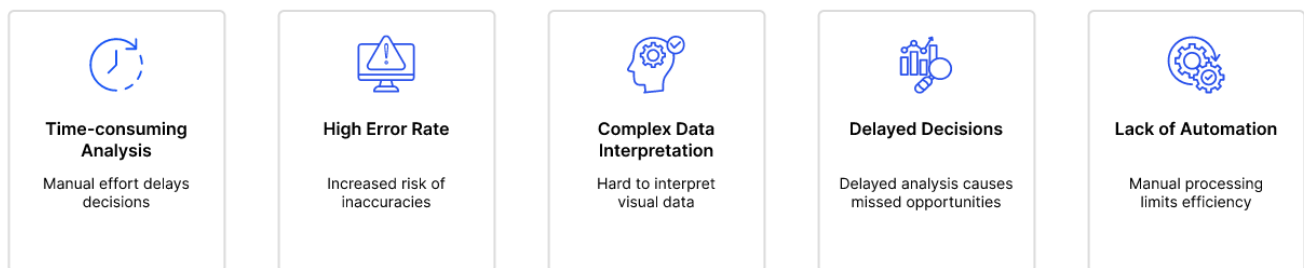# Financial Insights AI Agent Solution Document

| Problem Statement

Financial institutions and businesses increasingly rely on data-driven insights to inform strategic decision-making. Yet, traditional approaches to interpreting complex financial modeling outputs, often comprising detailed reports such as revenue projections, risk heatmaps, customer profitability charts, and scenario comparisons, are time-intensive and prone to misinterpretation. These outputs, while valuable, are typically dense, highly visual, and packed with nuanced financial indicators that require specialized expertise to decode. While finance teams are generally equipped to work through these intricate models, non-technical stakeholders, such as executive leadership, strategy teams, and department heads, often struggle to extract clear, actionable insights from the data. The absence of a structured, standardized approach to summarize and communicate key takeaways further complicates the process. As a result, essential insights around customer risk, revenue impact, emerging financial trends, and overall business performance remain hidden or misunderstood. This lack of clarity leads to delays in strategic planning, limits the effectiveness of financial analysis, and increases reliance on manual interpretation.

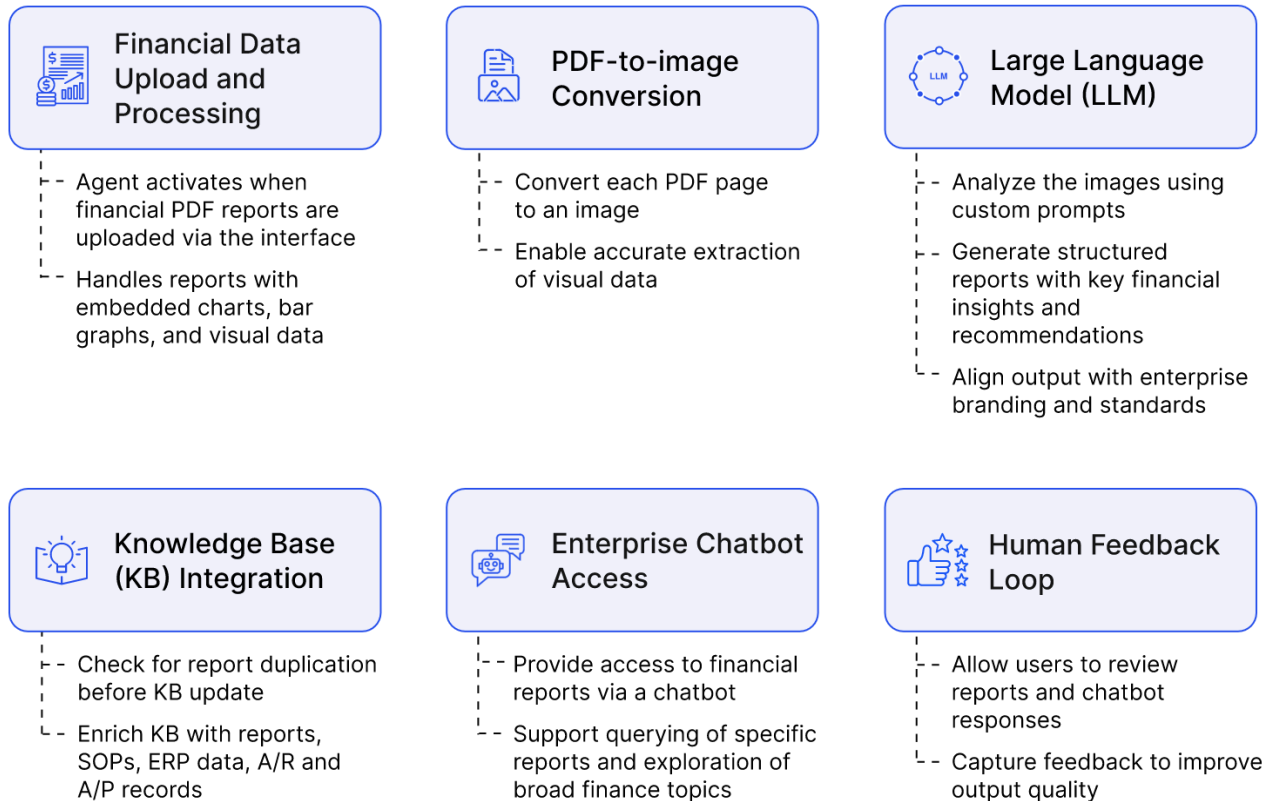| Time-consuming Analysis	High Error Rate	Complex Data Interpretation	Delayed Decisions	Lack of Automation
Manual effort delays decisions	Increased risk of inaccuracies	Hard to interpret visual data	Delayed analysis causes missed opportunities	Manual processing limits efficiency

