# TECHX

Asia's Largest

# AI & Cloud

# Conference 2024

15 – 16, November 2024

Chennai Trade Center, Chennai

# It's me

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## About   Me

Having  17 years of diversified experience in software engineering, product development,   advanced analytics, research and implementations of novel technologies using AI/ML, Deep learning, NLP, Gen AI  and  Computer Vision. Also, honoured with 40under40 data scientist  by AIM and AI Change maker award by 3AI.

# An Era of Multi-Agent LLM in Banking: Anti-Money Laundering

## Money Laundering

Money laundering is the process of making illegally-gained proceeds (i.e., "dirty money") appear legal (i.e., "clean").
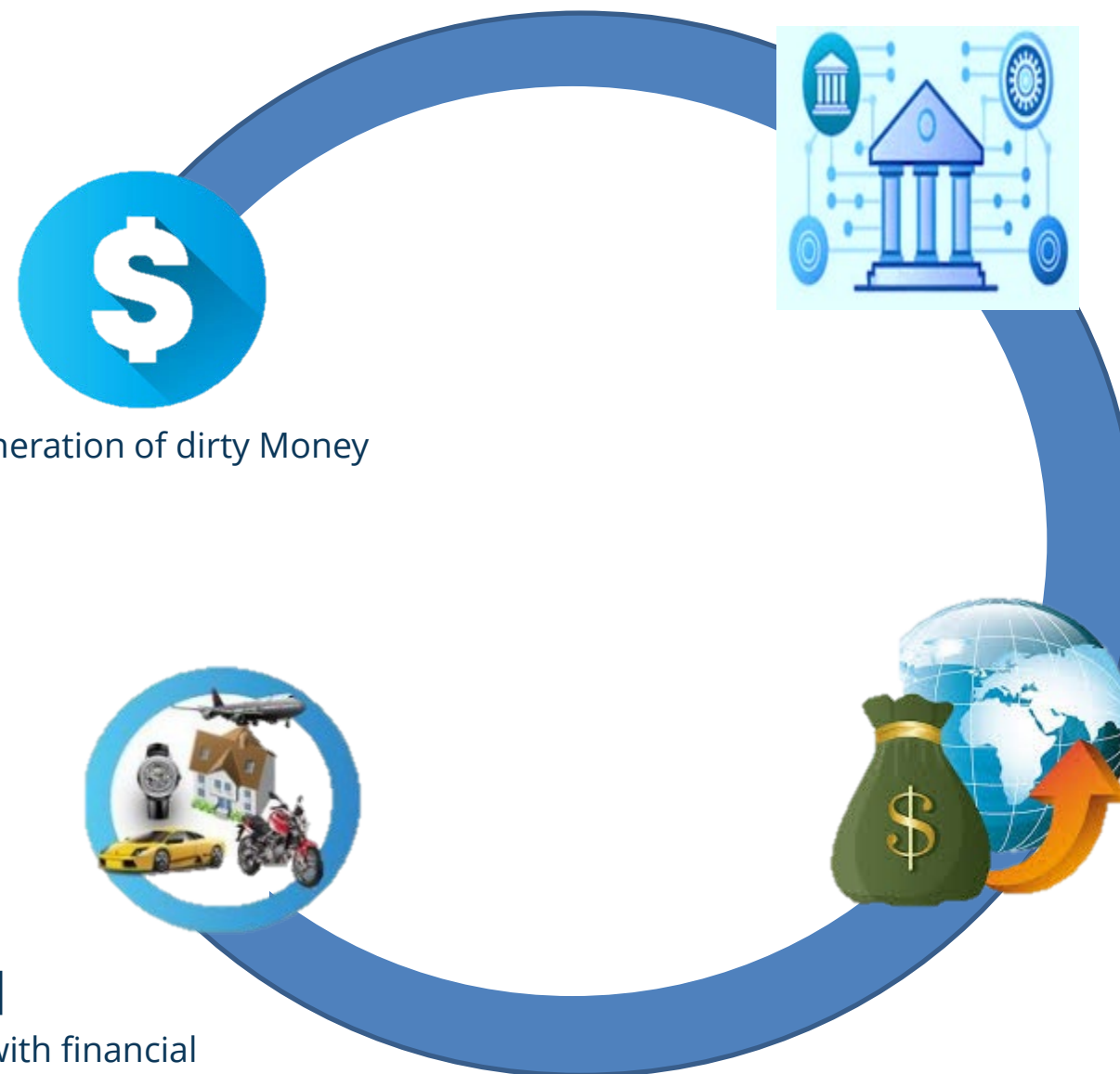
Generation of dirty Money

