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How banks can use machine learning to discount adverse media for faster AML screening

After the enactment of the Patriot Act in the United States and the establishment of the Financial Action Task Force on Money Laundering, anti-money laundering (AML) guidelines came into prominence globally. By 2010, many jurisdictions globally required financial institutions to report any suspicious transactions to their respective financial intelligence unit.[1] Estimates suggest that tier one banks are spending well more than $1 billion a year on compliance-related costs, or some $270 billion a year for the industry as a whole.[2]

The risk and compliance teams of financial institutions (including banks) constantly monitor their customers' information and monetary transactions for suspicious activities, and take necessary actions to avoid legal repercussions, penalties and to protect the firm's reputation. As part of enhanced due diligence (EDD), adverse media, sanction and politically exposed person (PEP) screening are performed.

Adverse media screening is an important part of the due diligence process as it can reveal involvement of the entity (person/individual) in activities such as money-laundering, terrorist funding, organized crimes, etc. It is usually done during onboarding, periodic review and remediation. It is crucial that the screening process, along with KYC and other regulatory checks, is completed on time with proper evidences and audit reports. The adverse media screening process, which is manual, becomes inefficient due to the large amount of negative news articles involved that take very long to analyse, validate and conclude.

This paper explains the need for discounting (i.e., bringing down the number of) adverse media or negative news articles to be screened and introduces the framework name screening discounting (NSD), which helps in discounting the irrelevant articles.

What ails the adverse media screening process?

The current process of adverse media screening of an entity (See Figure 1), in general, has the following steps:

- Collecting adverse media articles from various sources
- Reading of articles manually
- Identifying if there is any mention of illegal activities done by the entity
- Preparing audit reports

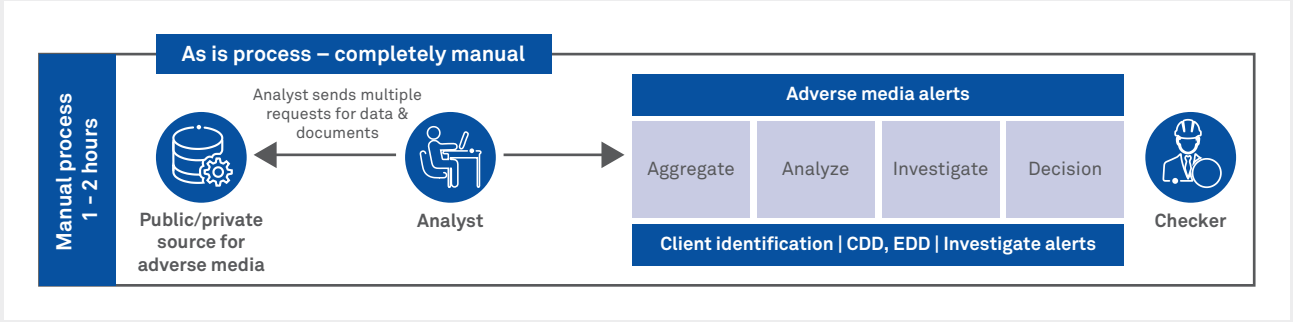

Figure 1: Current adverse media screening process

Reading all articles is time-consuming: not all of them may be related to the actual entity. Also, most of the AML compliance costs are on recruiting, training and retaining AML staff, thereby constituting 10% or more of banks' operating costs[3]. Hence, there is a need to make the process to ensure AML compliance more efficient and effective.

A framework to make adverse media screening more efficient

Name screening discounting is a framework that has an automated comprehensive approach using natural language processing (NLP) and machine learning (ML) that brings down the number of adverse media articles to be used for screening by analysing them on four different perspectives (See Figure 2):

- Relevancy
- Relationship
- Context
- Sentiment

By discounting adverse media articles using ML-led automation, only relevant articles remain for manual screening, thus reducing time, effort and the number of AML staff. Rule-based approaches are not adequate as they discount articles by matching identifiers of person/organization and/or negative words, leading to many false-positives.