ZBrain

| Solution Statement

ZBrain financial AI insights agent simplifies financial data interpretation and enhances decision-making by converting complex visualizations into clear, actionable insights. It intelligently analyzes charts, projections, and performance graphs to generate standardized reports highlighting key metrics such as risk exposure, revenue impact, and performance indicators. By eliminating manual inefficiencies, the agent empowers executives, finance teams, and strategy leaders with instant clarity on financial trends. It also ensures that all outputs align with brand-specific guidelines, maintaining consistency and reinforcing a cohesive brand voice across every generated report.

| Agent Setup

The financial AI insights agent is configured to process financial visualizations, extract insights, and update an enterprise knowledge base for easy access to financial data. The setup includes:

Financial Data Upload and Processing	PDF-to-image Conversion	Large Language Model (LLM)
- Agent activates when financial PDF reports are uploaded via the interface - Handles reports with embedded charts, bar graphs, and visual data	- Convert each PDF page to an image - Enable accurate extraction of visual data	- Analyze the images using custom prompts - Generate structured reports with key financial insights and recommendations - Align output with enterprise branding and standards
Knowledge Base (KB) Integration	**Enterprise Chatbot Access**	**Human Feedback Loop**
- Check for report duplication before KB update - Enrich KB with reports, SOPs, ERP data, A/R and A/P records	- Provide access to financial reports via a chatbot - Support querying of specific reports and exploration of broad finance topics	- Allow users to review reports and chatbot responses - Capture feedback to improve output quality

ZBrain

1. Financial Data Upload and Processing

- The agent is activated when a user uploads a financial report in PDF format through the agent interface. Uploaded files typically contain graphical elements, such as charts, bar graphs, and other visual representations of financial information.

2. PDF-to-image Conversion

- A PDF-to-image utility converts each page of the PDF into images, allowing for precise visual data interpretation. This ensures the LLM can analyze embedded visuals with greater accuracy.

| Agent Setup

3. Large Language Model

- A Large Language Model (LLM) processes and analyzes the images using a customizable system-level prompt. It generates a structured financial report that includes an executive summary, visual breakdowns, key financial indicators, insights, and tailored recommendations—all aligned with enterprise branding and reporting standards.

