Technology Risks and Rewards from Process Automation and Artificial Intelligence

程序自動化和人工智能的科技風險與回報

Banks are required to establish and maintain adequate systems and processes to monitor customer transactions. At one time, this was performed using a paper-based management system. This is no longer the case. Now, most transaction monitoring systems (TM systems) are automated, and banks are increasingly moving from rules-based robotic process automated (RPA) systems to artificial intelligence (AI) empowered systems.

銀行按規定必須設置並維持適當的系統和程序，以監控客戶交易。以往，這項工作主要以紙本的管理系統處理，但隨著時代進步，今天大部分交易監控系統都已經實現自動化。越來越多銀行由規則為本的機器人流程自動化系統（RPA），轉而使用人工智能驅動的系統。

In the past 12 months, the Hong Kong Monetary Authority (HKMA) has taken a number of initiatives to encourage banks to adopt more advanced technology to improve the effectiveness and efficiency of TM systems. This article will review regulatory expectations for TM systems and how the prudent adoption and deployment of AI-empowered TM systems can help banks meet those requirements.

What are TM systems?

TM systems and processes cover:

(a) a transaction monitoring system that produces alerts to help identify suspicious transactions or abnormal transaction patterns; and

(b) a process to review and act upon those alerts.

The objectives are to determine whether transactions are consistent with the bank's knowledge of the customer and the banking relationship, and to identify changes in the customer profile based on transaction patterns and activities. An efficient and effective TM system will help banks allocate resources to prioritise the identification and reporting of higher-risk activities.

There is no absolute regulatory requirement to use technology and automation for transaction monitoring. The HKMA acknowledges that reports generated by management information systems (MIS reports) may be sufficient for simple business models or smaller banks. However, the volume and complexity of banking transactions generally demand a technological solution to meet regulatory requirements. This is, in fact, a quintessential use case for Regtech.

HKMA regulatory requirements[1]

Assessment: The bank must undertake a comprehensive assessment before the adoption of a TM system. The assessment should address:

- the particular needs of the bank and the rationale for adopting the TM system;
- the suitability of the proposed TM system taking into account diligence requirements and integration with existing IT infrastructure; and
- resource implications for the adoption and deployment of the TM system.

過去12個月，香港金融管理局（金管局）採取多項措施，鼓勵銀行運用較先進的技術，以提升交易監控系統的效能和效率。本文說明監管當局對交易監控系統的期望，探討慎用人工智能驅動的交易監控系統可如何幫助銀行符合這些要求。

交易監控系統是什麼？

交易監控系統及程序包括：

(a) 交易監控系統，可發出警示，協助辨識可疑交易，或不尋常的交易模式；及

(b) 審視這些警示及採取行動的程序。

監控交易的目的，是確定交易與銀行對客戶情況和客戶關係的認知一致，並按交易模式和活動，識別客戶狀況的變化。高效率和有效能的交易監控系統，有助銀行優先分配資源以識別和報告高風險活動。

當局沒有規定必須使用科技，把監控交易的工作自動化。金管局明白由管理資訊系統編製的報告，對業務模式簡單的機構或規模較小的銀行來說，可能已經足夠。不過，銀行交易數量龐大，過程複雜，一般需要技術方案幫助符合法規要求。這正是合規科技應用的典型例子。

金管局的監管要求[1]

評估：採用交易監控系統前，銀行必須作詳盡的評估，內容包括：

- 銀行的獨特需要，以及採用交易監控系統的理據；
- 建議的交易監控系統是否適合，考慮因素包括盡職審查要求，以及能否配合現有的資訊科技基建；及
- 採納和使用交易監控系統對資源的影響。

即使交易監控系統提供者或供應商出現問題，銀行仍須對交易監控負責。

系統設計：交易監控系統的設計，必須顧及銀行的交易模式和活動所形成的特定規則和情境，並可在情況和趨勢有變時作進一步調校。客戶細分以及設定參數和警報界線，是交易監控系統設計的必要組成部分。這項工作應由具

> *"Senior management should oversee the development and implementation phases of the TM system while remaining involved in oversight activities thereafter."*

The bank remains responsible for transaction monitoring, even if issues arise with providers or vendors of TM systems.

