

# Enhancing Sanctions and PEP Screening with Advanced Entity Resolution Algorithms

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## Introduction

The European Banking Authority (‘EBA’) Money Laundering and Terrorist Financing Risk Factor Guidelines’ require financial institutions to collect adequate information to identify all relevant risk factors, both at the commencement of and throughout a business relationship, or before executing any occasional transactions. Consequently, Financial Sanctions, Politically Exposed Persons (“PEPs”), and Adverse Media screening is essential for any financial crime prevention program in order to ensure compliance with regulations and safeguard reputation.

As regulations become more complex and data volumes continue to grow, financial institutions are now employing advanced techniques to efficiently screen against Financial Sanctions and PEP lists along with adverse media databases. Although many institutions have implemented screening solutions, there may be a lack of understanding of the underlying technologies. This article aims to provide guidance on improving the effectiveness of screening processes, and to demystify key technological concepts, such as “entity resolution”, that drive efficient screening.

## Regulatory and Governance Framework

Financial institutions operate under strict regulatory and legal expectations that mandate thorough due diligence screening processes.

### Legal Requirements

#### Politically Exposed Persons (PEPs):

Section 37 of the Criminal Justice (Money

Laundering and Terrorist Financing) Act 2010<sup>2</sup>, as amended, outlines the requirements for identifying and managing and monitoring relationships with PEPs. Financial institutions must implement robust processes to identify these individuals and assess the associated risks.

### Sanctions:

Under Irish and EU regulations, Sanctions are restrictive measures imposed on persons, entities and bodies in an effort to curtail their activities and to exert pressure and influence on them. Restrictive measures include, but are not limited to, financial sanctions, trade sanctions, restrictions on travel or civil aviation restrictions. The European Union’s restrictive measures, governed by the Common Foreign and Security Policy (“CFSP”)<sup>3</sup>, require financial institutions to comply with relevant sanctions lists that prohibit transactions with sanctioned countries, entities and individuals.

In Ireland, financial institutions must adhere to these regulations and ensure that they do not provide economic resources to sanctioned parties, as listed on the EU and UN lists<sup>4</sup>.

### Adverse Media:

Article 2.5 of the EBA ML/TF Risk Factor guidelines highlights the importance of assessing a customer’s or beneficial owner’s reputation through adverse media screening. This process involves reviewing credible news sources for any negative reports, such as allegations or convictions of criminal activity, terrorism, or Enforcement Actions by Regulatory Bodies.

Similarly, Section 4.4.2 of the Central Bank’s Anti-Money Laundering and Countering the Financing of

Terrorism Guidelines for the Financial Sector<sup>5</sup> (the “AML Guidelines”) outlines the CBI’s expectations. Firms must consider the credibility of such reports, including the quality and independence of the source and the persistence of the allegations.

## Governance and Compliance

To meet these legal and regulatory requirements, financial institutions must adopt effective strategies. Many firms develop technology or deploy Regulatory Technology (‘RegTech’) solutions to manage compliance processes efficiently and navigate the complex regulatory landscape.

Effective governance, risk management and the strategic use of technology are crucial. However, understanding how to implement these tools in practice is equally important. Financial institutions must decide between manual and automated screening methods, each with distinct advantages and challenges.

## Manual vs. Automated Screening

### Manual Screening

PEP, sanctions, and adverse media screening can be performed manually, which might be necessary depending on scale, nature and complexity of the business of the entity. For these entities, a manual process might be more feasible.

Manual screening involves several steps:

- Identifying Data Sources: Finding reputable and relevant sources of information.
- Defining Screening Parameters: Determining which data elements to screen.
- Searching for Alerts: Conducting searches to identify potential alerts based on the defined parameters.
- Reviewing Alerts: Analysing any alerts generated to assess their relevance.
- Verifying Information: Confirming the accuracy and validity of the information found.
- Ongoing Monitoring: Regularly updating and reviewing data sources to maintain current information.

For instance, this might involve manual processes that may be prone to human error, such as comparing customer names and dates of birth against updated sanctions lists or performing Boolean searches on Google for adverse media screening. However, manual screening can be time-consuming and labour-intensive, posing challenges for entities with limited resources.

## Automated Screening

Automated screening, in contrast, leverages

advanced algorithms and RegTech solutions to streamline the process. These tools, developed either in-house or by third-party providers, use algorithms to efficiently identify alerts from PEP, sanctions, and adverse media lists.

Advantages of automated screening include:

- Efficiency: Rapid processing of large datasets.
- Consistency: Uniform application of screening criteria.
- Scalability: Ability to handle increasing volumes of data without additional manual effort.

Most compliance professionals are familiar with these automated tools, which are designed to reduce the burden of manual review and improve the accuracy of screening processes.

## Implementing RegTech Solutions

The EBA<sup>6</sup> defines RegTech solutions as, “technology-enabled innovations used by financial institutions to meet regulatory, compliance, and reporting requirements”. As summarised below, the EBA has set out guidance on the key components of effective Regtech Adoption and challenges associated with Regtech implementation.

### Key Components for consideration for implementing an effective RegTech:

#### Due Diligence and Risk Assessment:

Conduct thorough evaluations of potential RegTech solutions to ensure they meet regulatory standards and address specific compliance needs.

#### Technological Readiness:

Assess the institution’s ability to integrate and support new technologies within existing systems and processes.