4. Knowledge Base (KB) Integration

- The agent maintains a comprehensive knowledge base that stores general finance-related information such as accounts receivable, accounts payable, financial documents like SOPs, and data from Enterprise Resource Planning (ERP) systems. Once a new financial report is generated, the agent checks for duplication by comparing it against existing entries in the KB. If no similar report is present, the new report is automatically stored, enriching the KB with up-to-date insights.

5. Enterprise Chatbot Access

- Once the knowledge base is updated, enterprise users can access the financial insights through an AI-powered chatbot. It allows users to query specific financial reports or explore broader finance topics to generate actionable insights.

6. Human Feedback Loop

- The agent incorporates a feedback mechanism that enables users to review the generated financial reports and chatbot responses. User feedback on inaccuracies, omissions, or areas for improvement is used to enhance the quality of future analyses, ensuring continuous alignment with business expectations.

| How The Agent Works
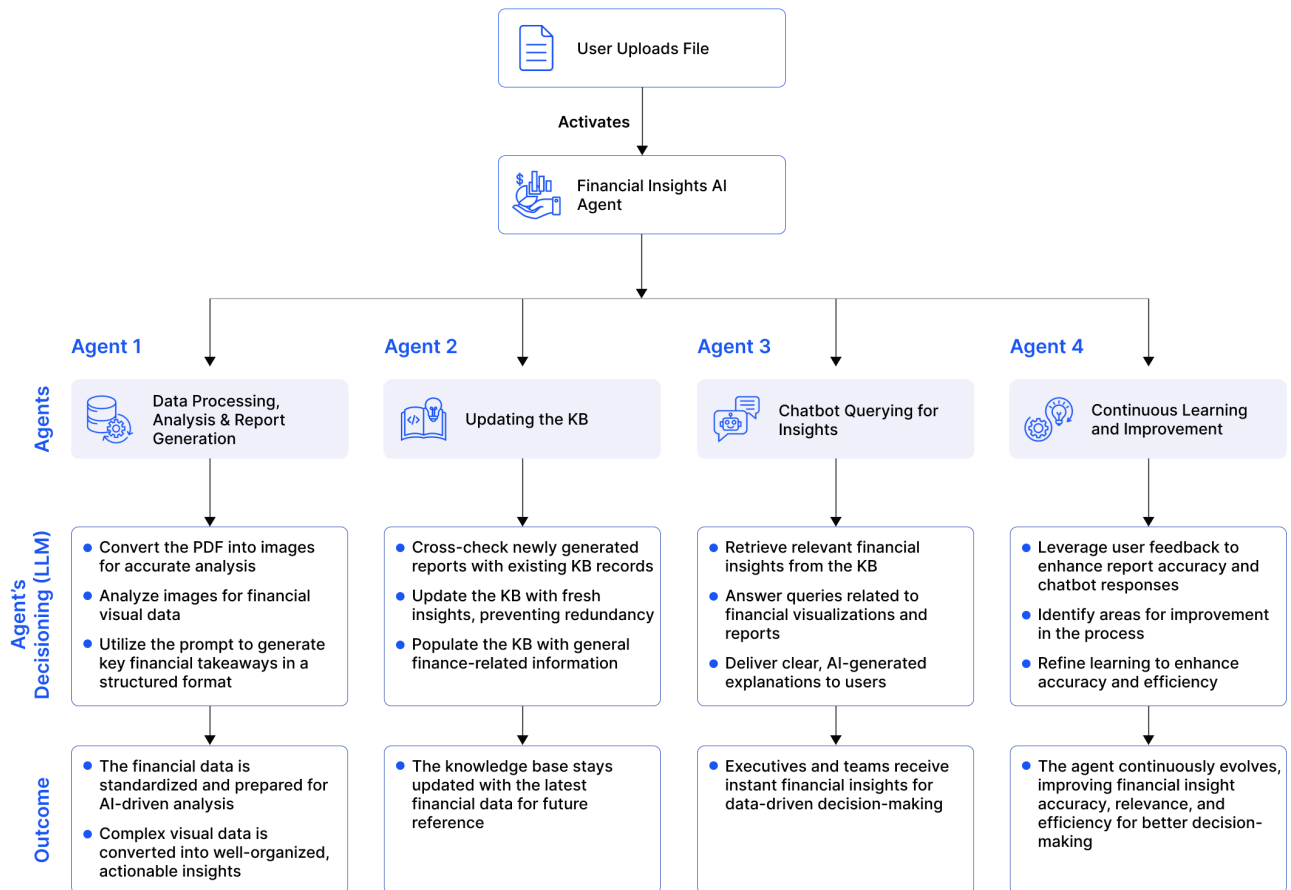
Step 1: Data Upload and Processing

