Implementing AI in Finance: Ideas

TRANSFORMING FINANCE USING DATA AND AI

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About Me

Fuhad Abdulla

Financial Data Analyst

I am an ACCA-qualified Financial Data Analyst specializing in transforming finance through AI and data.

This PDF is based on my experience implementing AI in my previous organization, as well as through my research and practical personal projects.

I hope this will help you implement AI in your organization's finance department.

FUHAD ABDULLA

- SKILLS
  - PYTHON
  - SQL
  - PowerBI
  - AI

- FUNCTIONS AREAS
  - Financial Data Analysis
  - MIS
  - Digital Transformation
  - AI Implementation

- QUALIFICATION
  - ACCA
  - Bcom Graduate
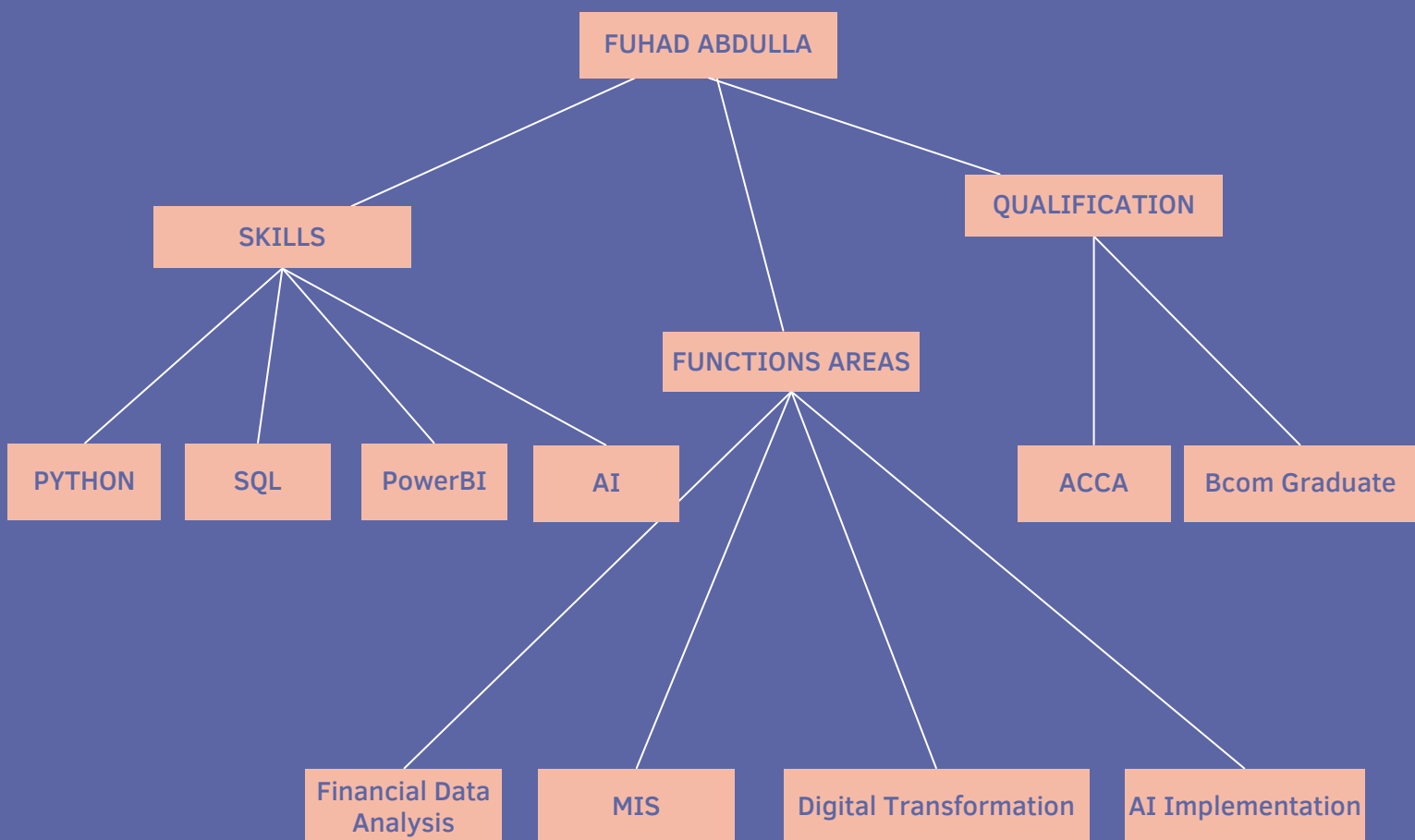
In the following pages, I will present my ideas on how to implement AI in various tasks within the finance department.

