The next frontier in credit

Reinventing commercial financial spreading through AI-orchestrated intelligence

Abstract

Cognizant® Agentic Financial Spreading has long underpinned lending by converting raw statements into insights that guide credit decisions. Yet reliance on manual effort, inconsistent formats and complex rules slows the process and heightens risk.

We have developed a new model: an intelligent AI system of collaborating agents that makes spreading faster, more transparent and adaptive. Automating extraction, validation and analysis cuts decision cycles from days to hours, reduces errors and scales seamlessly. We are not just stopping here: as part of our future research we are advancing explainable intelligence, reinforcement learning guided by human expertise and hierarchical reasoning that links granular data to portfolio-wide foresight. From a business standpoint, we aspire to elevate credit decisions through multimodal capabilities: early warning from news, sensors and web feeds; network-aware monitoring of counterparties and many such capabilities.

We invite business leaders to pilot this model within their environments and partner with us in shaping the future of credit intelligence—not only by testing its immediate impact, but also by joining our R&D efforts to explore bold, forward-looking possibilities that can redefine the future of financial spreading.

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Introduction

The strategic importance of Cognizant® Agentic Financial Spreading

In the dynamic world of commercial/business lending, financial spreading has long served as the quiet but essential foundation for sound credit decisions. At its core, financial spreading is the disciplined process of extracting, structuring and analyzing financial statements—income statements, balance sheets, cash flows—to illuminate a borrower's true financial health. Standardized spreads allow banks and lenders to move beyond fragmented documents toward a coherent, comparable view of creditworthiness. For large and small businesses seeking capital, this becomes the language of trust between lender and borrower.

Why does this matter?
Because spreading is more than compliance. It is the lens through which institutions:

- Assess creditworthiness by revealing hidden strengths and vulnerabilities in financials

- Make informed decisions by grounding credit and investment choices in structured, data-driven analysis

- Mitigate risk by monitoring borrower performance over time and flagging early-warning signals

- Ensure regulatory alignment by maintaining accurate, auditable and standardized financial records

Yet, as indispensable as it is, financial spreading has struggled to evolve with the speed of modern banking.

The problem: Manual friction in a digital age

Traditional spreading is labor-intensive, error-prone and fragmented across formats and systems.

Analysts often wrestle with:

- Manual input of data that stretches decision cycles and delays credit approvals

- Non-standard formats (scanned PDFs, inconsistent field names) that erode accuracy

- Complex guidelines across investors and regulators that make field mapping a moving target

- Cascading calculations—ratios, variances, adjustments—that magnify inaccuracies

- High average handling time (AHT) and rising loan volumes, which strain underwriting teams

According to Deloitte, manual data preparation and process inefficiencies remain among the most significant challenges in credit risk management, underscoring the need for automation and standardized data frameworks.[1]

McKinsey similarly notes that poor data quality and fragmented data flows continue to be leading sources of model error and operational risk in credit operations.[2]

In short, banks and lenders risk falling behind—unable to keep pace with regulatory expectations, portfolio monitoring needs and the demand for faster, data-driven credit decisions.

Cognizant multi-agent AI solution: Redefining financial spreading

We envision a new model—Agentic Financial Spreading orchestrated by AI agents—that transforms a historically manual process into a streamlined, intelligent and scalable capability.

Our solution harnesses six specialized AI agents, each powered by domain-trained large language models and orchestrated through a unified interface:

- Data extraction agent—extracts relevant fields from diverse financial documents using AWS Bedrock's data automation modules

- Item categorization agent—identifies, normalizes and standardizes financial line items

- Traceability agent—provides reasoning and transparency for each interpreted field, building trust in outputs

- Validation agent—applies quality checks and compliance rules, reducing regulatory and audit risk

- Calculation agent—automates ratios, variance analyses and time-series computations

- Action agent—integrates final spreads seamlessly into core banking and underwriting systems