**PLACEMENT**
Integration of illegal fund into Financial systems

**LAYERING**
Transferring illegal fund across different accounts and obfuscate the source of origin

**INTEGRATION**
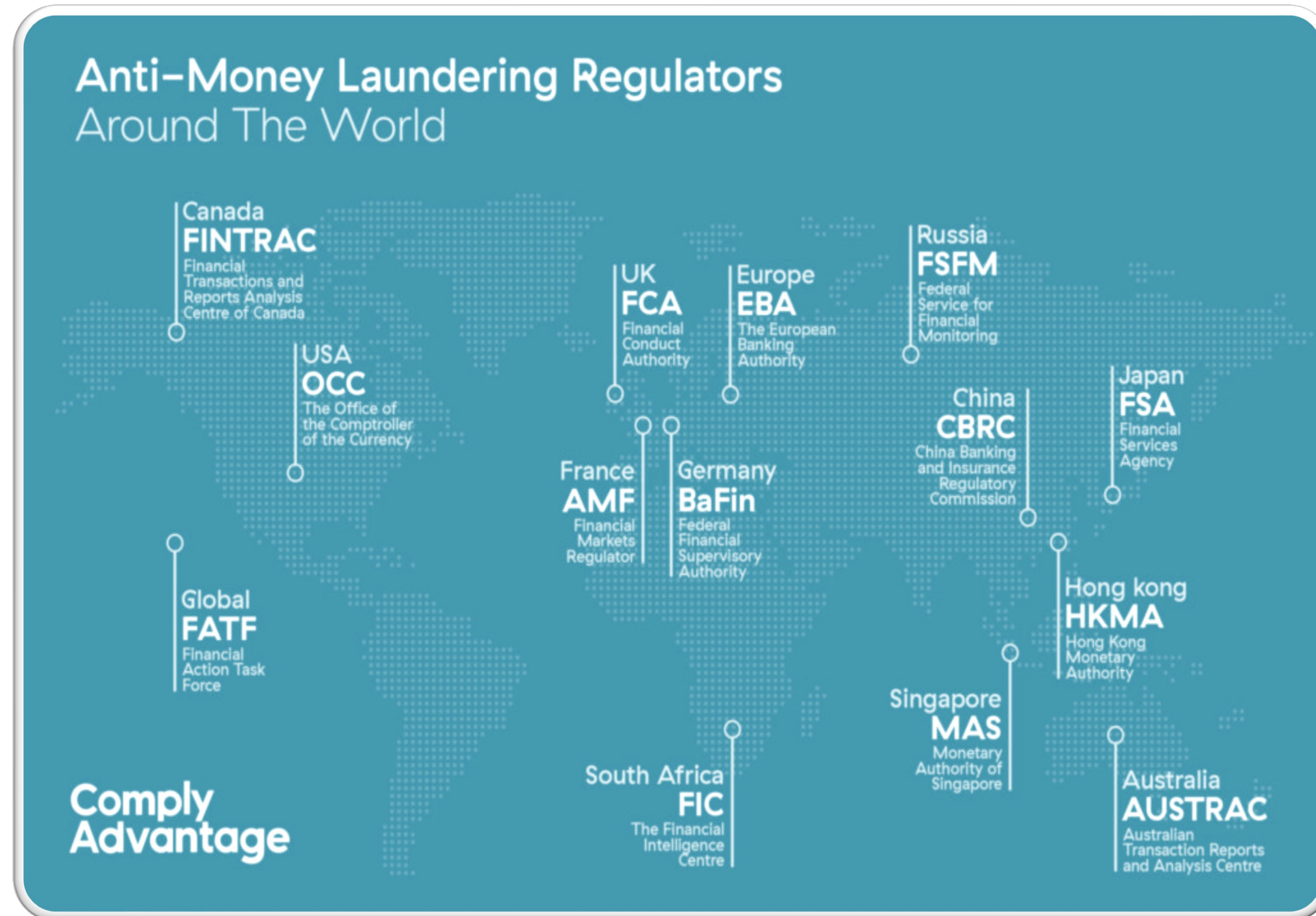Dirty money integrated with financial system as clean money

# An Era of Multi-Agent LLM in Banking: Anti-Money Laundering

## Anti -Money Laundering Regulators in India

- Reserve Bank of India
- Financial Intelligence Unit
- Enforcement Directorate
- Securities and Exchange of Board of India
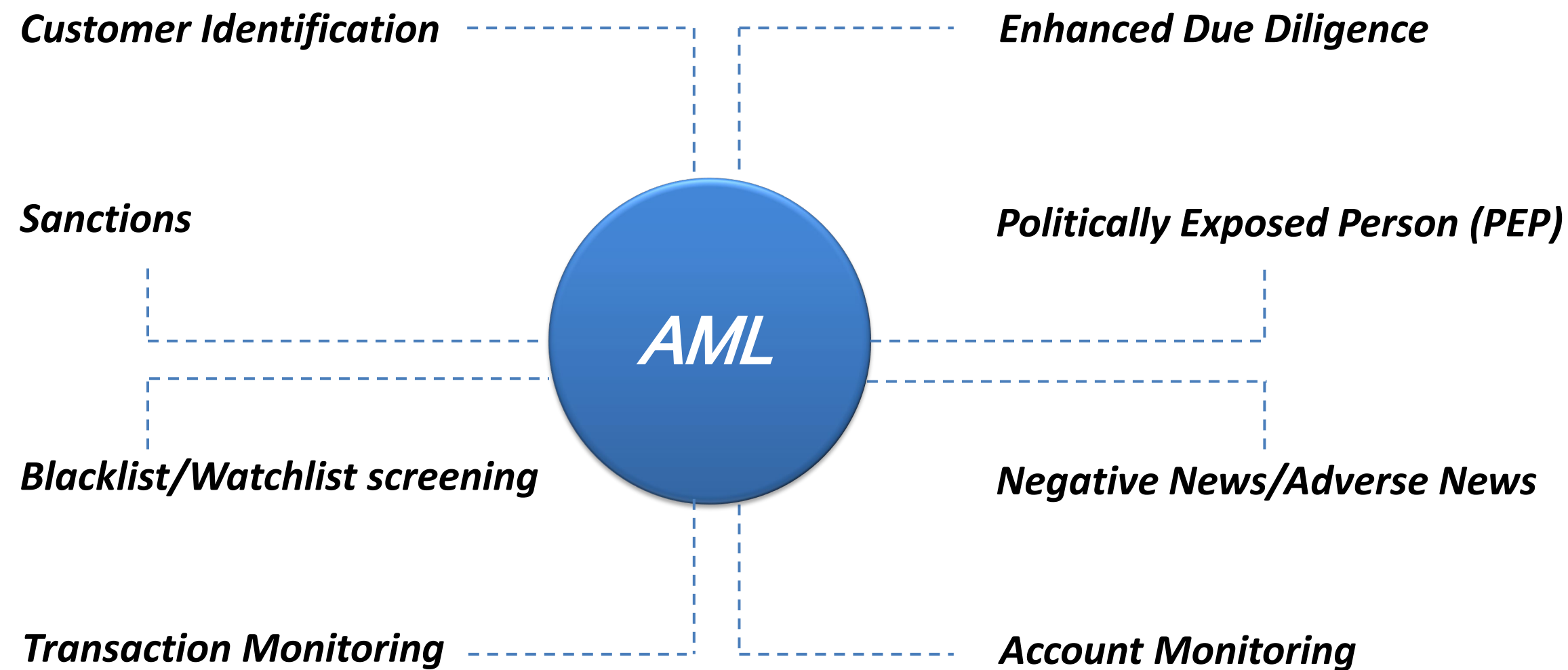- Insurance Regulatory and Development Authority of India