System design: The design of the TM system must account for specific rules and scenarios arising from the bank's transaction patterns and activities, and allow for further customisation according to changes in circumstances and trends. Customer segmentation and the establishment of parameters and thresholds are integral parts of the design of TM systems. This task requires expertise and a sufficient understanding of the bank's systems and processes. One of the key objectives of the system design phase is to reduce the number of false positive alerts. Ultimately, the design outcome should be assessed and validated against the bank's priorities from its pre-design assessment.

備相關知識，以及充分瞭解銀行系統和程序的人員處理。系統設計階段的一個主要目的，是減少偽陽性警示的數目。歸根究底，設計結果應根據銀行在設計前評估中的優先事項進行評估和驗證。

Case study 1

False positive alerts in transaction monitoring are a long-standing industry issue. These arise when an alert is raised even though the underlying activity or transaction is not genuinely suspicious. The alert must still be cleared from the system, often through manual effort. AI-empowered TM systems can provide preliminary assessments of false positive results to replace those conducted by staff.

In a recently published case study,[2] a bank collaborated with a well-known vendor for AI-empowered anti-money laundering Regtech solutions. The target was to address the level of false positive alerts.

The bank developed a feedback loop, under which the machine learning model was trained using one year of historical alert data, including review outcomes. Over a six-month period, testing and trials assessed initial outcomes and led to refinements of the machine learning model based on user feedback. When future alerts were raised, the machine learning model assigned a score based on the likelihood that the alert would be a true positive. This allowed alerts to be prioritised, with more attention given to the highest-risk alerts.

System oversight: Effective TM system oversight combines periodic management reviews with processes for senior management escalation. The periodic review should occur on an annual basis (unless triggered by earlier events) and include:

系統監察：有效的交易監控系統監察工作，包括由管理層定期檢視，以及上報高層管理人員的程序。除非有事件觸發須提早檢視，否則定期檢視應每年一次，包括以下內容：

The long-term goal was to develop an auto-clear mechanism, under which transaction monitoring alerts classified as low-risk would be automatically discounted, without the need for manual intervention.

個案一

交易監控過程中出現偽陽性警示，是業內長久以來的一個問題。當系統對非真正可疑的活動或交易發出警示時，即屬虛假警示。這警示必須從系統中刪除，而且往往須以人手刪除。人工智能驅動的交易監控系統，可初步評估偽陽性警示，代替由職員評估。

在最近公布的一個個案中，[2] 某銀行與一家知名的人工智能驅動反洗錢合規科技方案供應商合作，目的是處理大量偽陽性警示的問題。

該銀行開發了一個反饋環機制，利用一年的警示數據和覆檢結果訓練機器學習模型。經過六個月的測試和初步結果評核，按用戶反饋調整了機器學習模型。日後機器學習模型提出警示時，會按照警示是真陽性的機率進行評分。這樣便可為警示排列優先次序，方便先處理最高風險的警示。

長遠的目的，是建立自動清理機制，自動剔除列為低風險的交易監控警示，毋需人工干預。

- an assessment of transaction characteristics, risk factors, parameters and thresholds, and alert prioritisation or discounting mechanisms;
- a review of changes in business operations, such as new products and services, and new and emerging money laundering or terrorist financing typologies; and
- an assessment of the outputs and outcomes from the TM system and process during the period since the prior review. This assessment should be conducted against defined key performance indicators (KPIs). The KPIs could include measures such as the number of alerts, the number of productive cases (after elimination of false positive outputs), and the conversion of productive cases to suspicious transaction reports (STRs).[3]

Senior management should oversee the development and implementation phases of the TM system while remaining involved in oversight activities thereafter. The management involved in the oversight of the TM system should include key stakeholders within the bank, such as AML, technology, operations, and business units. The bank should have an escalation process for senior management to promptly address significant issues.