- Together, these agents form a coordinated orchestration layer—not a replacement for human judgment, but a powerful collaborator that reduces cycle time, enhances accuracy and scales to match growing loan demand

Key tenants of our solutions include:

- Automated extraction across varied formats, including tax returns and legacy PDFs

- Financial statement normalization across industries and accounting frameworks

- AI-driven ratio analysis and benchmarking to uncover trends and anomalies

- Dynamic risk rating and credit scoring tuned to each borrower's context

- Compliance-ready reporting, aligned with guidelines such as Freddie Mac and Fannie Mae

Results: A step-change in credit operations

The results of our AI-enabled model are measurable and profound:

Operational efficiency
Manual spreading time can be reduced by up to 60%.

Faster credit decisions
Turnaround shrinks from days to hours, elevating borrower experience.

Accuracy and risk mitigation
Significant reduction in data errors and misclassifications.

Scalability
Seamlessly handles higher loan volumes without linear increases in headcount.

Regulatory assurance
Built-in checks that strengthen compliance and audit readiness.

This is not incremental improvement. It is reimagining of financial spreading as a continuous, intelligent system — one that evolves with every transaction and adapts to every borrower.

Architecture: Orchestrating multi-agent intelligence

In the dynamic world of commercial/business lending, agentic financial spreading has long served as depicted in Figure 1. Our solution is built on a multi-agent AI architecture, powered by Llama 3.3 70B Instruct and AWS Bedrock. At the core is a planner agent that orchestrates the workflow, dynamically allocates tasks and maintains explainability throughout the process.
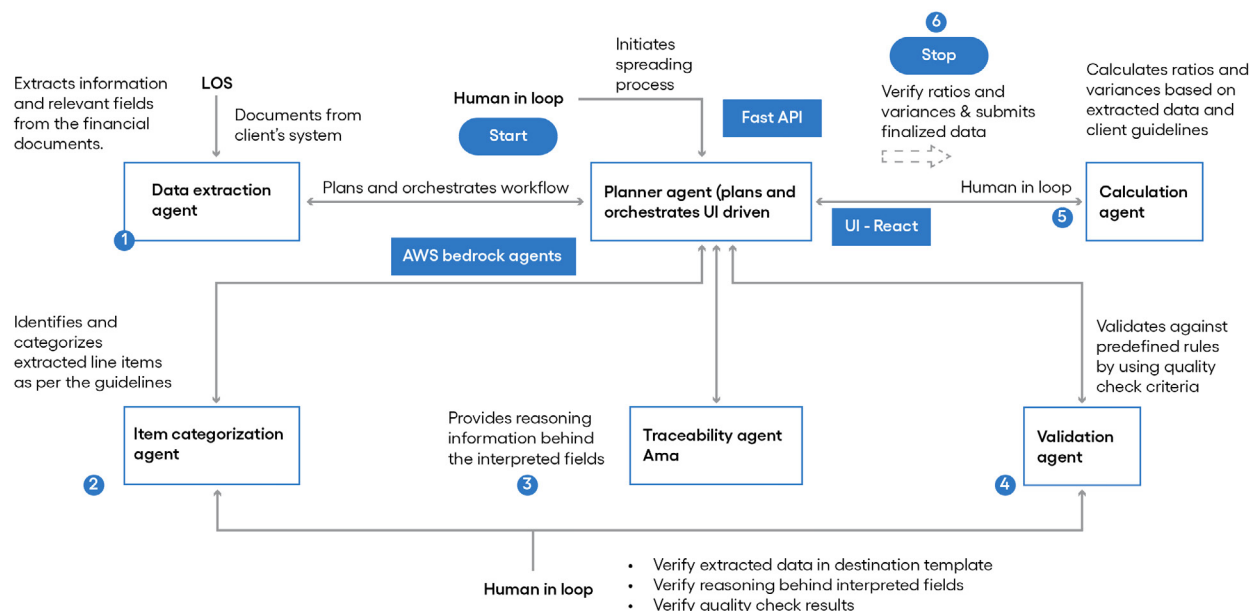

Figure 1: Agentic financial spreading high-level architecture

Key components of the solution include:

Data extraction agent

Ingests borrower documents and parses complex formats to identify and capture relevant financial fields.

