

# Application of Large language Models(LLMS) in the documentation Workflows of the banking industry- With reference to American banks

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**Abstract-** With the rise of more and more large language models, its application and implication has become prominent and indispensable in the American documentation industry. This research paper aims to outline the various documentation tools used by banks in America, its uses, its impact(both positive and negative). This paper also outlines the ways of documentation in earlier days till the days LLMS are implemented today. The method used is based on the sources available on the internet and also based on the operations workflow knowledge in banking industry. The outcome of this paper implies both positive and negative impact of the LLMS, its threats, challenges and risks. Ultimately, application of LLMS in American banking industry can enhance the way a client experiences his banking needs.

**Keywords:** Large Language Models (LLMs), Generative AI in banking, AI in documentation workflows, NLP in financial services, Document automation in banks, Banking digital transformation.

## I. INTRODUCTION

The first bank in the U.S. was the Bank of North America (1781), followed by The First Bank of the United States (1791). Banks were founded through charters granted by state legislatures, and these were meticulously recorded.

Earlier documentation was majorly hand written like general ledgers, daybooks and journals. Separate ledgers were maintained for deposits, loans, discounts and notes issued. Banks communicated with other stakeholders through letters and telegrams. However the early 1800s saw the rise of printed banknotes and standardised ledgers. There was also a period of free banking era where record keeping became variable in different banks. Emergence of the National Bank Act (1863, 1864) – introduced uniform federal documentation standards.

Although national banks dominated after the civil war, state banks made a comeback later in the 19th century. There were increased efforts on banking documentation and regulation. Annual reports from

the Comptroller of the Currency (from 1863 onward) are key historical documents which are available in digital archives now.

Major shift happened in the ways documents were stored since the introduction of computers. Various software application replaced the physical or handwritten documents. Banks started to have their own application to read, feed, capture and store various forms of documents like legal, client onboarding and maintenance documents.

Artificial intelligence (AI) uses various technology like machine learning, Natural language processor (NLPs) and computer vision to make documentation easier and simpler. Large language models are an advanced version of AI which has made document reading and extracting data from those documents even more easier. Documents that are read by LLMS are fed faster into the banks system faster because of the enhanced reading capability of the machine and less human interference.

## II. LITERATURE REVIEW

Large Language Models (LLMs) are advanced artificial intelligence (AI) systems designed to process, understand, and generate human language. They are trained to take vast inputs like large texts to perform a wide range of natural language processors. Core functionalities include text generation, translation, summarization,

sentiment analysis, question answering, and more. LLMs can understand context, infer meaning, and produce coherent and contextually relevant responses.

There are various tools used by various banks which make documentation easier. Below is a brief summary

| Bank / Entity   | Tool(s)                                  | Function / Use Case   |
|-----------------|--|---|
| Goldman Sachs   | GS AI Assistant / GS AI Platform         | Document summarization, drafting, analytics, secure LLM workflow  |
| Citigroup       | Citi Stylus, Citi Assist, Citi Squad     | Document summarization, policy Q&A, code/documentation generation |
| JPMorgan Chase  | LLM Suite, COIN                          | Internal chatbot, contract intelligence/document processing       |
| Bank of America | Erica                                    | Customer service chatbot: balances, alerts, reminders             |
| Morgan Stanley  | Debrief, internal knowledge assistants   | Call summarization, information retrieval                         |
| SouthState Bank | ChatGPT-based internal assistant         | Summarize and query internal data                                 |
| Document360     | Documentation management platform        | Knowledge base and SOP storage                                    |
| DocMagic        | Document generation (mortgage processes) | Auto-populated doc creation and e-signature workflows             |

### Analysis:

The capability of LLMS in reading ,translating and validating have gone deep into the documentation process.it can read various documents like onboarding documents,legal documents, service documents ,technical manuals. It extracts details like client name, unique client identifiers, technical languages used in a particular document like terms and conditions related to the document and automatically input details into the banks clients database and storage archives.

LLMS also assist in document validation tasks , particularly for compliance, regulatory, KYC/AML, fraud prevention, and risk purposes. It helps in checking compliance relating languages in documents like templates ,standards and laws. It checks the content of the document with pre defined rules or checklists and spots potential red flags.

LLM trained models read,extract and validate documents based on the a pre defined set or training given to the model earlier and throws results or captures details accordingly.

LLMs are designed to handle multiple language documents with high fluency and accuracy. It helps in translating the content while preserving its actual tone. There are LLM models like Google Gemini 1.5, OpenAI GPT 4, LLaMAX which are very systematically designed for multi language translations with coherency and accuracy.