Report handling: The outputs of the TM system should be linked and integrated with a robust alert review process. The report handling process should be designed to efficiently and effectively identify suspicious transactions for which STRs must be filed with the Joint Financial Intelligence Unit (JFIU). Those handling reports must be familiar with the design and operation of the TM system.

- 審視交易特徵、風險因素、參數及警報界線，以及排列優次和剔除警示的機制；
- 檢視業務運作的變化，例如新產品及服務，以及新類型的洗錢或恐怖份子融資活動；及
- 審視交易監控系統自上次定期檢視後的輸出結果，與既定的關鍵績效指標比較。關鍵績效指標可以是警示數量、有效個案（剔除偽陽性結果後）數量、有效個案轉化為可疑交易報告的數量等。[3]

管理高層應監察交易監控系統的開發和實施，並參與日後的監察工作。參與監察交易監控系統的管理層應包括銀行內的主要持份者，例如反洗錢、科技、營運、商業單位等。銀行應設上報機制，讓管理高層及時處理重大事件。

報告處理：交易監控系統輸出的結果，應配合嚴謹的警示審核過程。報告處理程序的設計，應能有效地識別需向聯合財富情報組呈報的可疑交易。處理報告的人員必須熟悉交易監控系統的設計和運作。

“管理高層應監察交易監控系統的開發和實施，並參與日後的監察工作。”

The importance of data

The success or failure of Regtech initiatives is largely determined by the maturity and quality of the available data. Significant time, effort, and support are required to source and prepare essential data.

Effective TM systems will capture critical data elements from the core banking and payment systems of the bank, and format those data fields consistently for analysis by the TM system. Common critical data elements include customer attributes, transaction details, and counterparty information.

Banks must test and review TM systems to assess data quality and lineage. The purpose of these data reconciliation exercises also includes identifying issues in completeness or errors in data extraction. Data assessment and review processes should be triggered when changes occur in the core banking and payment systems of the bank.

AI-empowered TM systems

The HKMA has adopted an encouraging stance to the adoption and deployment of AI-empowered TM systems. AI-empowered TM systems analyse a broad range of contextual information, and the active risk profile and past transaction patterns of customers. The additional data sources include:

數據的重要性

合規科技方案的成敗，很大程度上取決於所掌握數據的成熟程度和質量。必須投入大量時間和精力，得到大量支援，才可取得和準備必要的數據。

有效的交易監控系統，會在銀行的核心銀行及支付系統中採集關鍵數據，統一數據格式，以供交易監控系統分析。常用的關鍵數據包括客戶特徵、交易詳情、交易對手資料等。

銀行必須測試和檢視交易監控系統，以評估數據質量和數據血緣關係。這些數據協調工作的目的，還包括辨析檢查抽取的數據是否完整，過程中有沒有出錯。銀行的核心銀行及支付系統變更時，便應進行數據評估和檢視。

人工智能驅動交易監控系統

金管局一向鼓勵採納和使用人工智能驅動的交易監控系統。人工智能驅動的交易監控系統分析大量上下文訊息，以及客戶的風險狀況和過往交易模式。其他數據源包括：

- 有關客戶背景、交易及以往警示的內部數據；及

- internal data regarding the customer profile, transactions and previous alerts; and

- external data from affiliated banks, law enforcement agencies and other information-sharing or watch list platforms.

AI-empowered TM systems can identify new typologies and detect more complex networks of suspicious customers and activities. Also, the machine learning capabilities of an AI system can be trained to detect new and more complex typologies and risks comparatively faster than adjusting a rules-based RPA TM system.

