Financial Stability Institute | BIS

Suptech applications for anti-money laundering

Workshop on "Big data & Machine Learning Applications for Central Banks"

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Outline

- Introduction
- AML authorities and mandates
- Data analytics tools used by AML authorities
- Challenges
- Key messages

Introduction

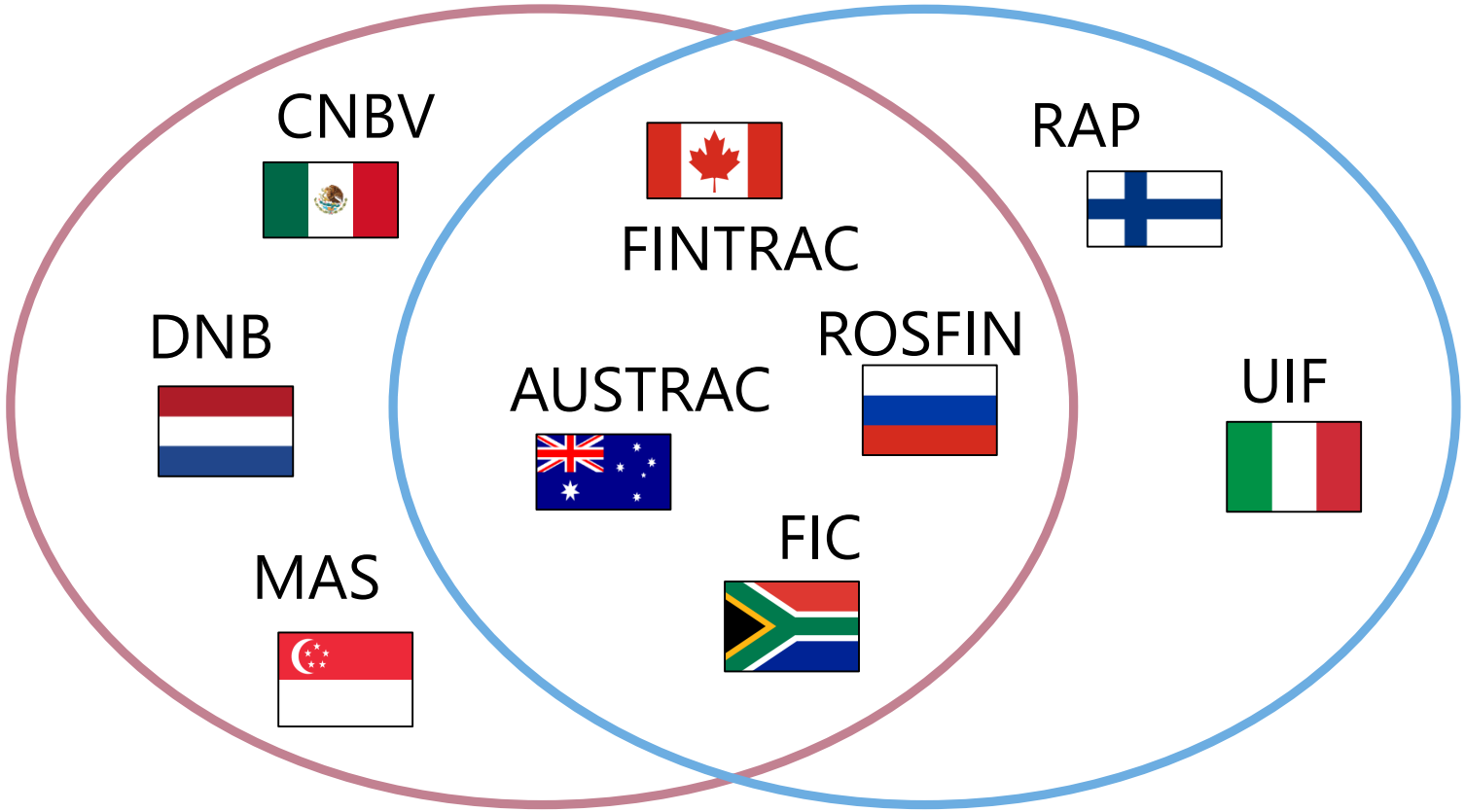
- AML authorities conduct data analysis in order to identify, assess and understand the money laundering and terrorist financing risks in their jurisdictions
- In conducting data analysis, AML authorities rely on large volumes of data
- The need to analyse large volumes of data results in certain challenges (collection, quality, completeness)
- Automation of data collection and validation processes addresses some of these challenges
- AML authorities need to develop data analytics tools in order to more efficiently and effectively analyse information from disparate sources and come up with a complete and coherent picture of AML/CFT risk, either for compliance assessment or detection purposes

