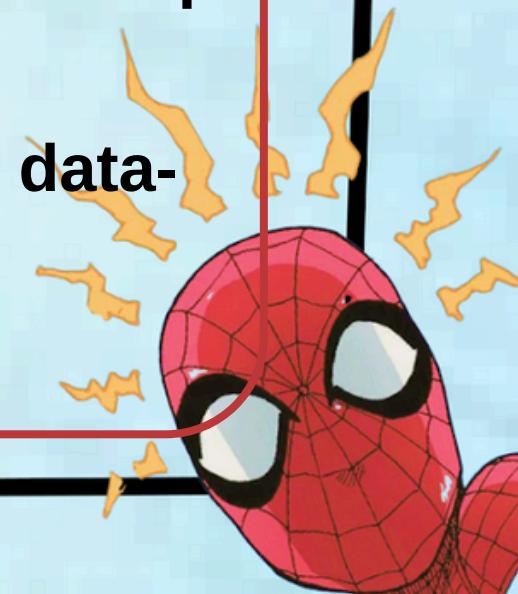
Problem : Interest rate negotiation is inefficient and costly due to manual processes, outdated risk models, and slow approvals. SMEs face challenges in securing optimal rates due to limited transparency, asymmetric information, and complex documentation, leading to higher borrowing costs and financial constraints.

How ?

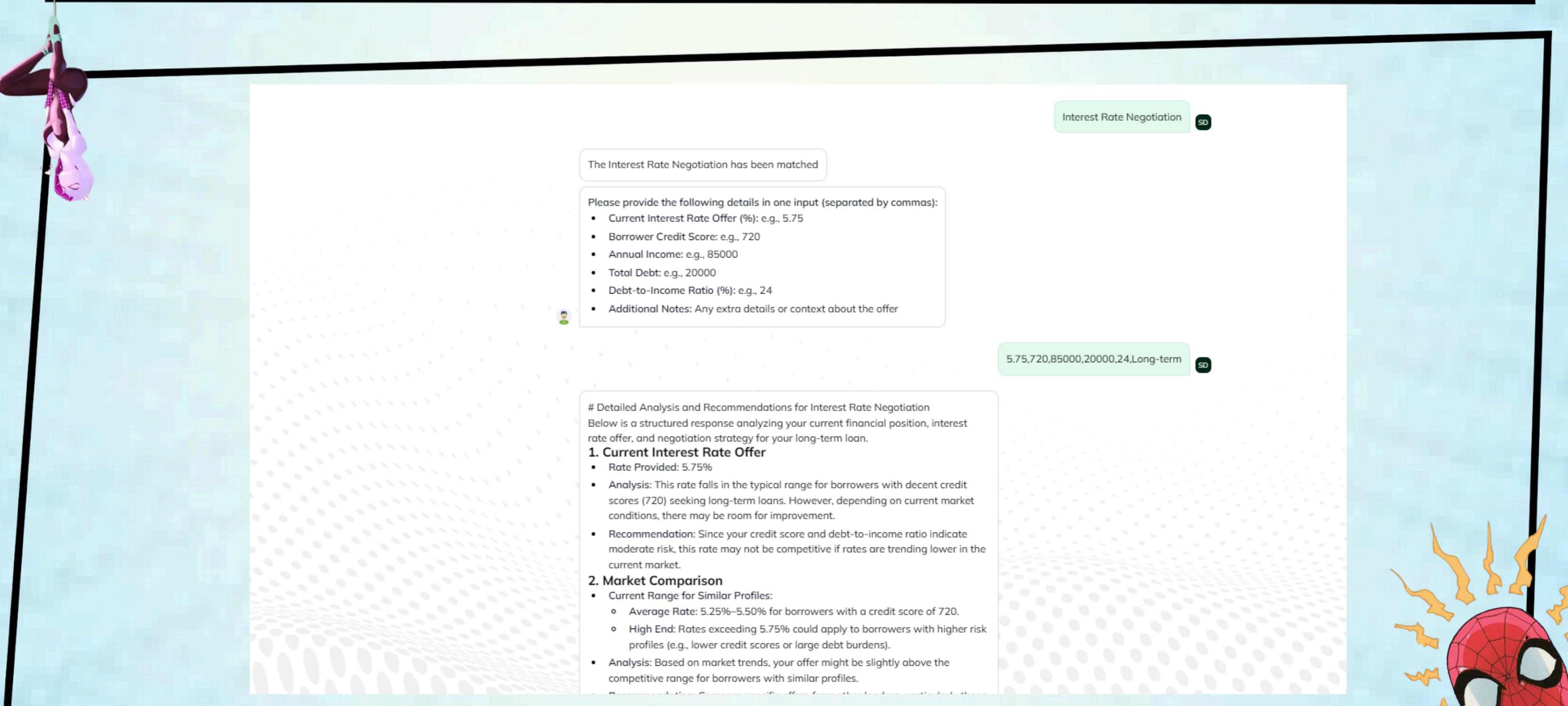
- Collects user financial details
- Retrieves current market rates via web crawling.
- Merges user data with market rates and using AI model for comparison
- Provides personalized negotiation strategies and counteroffers.