These various advantages enable banks to target higher-risk cases and achieve a more efficient and effective allocation of resources. Accordingly, the HKMA has encouraged banks to undertake a feasibility study on their current TM systems and assess whether to integrate AI-empowered capabilities into them.

- 來自聯營銀行、執法機構和其他資訊共享或監察名單平台的外來數據。

人工智能驅動的交易監控系統可識別新類型的可疑客戶及活動，偵測到可疑客戶及活動的複雜網絡。同時，人工智能系統有機器學習能力，經訓練後，相較於修訂以規則為本的機器人流程自動化交易監控系統，能更快地偵測新型和更複雜的類型和風險。

這些優勢使銀行能更有效地集中資源處理高風險個案。因此，金管局鼓勵銀行就現有的交易監控系統進行可行性研究，評估可否把人工智能的能力整合其中。

Case study 2

In another published case study, the observations from the HKMA clearly indicated their policy of encouraging RPA systems to be enhanced by AI-empowered systems. RPA systems are the most common technology adopted by banks in Hong Kong for anti-money laundering purposes.

In the case study, the bank deployed RPA across its transaction monitoring processes, with a particular focus on data retrieval and routine analytic tasks. Previously, these processes involved many manual steps across a number of systems and were sufficiently simple and repetitive to result in clear, deterministic outcomes. The results were positive, and the teams at the bank were better able to handle periods of higher alert activity.

Still, the HKMA highlighted that the potential for automation extends beyond the use of RPA. The adoption of AI-empowered solutions for TM systems would enhance automation efforts that started with RPA, moving transaction monitoring closer to unattended automation.

個案二

在另一個已公布的案例中，金管局的意見清楚顯示該局鼓勵以人工智能驅動系統，增強機器人流程自動化系統。機器人流程自動化系統是香港銀行監察洗錢活動時最普遍使用的科技。

在案例中，銀行在交易監控過中使用機器人流程自動化系統，特別是處理數據檢索和常規分析工作。以往這些工作涉及許多人手處理的步驟，牽涉多個不同系統，透過簡單重複的動作，便可得出清楚明確的結果。系統的效果正面，銀行的團隊更能應付警示多發時期的工作。

然而，金管局特別指出，可自動化的進程，不只限於使用機器人流程自動化系統。機器人流程自動化系統實現了自動化的初步階段；交易監控系統採用人工智能驅動的方案，進一步推進這自動化過程，使交易監控工作更接近全自動化。

Best practice deployment standards

The HKMA has advocated for certain good practices that can support successful deployment of AI-empowered TM systems:

Planning: AI-empowered TM systems are more complex and require a high level of expertise. A careful, well-structured planning process will increase the chances of successful deployment and adoption.

Stakeholder engagement: Start discussions with stakeholders early and maintain close communication. End users must take an active role to ensure that requirements are clearly communicated. There should be alignment between the capabilities of the AI-empowered TM system, management expectations, and end-user needs.

Management change: Establish a proper governance framework and supporting risk management to help senior management remain accountable for outcomes and decisions made by advanced technologies.

Data governance and quality: Establish systems and frameworks for effective data governance and compile sufficient data to support the development and training of AI models.

Testing, validation and review: Perform rigorous validation and testing of models before deployment and as part of a process of periodic review.

Awareness of limitations: Maintain a healthy level of caution regarding over-reliance on AI for decision-making.

The HKMA issued guidance in 2019 in the form of high-level principles on the use of AI systems and applications by banks.[4] Banks must take these principles into account when designing and adopting AI applications. However, the principles are not intended to inhibit responsible innovation and development.

Legal considerations

Regtech adoption usually takes one of three forms:

- in-house development;
- off-the-shelf, third-party procurement; or
- co-development with third parties.

