

# Anti-Money Laundering

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# Session 6: Machine Learning, Suptech/Regtech and AML

The **inspiration** I got from reading:

- Suptech applications in anti-money laundering: A review of best international practices
- Network Analysis applications for anti-money laundering

# What does it take to be a good AML/CFT supervisor?

- a) Able to perform complex logic reasoning
- b) Keen ability to predict human behavior
- c) Strong judgmental skills
- d) Extremely observant
- e) Perceptive to details
- f) Creative imagination
- g) High intelligence



# Why is FSI No.18 an important paper?

- Estimates of the amount of money laundered worldwide range from \$500 billion to \$1 trillion
- It supports the work of financial authorities in developing supotech solutions in fighting ML/FT
- It presents what peers are doing by offering key practical case studies and examples
- It serves as a starting point for further information sharing and collaboration between authorities

# What is particularly strong about the paper?

It (implicitly) points out the requirements to bring Suptech applications for AML/CFT to the next level

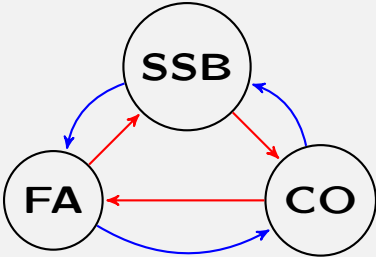
- Collaborate (inter)nationally
- Build a network to find a network
- Stimulate the development of market solutions
- Remove unintended consequences of international standards

# What are the technical challenges for AML/CFT authorities?

- Data privacy and confidentiality
- Computational capacity
- Effectiveness assessment
- Decay of effectiveness

# Regulatory feedback loop

The way regulation and supervision are organized will affect the behavior of criminal organizations. This in turn will impact regulatory data and subsequently the effectiveness of supotech solutions...





# Other challenges for AML/CFT authorities

- Anonymous execution of cross-border transactions
- Promote innovation while tracking emerging risks
- Unbundling of the banking value chain
- (Non-regulated) virtual cryptocurrencies
- Bayes theorem

## Bayes theorem

Suppose 5 out of 100,000 transactions are ML and a particular suptech solution produces a red flag. The solution registers accurately 95% of the trials. What is the probability that the red flag is indeed a case of ML?

$$P[ML|\blacktriangleright] = \frac{0.95 * 0.0005}{0.95 * 0.0005 + 0.05 * 0.9995} = 1\%$$

# Condorcet's jury theorem

If the probability that an individual makes a correct call is marginally greater than 50%, the probability that a group makes a correct decision approaches 100% as the size of the group increases

✓ **Partnerships**

# Requirements for the successful adoption of solutions by financial authorities

For instance in the case of **Knowledge Graphs** a common understanding of the

- technology based on a ambiguity free definition
- new knowledge it is supposed to generate
- information bases it uses (e.g., ontology)
- benefits, drawbacks and possible improvements

# Knowledge Graphs and the Vadalog system

It is potentially very useful for detecting AML/CFT violations because it

- is able to perform complex logic reasoning
- closes the communication gap
- provides efficient discovery
- is self-descriptive

# How to successfully move forward with ML/CF?

- Define 'Suptech beliefs' of the financial authority
- Create solutions in multi-disciplinary teams
- Involve supervision or enforcement units
- Stimulate academic research
- Develop best practices

**Be the supotech generation**