Note: This content is based on my hands-on experience implementing AI in my previous role, combined with my ongoing learning and research. I hope this helps you and your organization.

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Implementing AI in FP&A and Financial Modeling

AI-Driven Future of Financial Modeling and FP&A

- Financial modeling and FP&A processes, including budgeting, forecasting, and variance analysis, will continue to rely on Excel due to its flexibility and the fact that most organizations already have Excel and Microsoft services installed. Finance professionals are unlikely to migrate to alternative tools in the near term.
- Therefore, the best opportunity for AI implementation lies in automating processes and integrating AI directly within Excel. This section will explore several practical approaches for Excel-based AI integration.

AI Tools for Financial Modeling and FP&A Processes

- **ShortcutAI** – An advanced financial modeling AI agent that uses AI to create complex financial models and can perform all tasks in Excel. The founder even created a transformer model in Excel by prompting. This is a highly valuable tool for financial professionals.
- **chat.subset.so** – This is similar to ShortcutAI but it is cheaper, and we can try it to get a taste of using AI agents in Excel.
- **Elkar** – This is a new tool that works as an extension in Excel (Office 365). Both tools above are standalone applications.

My Project on AI Agent for Financial Modeling

- I developed an AI agent for financial modeling using Claude Code and Custom MCP (Model Context Protocol).
  - The key advantages of this approach include:
    - Access to open-source AI models, providing flexibility and cost savings.
    - Ability to host proprietary models locally, such as GLM 4.5, OpenAI GPT variants, and open-source models like OSS 20B/120B GGUF.
    - Complete data privacy and security through local hosting and control.

AP and AR Automation

AP and AR departments contain numerous repetitive tasks

- Most Accounts Payable and Accounts Receivable functions involve repetitive tasks which include:
    - Record keeping and data entry
    - Document matching and verification
    - Account reconciliation
    - Processing payments
    - Customer and vendor follow-ups
- These tasks can be easily automated using AI.

AI Tools That Can Help Automate Routine Tasks in AP and AR

- Dost AI
    - This is an AI-powered tool that automates key Accounts Payable processes by matching delivery notes, purchase orders, and invoices to identify discrepancies automatically.
    - It leverages OCR technology to extract information from documents and integrates seamlessly with major ERP systems including SAP, Oracle, and other enterprise platforms.
- n8n
    - n8n is a no-code agentic workflow tool that makes automation easier than traditional programming. It can handle tasks like extracting invoice data, creating spreadsheets, sending emails, integrating with databases, APIs, and ERPs.

My AP & AR Automation Projects

- Accounts Receivable Automation - I created an AI agent using n8n workflow automation.
    - Accountants can email invoices to a designated email address, and the AI automatically processes the documents.
    - The system extracts all relevant details from invoices automatically.
    - It generates comprehensive AR aging reports.
    - It also handles customer follow-ups via email and sends reminders to accountants for manual follow-up when needed.
- Invoice Matching System (payable.fuhadabdulla.com)- I replicated Dost AI's functionality , creating software that matches invoices, delivery notes, and purchase orders to identify and highlight discrepancies automatically.