Authorities and mandates

Supervisors

to supervise or monitor, and ensure compliance by, financial institutions with requirements to combat money laundering and terrorist financing

tools that contribute to the compliance assessment of financial institution



Financial intelligence Units

the receipt and analysis of: (a) suspicious transaction reports; and (b) other relevant information, and for the dissemination of the results of that analysis

tools that contribute to the detection of suspicious activities

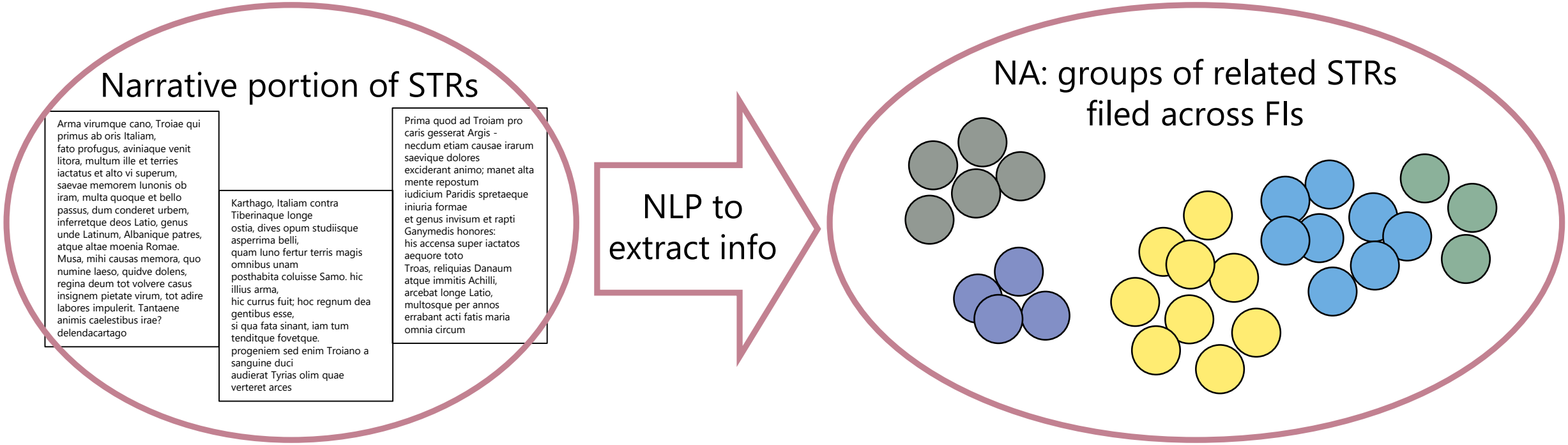
Data analytics tools used by AML authorities – AML supervisors

AML supervisors – compliance assessment

- Tools contribute to the compliance assessment of financial institution in different ways
  - Identification of networks to which financial institutions are exposed
  - Evaluation of self assessment by financial institution
  - Risk scoring of supervised entities
  - Assessment of adherence of financial institutions to reporting requirements

Data analytics tools used by AML authorities – AML supervisors

Identification of networks: MAS application of NLP and network analysis to STRs



- Focus supervisory attention on financial institutions affected by networks of higher-risk accounts, entities or behaviour