採用人工智能交易監控系統的最佳做法

金管局提倡了一些最佳做法，幫助金融機構成功採用人工智能驅動的交易監控系統：

策劃：人工智能驅動的交易監控系統較為複雜，需要掌握專門知識才能應用。經過有系統的策劃過程，可提高成功採納和應用的機會。

與持份者溝通：及早與持份者商討，並保持緊密溝通。最終用者必須主動參與，確保清晰傳達系統的要求。人工智能驅動交易監控系統的能力、管理層的期望和最終使用者的需要應保持一致，沒有落差。

改變管理方式：設立恰當的管治架構和風險管理安排，協助高層管理人員為先進科技所產生的結果和所作的決策負責。

數據管治與質量：建立制度與架構，以維持有效的數據管治，並收集足夠數據，協助開發和訓練人工智能模型。

測試、驗證與覆檢：在應用前和定期覆檢的過程中，模型須經過嚴謹驗證和測試。

知悉局限：維持適度警戒，避免過度倚賴人工智能從事決策。

2019年，金管局發出有關銀行應用人工智能的高層次原則，[4]作為指引，銀行在設計和採用人工智能的應用時必須考慮這些原則。然而，這些原則並不旨在窒礙相關科技負責任地創新與發展。

法律角度

合規科技的應用，通常有三種形式：

- 內部開發；
- 向第三方購買現成的產品；或
- 與第三方共同開發。

這些方法，與銀行以往挑選和採用現有系統的方法沒有分別。不過，採購交易監控系統這類合規科技方案時，有些特點值得注意。交易監控系統所涉的一些科技，可能超出銀行內部人員的專業範疇，以至難以作出適當評估。此外，交易監控系統市場支離破碎，有許多規模較小而又靈巧的供應商，擅長處理特定問題。越來

These options are no different from how banks have been selecting and adopting legacy systems. However, there are some notable features in the Regtech segment for TM systems. TM systems may involve technology that banks believe is beyond the expertise of in-house capabilities to evaluate properly. Also, the marketplace for TM systems has fragmented to include a number of nimble, smaller vendors that focus on specific issues. Banks are increasingly looking to third parties as vendors of TM systems, as well as to third-party consultants to evaluate and assess TM system requirements. Contract procurement, preparation and management are key.

Practical legal considerations

Due diligence: Many AI solutions are based on large language models (LLMs) developed by third parties. There are many unresolved legal issues and risks with respect to LLMs, chief among them being intellectual property rights. It may not be possible to effectively perform due diligence on the underlying LLMs. However, due diligence can be undertaken on how the vendor solution interacts with and operates alongside the underlying LLM, and the allocation of legal risk contained in the corresponding licence terms (including any open-source licence terms). Banks should understand how the vendor solution handles and processes data, especially data provided by the bank.

Development and integration: TM systems must account for specific scenarios arising from the bank's transaction patterns and activities. However, the vendor will not know the detailed requirements of the bank, nor will the bank understand the capabilities and limitations of the vendor solution until the testing and development phase is undertaken. This will require collaboration. Banks should ensure that the contract terms allow sufficient time for testing and development, and that acceptance does not occur until the key parameters and requirements of the bank have been fulfilled to its satisfaction.

> *"As with all risks, the role of the bank is to review and assess the risk environment, eliminate or transfer risk where possible, and manage and mitigate those that remain."*

越多銀行選擇向第三方購買交易監控系統，以及聘用第三方顧問評估交易監控系統的要求。物色供應商、擬備合約和合約管理的工作變得至關重要。

實際法律考慮因素

盡職審查：許多人工智能解決方案，都是以第三方開發的大語言模型為基礎。有關大語言模型，有許多尚未解決的法律問題和風險，主要是關於知識產權方面。對於基於大語言模型的人工智能方案，可能難以作有效的盡職審查。不過，銀行盡職審查可專注於審視供應商的方案如何與基礎大語言模型互動和共同運作，以及相應許可證條款（包括任何開源許可證條款）的法律風險如何分配。銀行應瞭解供應商的方案如何處理數據，特別是銀行提供的數據。

