

Unlocking ESG Data Transparency with Artificial Intelligence

以人工智能提升ESG數據透明度

Banks and financial institutions are in the frontline of internal and external environmental, social and governance (ESG) risk management. Artificial intelligence (AI) is an invaluable ally to help interpret the relevant data and information.

The pressure on corporations to live up to ESG principles has risen dramatically over the last decade. Employees, investors, regulators and suppliers scrutinise a business statements and actions for evidence of doing the right thing in a range of areas that include climate change, human rights and anti-corruption. When a corporation is also a bank or financial institution, that only ramps up the attention. Naturally, people will be concerned about a company's conduct.

However, managing ESG risk is not all one-sided for a bank or financial institution. It needs to answer two questions:

1. Internal – what are the ESG risks in its business or businesses?
2. External – what ESG risks do its clients represent?

Coming up with answers to these questions is made more difficult by the vast amount of data and information that organisations such as rating agencies, multilateral development banks, research houses and others produce about the entities that are living up to best practices for ESG risk management and how they are doing so.

在管理內部和外部的環境、社會及管治 (ESG) 風險，銀行和金融機構都走在前線。而人工智能是珍貴的盟友，有助分析相關數據和資訊。

過去十年，企業要奉行ESG原則的壓力大增。僱員、投資者、監管機構和供應商無不仔細審視企業的財務報表和實際行動，找尋證據，判別企業在應對氣候變化、人權和反貪污等方面是否做得正確。假如企業同時是銀行或金融機構，便更引人注意。人們把金錢及其他資產交託給某公司，對該公司的行為自然特別關注。

不過，對銀行或金融機構而言，管理ESG風險的工作並非完全單方面，須解答兩條問題：

1. 內部：機構業務有什麼ESG風險？
2. 外部：客戶帶來什麼ESG風險？

要回答這些問題越來越困難，原因是評級機構、多邊發展銀行、調查機構和其他機構產生大量數據和資訊，評價銀行或金融機構是否遵循ESG風險管理的最佳做法，以及它們管理ESG風險的表現。

Extracting the nuggets

Financial institutions are taking different approaches to the problem of dealing with this task. Some are hiring for specific in-house roles; others are adding ESG risk management to an existing individual or team's role while a third group is relying on external advisers to deal with the issues. But whatever way they choose, they are likely to find that traditional ways of evaluating a company such as examining financial records, tracking stock markets or poring over analysts' reports and regulatory announcements to help them uncover ESG risk will not give them the understanding they require. Too much information, the majority of which may be unstructured, is coming at them from many more sources than before, such as websites, social media and electronic communication of various kinds.

This is why the use of AI, encompassing a range of tools such as natural language processing— one use of which, to use the jargon, is sentiment analysis¹ – deep learning neural networks that mimic the operations of the human brain, and sophisticated predictive analytics², has become critical for banks and financial institutions. Whereas humans might take days or even weeks to sift through all relevant information, AI tools can do so much quicker and with far less effort. Furthermore, AI can learn from the experience of trawling through this information and improve its efficacy over time. These approaches can help banks and financial institutions deduce where the ESG risk resides within their own business and then carry out tasks like customer onboarding that involve assessing the potential harm of doing business with an entity or individual they may not know much about.

抽取數據精華

金融機構以不同的方法從事這項工作。有的聘請新僱員專門負責，有的交由現有僱員或團隊兼顧，有的委聘外間顧問處理。但無論使用何種方式，他們都可能發現，審視財務紀錄、追蹤股市表現、研究分析員報告和監管機構的公布以識別ESG風險等評價企業的傳統方法，都不能讓他們完全掌握情況。與從前相比，來自互聯網、社交媒體和各種電子通訊途徑等各方面的資訊太多，而且大都沒有條理，欠缺系統。

因此，人工智能對銀行和金融機構來說十分重要。人工智能包括多種不同工具，例如自然語言處理（模仿人腦運作的深度學習神經網絡，其中一種應用是情感分析^[1]）和精細的預測分析^[2]等。人類可能需時數天甚至數星期才可閱畢所有相關數據，從中篩選有用資料；人工智能工具則可快速輕易地完成這項工作。此外，人工智能可以從篩選數據的經驗中學習，逐漸提高成效。這些做法有助銀行和金融機構得知業務中的ESG風險所在，幫助他們評估與不熟悉的機構或個人從事業務可能構成的損害，以便處理接收新客戶等工作。

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“金融科技公司、對沖基金和銀行交易部門的量化團隊使用的科技，要以準確透明的銀行數據為基礎。”

Fintech to the rescue

Technologies, often the domain of Fintech companies, hedge funds and the quant teams on bank's trading floors, rely upon accurate and transparent bank data. With the power of AI doubling about every three and a half months,³ its ability to extract important detail that conventional technologies, or indeed human beings alone miss, is essential for any organisation faced with making decisions based on the interpretation of data and information.