The agent is triggered when a user uploads a PDF containing financial visual data, such as charts, bar graphs, and other graphical data representations.

Key Tasks:

- The agent processes the uploaded file by converting the PDF into images using a PDF-to-image conversion tool for more accurate analysis.

Outcome:

- The financial data is prepared for LLM processing by standardizing it into image format.

| How The Agent Works

Step 2: AI-driven Analysis of Visual Data

The multimodal LLM interprets the financial visualizations to extract relevant financial trends and insights.

Key Tasks:

- The LLM analyzes the visual data by identifying key elements such as trends, outliers, and significant financial metrics.
- A structured system prompt is configured to guide the LLM in interpreting the data and presenting it in a well-organized format based on predefined brand rules.

Outcome:

- The LLM processes the financial visualizations and prepares structured insights based on the defined prompt, making the data easier to interpret and aligned with the brand voice.

Step 3: Structuring Insights into Reports

The extracted insights are formatted into a structured output for better readability and usability.

Key Tasks:

- Organizes the insights into predefined sections such as an executive summary, key financial metrics, and trend analysis.
- Formats insights for clear and concise presentation.

Outcome:

- A well-structured report is generated, summarizing the key takeaways from the financial visualizations.

| How The Agent Works

Step 4: Updating the Knowledge Base

The system checks whether the generated insights already exist in the knowledge base. If they do, it prevents duplication; otherwise, it adds the new insights to the KB, ensuring access to the latest financial data.

Key Tasks:
- Checks for similar existing reports in the KB.
- Updates the KB with new insights if they are not already present.
- Stores both newly generated reports and general finance-related information like financial SOPs and ERP-related data to enhance knowledge accessibility.

Outcome:
- The knowledge base remains up to date, storing the latest financial insights and general financial knowledge for future reference.

Step 5: Chatbot Querying for Insights

Users can access the financial insights through an AI-powered chatbot, which allows them to retrieve and understand financial visualization data easily.

Key Tasks:
- Enables chatbot-based querying of financial visual insights.
- Supports questions related to both financial visualizations and general financial topics.

Outcome:
Users can interact with the chatbot to obtain clear, AI-generated explanations of financial visualizations and broader financial functions, enhancing decision-making and collaboration.

Step 6: Continuous Learning and Improvement

The agent continuously improves its financial analysis capabilities by learning from user interactions and feedback.

Key Tasks:
- Monitors chatbot interactions to refine responses and enhance accuracy.
- Leverages user feedback to identify areas for improvement.
- Ensures ongoing improvement in financial visualization analysis, knowledge base management, and chatbot query accuracy.

Outcome:
- The agent evolves over time, improving financial data interpretation, accuracy, and usability for businesses.

| Key Benefits

Automated Financial Visualization Analysis

Reduces the need for manual interpretation of financial charts, graphs, and other visual data.

Real-time Insights

Provides up-to-date interpretations of financial visual data for informed decision-making.

Improved Accessibility

Makes financial insights available to both technical and non-technical users via an enterprise chatbot.

Scalability

Supports both high volumes of file upload and a wide range of financial visualizations, from investment performance charts to risk assessment graphs.

Knowledge Base Enhancement

Ensures financial insights and general finance-related knowledge are stored systematically for future reference.

| Conclusion

The financial insights AI agent transforms financial visualization analysis by automating the interpretation of charts, graphs, and other visual data. By providing structured insights, maintaining a brand-aligned voice and making them accessible through an enterprise chatbot, the agent helps organizations improve efficiency and make data-driven financial decisions with confidence.