Reference: https://complyadvantage.com/insights/aml-regulations/

# An Era of Multi-Agent LLM in Banking: Anti-Money Laundering

## Critical Components



Customer Identification

Enhanced Due Diligence

Sanctions

Politically Exposed Person (PEP)

**AML**

Blacklist/Watchlist screening

Negative News/Adverse News

Transaction Monitoring

Account Monitoring

False Positives

# An Era of Multi-Agent LLM in Banking: Anti-Money Laundering

## Large Language Models

- Trained on massive amounts of text data for content generation, summarization, translation, classification, sentiment analysis, pattern detection and etc.,
- Multi-lingual capability
- Multi-model capability: Comprehend text, images, audio and video
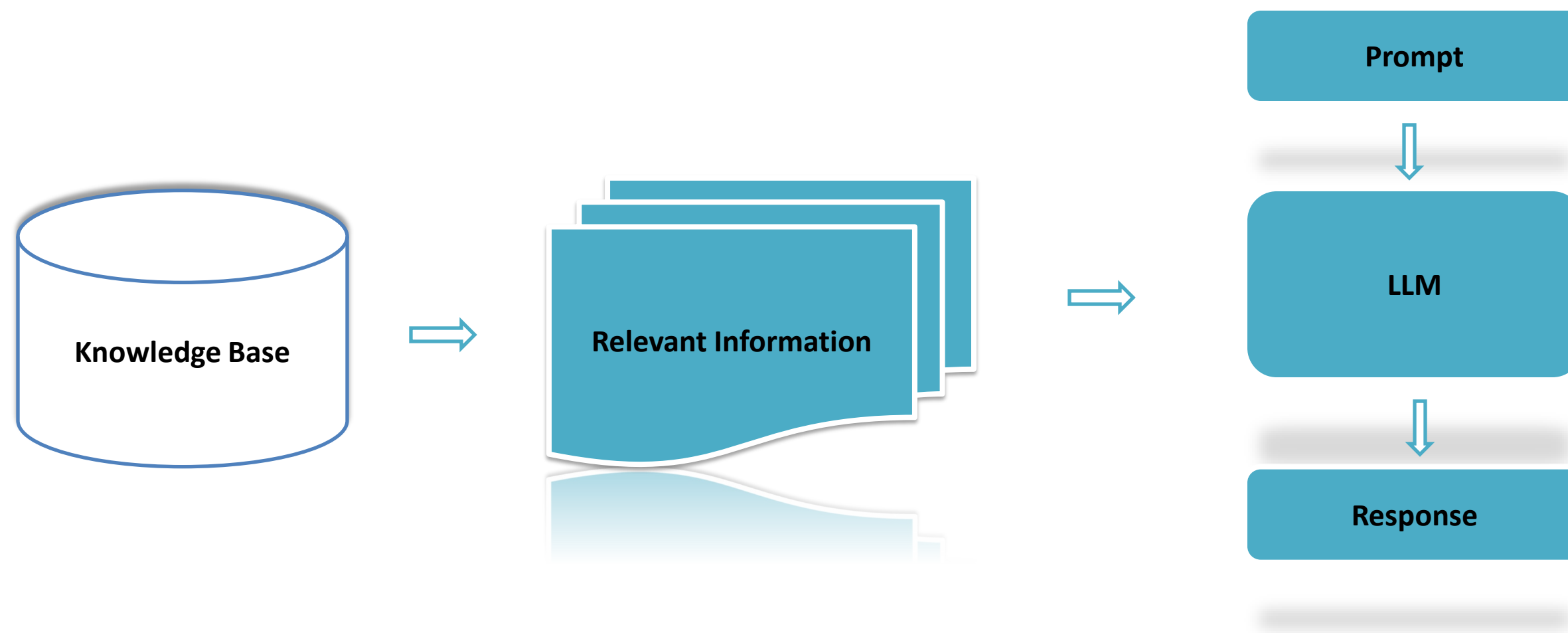
ChatGPT 4.0

