virtusa

Title of the use case	Description	Details

Use Case – 1
 	
AI/ML-Driven Trade Confirmation Automation
 	
Objective –
 	
Automating Trade Confirmation creation using AI/ML technologies to reduce manual effort, improve accuracy, and accelerate turnaround times by leveraging intelligent template reuse, difference highlighting, and controlled generation of Confirmations.
	Challenges –
	• **Manual Drafting & Operational Inefficiencies**
	  • **Redundancy in Drafting -** Manual drafting leads to repetitive creation of similar templates, increasing redundancy and inefficiency in workflows.
	  • **Time and Error Risks -** The manual process is time-consuming and prone to human error, which raises operational risk and lowers productivity.
	• **Compliance and Standardization Issues** - Inconsistent wording across documents undermines compliance and may cause regulatory exposure and legal issues.
	• **Need for Automation -** Automation can improve template management, error reduction, and compliance, enabling scalability for global operations.
	
	Benefits –
	• **Time Savings:** Reduce drafting effort by 60–80%.
	• **Quality & Compliance:** Lower error rates; enforce regulatory norms.
	• **Scalability:** Supports multiple trade types, counterparties, and jurisdictions.
	• **Adaptability:** Extendable for multilingual confirmations and new products**.**
	• **Measurable Success Metrics** - Key metrics include
	  • **Precision** ≥ 0.8,
	  • **Clause Alignment** $F1 \geq 0.85$
	  • **Autofill Accuracy** $\geq 95\%$.
		<u>Template Reuse (Iteration 1)</u>
		• **Semantics Search for Templates –** System embeddings-based retrieval to find and rank templates relevant to counterparty and trade type.
		• **Centralized Template Repository -** A searchable, centralized repository stores templates to improve access and consistency in document drafting
		• **Enhanced Efficiency and Compliance -** Eliminate blank-slate drafting; promotes consistency and improves compliance with standards.
		
		<u>Difference Highlighting (Iteration 2)</u>
		• **Difference Highlighting Engine** - to compare trade terms with templates to identify discrepancies in critical fields.
		• **Risk Severity Tagging** – Tagging Differences (economic terms, legal clauses etc.) with risk indicators to prioritize high-risk changes for review.
		• **Combined Numeric and Semantic Analysis -** The system uses numeric comparison and semantic analysis for comprehensive discrepancy detection.
		• **Integration and Compliance -** Integration with clause libraries and rule-based validation ensures accuracy and compliance.
		
		<u>Pre-Populated Template Generation (Iteration 3)</u>
		• **Automated Template Generation** - The system uses AI and rule-based validation to pre-populate trade confirmation templates accurately and efficiently.
		• **Compliance and Controlled Output -** Output is restricted to approved clauses ensuring compliance with regulatory requirements through deterministic validation.
		• **Productivity and Scalability Benefits -** This iteration reduces manual effort, shortens cycle time, and scales across trade types and jurisdictions effectively.
		• **Future Enhancements -** The solution enables future improvements like multilingual support and integration with downstream settlement systems.

Title of the use case	Description	Details

Use Case 2 –
 	
AI Powered Knowledge Chatbot
 	
Objective –
 	
Develop a secure, low-cost, AI-powered knowledge chatbot to assist the internal operations teams in quickly finding policies, SOPs, product rules, exception handling steps, and compliance references—reducing resolution time and improving consistency.
	Challenges –
	
	Current Challenges in Banking (Ops):
	• **Information fragmentation:** SOPs, product guides, and exception rules spread across SharePoint, Confluence, emails, PDFs, legacy portals.
	• **Policy churn:** Frequent updates to regulatory and internal policies; hard to track latest versions.
	• **SME bottlenecks:** High dependence on a few experts leads to delays.
	• **Manual search fatigue:** Keyword search fails due to format/terminology mismatch (PDF scans, tables, appendices).
	• **Audit & compliance gaps:** Limited traceability of what guidance was used, when, and by whom.
	• **Onboarding inefficiency:** New joiners take weeks to learn where/how to find answers.
	
	Benefits –
	
	Expected Impact (12–16 weeks MVP):
	• 30–50% reduction in time to find answers.
	• 20–35% deflection of routine queries from SMEs.
	• Faster onboarding of new operations staff (cut ramp-up time by 25–40%).
	• Improved auditability and standardized responses.
	• Improved ROI with Reduced Human intervention for L1 Support over period of time
		The Solution –
		
		• Develop AI powered Banking Assistant Chatbot providing **context-aware** responses with **Source Citations** from company's existing Knowledge Base (viz. *SharePoint/ Confluence sites, Network drives, emails, ticketing systems (ServiceNow/Jira). and bank policy libraries etc.)*
		• Uses an open-source, **Retrieval-Augmented Generation (RAG)** architecture with
		  • on-prem orchestration,
		  • vector search, and
		  • role-based access,
		• **Query categorization:** Users choice to choose specific domain/area or generic knowledge base for faster churning & response retrieval.
		• **Chat history management**: The application maintenance a history of users interactions to provide context aware responses
		• **Custom embeddings and retrieval -** uses vector database for document retrieval and embeddings for query and document matching
		• **LLM integration**: the chatbot integrates with a custom LLM generate responses (using Citi managed **stellar API**) based on the query and retrieved data
		• **Informative nature:** No actions are taken automatically by the chatbot, it only provides information to the user enabling them to make effective decisions.