Building Custom Financial Tools Using AI

> **Developing custom financial tools provides a huge efficiency boost in finance departments**
>
> - AI agentic tools like Cursor and Claude Code enable non-programmers to develop custom financial tools and software solutions.
> - The limitation of purchased software is that it may not align with our specific business processes and requirements.
> - Therefore, finance and accounting professionals can create tailored software solutions that streamline their specific workflows and processes.

Best AI Agentic Software Development Platforms

- Cursor AI - An enhanced VS Code editor with integrated AI capabilities that assists non-programmers in developing custom financial applications through intelligent code suggestions and automation.
- Claude Code - A powerful terminal-based AI coding assistant that can build complete software applications from natural language descriptions. Using commands like claude --dangerously-skip-permissions, users can request full applications and the system will develop comprehensive solutions automatically.

Software and Tools I Built with AI Assistance

- **Accounts Payable Automation Tool (payable.fuhadabdulla.com)**- This tool matches delivery notes, invoices, and purchase orders to identify discrepancies.
- **Demand Forecasting Tool (arima.fuhadabdulla.com)** - I developed a demand forecasting tool that uses machine learning with the help of Cursor AI. It analyzes historical sales data and predicts future demand.
- **Financial Modeling Agent** - I created a financial modeling AI agent using Claude Code. I also had to read documentation and watch several YouTube videos to make it work properly.

Automating Financial Data Analyst

> **Automate data analysis and make data easily accessible to users.**
>
> - AI can't fully automate data analysis
> - Business understanding is required to generate valuable insights
> - AI can enable chatbots that let users perform ad-hoc analysis through simple queries

Some AI tools for automating data analysis

- Plotly AI – An AI agent that can create charts using natural language.
- Jupyter Agent – Useful for performing exploratory data analysis in Python within Jupyter Notebooks.
- We can also build an AI-powered Agentic Data Analyst using:
  - SQL + RAG + n8n + Streamlit
  - Approach:
    - Create a document with working SQL queries and database schemas.
    - Alternatively, embed the schema and join statements directly into the prompt. (This is harder to modify later, whereas a company document can be updated easily.)
    - Use a Streamlit frontend where users can ask questions in natural language, such as:
      - What were the sales last month?
      - Who made the most sales?

My AI Financial Data Analyst Project

- I am currently working on an AI-powered Voice Data Analyst
  - It allows users to analyze data through voice requests
  - For example, a user can ask "What is the sales increase this month?"
  - The system will respond conversationally, just like speaking to a person

Custom AI Agentic Automation Workflow

Creating AI Agentic Workflows Using AI and n8n

- n8n is a no-code AI agentic workflow platform where users can create AI agentic workflows to automate everything.
- It has a learning curve but easier than learning programming language like python, but if a non-programmer can learn it, they can build workflows to automate everything.

My project on n8n

- Accounts Payable Automation
  - Extract invoice details using AI
  - Populate a spreadsheet with the data
  - Automatically generate an AP ageing report
  - Send payment reminders to the accountant via email
- Accounts Receivable Automation
  - Extract invoice details using AI
  - Follow up with customers by email if the due date has passed
  - Send reminders to the accounts team
  - Automatically prepare the AR ageing report
- SQL Agent Chatbot for UAE Corporate Tax
  - I embedded UAE Corporate Tax documentation into a vector database using the Contextual Chunking Method for improved retrieval accuracy.
  - Due to high processing costs, I only implemented the first 10 pages as a proof of concept.
  - The system delivers highly accurate and relevant responses to tax-related queries.

Company Knowledge Base Chatbot

Chating with Company Information

- New joiners or employees have to search a big database of information to get to know how to do tasks.
- When I was working at Ernst & Young, to know how to do something we had to search in the knowledge base.
- With AI, we can now simply chat with an LLM + RAG, which provides accurate answers, saving employees significant time.