Item categorization agent

Normalizes extracted data into standardized line items, resolving inconsistencies across industries and accounting standards.

Traceability agent

Provides the explainability layer, capturing reasoning for each interpretation and ensuring audit readiness.

Validation agent

Applies business and compliance rules to detect anomalies, enforce accuracy and ensure regulatory alignment.

Calculation agent

Automates ratio analysis, variance checks, and performance indicators such as liquidity, leverage and profitability.

Planner and orchestration agent

The central intelligence of the system which coordinates agent interactions, determines sequencing and manages exception handling.

The process begins with document ingestion. Data moves through extraction and categorization, where it is structured into normalized formats. The traceability layer overlays reasoning to make outputs transparent. Next, validation rules are applied to safeguard compliance, before the calculation agent delivers ratio analysis and insights. Throughout, the planner agent orchestrates the entire flow, ensuring precision, speed and user-centric delivery.

Conclusion: From process to strategic advantage

Agentic financial spreading, once a manual compliance exercise is becoming a strategic differentiator. In an era where loan origination is digital, risk monitoring is continuous and compliance scrutiny is unrelenting, the ability to ingest, structure, and analyze financial data at scale will separate leaders from laggards.

By orchestrating a multi-agent AI workforce, lenders can preserve human judgment where it matters most while unleashing machine precision where it is most valuable. This symbiosis accelerates credit decisions, reduces systemic risk and strengthens institutional trust.

In short: The future of credit will not be written by spreadsheets, but by intelligent AI systems that transform data into decisive advantage.

Future work: Elevating Agentic Financial Spreading to the next horizon

While the current multi-agent architecture delivers measurable improvements in efficiency, accuracy and scalability, the path forward is about making the system not just smarter, but more adaptive, explainable and predictive. Our next wave of innovation will focus on deepening explainability, where outputs are accompanied by richer narratives that reveal not only what decision is recommended but why it was reached—ensuring transparency and trust at every step.

We are also embedding reinforcement learning with human feedback, allowing analyst input to continuously refine the models and align them more closely with domain expertise, market dynamics and evolving regulatory expectations. In parallel, hierarchical reasoning will enable agents to operate across multiple layers of abstraction—moving fluidly from raw financial line items to borrower-level spreads and ultimately to portfolio-wide insights. This layered reasoning will strengthen both precision and contextual awareness.

From business standpoint, we want to move beyond basic financial spreading to reimagine how AI and multimodal technologies can transform credit decisions. By tackling real post-decision challenges, we can make outcomes more resilient and forward-looking. Multimodal features enable early-warning through news, sensors and web feeds; network-aware monitoring with supplier/customer tracking via web and satellite; regulatory compliance through auditable evidence tied to each spread cell; authenticity checks with forensics, corroboration and IoT plausibility; dynamic pricing and covenants from real-time macro shocks and credit twins using sensor-driven cash flow updates; voice-aware follow-through to capture hidden risks. By uniting business and technology, these advances transform financial spreading from a back-office process into a strategic foresight capability—accelerating today's credit decisions while equipping institutions to navigate tomorrow's uncertainties with greater confidence.

Statements and declarations

Authors' contributions
All authors contributed to the study conception and design.

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This work was fully funded by Cognizant in support of the study and the development of the proposed solution.

Code availability
The code developed in this study is available to enterprises seeking to evaluate the system within their controlled environments. For access, please contact one of the authors.

References:

1. Deloitte, "Future of Credit Risk Management," 2025.

2. McKinsey & Company, "Next-Generation Credit Operations," 2023.

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