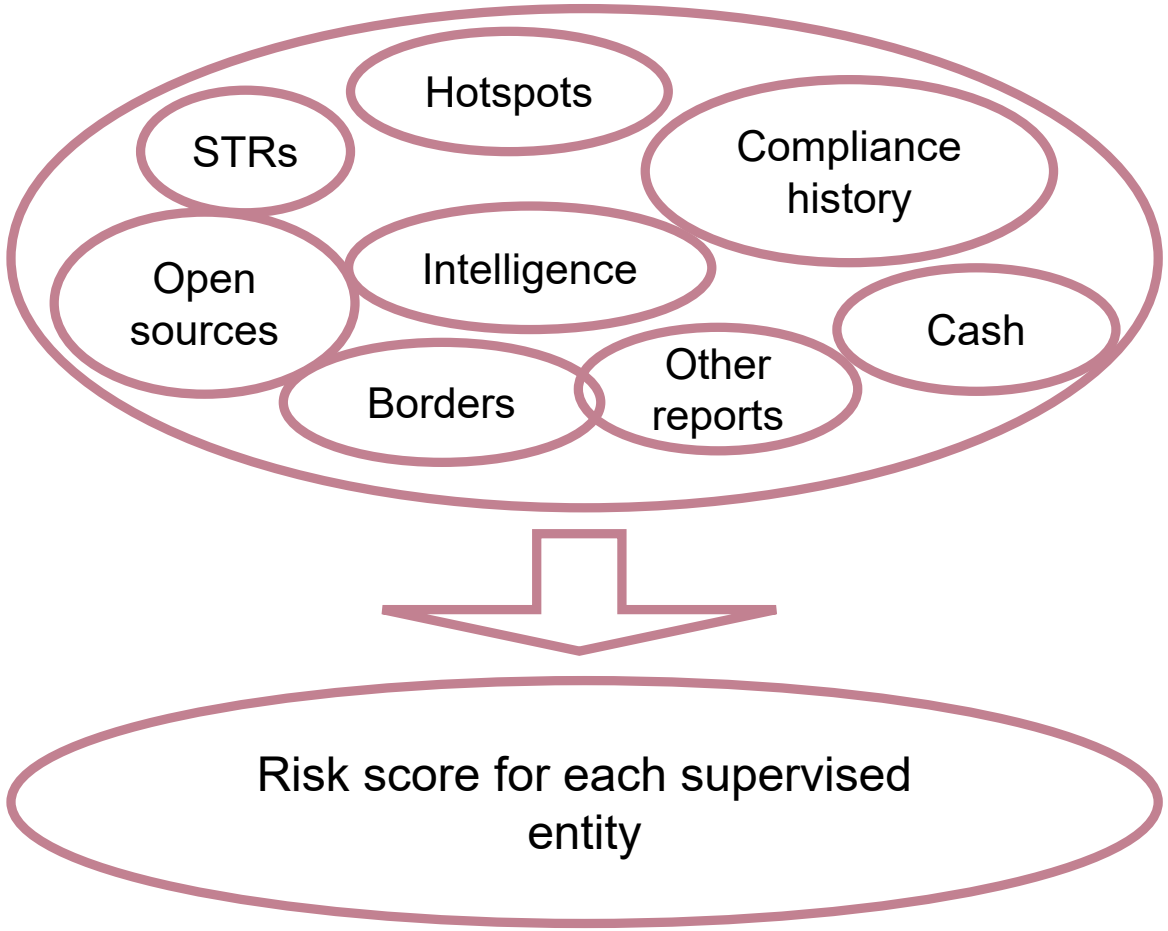
Data analytics tools used by AML authorities – AML supervisors

Evaluation of self assessment: DNB application of machine learning and NLP to SIRA reports

- The tool analyses the SIRA reports by answering specific questions
- The tool is trained with the intervention of supervisors who check the answers of the tool
- The objective of the tool is to increase the efficiency in the analysis of numerous and sometimes lengthy documents

