How generative AI is redrawing cybersecurity battle lines

Published 25 March 2024

Mobeen Tahir
Director, Macroeconomics and Thematic Research

Key Takeaways

- Generative AI gives attackers new powers and lowers the bar to become a malicious actor
- Generative AI can and must also be employed to strengthen cyber defences
- The need for cybersecurity is greater than ever before and this continues to create investment opportunities

In 2024, the people in 55 countries – who represent 42% of the global population – will vote to elect their leaders, including high-profile elections for the US Presidency and the European Union Parliament[1]. In addition to attracting billions to cast their ballot, these events are likely to lure malicious actors. With generative artificial intelligence (AI) tools at their disposal, they seek to directly sabotage the electoral process by hacking systems or to sway public opinion using misinformation or deepfakes – their capabilities are greater than ever before.

How is generative AI transforming the cybersecurity battlefield and what might this mean for investors as they postulate what lies ahead for this investment theme?

How investors can access the opportunity

WisdomTree Artificial Intelligence UCITS ETF has been built in partnership with NASDAQ and the Consumer Technology Association (CTA) with the aim of embedding AI industry expertise into an investment solution. CTA's input into the stock selection process facilitates the curation of a pure AI exposure that is differentiated and evolves along with the underlying technologies. Moreover, diversification across the AI value chain helps avoid the pitfalls of the hype cycle, something that is inevitable in a rapidly emerging theme. The ETF provides a direct way to capture the most exciting trends, technologies, and companies that stand to benefit from the explosion of interest in generative AI.

WisdomTree Cybersecurity UCITS ETF has been built in partnership with cybersecurity industry experts Team8 and invests across eight different cybersecurity themes. The ETF provides investors with a pure exposure to the theme by only including companies that derive at least 50% of their revenue from cybersecurity activities.

How generative AI can help attackers

Historically, basic cybersecurity training had been sufficient in enabling people to identify and defend against phishing attacks. Poor grammar, suspicious domains and questionable links were generally easy to spot. However, generative AI tools, like WormGPT[2], that are trained on malware-related data and developed specifically for criminal activity can not only eliminate the easy-to-spot giveaways in phishing emails, but they also lower the bar for becoming a malicious actor.

Generative AI can also help polymorphic malware code, a type of program that learns and evolves to automatically become smarter after a failed attempt. This means that if the target does not update its security software, the malware code will come back stronger and exploit any vulnerability in the system[3].

Generative AI is also improving the quality of deepfakes. According to the World Economic Forum, between 9 December 2023 and 8 January 2024, 100+ deepfake video advertisements of British Prime Minister Rishi Sunak on Meta were identified, many of which elicited emotional responses, using language such as “people are outraged”[4].

Generative AI can also be used for identity theft. If a victim is indeed deceived and discloses their sensitive personal information, then documents like passports and driving licences can be forged.

How generative AI can help defenders

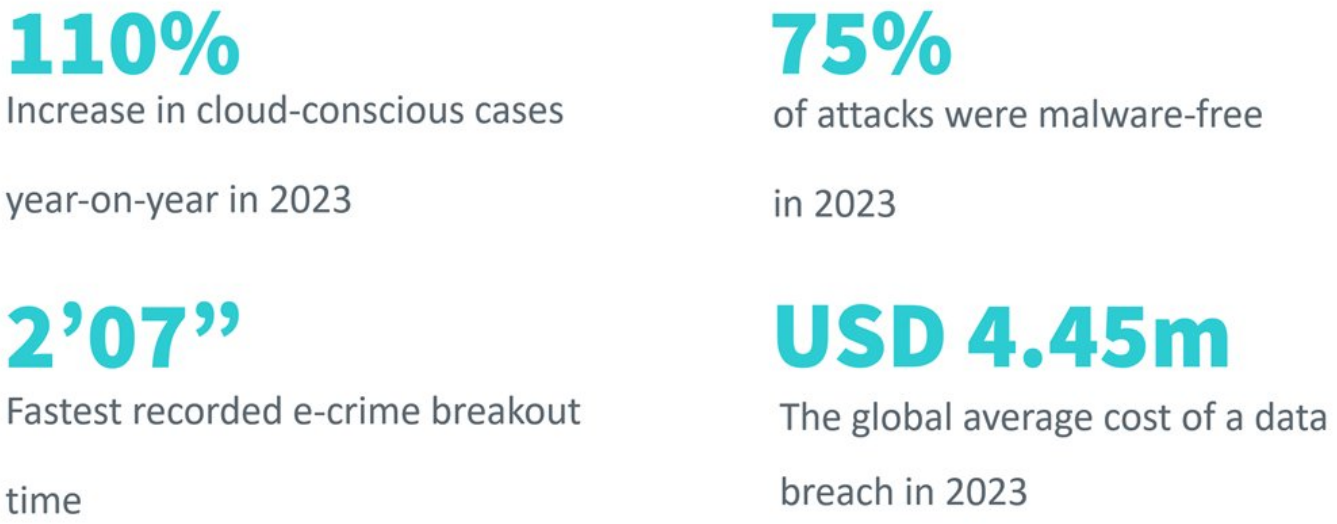
It is imperative that generative AI is also employed to defend against increasingly sophisticated attacks. For example, generative AI can help develop more advanced training modules to empower users to better guard themselves against high-quality phishing attacks.