開發與整合：交易監控系統必須考慮銀行交易模式和活動所產生的特定情境。然而，在測試和開發階段前，供應商不會知道銀行的詳盡要求，銀行也不會明白供應商方案的能力和限制。這方面需要雙方合作。銀行須確保合約條款容許充足時間測試和開發，而且到主要參數

Service levels and contract management: AI models that underpin AI systems evolve as they train on new data. Performance will change over time. The contractual terms should allow for service or performance levels to be quantified according to parameters that are themselves reviewed. Those parameters may relate to availability, accuracy and consistency metrics. The assessment of parameters should be linked to the periodic review process that the bank's management should oversee in respect of the TM system.

Input/output rights: If the TM system functions by way of input queries that interrogate the system, the bank should ensure that it retains all rights to input data. Input data should only be used by the TM system for the bank, and not for third parties. The TM system should adopt a "no retention" policy for input data. This requirement needs to be balanced against accomplishing the goal of improving the TM system through machine learning. The position regarding ownership of outputs is more complex. At a minimum, banks should ensure that the vendor does not claim ownership of the outputs. Banks should also review the scope of usage rights for outputs to ensure they meet the commercial requirements of the bank, the bank's confidentiality obligations, and the permitted use by the vendor.

和銀行的要求得到符合，達到銀行滿意的程度後，交付的方案方可獲得銀行接受。

服務水平及合約管理：人工智能系統所依據的人工智能模型在接受新數據訓練後會繼續演化，性能也會不斷改進。合約條款應容許服務或表現水平按參數訂定，而參數本身也應不時檢視，如數據的可得性、準確度和一致性。參數的檢視，應與銀行管理層對交易監控系統所作的定期檢視相配合。

輸入／輸出權限：假如交易監控系統是由用家輸入問題而運作，銀行便須確保保留輸入數據的一切權利。所輸入的數據，交易監控系統只可用以為銀行服務，不可為第三方服務。交易監控系統應採取不保留輸入數據的政策，但同時要達到透過機器學習提升交易監控系統的目的。輸出結果的擁有權問題則較複雜。銀行最低限度應確保供應商不能聲稱擁有輸出的結果。銀行亦應檢視輸出結果的使用權範圍，確保符合銀行的商業要求、銀行的保密責任，以及供應商許可的用途。

知識產權：人工智能系統的知識產權歸屬一般並不明確。合約條款應清楚說明訓練數據（通常由人工智能供應商提供）、銀行提供的內部數據、以及外部數據的產權誰屬。假如採用供應商方案的客製化階段開發工作期間產生新的知識財產，相關知識產權必須予以釐清，並清楚記錄。同時，使用數據權利亦應清楚訂明。銀行使用交易監控系統所輸出的結果如侵犯知識產權，可以預期供應商會避免負上第三方責任。

法規保障： 銀行必須能基於交易監控系統得出的結果做決策，並能向監管機構顯示自己是負責任和合法地使用交易監控系統。合約應包含條款以管理幻覺、偏見及錯誤資訊等風險，並要求就交易監控系統的運作及決定保留紀錄，以維持透明度。銀行亦應尋求加入條文，容許重返交易監控系統的較早版本，以處理偏見相關的報告。

法律責任：銀行應確保供應商合約條款有適當的賠償條文，在第三方追討時保障銀行。人工智能驅動的系統一般而言有出錯風險，有可能引起法律責任。供應商往往會力圖加入限制或免除法律責任的條款，因此這是合約談判的重要領域。

IP rights: There is general uncertainty regarding how IP rights will apply to AI-empowered systems. The contract terms should contain a clear description of rights concerning training data (typically provided by the AI provider), internal data provided by the bank, and external data. If development work in the customisation phase of adopting the vendor solution involves the creation of new intellectual property, the rights to that intellectual property must be clarified and documented. Rights to usage data should also be clearly stated. Banks can expect that vendors will seek to avoid third-party liability for IP infringement arising from outputs by the bank using the TM system.