Data analytics tools used by AML authorities – AML supervisors

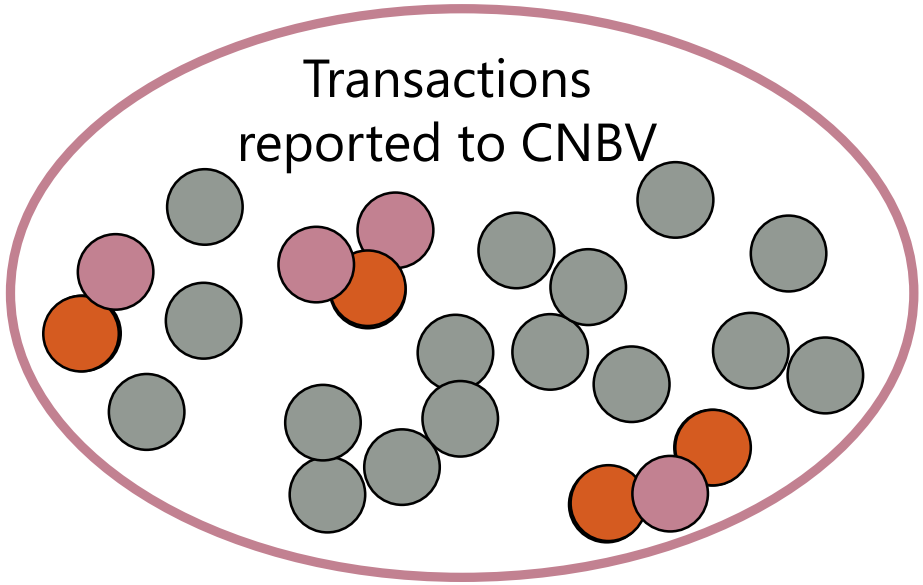
Risk scoring: FINTRAC heuristic model for overall money laundering risk assessment



- The tool applies a heuristic model that uses several **risk factors** determined by subjecting a significant amount of **data** to different analyses
- The objective of the tool is to assess the risk profile of each reporting entity in order to help to prioritise onsite supervision examinations
- The output of the model is compared with that of a supervised learning one

Data analytics tools used by AML authorities – AML supervisors

Assessment of adherence to reporting requirements: CNBV application of machine learning to transactional data



- Reported unusual transactions are used to train the machine
- The tool then scans the whole dataset
- The aim is to uncover other transactions with similar patterns

The number of unreported unusual transactions detected will contribute to the assessment of the regulatory compliance of banks and support the prioritisation of onsite inspections

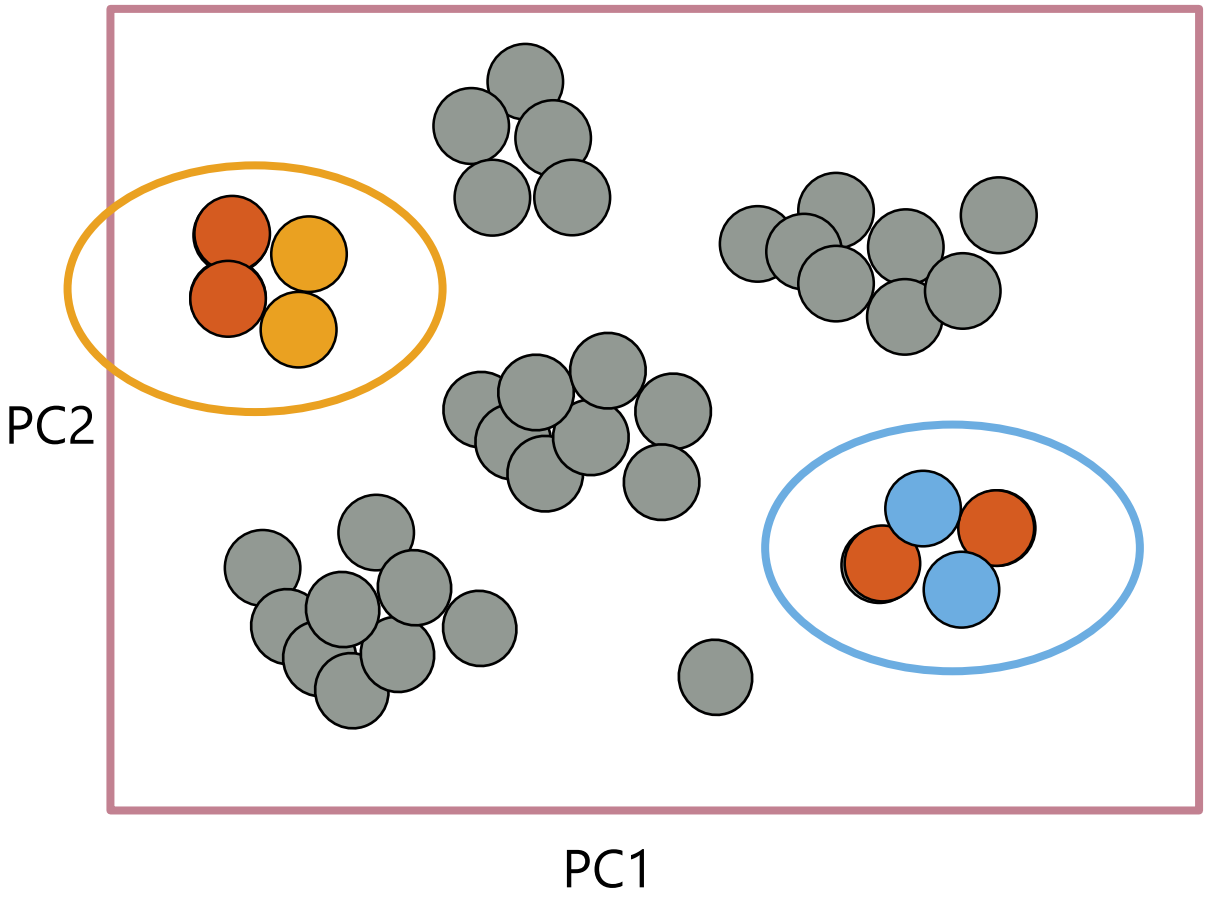
Data analytics tools used by AML authorities – FIUs

