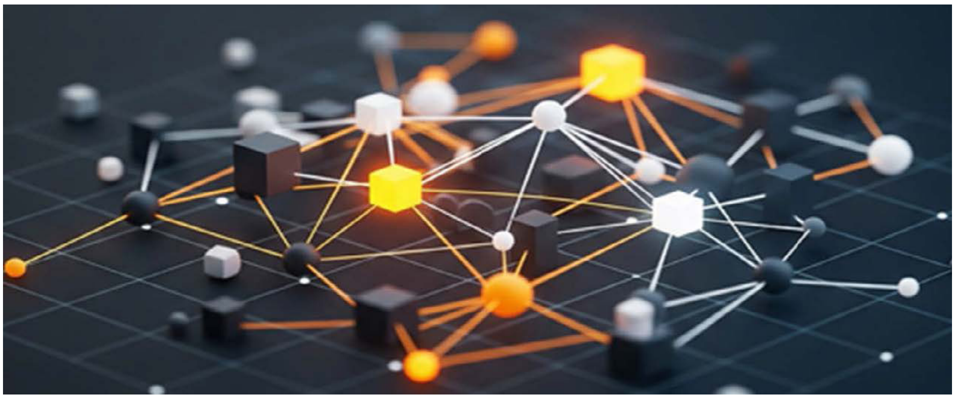
Project Results

ATTENTION!

An AI approach to anti-money laundering

To reduce illicit trade, the ITEA project ATTENTION! (ArTificial inTelligENce for the deTectIon of trade-based mOney lauNdering!) has performed research on and developed a platform to use artificial intelligence (AI) to detect the risk of money laundering across company networks.



Illicit trade fuels crime and economic loss, creating a USD 8.7 trillion trade gap with minimal detection. Only 2% of criminal profits are recovered; the rest remains hidden in global trade and finance. This deprives states of taxes, violates rights, endangers safety and funds crime on a massive scale. However, few tools exist to detect large-scale illicit trade, so efforts rely on tips and random checks while lacking a scientific understanding of patterns and networks.

As crime becomes increasingly digital and cross-border, so too must solutions to prevent it. This is what ATTENTION! set out to achieve by developing an AI-powered system to detect illicit trade. This involved analysing the largest global trade database of imports and exports, combined with extensive web content and metadata, and creating a one-click method for companies and authorities to detect illicit trade in order to take action against its agents. As the use of AI to detect money laundering is still in its early stages, the project partially applied existing methodologies to different settings (such as its own datasets) and also developed new methods to outperform state-of-the-art approaches. In the process, ATTENTION! created a data protection concept that focuses on publicly available company and trade data, thereby safeguarding the lawfulness of its data processing and adherence to the General Data Protection Regulation (GDPR).

Technology applied

Typologies refer to the range of techniques used to launder money, such as smuggling goods inside of hollow objects or declaring them as other goods. When detecting typologies, humans use their experience and knowledge to manually identify red flags. From a technical perspective, ATTENTION!'s goal was to replicate this process with AI. To do so, the project first enabled the integration of multiple data sources – amounting to several terabytes of data – into one unified company and trade knowledge graph. This included the development and application of a web crawler to collect relevant company data on the web. AI models were then developed to detect suspicious patterns via node classification in such knowledge graphs.

A key benefit of the ATTENTION! platform is its integration of 17 sources, including several large-scale commercial datasets, through entity resolution techniques, allowing it to identify, for example, whether different spellings, pieces of information or file formats actually correspond to a single entity and to detect if this data matches any suspicious money laundering typology. These entities are annotated with an AI-based scoring mechanism and are further analysed using the project's typology library – one of the largest collections of typologies in one place. As a result, users can enter the name of a company or individual into the platform and receive an immediate, automated depiction of the entire network around them, including alerts on which parts of the network could potentially be used for money laundering.

Making the difference

Most importantly, ATTENTION! has demonstrated that AI can be used to detect money laundering, thereby automating human expertise. In addition to greater efficiency, this reduces the burden of training and allows those with a wider range of backgrounds to perform due diligence. At the same time, the project's models outperformed state-of-the-art graph-based AI models by 5% for node classification in trade graphs while maintaining explainability and accountability – both of which are highly important in compliance and law enforcement and therefore increase the chances of uptake. ATTENTION!'s results also extend beyond the technical state-of-the-art: a vastly expanded knowledge pool has now been made easily accessible for decision-making.

From a commercial perspective, the platform targets all those affected by affected by money laundering, smuggling and counterfeiting, ranging from lawyers and accountants investigating financial misconduct to companies requiring brand protection when assessing who to work with, as well as cybersecurity firms, financial services compliance, and mergers and acquisitions. ATTENTION! partners Hase & Igel and RisikoTek have already won industry clients for commercial pilots using the project's methodology, while the consortium has also arranged the first meetings with large law firms that are interested in the platform's investigative applications. Efforts to raise awareness of the results among decision-makers are being assisted by the release of 19 peer-reviewed scientific publications and plans for follow-up projects targeting knowledge graphs and spatio-temporal patterns.

Future outlook

With the results of ATTENTION!, the consortium envisions the establishment of a new industry practice that will reduce the number of unreported cases and increase the number of solved cases with the same use of resources. Having established the viability of this approach, the next step is to form coalitions for its further development and commercialisation. This will involve the creation of new models for typologies not included in the project, as well as research into ways to quickly develop AI models and make them publicly available when new criminal methods or loopholes emerge. Over time, ATTENTION! can thus provide a much higher chance of freezing or repossessing misappropriated funds than is currently possible.

Major project outcomes

Dissemination

- 19 peer-reviewed scientific publications with ATTENTION! acknowledgement, 10+ presentations at conferences, 2 awards, 4 master theses on ATTENTION! topics, 3 PhD thesis finished, discussion about the possibilities to form an industry consortium to turn the ATTENTION prototype into a market-ready solution.

Exploitation (so far)

- RisikoTek: Focuses on marketing project results to industrial manufacturers, law firms, security firms, cybersecurity firms, anti-scam centers, financial firms, merger acquisition, and consultancy firms to combat illicit trade.
- Hase & Igel: Integrates ATTENTION! learnings into NEUTRUM.AI SaaS-solutions, selling to clients in manufacturing, wholesale, banking, insurance, and trades through direct sales and partner networks.
- Schaeffler: Utilises developed solutions in-house for brand protection and sales monitoring as a manufacturer in the consortium.
- Know-how transfer (Web Crawler & the scoring logic) to HASE & IGEL's NEUTRUM platform resulted in winning new industry clients for use cases in export control, compliance, sales partner management and M&A (e.g. EBM Papst, Vodafone, Callista PE)
- Investigative journalists (e.g. ABC, Handelsblatt Media Group, Business Insider) analysing businesses and trade networks have, through ATTENTION!, discovered the possibilities with RisikoTek's and HASE & IGEL's approach and started to incorporate AI-supported, automated Big Data Analytics into their workflows.

Standardisation

The project follows the global standards and seeks compliance:

- AI Act of the EU
- ISO/IEC 27001 (information security)
- GDPR & EU AI Act (data privacy)
- OFAC & FATF (combat vs. money laundering)

ATTENTION!

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Partners

Germany

- Gottfried Wilhelm Leibniz Universität Hannover
- HASE & IGEL GmbH
- Rheinische Friedrich-Wilhelms-Universität Bonn
- Schaeffler Technologies & Co. KG., Germany

Singapore

- RisikoTek Pte Ltd

Project start

January 2022

Project end

June 2025

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Project website

https://itea4.org/project/attention.html

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