#### RegTech Sponsorship:

Establish clear leadership and accountability within the organization to drive the adoption and implementation of RegTech solutions.

#### Deployment Model Selection:

Decide between building in-house solutions or purchasing third-party RegTech tools, considering factors such as cost, scalability, and expertise.

#### Regulatory Screening and Monitoring:

Implement processes to monitor regulatory changes and ensure that screening solutions remain compliant and up to date.

#### Data and Information Sharing:

Maintain robust data-sharing protocols to ensure the accuracy and effectiveness of screening processes.

### Risk Management and Integration:

Ensure RegTech solutions are embedded within the organization's systems and processes, with comprehensive risk management practices in place.

### Some of the prevalent challenges in RegTech Implementation:

#### Data and Cybersecurity:

Address challenges related to data quality and protection, ensuring robust cybersecurity measures are in place.

#### Interoperability:

Integrate new technologies with existing legacy systems to avoid disruptions and inefficiencies.

#### Regulatory Changes:

Stay informed of evolving regulations to adapt compliance strategies accordingly.

#### Costs and Procurement:

Manage the financial aspects of acquiring and maintaining RegTech solutions.

#### Skills and Training:

Equip staff with the necessary skills and training to effectively use new technologies.

#### Maturity of Solutions:

Evaluate the readiness and reliability of RegTech providers' offerings.

Compliance professionals should also be aware of Central Bank expectations relating to the use of innovative/RegTech solutions by regulated entities which are outlined in section 5.2.6 of the CBI AML Guidelines.

## Enhancing Screening Efficiency with Entity Resolution

Entity Resolution Techniques are central to improving the precision of screening processes. This section will delve into how these techniques function, their role in minimizing false positives and negatives, and their integration into comprehensive compliance strategies.

Entity resolution involves determining when different data records refer to the same real-world entity. For sanctions, PEP, and adverse media screening, this means comparing customer and related party names against underlying screening data to identify potential matches. Accurate entity resolution is crucial for reducing false positives, incorrect matches that waste analysts' time; and false negatives, missed matches that could lead to compliance breaches and regulatory penalties.

### Algorithms for Enhanced Entity Resolution

Key algorithms for entity resolution include, but are not limited to:

- **Exact Substring Match:** Detects exact matches of substrings within names. Effective for straightforward matches but may miss variations and errors.
- **Hamming Distance:** Measures the number of differing positions between two strings. Quick but less flexible for complex variations.
- **Jaro Distance:** Assesses similarity by counting common characters and transpositions. Effective for short strings like names.
- **Jaro-Winkler Distance:** An extension of Jaro, emphasizing the beginning of strings. Suitable for name matching.
- **Levenshtein Distance:** Calculates the minimum number of single-character edits required to transform one string into another. Useful for typographical errors.
- **Weighted Ratio:** Assigns weights to characters or tokens based on their importance, offering a nuanced similarity measure.

### Steps for Effective Entity Resolution

In May 2018, the Central Bank of Ireland ('CBI') released an AML Bulletin to Investment Firms, in which they stated that it was their expectation that *"Firm's PEP and Financial Sanctions screening processes and systems are reviewed on a frequent basis to ensure that they adequately capture any PEP customers or any potential Financial Sanctions exposure."*

This statement was reinforced by the CBI following their findings, listed in the same communication that:

*Firms could not demonstrate adequate controls in place to ensure that all customers are subject to regular PEP & FS screening in order to identify any changes in their PEP status, or any potential FS exposure;*

*Firms have not conducted adequate assurance testing on their PEP & FS screening processes and systems. The Central Bank noted this was particularly prevalent where firms were using a third-party system for PEP & FS screening;*

Accordingly, steps that firms might consider when optimizing an automated PEP, Sanctions, and adverse media screening solution, include:

1. **Data Integration and Cleaning:** Consolidate data from diverse sources, standardize formats, and clean the data by removing duplicates and correcting errors. Ensure high-quality data by including transaction records, customer details, and external databases.



2. **Data Enrichment:** Enhance existing data with additional details from public records, social media, and other sources. Regularly update and rerun entity resolution processes to keep profiles accurate.
3. **Algorithm Selection:** Select algorithms based on data characteristics and the balance between efficiency and accuracy. Test different algorithms to find the best fit for data types like names, addresses, and transactions.
4. **Scoring and Validation:** Score and rank matches, with high-scoring results undergoing human validation, particularly for high-risk cases.
5. **Threshold Setting:** Determine matching thresholds to balance false positives and negatives. Regularly adjust thresholds based on risk profiles, data quality, and screening volume to maintain effective performance.

## Conclusion

As financial institutions face increasing regulatory pressures and data complexities, adopting advanced

entity resolution algorithms can potentially enhance the effectiveness of Financial Sanctions, PEP and Adverse Media screening. By leveraging automated solutions and sophisticated algorithms, institutions can improve accuracy, reduce manual effort, and better manage compliance risks. Embracing these technologies and strategies, in certain circumstance, can help to ensure regulatory adherence and also strengthens the overall risk management framework, safeguarding institutions against financial crime and reputational damage.

Regardless of the solutions or systems that firms implement, they should ensure that they have followed the correct governance steps, including clearly documenting the risks identified, any risk-based approach applied, specific algorithms used, etc. The system should then continue to be monitored periodically, on an ongoing basis, through measures including effectiveness testing, Model Risk Management Review, third party review, etc to ensure the system continues to function as expected.