Regulatory protection: Banks must be capable of making decisions based on results from the TM system and demonstrate to regulators that its use of the TM system is responsible and lawful. The contracts should include clauses to manage the risk of hallucinations, bias and misinformation, and a requirement to record and log information about the operation and decisions of the TM system for transparency purposes. Banks should also seek to include a provision to revert to an earlier iteration of the TM system to address reported bias.

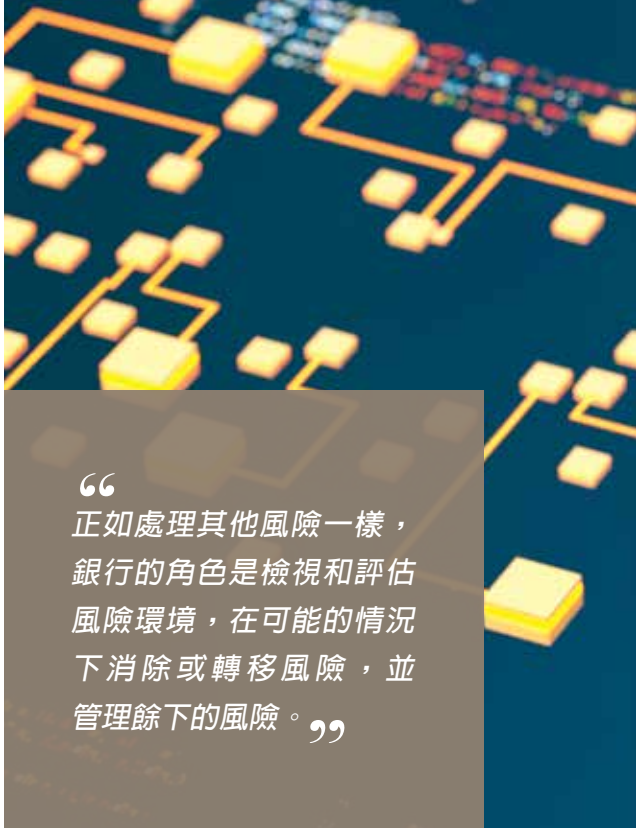
Liability: Banks should ensure that vendor contract terms contain appropriate indemnities to protect the banks against third-party claims. AI-empowered systems generally carry the risk of errors, and this has the potential to give rise to liability. Vendors will seek to include provisions that will exclude or limit liability for errors. Again, this is an area that is ripe for negotiation.

Termination: The laws in relation to AI are evolving and will continue to change in the coming years. Banks should seek a right to terminate if the TM system and its operation as intended will breach laws and regulations. Banks should also consider a termination right if the provider or its services bring the bank into disrepute.

Concluding thoughts

There are clear advantages to be gained from reducing false-positive reports and focusing manpower on high-priority cases. AI-empowered TM systems can lead to better, more accurate outcomes, even in the context of ever-increasing volume and complexity of transactions.

The adoption of AI-empowered TM systems entails a number of risks. These risks can be addressed by prudent selection of use cases, alignment among stakeholders, and careful management and governance of the TM system's design, testing, and deployment. Governance policies and procedures for AI-empowered systems within the bank will be essential.



> *"正如處理其他風險一樣，銀行的角色是檢視和評估風險環境，在可能的情況下消除或轉移風險，並管理餘下的風險。"*

終止合約: 有關人工智能的法律正在發展，未來數年間會繼續演變。銀行應爭取加入條款，在交易監控系統或其擬從事的運作違反法規時，力求銀行有權終止合約。銀行亦應考慮在供應商或其服務使銀行聲譽受損時有權終止合約。