Why ?

- **Cost Savings:** AI-driven negotiations can reduce expenses by securing better terms.
- **Efficiency:** Automating negotiations speeds up processes and reduces manual effort.
- **Enhanced Decision-Making:** AI provides data-driven insights, improving negotiation outcomes.



Implementation and Result



The Interest Rate Negotiation has been matched

Please provide the following details in one input (separated by commas):

- Current Interest Rate Offer (%): e.g., 5.75
- Borrower Credit Score: e.g., 720
- Annual Income: e.g., 85000
- Total Debt: e.g., 20000
- Debt-to-Income Ratio (%): e.g., 24
- Additional Notes: Any extra details or context about the offer

5.75,720,85000,20000,24,Long-term

Detailed Analysis and Recommendations for Interest Rate Negotiation
Below is a structured response analyzing your current financial position, interest rate offer, and negotiation strategy for your long-term loan.

1. Current Interest Rate Offer

- Rate Provided: 5.75%
- Analysis: This rate falls in the typical range for borrowers with decent credit scores (720) seeking long-term loans. However, depending on current market conditions, there may be room for improvement.
- Recommendation: Since your credit score and debt-to-income ratio indicate moderate risk, this rate may not be competitive if rates are trending lower in the current market.

2. Market Comparison

- Current Range for Similar Profiles:
 - Average Rate: 5.25%–5.50% for borrowers with a credit score of 720.
 - High End: Rates exceeding 5.75% could apply to borrowers with higher risk profiles (e.g., lower credit scores or large debt burdens).
- Analysis: Based on market trends, your offer might be slightly above the competitive range for borrowers with similar profiles.

Implementation and Result



3. Credit Profile Evaluation

- Credit Score: 720 (Good standing; above average but not excellent).
- Debt-to-Income Ratio: 24% (Well within acceptable thresholds for lending; demonstrates ability to manage debt responsibly).
- Annual Income: \$85,000 (Sufficient income level to comfortably handle repayment obligations).
- Analysis: Your profile is strong enough to warrant negotiation for a better rate. While not at premium levels (e.g., credit score 760+), lenders should view you as a low-to-moderate risk borrower.
- Recommendation: Highlight your favorable debt-to-income ratio and consistent income during negotiations to advocate for a lower rate.

4. Negotiation Strategy

- Steps to Take:
 - Research competing rates from other lenders to identify a realistic benchmark (e.g., 5.25%–5.50%).
 - Present your creditworthiness (strong DTI ratio, good credit score, stable income) as leverage for securing a better rate.
 - Emphasize any long-term positive relationships you have with the lender (if applicable), as this may incentivize them to retain your business with lower rates.
- Recommendation: Enter negotiations confidently, prepared to explain why the rate should be reduced based on your financial strength and market comparison.

5. Counteroffer Suggestion

- Target Rate: Request a rate of 5.25%–5.50% as a counteroffer.
- Reasoning: This aligns with market averages for borrowers in your profile range and reflects your relatively low debt burden and solid credit score.
- Negotiation Tip: Start with the lower end of the range (5.25%) and be willing to settle for a rate up to 5.50%.