Google's Gemini

SeamlessM4T

Alexa LLM

Siri 2.0

# An Era of Multi-Agent LLM in Banking: Anti-Money Laundering

## Retrieval augmented generation （RAG）

- Retrieval augmented generation, or RAG, is an architectural approach that can improve the efficacy of large language model (LLM) applications by leveraging custom data.
- Combining an LLM with external knowledge retrieval
- External knowledge base or database (e.g., vector database)
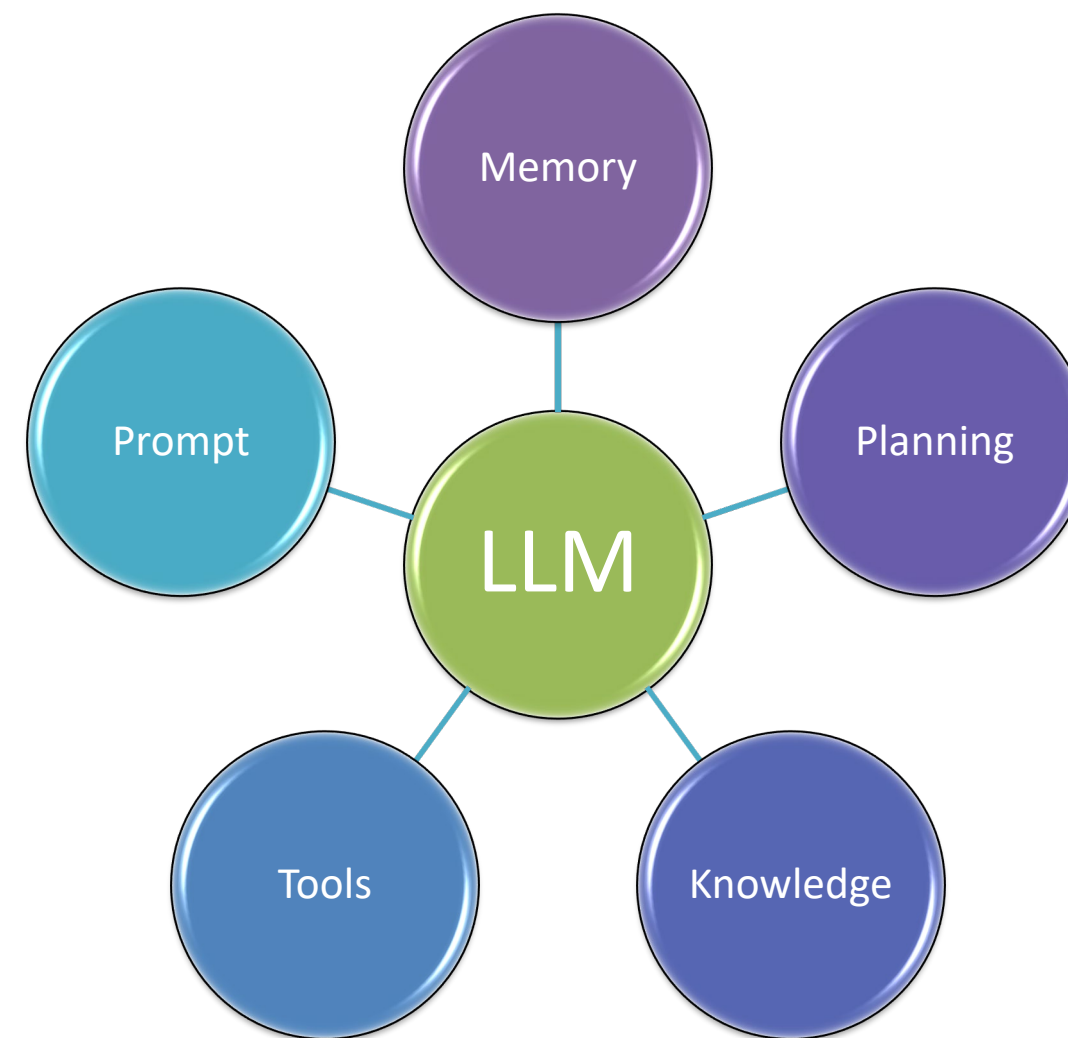- Dynamically updated context, enhanced accuracy

# An Era of Multi-Agent LLM in Banking: Anti-Money Laundering

## LLM Agents

LLM agents are AI tools that leverage Large Language Models (LLMs) to perform tasks, make decisions, and interact with users or other systems autonomously
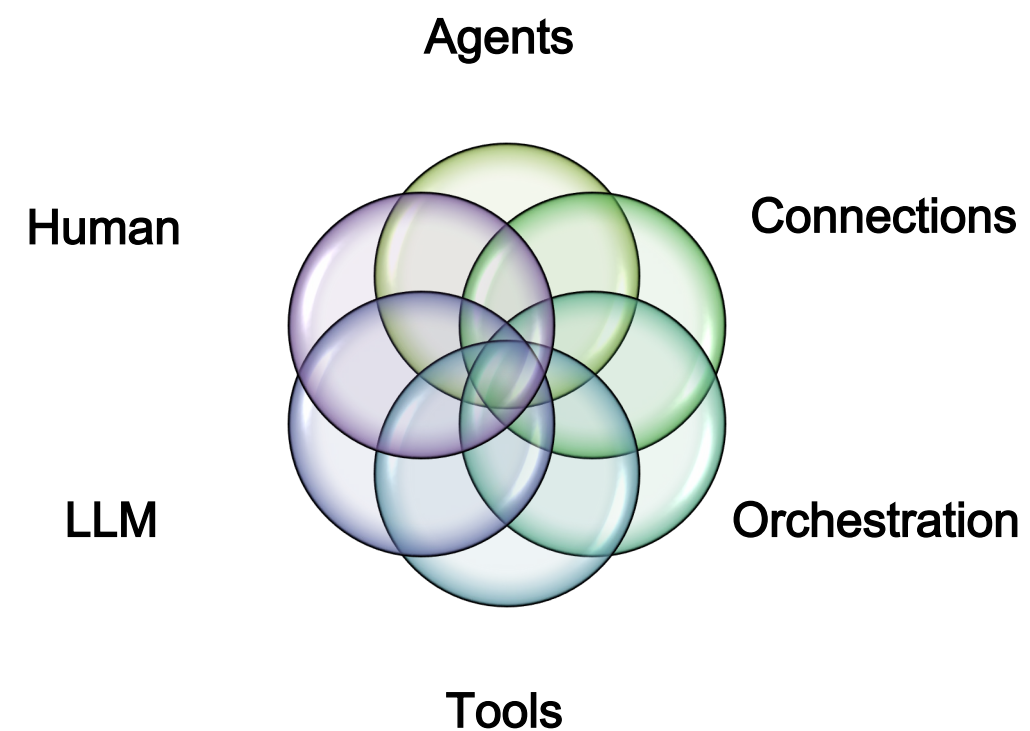
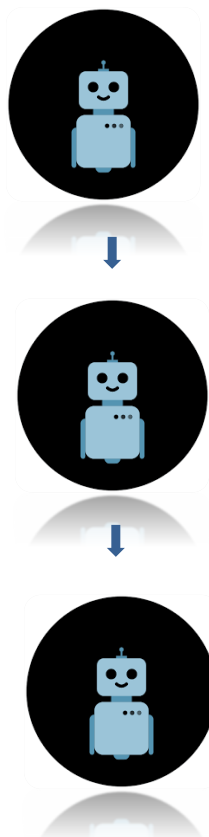# An Era of Multi-Agent LLM in Banking: Anti-Money Laundering