How to Implement Chat with Company Database

- The best method to do this is to embed the company information in a vector database (RAG) and then use LLM to retrieve information when users ask questions.
- As information changes, we can just update the vector database.
- One major option is PostgreSQL Database with the pgvector extension.

Project I build which is similar to this

- I developed a chatbot that retrieves information from a Corporate Tax Documentation.
  - The knowledge base here was the PDF of the UAE Corporate Tax documentation.
  - We can ask a question and it will answer from the document.
  - It is very impressive, but I chose the contextual chunking method to maintain context and it became expensive.

Additional Areas Where AI Can Automate Finance

AI-Driven Automation Opportunities in Accounting and Finance

- With AI, many processes in Accounting and Finance can be automated. On this page, I'll share some of my additional ideas.

Automation Ideas

- Build an AI-powered Accounting software which will
  - Automate purchase entries by uploading invoices. The software uses OCR and LLM to extract details and prefill the purchase entry page. The accountant will just have to verify the entries and change product names if necessary.
- Bank Reconciliation
  - Automated bank reconciliation by integrating APIs from the bank and data from ERP. If not available, OCR the bank statement and do the reconciliation.
- Accounts Receivable Automation
  - Build a AI voice agent that follows up with customers for overdue accounts receivables.
- Fraud Detection & Risk Management
  - Can build custom fraud detection software using Python and AI coding agents.
- Forecasting
  - Can build custom forecasting software using AI.
- Internal Audit Assistance
  - Use AI to scan transactions for anomalies or discrepancies.
  - Build custom softwares using python using AI Agent to identify potential inefficiencies or compliance gaps.

Data Privacy Concerns

Data Privacy Concern and Solution

- When I talked with my friend who is a CFO in a UAE company, he told me that one thing he is concerned about is privacy.
- Data, especially financial data, is very confidential, and when processing it we should be very careful.

Solution for Data Privacy Concern

- One solution is to self-host the LLM models that are used to process and analyze financial and other confidential data. This is very expensive.
- Another solution is working with AI providers who will provide security and pledge that they will not share, process, store, or analyze this data.

Open-Source Self-Hostable Models

- For OCR and extracting details from invoices - Mistral Model
- For ChatGPT-like tools - OpenAI, GPT-OSS 20B/120B GGUF
- For AI Agents and tool calling - GLM 4.5

Challenges in Implementing AI

Challenges in Implementing AI

- Data Privacy
- Training the team
- Making management understand the ROI
- Implementing AI in the wrong areas
- Trying to develop everything in-house

Solutions

- Data Privacy - Self-host or use secure partner LLM providers
- Training the team - Give the team incentives for using AI
- Making management understand the ROI - Make management understand the impact, run a pilot, measure results, and show them
- Implementing AI in the wrong areas - Measure the results, understand research like MIT, and work accordingly on the highest ROI departments or areas
- Trying to develop everything in-house - Empower employees to learn and use AI to develop tools, but for complex tasks, invest in external tools

Conclusion

- Accounting and finance departments offer great opportunities for AI implementation. These tools can make a real difference in how work gets done.
- The goal of AI is to help employees, not replace them. When AI handles routine work, people can focus on more complex and valuable tasks. This creates better outcomes for both workers and the business.
- Today's no-code tools make AI accessible to everyone. Finance workers don't need to know programming to build useful AI systems. These user-friendly platforms allow teams to create workflows that can have a big impact across the company.
- AI can improve accuracy and reduce errors in financial data. Automated systems work faster than manual processes and can handle large amounts of information without getting tired.
- These tools help companies save money and time. Tasks that used to take hours can now be done in minutes. This allows businesses to work more efficiently and serve customers better.
- AI can also help with risk management and compliance. The systems can spot unusual patterns and potential problems before they become serious issues.
- The technology is constantly improving and becoming easier to use, enabling more companies to successfully implement AI in their back-office tasks.
- AI in finance is about making work better and helping people do more meaningful tasks.