The ability of LLMs to potentially impact the documentation area impacts the ways the banks operate its business ((applications, systems, documents, emails, chats, video and audio recordings) .This can drive the banks to next level of innovation ,optimal efficiency and reinvention.

### III. DOCUMENTATION IMPLEMENTATION

LLM Model initialisation: The choice of LLM models depends on the banks requirement like document complexity and desired usage of terms by the bank.

#### Outcomes of LLMS

- Reduced time and effort from manpower.
- Cost efficiency in terms of less manual intervention.
- It maintains consistency and compliance oriented too in terms of reduced error.
- It has designed new roles for workforce like AI engineers /auditors

#### Threats because of LLMS

- Job displacement as machines are replaced for manpower.
- Manpower requires more training and support technically in many banks to handle the advanced usage of technology.
- New forms /Versions of exiting documents or any new documents again requires manual intervention until the model is trained to read the new terms / versions of the documents and a new release of the applications involved is required.

#### Challenges and Risks:

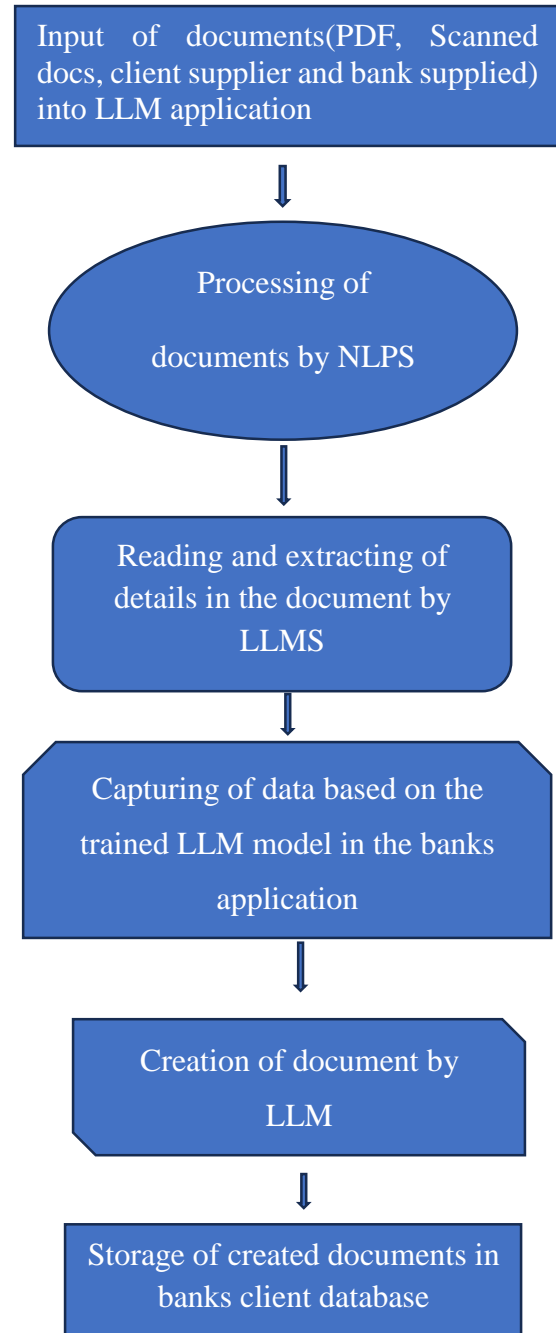
- Data Privacy and security
- Failure of applications or LLMs to process new version of documents leading to manual intervention.
- Ethical considerations and regulatory requirements

### IV. FUTURE OF BANKS THROUGH LLMS

The future of banking industry can largely be decided by the LLM used by the bank. Banks may become AI driven with more AI interaction and less human interaction. AI can also offer investment decisions to the client based on the clients history and preferences. Banks can take a proactive approach rather than a reactive approach and have less or nil data breaches because of LLMS identifying

potential red flags before and human auditor can do. Fraud and financial crime detection can become predictive with the usage of LLMS. In long term, LLMS can offer more enhanced form of client experience by less human touch points and readily available banking needs for the clients .

Diagrammatic representation how LLMS are used in documentation of banking industry



## **V. CONCLUSION**

LLMs are in large a boon in the documentation of banking industry which has become a valuable tool for enhanced customer/client satisfaction . Various databases are integrated through LLMS which in turn has made the documentation activity of the banks easier. The stored documents in the database can also be easily retrieved when required. Integration of databases through LLM models has made verification for the banks also easier as all clients details related to a particular client can be easily accessed through a unique client identifier. In short ,LLMs have become indivisible in the documentation area of banking industry and the future of documentation also holds technology driven through various LLM implications .

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