## Multi -Agents

- Multi-agent system involves multiple independent agent designed with large language models capable to collaborate between them
- Each agents have their own persona/role, and a context which is defined through prompts
- Each agent has varieties of tools based on task assigned
- Multiple agents bring different viewpoints and helps make better decisions.
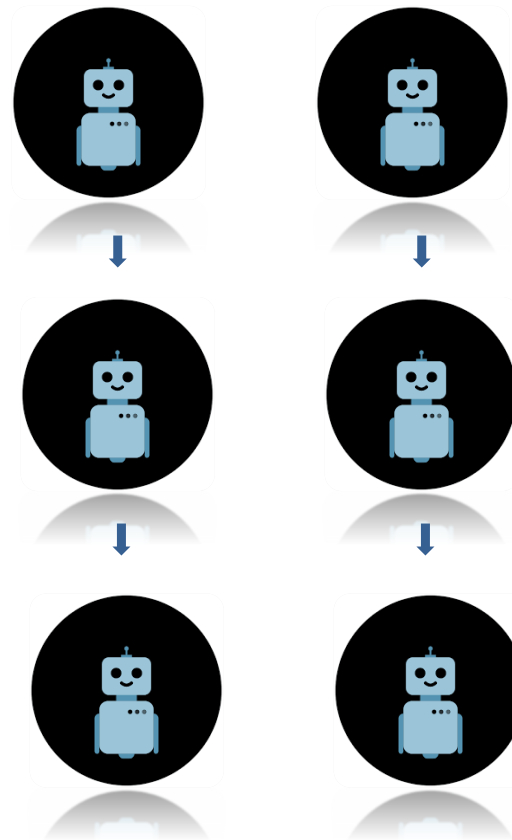
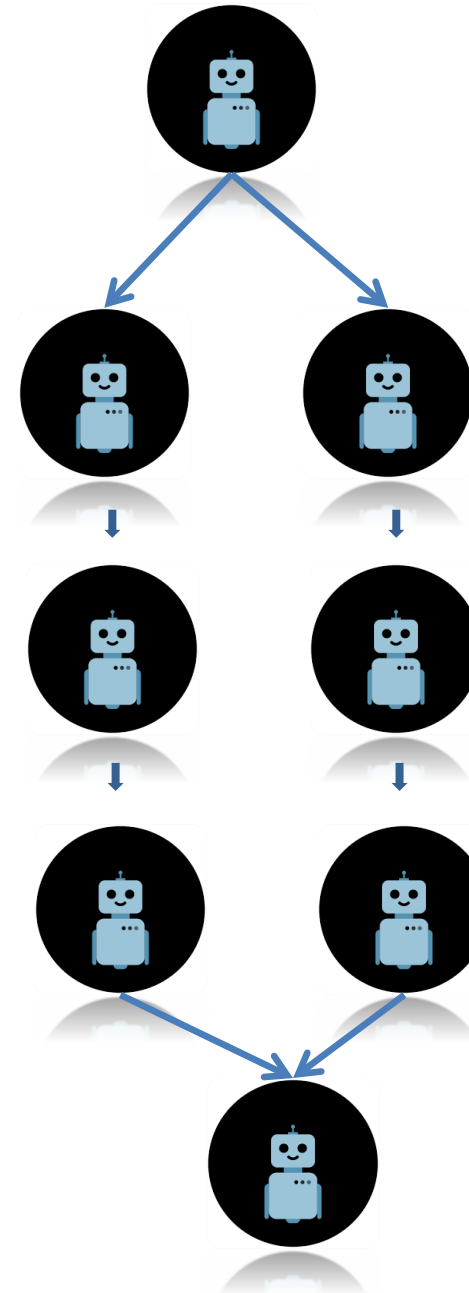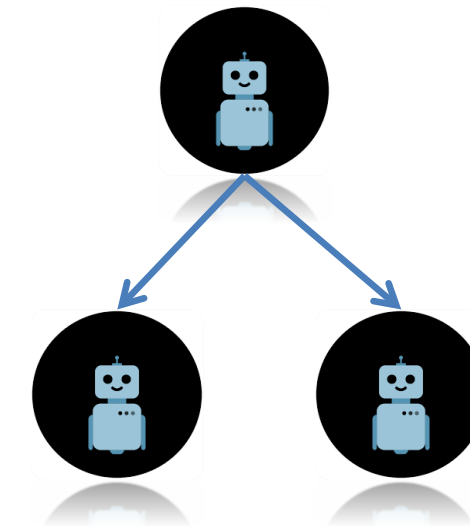# An Era of Multi-Agent LLM in Banking: Anti-Money Laundering