6. Additional Considerations

- Cross-Border Trade Loan Analysis:
 - If your loan involves cross-border transactions, confirm whether the rate includes any risks tied to foreign exchange fluctuations or geopolitical factors. These could justify a slightly higher rate but may also offer room for negotiation.
 - Investigate fixed vs. floating rates: Long-term loans with fixed rates may be advantageous if interest rates are expected to rise.
- Loan Terms: Beyond interest rate, consider negotiating for favorable terms (e.g., extended repayment schedules, flexible payment options).
- Prepayment Penalties: Ensure there are no excessive penalties for early repayment if you foresee paying off the loan ahead of schedule.



Geopolitical events impact analyzer



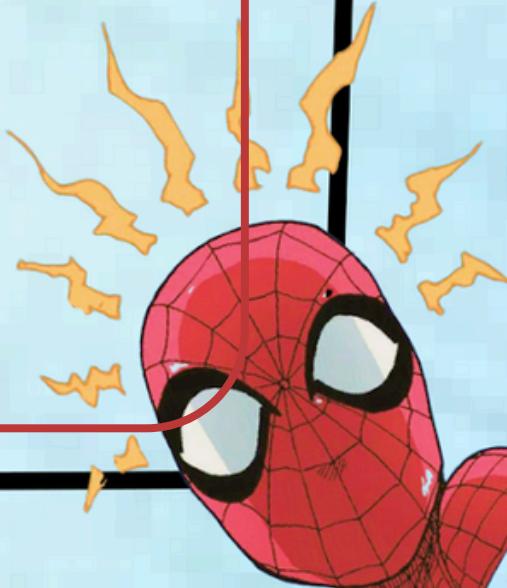
Problem : Geopolitical events such as trade restrictions, conflicts, and policy changes create uncertainties that impact supply chains, pricing, and customer demand. Without a structured way to analyze these impacts, businesses struggle to make informed decisions quickly.

How ?

- AI-driven business impact analysis
- Automated risk assessment
- Custom business recommendations
- Real-time alerts and email notifications

Why ?

- Proactive decision-making
- Minimized business disruptions
- Optimized pricing and inventory
- Faster response to global events



Implementation and Result

Cross Border Trade and Finance Agent

Debug Mode

Tell me about the latest tariff changes and how does it affect my business.

Geopolitical Events
The United States has recently imposed a 10% tariff on semiconductor imports from China, signaling heightened trade tensions between two of the world's largest economies. This change is particularly impactful as semiconductors are pivotal to the manufacturing of electronics, one of IndiBazaar's key product categories. Beyond tariffs, global geopolitical shifts can lead to supply chain disruptions, currency fluctuations, and changes in international trade policies. For IndiBazaar, these factors hold implications for procurement costs, pricing strategies, and overall operational efficiency.

Impact on Your Business
Increased Production Costs
The tariff could drive up costs for electronic components and finished devices sourced from China, which serves as the world's largest semiconductor producer. If IndiBazaar procures smartphones, laptops, smartwatches, and other accessories reliant on Chinese semiconductors, it's likely that suppliers will pass on these added costs, raising procurement expenses by an estimated 7-12%. This could hinder competitiveness in IndiBazaar's electronics vertical, where it already faces competition from established players like Flipkart, Amazon India, Meesho, and Snapdeal.

Supply Chain Disruptions
Trade restrictions and geopolitical shifts can introduce complexity into IndiBazaar's supply chains, delaying product availability and causing fulfillment challenges. This is particularly relevant given the platform's reliance on efficient warehousing and logistics systems to meet consumer demand for popular items via same-day and next-day delivery.

Impact on Export Operations
IndiBazaar has a significant global presence, with 25% of its export volume targeting the US, followed by key markets such as Europe (12%), the Middle East (20%), and Southeast Asia (18%). The tariff indirectly affects IndiBazaar's export operations, as rising procurement costs for raw materials and components could lead to thinner margins in international markets. Moreover, currency fluctuations triggered by changing geopolitical sentiment may escalate shipping and production

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Implementation and Result

Cross Border Trade and Finance Agent ▾

expenses.

