

TermSheet Validation using AI - TEAM ASTRAL MAVERICKS

1. Introduction [Analytics.AI]

Term sheet validation is a crucial process in post-trade operations, ensuring that financial agreements comply with regulatory requirements and organizational standards. The traditional manual validation process is slow, error-prone, and resource-intensive, leading to inefficiencies and compliance risks. This document outlines an AI-driven approach to automating term sheet validation, enhancing accuracy, efficiency, and compliance.

2. Problem Statement

Financial institutions process a high volume of term sheets daily, each containing critical trade and transaction details. The current manual validation process poses several challenges:

- Time-consuming and labor-intensive
- Prone to human errors, leading to trade validation inaccuracies
- Increased regulatory risks due to non-compliance
- Inefficient resource allocation, limiting focus on strategic tasks

3. Proposed Solution

Leveraging Artificial Intelligence and Machine Learning, the proposed solution automates term sheet validation through:

- **Optical Character Recognition (OCR):** Extracts text from scanned documents and images.
- **Natural Language Processing (NLP):** Analyzes unstructured text to extract key terms.
- **Machine Learning (ML):** Trains models to recognize patterns and validate extracted data.
- **AI-driven Data Extraction:** Identifies relevant fields and cross-verifies with predefined criteria.
- **Blockchain Integration:** Ensures tamper-proof validation and audit trails for regulatory compliance.

4. Data Processing and Validation

1. **Data Collection:** Term sheets received in various formats including PDFs, Word documents, and emails.
2. **Data Extraction:** OCR and NLP extract relevant details such as trade amount, counterparties, interest rates, and conditions.
3. **Validation Rules:** AI-based validation checks extracted data against predefined compliance criteria.
4. **Anomaly Detection:** Machine learning models flag discrepancies and inconsistencies for review.
5. **Approval and Storage:** Verified term sheets are securely stored with audit logs.

5. Design Considerations

- **Data Formats and Extraction:** AI models should handle both structured and unstructured formats.
- **Integration with Core Systems:** Seamless connectivity with existing trade processing applications.
- **Automation and Feedback Mechanism:** Continuous improvement through adaptive learning.
- **Security and Compliance:** Data encryption, role-based access, and audit trails.
- **User Experience:** Intuitive dashboard for monitoring validation status and flagged issues.
- **Scalability and Flexibility:** Ability to handle increasing transaction volumes and adapt to regulatory changes.

6. Implementation Steps

1. **Develop OCR and NLP Models:** Train AI to extract structured data from term sheets.
2. **Create Machine Learning Models:** Implement classification and anomaly detection algorithms.
3. **Integrate with Existing Systems:** Enable API-based communication with core applications.
4. **Deploy Blockchain for Compliance:** Store verified records securely.
5. **User Testing and Feedback:** Iterate based on real-world performance.
6. **Deployment and Monitoring:** Ensure real-time validation and continuous learning.

7. Expected Benefits

- **Increased Efficiency:** Faster validation process, reducing turnaround time.
- **Improved Accuracy:** Minimized human errors, enhancing data reliability.
- **Cost Savings:** Reduced operational costs by automating manual validation.
- **Enhanced Compliance:** Strengthened adherence to regulatory requirements, minimizing risks.

8. Conclusion

By integrating AI, ML, and blockchain technology, term sheet validation can be significantly optimized. Automating this process reduces errors, enhances compliance, and allows financial professionals to focus on strategic decision-making. This AI-driven approach ensures a scalable, efficient, and secure validation framework for modern financial institutions.