

# Are AI-based Anti-Money Laundering (AML) Systems Compatible with European Fundamental Rights?

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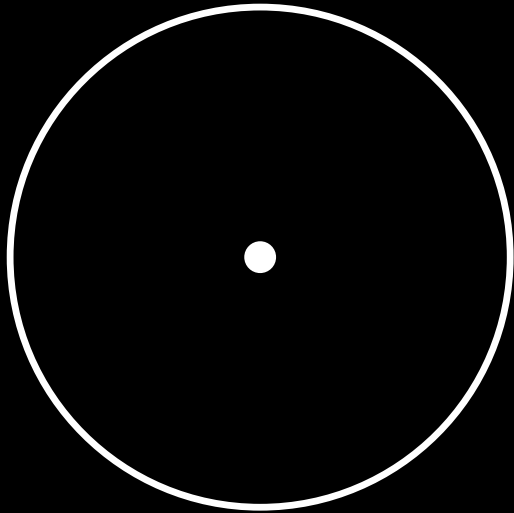
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Télécom Paris,  
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€200 billion in criminal funds  
circulate every year in Europe...



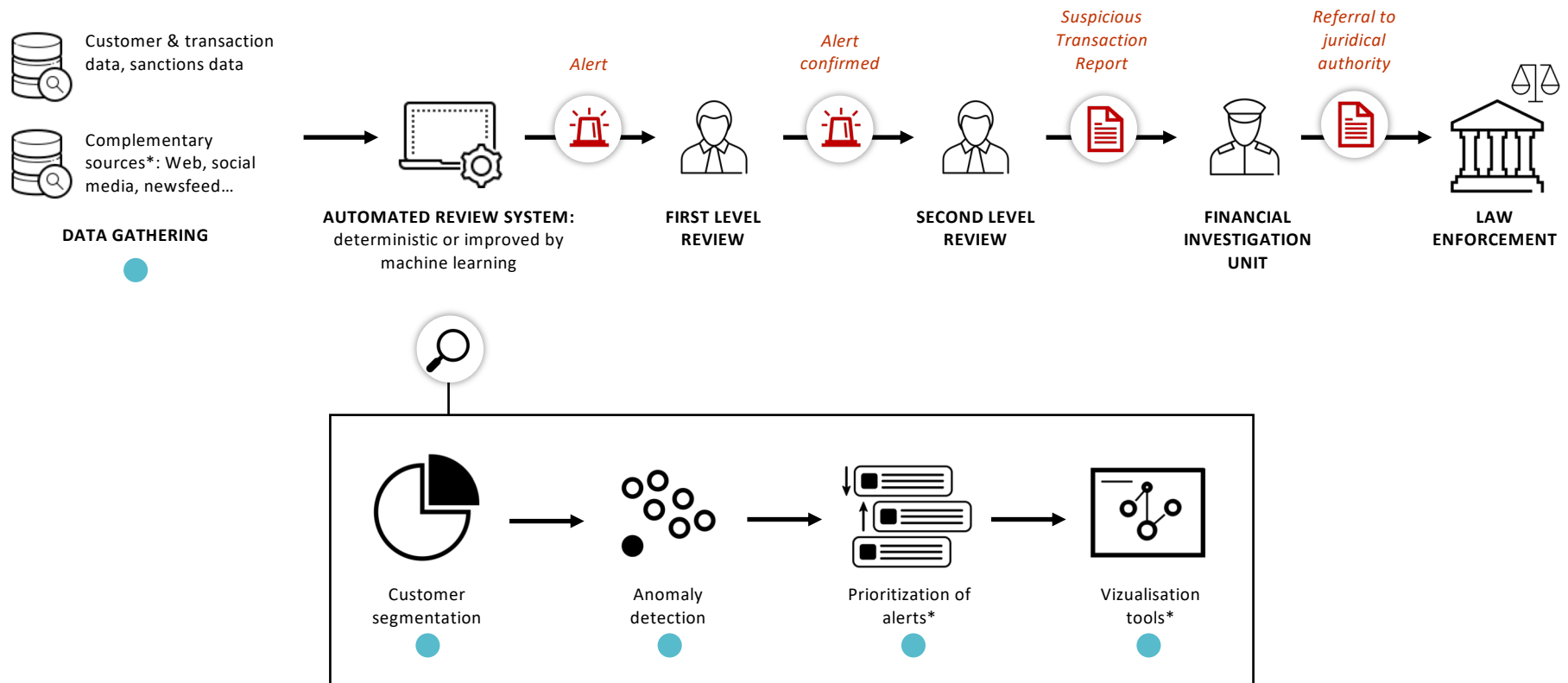
...Yet only 1% of criminal funds are  
confiscated

Current AML systems are rule-based,  
extremely costly, and largely ineffective.