FIUs – detection of suspicious activity

- Tools contribute to the detection of suspicious activities in different ways
  - Detection of networks of entities involved in suspicious activities
  - Assessment of the likelihood of money laundering activity
  - Identification of patterns and trends in criminal activities

Data analytics tools used by AML authorities – FIUs

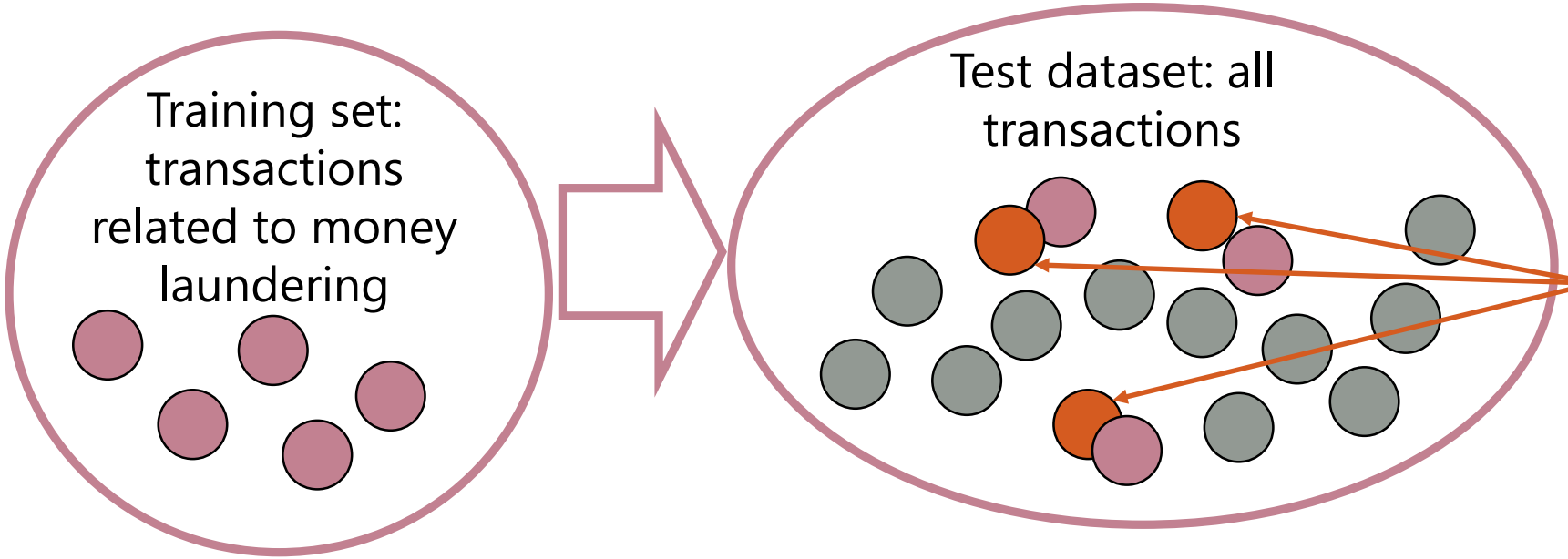
Detection of networks: UIF application of network analysis and self-organising maps to the Gold database