## Types of Multi  -Agents



Sequential

Parallel

Hybrid

Hierarchical

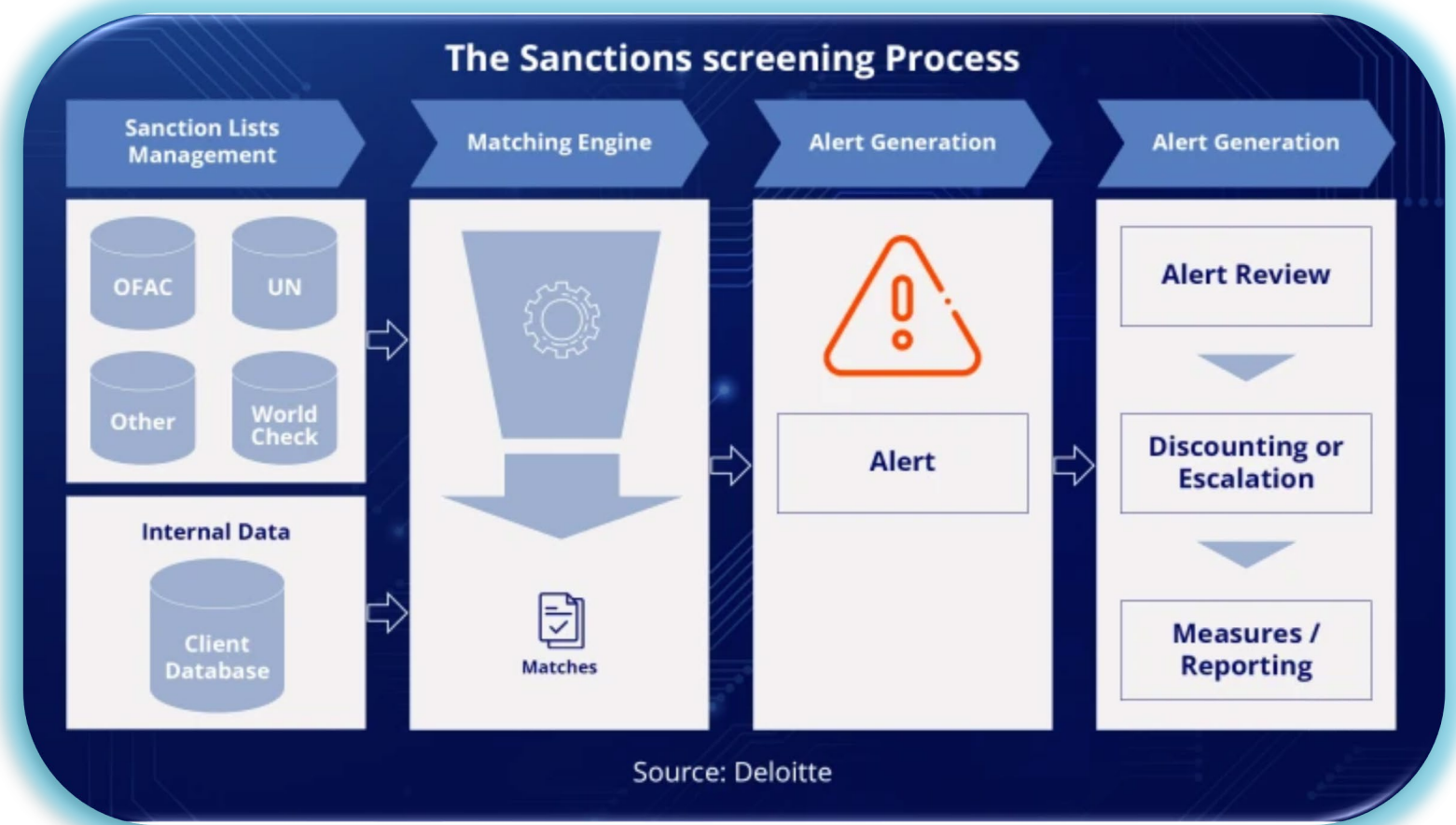# An Era of Multi-Agent LLM in Banking: Anti-Money Laundering

## Financial Sanctions/ Watchlist / PEP screening



**The Sanctions screening Process**

Sanction Lists Management
- OFAC
- UN
- Other
- World Check

Internal Data
- Client Database

Matching Engine — Matches

Alert Generation — Alert

Alert Generation
- Alert Review
- Discounting or Escalation
- Measures / Reporting

Source: Deloitte

- Different versions of a spelling, for e.g, Catherine instead of Kathryn
- Shortened names, for e.g, Lizzie instead of Elizabeth
- Odd characters and spaces within fields
- Punctuation marks within fields
- Numbers within text fields
- Abbreviations and inconsistencies
- Name reversals and variations
- Duplicate entries

| Name | Updates | Entities |
|---|---|---|
| Debarred Companies and Individuals | daily | 225,182 |
| Know-Your-Business (KYB) Datasets | monthly | 85,927,047 |
| Open Ownership Datasets | weekly | 34,288,805 |
| Politically Exposed Persons (PEPs) | daily | 695,019 |
| Regulatory Watchlists | daily | 187,491 |
| Sanctioned Securities | daily | 302,384 |
| Warrants and Criminal Entities | daily | 231,215 |

