

# How agentic AI can improve anti-money laundering investigations

Discussion paper



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# Executive summary



## Opportunity

Anti-money laundering (AML) investigations are time intensive and largely manual. Agentic AI offers an opportunity to accelerate the review process:

- Traditional AML Investigations are inefficient and tie up highly skilled resources in repetitive tasks.
- Reporting requires high level of standardization and quality assurance.
- There is an opportunity to accelerate data collection and synthesis, transaction analysis and reporting using agentic AI.



## Approach

Identify pain points and highest-impact agentic AI opportunities, design, develop and manage change with business and tech input:

- Strategy: dissect current process, identify user pain-points and identify highest-impact agentic AI opportunities.
- Business and tech input: liaise with business and tech stakeholders, define agile project plan.
- Design and development: deploy agentic AI to accelerate and streamline selected process steps
- Change management: realize envisioned value for the organization



## Benefits

Improve investigations efficiency and standardization and increase compliance:

- Improved resource efficiency: highly skilled compliance officers are freed of repetitive tasks to focus on complex case analysis.
- Greater standardization: the agentic AI solution framework for investigations helps standardize outputs, reducing review cycles.
- Increased compliance: reducing investigation timelines and streamlining suspicious activity report writing supports compliance efforts.



Identified 3 investigation steps for AI-driven improvements



Achieved 50% time reduction per investigation



>C\$4m yearly savings for FIU enabling 200 employees

# Current AML investigation process and its challenges

## CURRENT PAIN POINTS

01

- **Distributed data sources** with no central and digestible synthesis
- Tedious labour of reviewing documents, summarizing findings

02

- Highly skilled compliance officers spend time on **repetitive manual work** instead of high-risk investigation work

03

- Difficulty identifying complex behavioural AML patterns (e.g., smurfing, layering, circumvention)

### INVESTIGATE

Validate the suspicious activity and identify the perpetrators

Collect and review data, consult additional data sources

Gain an understanding of the case context

Carry out transaction analysis: statistics and pattern tracing

### REPORT

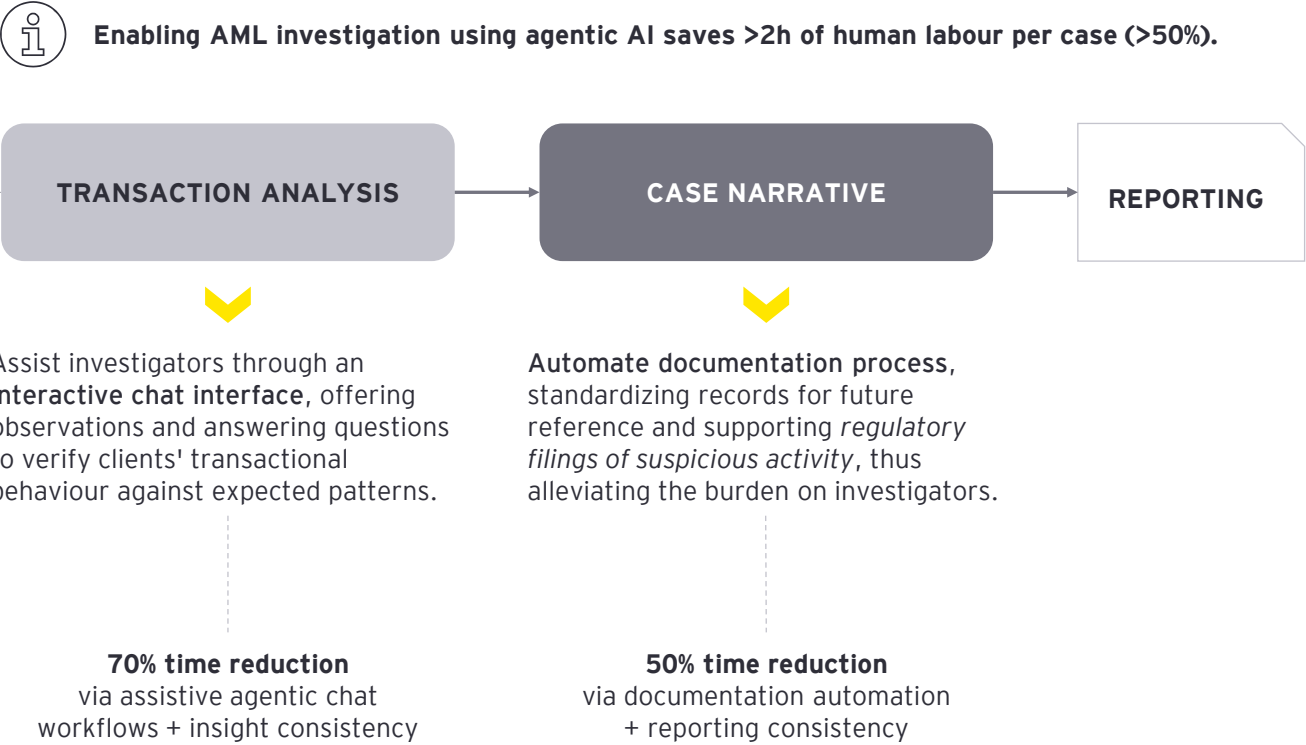
Report suspicious activities to relevant authorities