- The tool uses network analysis to build the networks of actors behaviours
- The tool searches the gold transactions database looking for behaviours that are "**similar**" to **fraud schemes** that are subject of **recent major investigations**
- Similarities are identified based on the structure of the network

Data analytics tools used by AML authorities – FIUs

Assessment of the likelihood of money laundering: ROSFIN application of machine learning

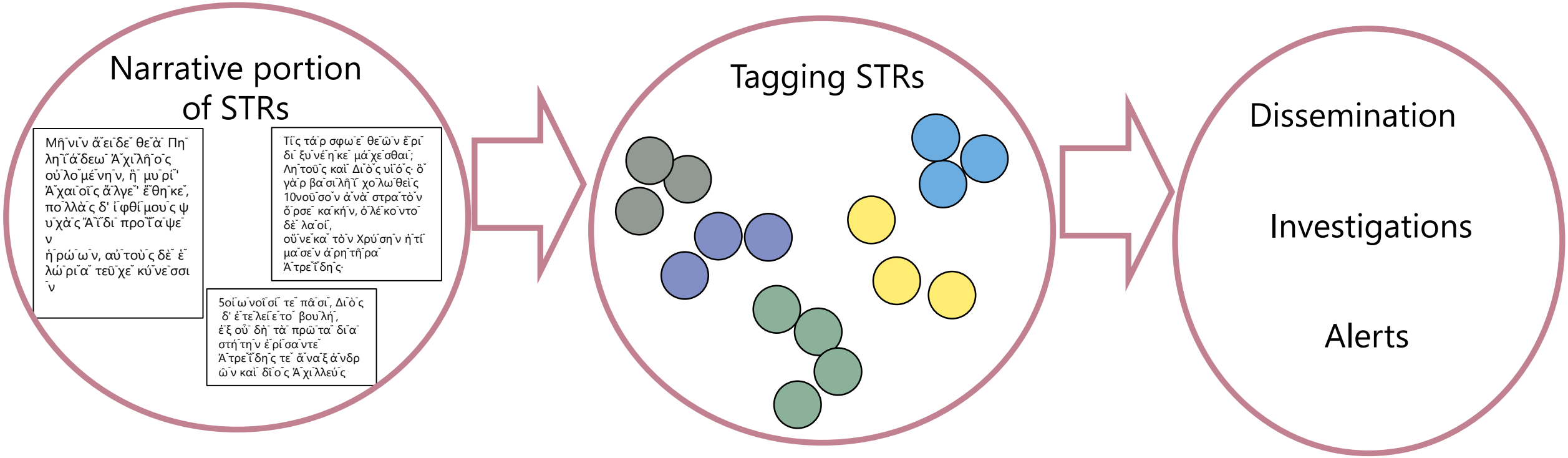


Identification of transactions with characteristics that are **similar** to those of other transactions **related** to money laundering

Other application: detection of potentially fictitious companies based on a sample of known shell companies

Data analytics tools used by AML authorities – FIUs

Identification of patterns and trends: FINTRAC application of text mining to STRs



- Similar STRs are aggregated so that trends and patterns can be identified
- Increases in a certain typology may lead to further investigation and also to the development of alerts to reporting entities

Challenges

- Computational capacity
- Data privacy and confidentiality
- Resources (internal or external development, skills)
- Assessment of effectiveness

Key messages

- Important for AML authorities to harness the potential of innovative technology for data analytics
- Exploration or development of advanced data analytics tools could be organised in different ways
- Efficiency gains seem to be the number one benefit of these tools, which could help capacity-constrained authorities
- More international dialogue on this topic would foster peer learning