# An Era of Multi-Agent LLM in Banking: Anti-Money Laundering

Financial Sanctions/     Watchlist  / PEP screening

**Fuzzy Matching Agent**

*Prompt:*
*You are an excellent matching expert. You can look at data and find the closest match to that data from a list. Your goal is to find the closest match to the data from the list of potential matches, if there is no close match write N/A*
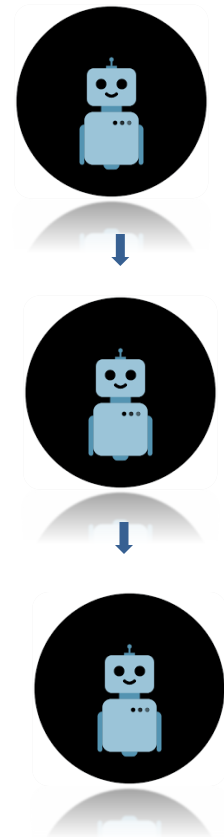
*User:*
*Search so and so name from the list*
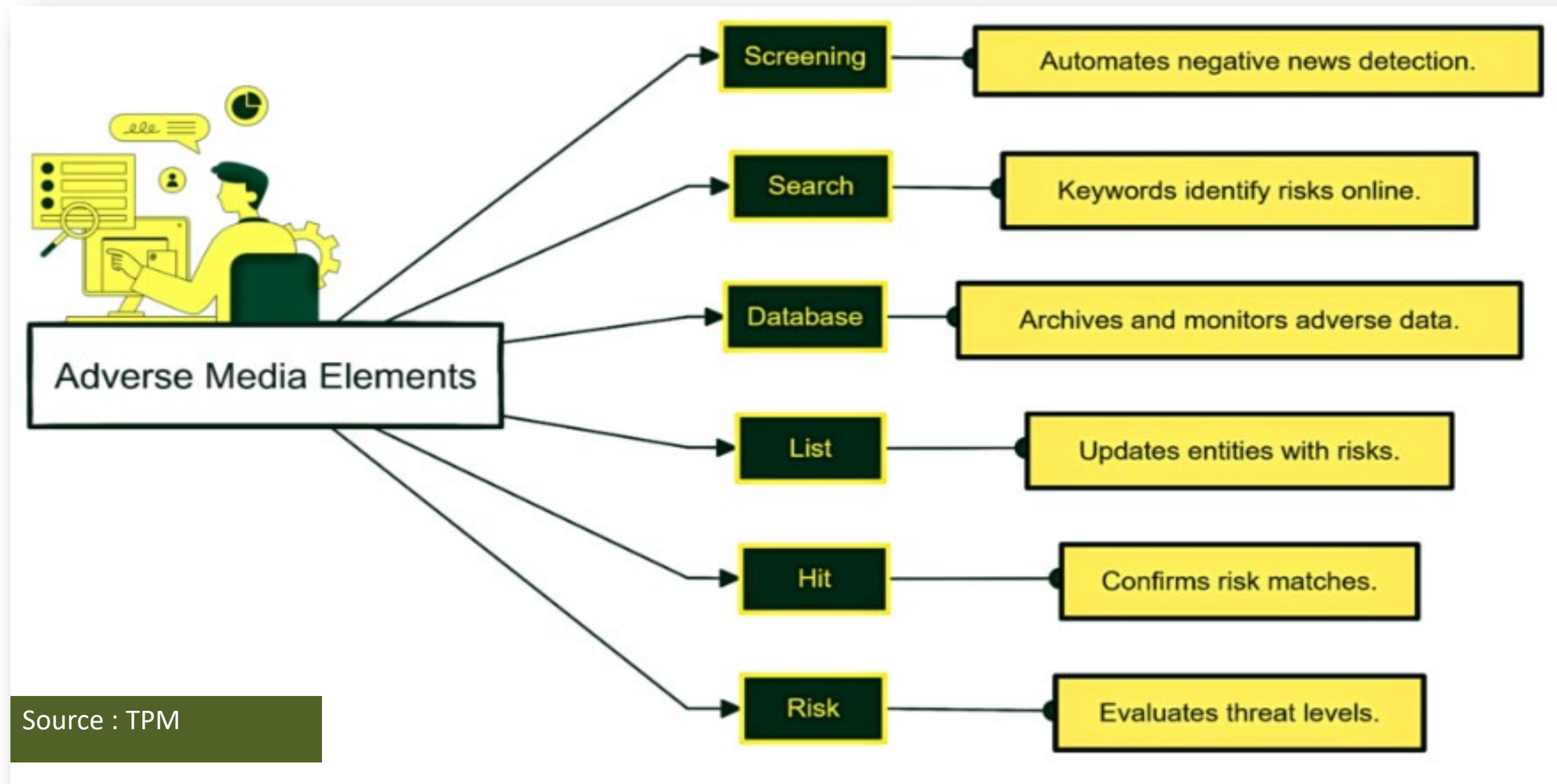
*LLM*

*RAG: PEP dataset*

*Knowledge Base*

Sequential

# An Era of Multi-Agent LLM in Banking: Anti-Money Laundering
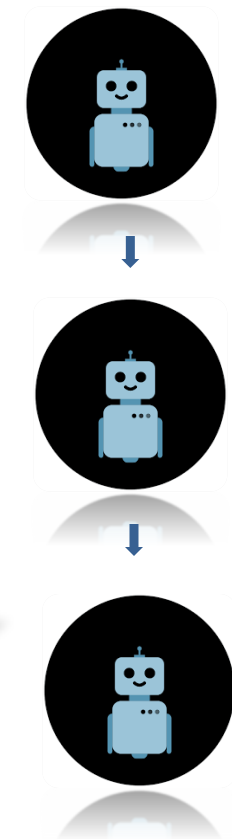
## Negative   News/Adverse   News Screening



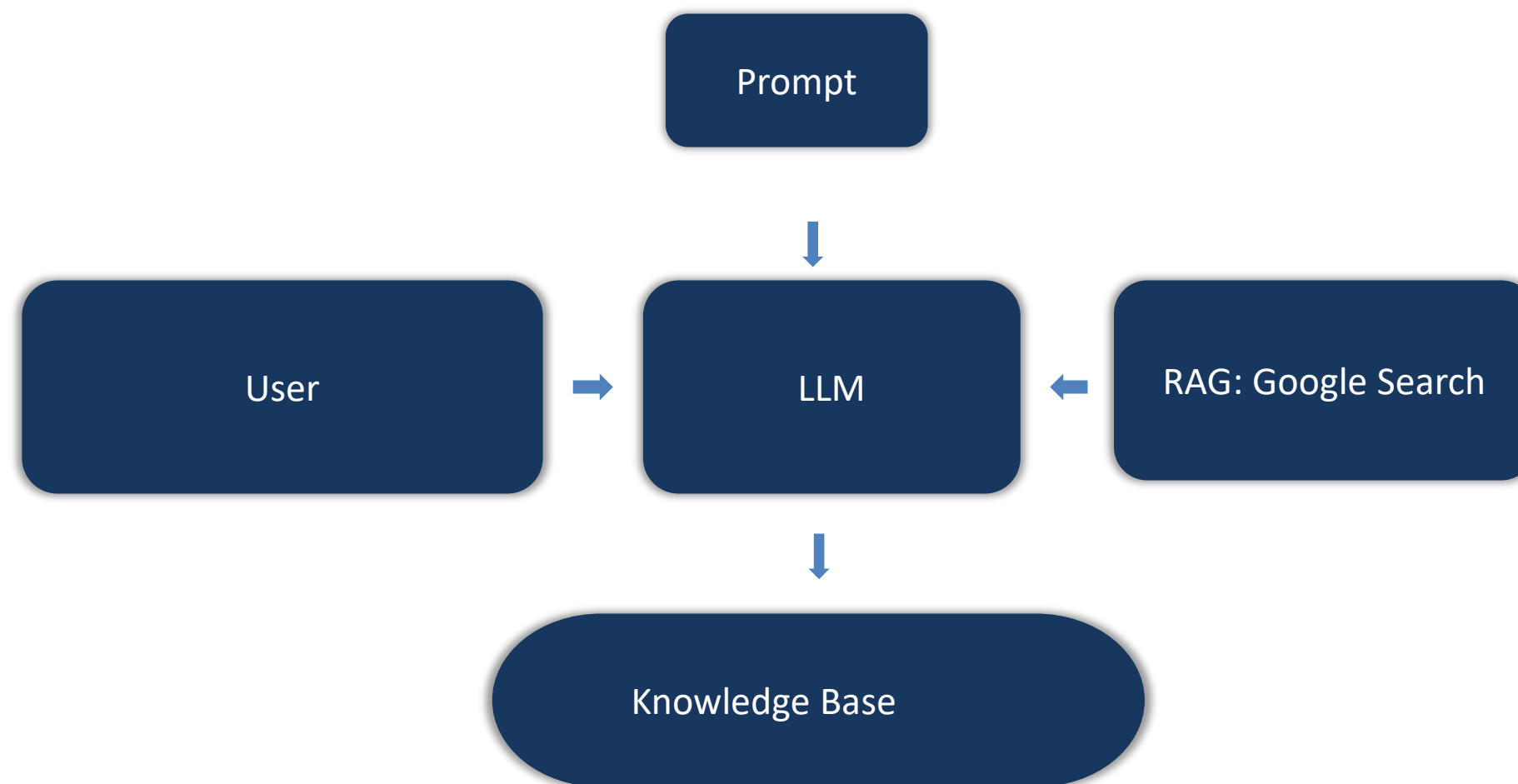| | |
|---|---|
| Screening | Automates negative news detection. |
| Search | Keywords identify risks online. |
| Database | Archives and monitors adverse data. |
| List | Updates entities with risks. |
| Hit | Confirms risk matches. |
| Risk | Evaluates threat levels. |