Make a filing decision

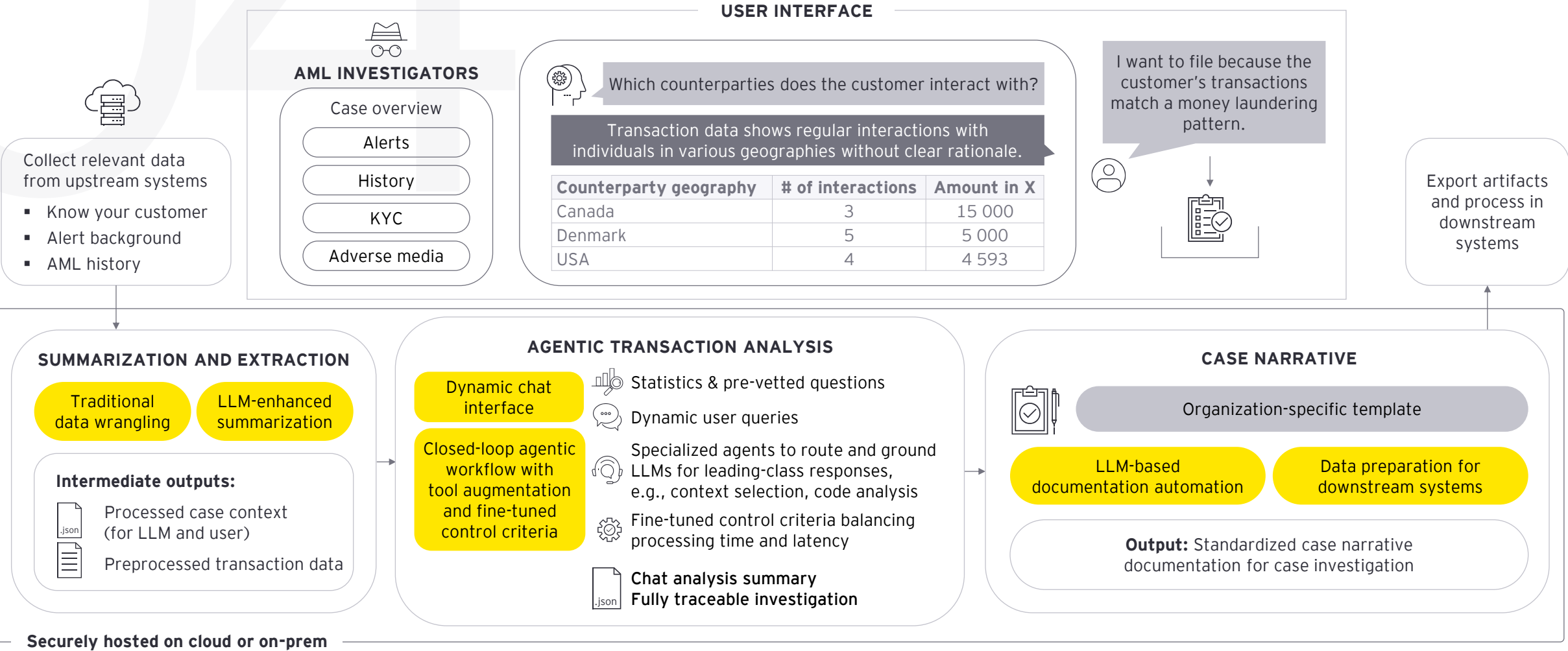
Summarize all findings for reporting

- **Complex financial crime schemes:** Criminals often use complex schemes of layered transactions to hide their activities.
- **Structured and unstructured data analysis:** Investigating potential financial crimes often involves tedious, manual analysis of data from various sources to gain insights on relevant entities and individuals.
- **Quality of reports:** Reports need to be comprehensive and clear, which can be difficult and time consuming to create.
- **Timeliness:** Delayed reporting can make it harder to catch criminals and prevent further crime and may expose the organization to penalties.