Generative AI can also be used to analyse large quantities of data to identify patterns, trends, and anomalies that may indicate vulnerabilities in the system. It can also help cybersecurity teams plug the gaps before a polymorphic malware code makes a return.

Also, generative AI can be used to automate repetitive processes, streamlining tasks that are not only tedious but also prone to human error, like incident response, threat hunting, and malware analysis.

Cybersecurity is more important than ever

The figures below provide an alarming reminder that the importance of cybersecurity cannot be overstated.



Sources: CrowdStrike, '2024 Global Threat Report', IBM, Cost of a Data Breach Report 2023

Most people who own a smartphone or a laptop typically use dozens of cloud-based software applications. Criminals are recognising this broader attack surface and are increasingly attacking their victims via the cloud. There has also been an alarming increase in sophisticated malware-free attacks: 75% in 2023, up from 40% in 2019[5]. This suggests that attackers are moving to faster and more effective means of infiltrating their target organisations, using means like social engineering rather than always counting on planting malware in their victim's system. This is an important reminder about how cybersecurity training must not only teach users to defend against phishing attacks but also remain guarded against physical deception.

The e-crime breakout time is how long it takes an attacker to move laterally within an organisation. This means gaining access to other users after initially compromising the first victim. The average e-crime breakout time fell from 84 minutes in 2022 to 62 minutes in 2023, with the fastest recorded time of just over 2 minutes[6]. And finally, the average cost of data breaches in 2023 to organisations was USD4.45m. This means that attackers are becoming faster, employing a wide range of tools, and causing serious harm to their victims.

Fortunately, organisations are waking up to this reality. According to IBM, 84% of executives plan to prioritise generative AI cybersecurity solutions over conventional cybersecurity solutions in 2024[7].

What it means for investors

Cybersecurity was among the top-performing themes in 2023. The WisdomTree Team8 Cybersecurity UCITS Index returned 66.5% in 2023 and even beat the NASDAQ CTA Artificial Intelligence Index which returned 55.9%[8]. It is, of course, impossible to predict if we will see similar numbers again in 2024. But if the market performance for thematic strategies is a function of strong positive currents in the underlying technologies combined with a broader appreciation of those trends, there is certainly plenty to remain excited about generative AI and its impact on cybersecurity.

Sources

[1] Crowdstrike '2024 Global Threat Report'

[2] https://slashnext.com/blog/wormgpt-the-generative-ai-tool-cybercriminals-are-using-to-launch-business-email-compromise-attacks/

[3] https://www.sangfor.com/blog/cybersecurity/what-is-generative-ai-cybersecurity

[4] https://www.weforum.org/agenda/2024/02/4-ways-to-future-proof-against-deepfakes-in-2024-and-beyond/

[5] Crowdstrike '2024 Global Threat Report'

[6] Crowdstrike '2024 Global Threat Report'

[7] https://www.ibm.com/thought-leadership/institute-business-value/en-us/report/ceo-generative-ai/cybersecurity

[8] Source: Bloomberg, based on net total return indices.

Important Risks Related to this Article

IMPORTANT INFORMATION

Marketing communications issued in the European Economic Area ("EEA"): This document has been issued and approved by WisdomTree Ireland Limited, which is authorised and regulated by the Central Bank of Ireland.

Marketing communications issued in jurisdictions outside of the EEA: This document has been issued and approved by WisdomTree UK Limited, which is authorised and regulated by the United Kingdom Financial Conduct Authority.

WisdomTree Ireland Limited and WisdomTree UK Limited are each referred to as "WisdomTree" (as applicable). Our Conflicts of Interest Policy and Inventory are available on request.

For professional clients only. Past performance is not a reliable indicator of future performance. Any historical performance included in this document may be based on back testing. Back testing is the process of evaluating an investment strategy by applying it to historical data to simulate what the performance of such strategy would have been. Back tested performance is purely hypothetical and is provided in this document solely for informational purposes. Back tested data does not represent actual performance and should not be interpreted as an indication of actual or future performance. The value of any investment may be affected by exchange rate movements. Any decision to invest should be based on the information contained in the appropriate prospectus and affer seeking independent investment, tax and legal advice. These products may not be available in your market or suitable for you. The content of this document does not constitute investment advice nor an offer for sale nor a solicitation of an offer to buy any product or make any investment.

An investment in exchange-traded products ("ETPs") is dependent on the performance of the underlying index, less costs, but it is not expected to match that performance precisely. ETPs involve numerous risks including among others, general market risks relating to the relevant underlying index, credit risks on the provider of index swaps utilised in the ETP, exchange rate risks, interest rate risks, inflationary risks, liquidity risks and legal and regulatory risks.