人工智能大幫忙

金融科技公司、對沖基金和銀行交易部門的量化團隊使用的科技，要以準確透明的銀行數據為基礎。人工智能的力量，每三個半月便增加一倍^[3]，可以識別傳統科技或單靠人手處理所忽略的重要細節。對於有賴數據和資訊分析作決定的機構來說，人工智能實屬不可或缺。

¹ <https://www.spglobal.com/en/research-insights/articles/how-can-ai-help-esginvesting>

² <https://www.ibanet.org/fintech-and-esg-crossover>

³ <https://www.computerweekly.com/news/252475371/Stanford-University-findsthat-AI-is-outpacing-Moores-Law>

The Fintech industry has many examples of companies that have developed technologies for the three recognised elements of ESG data and information:⁴

- **Rating** – firms that rate companies based on ESG criteria.
- **Reporting** – platforms that enable companies to measure and report their ESG performance.
- **Data platforms** – collecting data based on various ESG parameters for companies and funds, even if some pioneering blockchain-based Fintech companies have questions to answer about the decidedly non-ESG carbon footprint they leave behind.

AI's ability to look through mountains of facts and figures and uncover genuine value or identify potential harm in onboarding a new customer underscores its advantages over more traditional research methods. An investor with ESG policy objectives finds it difficult to determine accurately if a company they are looking to invest in operates consistently with the investor's values and principles. When assessing a listed company, they need to get to the underlying information about a stock to do that; after a financial institution has used the speed, depth and breadth of AI to highlight possible onboarding risks, it can then decide to avoid the issue and refuse to onboard a prospective new customer, or they can view onboarding as a long-term opportunity to influence the agenda of prospective clients on ESG issues. That applies whether the bank or financial institution is based in Hong Kong, Singapore, London or New York.

不少金融科技公司開發了新技術，處理與ESG數據和資訊相關的三方面工作：^[4]

- **評級**：按ESG標準為企業評級的機構
- **報告**：協助企業評核和報告ESG表現的平台
- **數據平台**：為企業和基金按各種ESG參數收集數據；即使以區塊鏈為基礎的先進金融科技公司，也會留下非ESG的碳足印，須給予解釋

人工智能可處理大量事實和數據，從中發現接收某名新客戶的好處或可能帶來的傷害，突顯它比傳統研究方法優勝之處。有ESG政策目標的投資者，很難準確決定擬投資的公司是否符合自己的價值觀和原則。要評核上市公司，便要找到股份背後的資訊；金融機構運用人工智能的速度、深度和廣度找到與某公司建立關係的風險後，便可決定避開某公司，拒絕接納為新客戶，又或視之為長遠發展的機會，在ESG議題上影響該客戶。不論銀行或金融機構身處香港、新加坡、倫敦或紐約，情況都相同。

The world's biggest investor and ESG

Asset managers devote a considerable amount of time and resources to understanding the ESG risks involved in having individuals or organisations as clients or investing in the stock market. Norges Bank Investment Management (NBIM) is better known as Norway's sovereign wealth fund. As the world's biggest investor, owning shares in 9,000 companies and 1.5% of stocks globally, it takes an active role in finding out all it can about the companies it invests in.

“Our motivation for responsible investment is to achieve the highest possible return with moderate risk. Companies' activities have a considerable impact on society and the environment around them. Over time, this could affect their profitability and so the fund's return. We therefore consider both governance and sustainability issues, and publish clear expectations of companies in the portfolio.”

In its responsible investment report for 2021, published in March 2022, NBIM said it had “developed better methods for identifying companies with high risk relating to the environment, social conditions, and corporate governance.”^[5] It is unlikely that these better methods did not involve some form of AI.