Adverse Media Elements

Source : TPM

# An Era of Multi-Agent LLM in Banking: Anti-Money Laundering

## Negative   News/Adverse News Screening

*Search Agent*

Sequential

Prompt

User → LLM ← RAG: Google Search

Knowledge Base

# An Era of Multi-Agent LLM in Banking: Anti-Money Laundering

## Transaction/ Account Monitoring

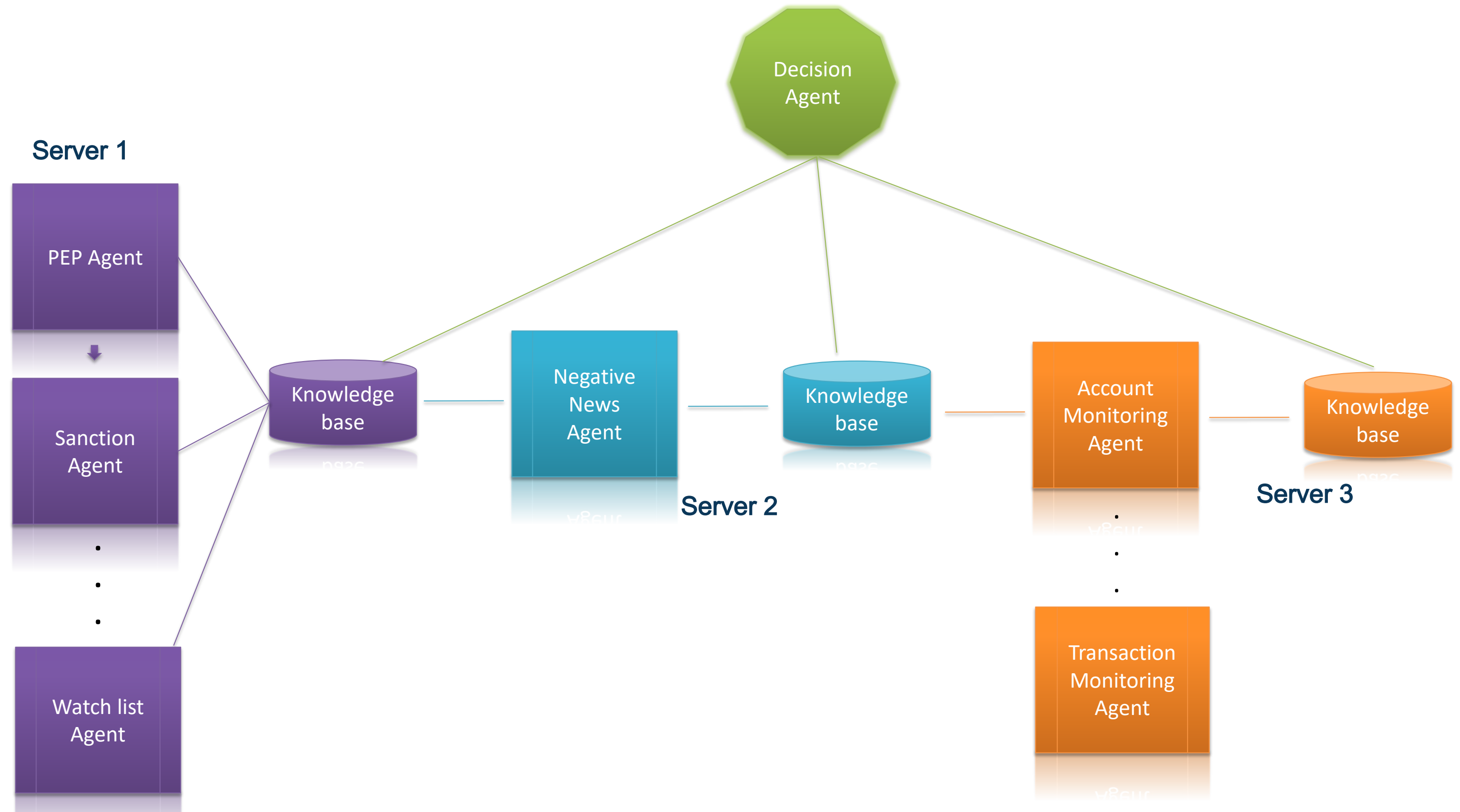**Analysis of individual transactions, including the amount, origin, and destination**

**Structured dataset**

**Detailed overview of all transactions**

**Unusual or High-risk transactions**

# An Era of Multi-Agent LLM in Banking: Anti-Money Laundering

## AML Multi  -Agent Architecture

# An Era of Multi-Agent LLM in Banking: Anti-Money Laundering

## Agent Frameworks

# THANK YOU!

Dr.Anusuya   Kirubakaran