The information contained in this document is not, and under no circumstances is to be construed as, an advertisement or any other step in furtherance of a public offering of shares in the United States or any province or territory thereof, where none of the issuers or their products are authorised or registered for distribution and where no prospectus of any of the issuers has been filed with any securities commission or regulatory authority. No document or information in this document should be taken, transmitted or distributed (directly or indirectly) into the United States. None of the issuers, nor any securities issued by them, have been or will be registered under the United States Securities Act of 1933 or the Investment Company Act of 1940 or qualified under any applicable state securities statutes.

This document may contain independent market commentary prepared by WisdomTree based on publicly available information. Although WisdomTree endeavours to ensure the accuracy of the content in this

document, WisdomTree does not warrant or guarantee its accuracy or correctness. Any third party data providers used to source the information in this document make no warranties or representation of any kind relating to such data. Where WisdomTree has expressed its own opinions related to product or market activity, these views may change. Neither WisdomTree, nor any affiliate, nor any of their respective officers, directors, partners, or employees accepts any liability whatsoever for any direct or consequential loss arising from any use of this document or its contents.

This document may contain forward looking statements including statements regarding our belief or current expectations with regards to the performance of certain assets classes and/or sectors. Forward looking statements are subject to certain risks, uncertainties and assumptions. There can be no assurance that such statements will be accurate and actual results could differ materially from those anticipated in such statements. WisdomTree strongly recommends that you do not place undue reliance on these forward-looking statements.

WisdomTree Issuer ICAV

The products discussed in this document are issued by WisdomTree Issuer ICAV (“WT Issuer”). WT Issuer is an umbrella investment company with variable capital having segregated liability between its funds organised under the laws of Ireland as an Irish Collective Asset-management Vehicle and authorised by the Central Bank of Ireland (“CBI”). WT Issuer is organised as

an Undertaking for Collective Investment in Transferable Securities (“UCITS”) under the laws of Ireland and shall issue a separate class of shares (''Shares”) representing each fund. Investors should read the prospectus of WT Issuer (“WT Prospectus”) before investing and should refer to the section of the WT Prospectus entitled 'Risk Factors' for further details of risks associated with an investment in the Shares.

WisdomTree Artificial Intelligence UCITS ETF

Nasdaq® and the Nasdaq CTA Artificial intelligence Index are registered trademarks of Nasdaq, Inc. (which with its affiliates is referred to as the “Corporations”) and are licensed for use by WisdomTree Management Limited. The WisdomTree Artificial Intelligence UCITS ETF (the “Fund”) has not been passed on by the Corporations as to its legality or suitability. Shares in the Fund are not issued, endorsed, sold, or promoted by the Corporations. THE CORPORATIONS MAKE NO WARRANTIES AND BEAR NO LIABILITY WITH RESPECT TO THE FUND.

Notice to Investors in Switzerland – Qualified Investors

This document constitutes an advertisement of the financial product(s) mentioned herein.

The prospectus and the key investor information documents (KIID) are available from WisdomTree's website: **https:** //www.wisdomtree.eu/en-ch/resource-library/prospectus-and-regulatory-reports

Some of the sub-funds referred to in this document may not have been registered with the Swiss Financial Market Supervisory Authority (“FINMA”). In Switzerland, such sub-funds that have not been registered with FINMA shall be distributed exclusively to qualified investors, as defined in the Swiss Federal Act

on Collective Investment Schemes or its implementing ordinance (each, as amended from time to time). The representative and paying agent of the sub-funds in Switzerland is Société Générale Paris, Zurich Branch, Talacker 50, PO Box 5070, 8021 Zurich, Switzerland. The prospectus, the key investor information documents (KIID), the articles of association and the annual and semi-annual reports of the sub-funds are available free of charge from the representative and paying agent. As regards distribution in Switzerland, the place of jurisdiction and performance is at the registered seat of the representative and paying agent.

For Investors in France

The information in this document is intended exclusively for professional investors (as defined under the MiFID) investing for their own account and this material may not in any way be distributed to the public. The distribution of the Prospectus and the offering, sale and delivery of Shares in other jurisdictions may be restricted by law. WT Issuer is a UCITS governed by Irish legislation, and approved by the Financial Regulatory as UCITS compliant with European regulations although may not have to

comply with the same rules as those applicable to a similar product approved in France. The Fund has been registered for marketing in France by the Financial Markets Authority (Autorité des Marchés Financiers) and may be distributed to investors in France. Copies of all documents (i.e. the Prospectus, the Key Investor Information Document, any supplements or addenda thereto, the latest annual reports and the memorandum of incorporation and articles of association) are available in France, free of charge at the French centralizing agent, Societe Generale at 29, Boulevard Haussmann, 75009, Paris, France. Any subscription for Shares of the Fund will be made on the basis of the terms of the prospectus and any supplements or addenda thereto.

For Investors in Malta

This document does not constitute or form part of any offer or invitation to the public to subscribe for or purchase shares in the Fund and shall not be construed as such and no person other than the person to whom this document has been addressed or delivered shall be eligible to subscribe for or purchase shares in the Fund. Shares in the Fund will not in any event be marketed to the public in Malta without the prior authorisation of the Maltese Financial Services Authority.

For Investors in Monaco

This communication is only intended for duly registered banks and/or licensed portfolio management companies in Monaco. This communication must not be sent to the public in Monaco.