NBIM assesses ESG risks as part of its investment management process and manages them according to its principles for responsible investment management. It expects the companies it invests in to address global challenges in their corporate governance under eight separate headings that “largely coincide”: children's rights, climate change, water management, human rights, tax and transparency, anti-corruption, ocean sustainability, biodiversity and ecosystems. It also publishes its criteria for excluding companies from its portfolio.

⁴ <https://gomedici.com/research-categories/esg-meets-fintech-a-strategicanalysis>, Slide 9

全球最大投資者與ESG

資產管理人花費不少時間和資源瞭解接收個人或機構為客戶，或股票投資的ESG風險。挪威央行投資管理公司(NBIM)是挪威的主權財富基金，是世界最大的投資者，持有9,000家公司的股份，佔全球股票的1.5%。該公司積極瞭解所投資公司的背景。

「我們力求成為負責任的投資者，承擔中度風險，賺取最大回報。公司的活動對社會和周遭環境有相當影響，久而久之會影響盈利能力，左右基金回報。因此，我們同時考慮管治和可持續發展事宜，對投資組合內的公司有清晰期望，並予以公布。」

在2022年3月發表的2021年責任投資報告內，NBIM表示已「建立更佳方法，找出在環境、社會和企業管治方面屬高風險的公司。」⁵ 這些更佳方法，不可能不涉及某種形式的人工智能。

NBIM在投資管理過程中評核ESG風險，按其負責任的投資管理原則管理。它期望所投資的公司應對企業管治的全球挑戰，包括以下互有關連的八個方面：兒童權利、氣候變化、水資源管理、人權、稅務與透明度、反貪污、海洋可持續性、生物多樣性及生態系統。NBIM也公布了不把公司納入其投資組合的標準。

AI comes into its own in situations where different agencies have rated a company's ESG risk and the financial institution has to choose the most appropriate one for its objectives. It may decide not to go with the same agency's rating for each of those objectives because there could be something it does not like about its methodology, or it may be inappropriate for the industry sector. AI does cross-analysis well because it can consider the external factors. It can also take into account the relative success over time of different ratings with regard to the objectives.

Robust reporting and reporters

As investors, regulators and the public take ESG more and more seriously, banks and financial institutions need more comprehensive, rigorous and independent reporting to identify and interpret ESG risk for themselves and their clients. AI is a powerful tool to help them do this given the many different sources of data and information that now exist because of its power to impose transparency on ESG ratings, rankings and indices, and to tell the story behind the underlying data, rather than the story of the rating itself.

假如不同機構均有為某公司的ESG風險評級，金融機構有需要選擇最能符合其目標的評級時，人工智能便很有用。金融機構可以決定就不同目標採納不同評級機構的評級，原因可能包括不認同其評級方法，又或該評級對該行業來說並不適合。人工智能可兼顧外在因素，因此善於進行交叉分析。人工智能又可同時考慮歷來就相關目標採納不同評級的效果。

健全的報告機制和報告者

投資者、監管機構和公眾人士日益關注ESG，銀行和金融機構需要有全面、深入而獨立的報告，以協助自己和客戶掌握和分析ESG風險。目前數據和資訊來源眾多，人工智能可使ESG評級和指數透明化，不僅分析評級本身，更能分析評級背後的基礎數據，因此是很有用的工具。

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⁵ <https://www.nbim.no/en/the-fund/news-list/2022/high-activity-in-ourownership-work/>

To address any shortage in talent and skills for new ESG risk management roles, including how to use AI effectively, banks and financial institutions could partner with, or hire more from, technology companies, fintech start-ups and other organisations. For example, to understand the environmental risks of ESG, they could embrace a much broader range of participants in the market such as oil companies, environmental agencies, non-governmental organisations, meteorologists and geographers. Generally, however, this is not something that banks are set up to do. Understanding the real drivers of ESG risk is not the natural territory of a bank or financial institution. Leaning on the expertise of specialists can change that landscape.

為應對ESG風險管理人才短缺和技能欠缺的問題，包括如何有效利用人工智能等，銀行和金融機構應與科技公司、金融科技初創企業和其他機構合作，或多聘用這些機構的人員。例如為瞭解ESG的環境風險，它們可接觸更廣泛的市場參與者，包括石油公司、環保機構、非政府組織、氣象學家、地理學家等。不過，銀行一般不是為此而設，瞭解ESG風險的真正驅動因素並非銀行或金融機構通常的工作範圍。求教於專家，可以改變這種情況。

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