# Agentic AI-enabled AML investigation and impact solution backend and frontend overview



# Solution backend and frontend overview



\*LLM refers to Large Language Model

# Value realization

## BENEFITS



Reduction of unsustainable backlog via **>50% time savings** in the investigation



Operational savings in investigations and model management processes



Efficient and effective filing with increased **standardization**



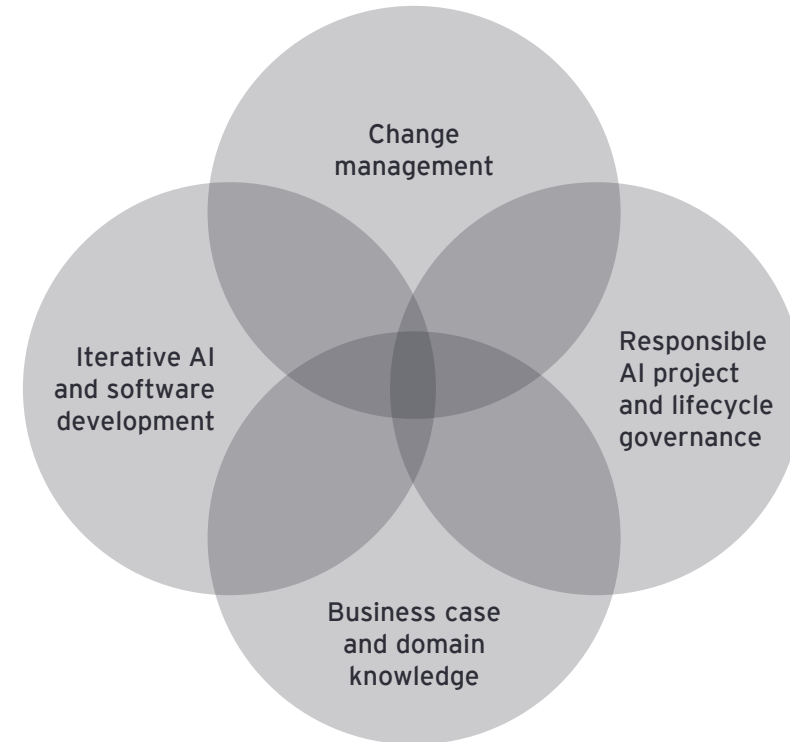
Increased organizational readiness for further AI adoption



Streamlined and automated workflows to free human expert resources

- Agile development and feedback loops to stay close to the
- Deep integration with existing architecture

- Understand that change management starts on day 1.
- Engage all stakeholders for successful short- and long-term adoption.



- Deep business understanding to tailor AI solution to the real workflow needs
- Understand where AI can deliver value and where it is a false promise

- AI governance and model validation support
- Security hardening for PII data handling
- Hallucination-combatting techniques



# Solution demo





# Solution testing

**Data:** Data includes all data that influences the model’s behaviour. This includes the input data (transaction data, know your customer (KYC), case information, AML customer history, investigator notes) as well as context training data, including policies and guidelines that are integrated into prompts.

**Model:** the model includes all processes from input to output, which impact how data is processed to create the output. This includes architecture choices like the vector bases, prompt engineering choices, model tuning, pre- and post-processing.

### DATA VALIDATION

- Identification and documentation of data requirements
- Documentation of data sources, descriptions and business rationale
- Verification of data representativeness
- Data quality tests on training data (structured and unstructured)

### SOLUTION DESIGN

- **Data preprocessing**
  - Documentation of preprocessing steps including data cleaning, data segmentation, feature engineering
  - Identification and segregation of training/test/validation data
- **Model design**
  - Review of business requirements and building of model
  - Documentation of all technical choices
  - Documentation of all tuning choices considered
  - Documentation of model training choices (prompt tuning)