Consumer Sentiment and Pricing

Economic volatility and higher product costs could impact consumer buying behavior, especially given IndiBazaar's target audience of urban and semi-urban consumers who prioritize affordability. Any upward pricing adjustments on electronics could result in reduced competitiveness, pushing price-sensitive customers toward alternative platforms.

Suggestions to Mitigate Impact

1. **Supplier Diversification:** Reduce reliance on Chinese imports by exploring semiconductor alternatives from countries unaffected by the tariff or prioritizing domestically manufactured electronics. Strengthening local partnerships could align with India's "Make in India" initiative.
2. **Cost Optimization:** Evaluate production and logistics costs to identify areas for efficiency, ensuring profitability amid rising procurement prices. This includes renegotiating contracts with suppliers and courier partners.
3. **Focus on Private Labels:** Expanding private label electronics could allow IndiBazaar to have greater control over production costs and pricing, branding these products as affordable yet high-quality alternatives.
4. **Leverage AI-Driven Insights:** Invest in AI-driven personalized shopping experiences to enhance customer retention despite pricing challenges. Tailored recommendations could boost sales in non-electronics categories to offset lower margins in electronics.
5. **Currency Hedging Strategies:** Minimize exposure to currency volatility by implementing hedging strategies to stabilize procurement and shipping costs, particularly for exports.
6. **Expand International Markets Thoughtfully:** When exploring new international markets, prioritize countries with favorable trade policies and strong consumer demand for Indian-made goods. Maintain competitive pricing strategies to drive volume sales.

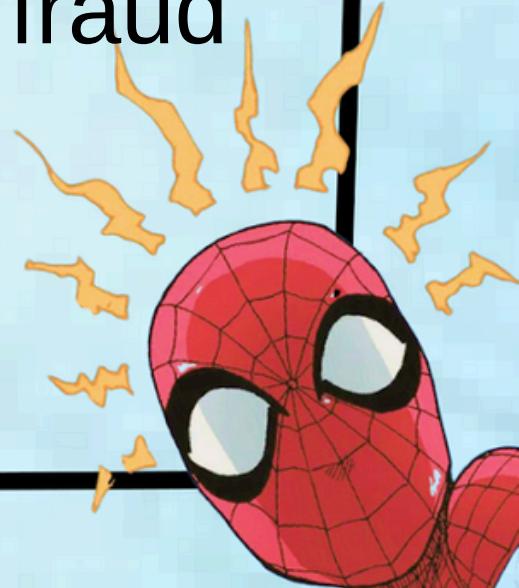
Conclusion

The US tariff on Chinese semiconductors introduces significant challenges for IndiBazaar, including inflated production costs, supply chain disruptions, and pricing pressures. However, proactive steps such as supplier diversification, localization, and technological investment can help mitigate these impacts while positioning

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- **Agents & Sentinels:** AI agents (Doc Processor, Risk Evaluator) + domain-specific Sentinels (Fraud Detector, ESG Auditor).
- **APIs/Integrations:** Secure API nodes for forex/ESG data, SWIFT payments, compliance checks.
- **Interactive Widgets:** Risk Dashboard (forex/ESG scores), Route Optimizer (cost vs. time), Doc Tracker (validation status).
- **RAG Workflows:** OCR & RAG for doc validation, Vector Search for fraud detection, Risk queries & summaries.
- **Security:** PII masking, OAuth, signed URLs for document handling.



Future Objectives

- **AI-Powered Trade Finance Assistant:** An intelligent AI assistant designed to help users with trade finance queries, document processing, compliance checks, and financing recommendations.
- **AI-Powered Intelligent Agent for Broker Finance Management:** An AI-driven financial assistant designed to help brokers manage portfolios, optimize investments, track market trends, and automate risk management.
- **AI-Powered Inventory Management for Sellers :** An AI-driven inventory management system designed to help sellers optimize stock levels, forecast demand, reduce wastage, and automate order fulfillment.