結語

減少偽陽性報告，集中人力處理須優先處理的個案，有明顯的好處。即使面對交易量不斷增加和交易日趨複雜的情況，人工智能驅動的交易監控系統也可產生較好和較準確的結果。

採用人工智能驅動的交易監控系統，牽涉一些風險。透過謹慎選擇用例、協調持份者，以及妥善管理和治理交易監控系統的設計、測試和運作，便可處理這些風險。銀行為人工智能系統制定管治政策和程序，十分重要。

正如處理其他風險一樣，銀行的角色是檢視和評估風險環境，在可能的情況下消除或轉移風險，並管理餘下的風險。與人工智能驅動交易監控系統供應商的合作是重要的一環，而合約是銀行管理風險的重要部分，銀行須留意科技合約中針對人工智能風險的主要條款。

採用人工智能驅動的交易監控系統，有可能成為銀行業的新標準。交易監控系統有可能帶來開創性的機會，簡化盡職審查的過程，但須有健全而有系統的管治程序配合，以減少缺點，

As with all risks, the role of the bank is to review and assess the risk environment, eliminate or transfer risk where possible, and manage and mitigate those that remain. The bank will engage with vendors or providers of AI-empowered TM systems. Contracts will form an important part of the bank's risk management approach. Banks will need to be mindful of key provisions in technology contracts to address AI risks.

AI-empowered TM systems are likely to be adopted as the new banking industry standard. While TM systems present groundbreaking opportunities to streamline due diligence processes, they require support from robust and thoughtfully structured governance processes to mitigate drawbacks and ensure optimal use. They are a classic example of the risks and rewards of technology in financial services. BT

[1] Guidance Paper: Transaction Monitoring, Screening and Suspicious Transaction Reporting (HKMA, February 2023). See https://www.hkma.gov.hk/media/eng/doc/key-information/guidelines-and-circular/2023/20230209e1a2.pdf

[2] See AML/CFT Regtech: Case Studies and Insights Volume 2 (HKMA & Deloitte, September 2023) on https://www.hkma.gov.hk/media/eng/doc/key-functions/banking-stability/aml-cft/AMLCFT_Regtech-Case_Studies_and_Insights_Volume_2.pdf

[3] Examples taken from a case study highlighted in the thematic review of the HKMA published in Insights for Design, Implementation and Optimisation of Transaction Monitoring Systems (HKMA, April 2024). See https://www.hkma.gov.hk/media/eng/doc/key-information/guidelines-and-circular/2024/20240417e1a1.pdf

[4] See High-Level Principles on Artificial Intelligence (HKMA, 1 November 2019) on https://www.hkma.gov.hk/media/eng/doc/key-information/guidelines-and-circular/2019/20191101e1.pdf

確保使用得當。這是一個展現金融服務業運用科技所涉風險與回報的經典案例。BT

[1] 《交易篩查、交易監察及可疑交易舉報指引文件》(金管局，2023年2月)。參看 https://www.hkma.gov.hk/media/eng/doc/key-information/guidelines-and-circular/2023/20230209e1a2.pdf

[2] 見《反洗錢及恐怖份子融資活動合規科技：案例研究與見解》(第2冊)(金管局及Deloitte，2023年9月)。參看https://www.hkma.gov.hk/media/eng/doc/key-functions/banking-stability/aml-cft/AMLCFT_Regtech-Case_Studies_and_Insights_Volume_2.pdf

[3] 例子來自金管局專題審查當中的一個案例，載於《有關交易監察系統的設計、實施及優化的見解》(金管局，2024年4月)。參看https://www.hkma.gov.hk/media/eng/doc/key-information/guidelines-and-circular/2019/20191101e1.pdfhttps://www.hkma.gov.hk/media/eng/doc/key-information/guidelines-and-circular/2024/20240417e1a1.pdf

[4] 見《應用人工智能的高層次原則》(金管局，2019年11月1日)。參看 https://www.hkma.gov.hk/media/eng/doc/key-information/guidelines-and-circular/2019/20191101e1.pdf

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