### OUTPUT TESTING

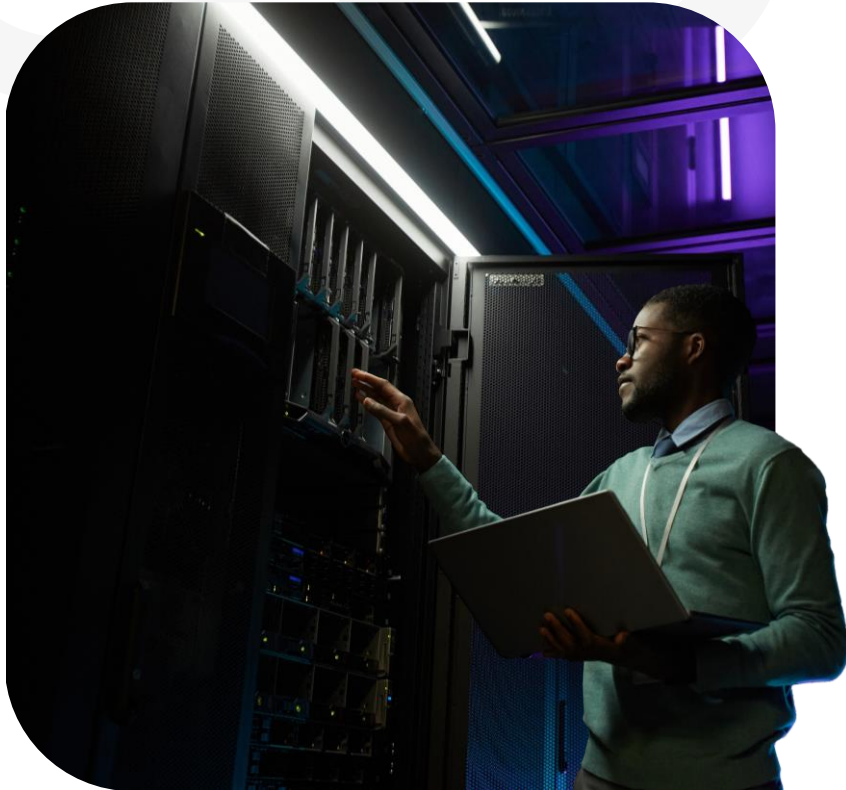
- Model testing is approached modularly, assessing each system capability. Capabilities include:
  - **Information extraction:** The model finds, extracts and reformats data from the input without additional manipulation.
  - **Information summarization:** The model identifies and summarizes data from the input. No interpretation or reasoning capabilities are involved.
  - **Numerical analysis:** Numerical analyses process structured data and perform simple mathematical operations like sums and ratios.
  - **Basic reasoning:** The model uses cognitive abilities to interpret and reason with the context and input data to generate a response. No new recommendations are provided.

### TESTING CATEGORIES

<b>Relevance</b> The output is topically aligned with the user prompt and focuses on intended subject matter. <i>Human + LLM</i>	<b>Accuracy</b> The response reflects correct and verifiable information based on input data. <i>Human</i>	<b>Completeness</b> The output includes essential elements, covering the scope of the prompt without omission. <i>Human + LLM</i>	<b>Consistency and clarity</b> The content is readable, logically coherent and free from internal contradictions. <i>Human + LLM</i>	<b>Hallucinations</b> The model refrains from introducing fabricated, unverifiable or unsupported content. <i>Human</i>	<b>Robustness</b> The model produces consistent and stable responses when tested with paraphrased/semantically similar prompts. <i>LLM</i>	<b>Usefulness</b> The response provides value to the end user, enabling action or insights for the human. <i>Human</i>
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\*LLM refers to Large Language Model

# Agentic AI trends for the sector



As the financial crime risk management sector is moving towards AI adoption, key themes emerge in the market.

## AUTOMATION & EFFICIENCY

- With the interactive abilities of tool-augmentation and agentic AI, real efficiency gains through **process streamlining** are possible.
- **Standardized and repetitive tasks** lend themselves for automation.

## NEW RISKS REQUIRE NEW CONTROLS

- With rising autonomy, **AI systems require new controls**. Traditional control frameworks and model validation approaches do not translate.
- New “**smart**” and **adaptable evaluation and control** approaches are a topic of ongoing research and will define organizational readiness.

## CULTURAL CHANGE

- **Intentional culture management** is required to enable the value AI systems can deliver:
  - **Cross-functional** collaboration across teams for risk and value
  - **AI literacy** at every level
  - **Ownership** and **reskilling** efforts

## OPTIMIZE & REINVENT

- Existing processes can be optimized and **slowly redesigned**.
- **Human-centred processes** may require **reinvention** in the long term:
  - Example: Humans must sample data for quality assurance, but an AI system can scan all data points and escalate selected ones.

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