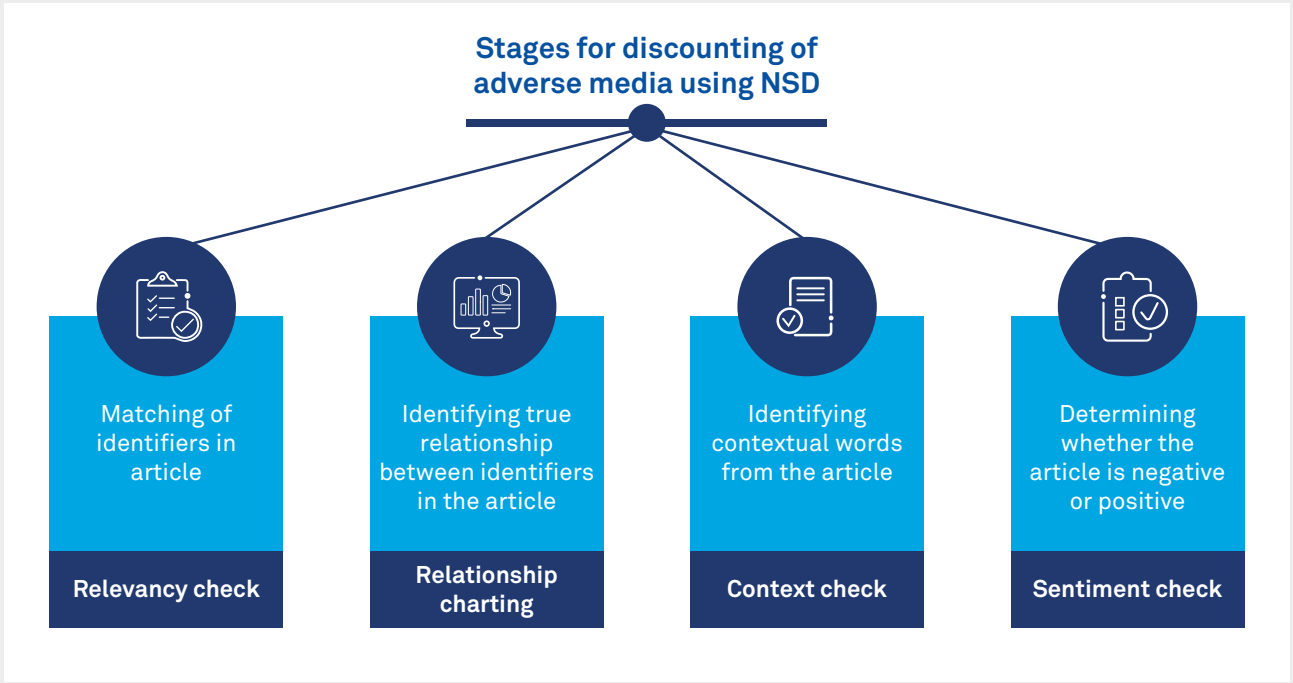

Figure 2: Name screen discounting approach to reducing adverse media articles

Relevancy

In articles, the identifiers of person/organization like name, address, DOB, occupation, registration/tax/govt IDs, etc. are matched along with the scores, based on the number and combination of identifiers. Techniques like named entity recognition, parts of speech tagging, pattern-based matching, etc. are applied.

Relationship

This process establishes the relationship between the identifiers and determines if the article is really talking about the entity or is it just mentioned for some other reason. It extracts sentences from the article which talk specifically about the relationships or illegal activities using trained ML models using SVM, neural networks and NLP techniques like co-reference resolution, dependency parsing etc.

Context

Negative/contextual words like arrest, money laundering, cheat etc. are matched and articles are marked into high/medium/low risk, based on the matches.

Sentiment

Determining the sentiment of an article, whether positive or negative, using pre-trained or custom-trained sentiment models help in discounting as it gives an insight of how negative an article is.

Application of these four checks on adverse media articles and taking a weighted average score while discounting can give a complete picture on whether the article is important for screening or not. Required evidences and case reports can be generated during the process.

Advantages of name screen discounting

- Irrelevant articles can be discounted, avoiding the need to analyse false-positives generated while collecting adverse news.

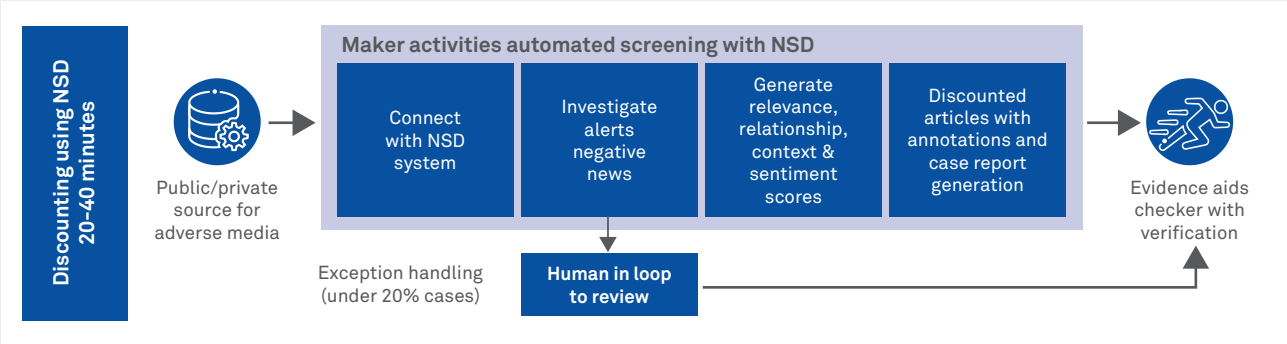

Figure 3: Adverse media screening process with NSD

- Automation using NLP and ML saves effort and reduces time by nearly 60% as 1-2 hours of manual processing time is brought down to 20-40 minutes (See Figure 3).
- Annotated articles with highlighted keywords, identifiers and important sentences can be generated as part of the process which can serve as evidences in later stages.
- It can be helpful in creating case reports and audit trails as part of the screening process in an automated way, thereby eliminating human bias.
- Feasibility of prioritizing any of the four perspectives for discounting by giving high weightage according to respective organization's regulatory policies.

Conclusion

Adverse media screening is a crucial part of enhanced due diligence, conducted by the banks' and other financial institutions' risk and compliance teams on customers to meet regulatory requirements. Name screening discounting applies a comprehensive approach for discounting adverse media, which helps in reducing the time and effort of the analysts performing manual screening process.

References

1 - https://en.wikipedia.org/wiki/Anti-money_laundering_software

2 - https://internationalbanker.com/technology/spotlight-compliance-costs-banks-get-business-ai/

3 - https://internationalbanker.com/technology/spotlight-compliance-costs-banks-get-business-ai/

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