AI can help improve AML systems, but  
creates new risks for individuals.

**We explored whether AI-based systems  
comply with the proportionality test of  
the CJEU and GDPR.**

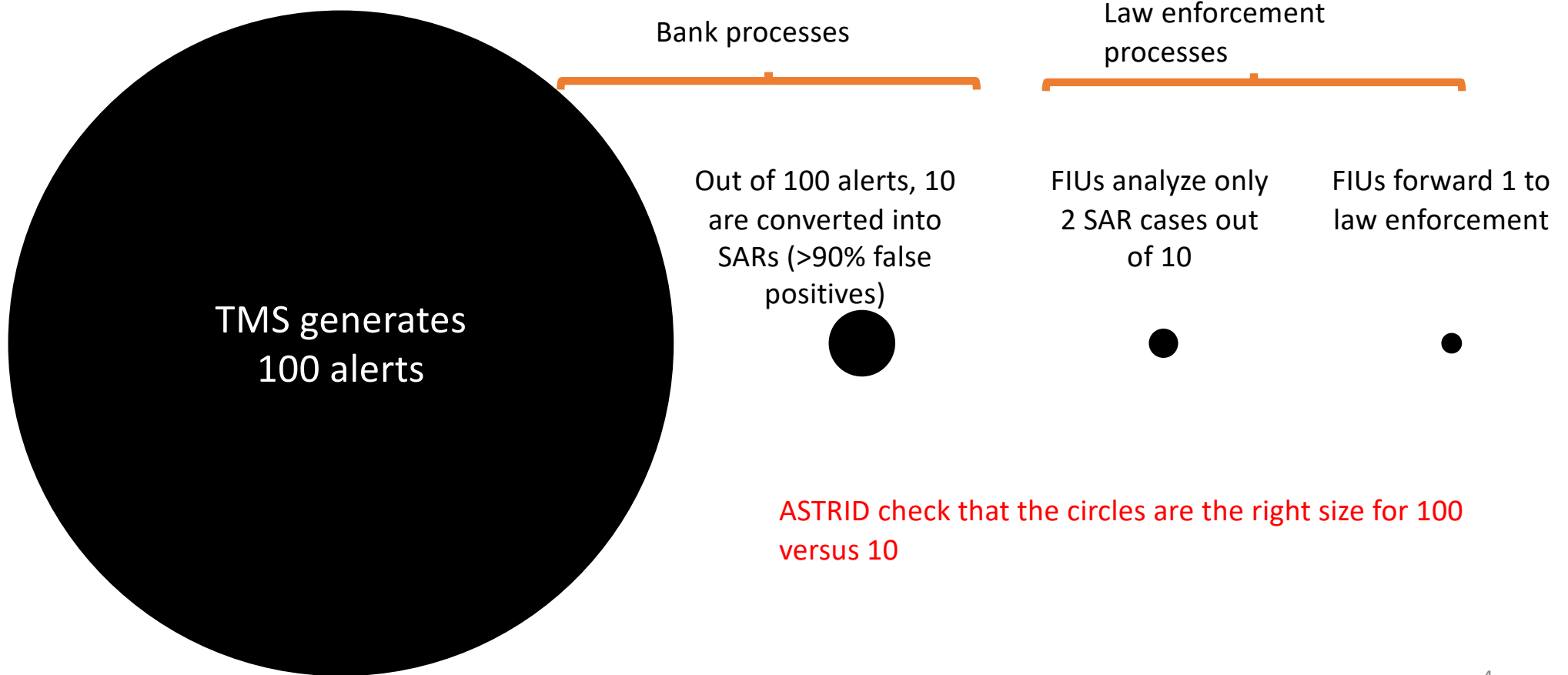
# The AML process in a nutshell



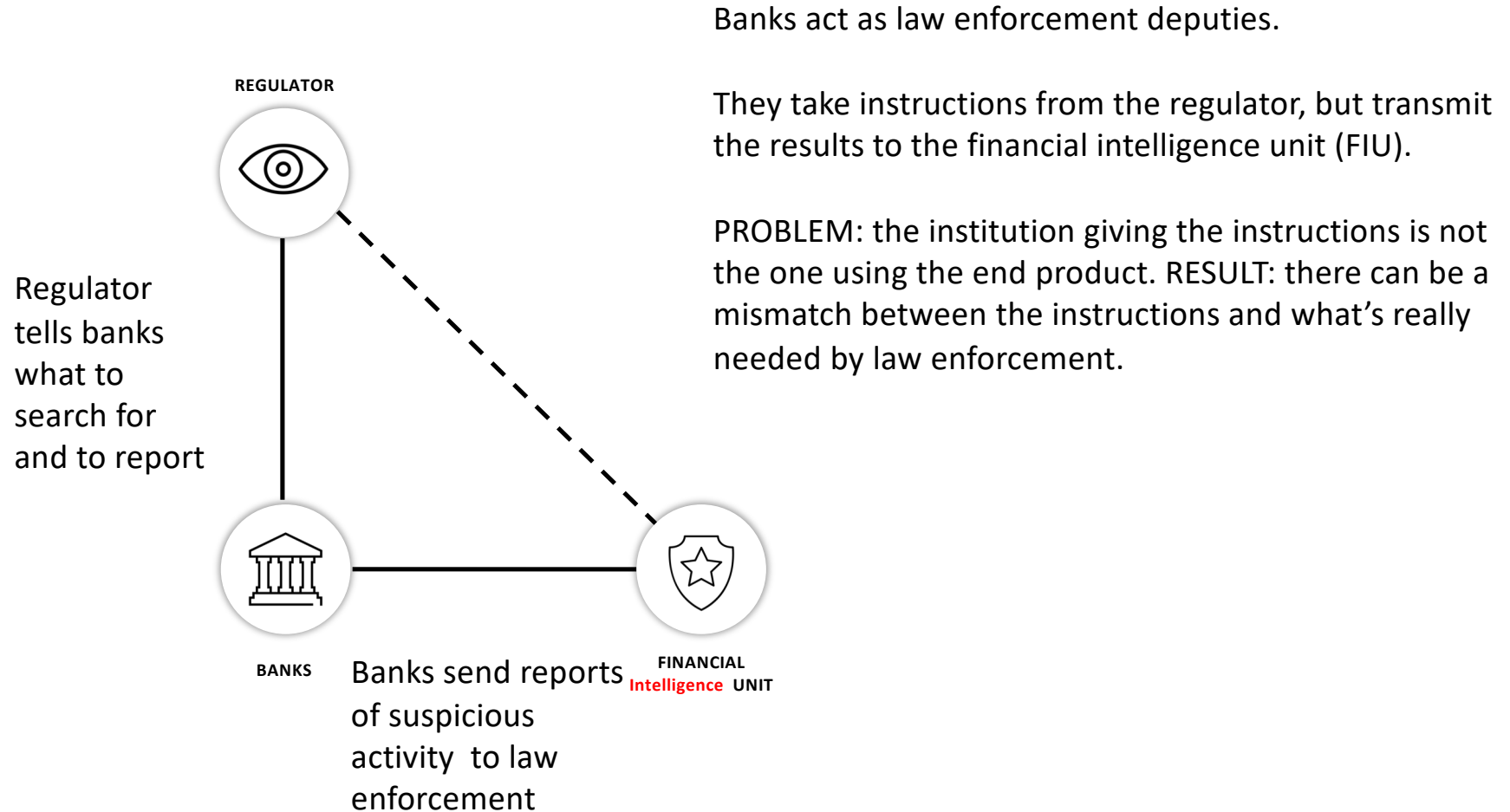
\* Not Always deployed by banks.

● AML stages where Machine Learning can be valuable

# 99% of alerts have little or no utility to law enforcement



# The broken triangle



# Imagine your architect building your house from an intermediary

NOT TO INCLUDE FOR WORKSHOP. We'll mention it orally

"I want a chalet at altitude."



FINANCIAL  
INVESTIGATION UNIT

"Give them a big and high place."



REGULATOR

"One of these ok?"



BANKS

# Three Enlightening Legal Cases

## The CJEU Digital Rights Ireland and Tele2 Sverige - Watson cases

In 2014, the CJEU annulled a 2006 directive requiring telecom operators to store all traffic and location data for two years in case it is needed by law enforcement or national security agencies. It found that general and indiscriminate retention of all data exceeds what is strictly necessary.



Use of general and indiscriminate data, unjustified by evidence of serious crime suspicion, is likely to fail the proportionality test.

## The CJEU Ministerio Fiscal case

In 2018, the CJEU reviewed a Spanish law requiring operators to collect and store identification data relating to persons who purchase SIM cards. It determined that the “fair-balance” is respected as the law which applies to minor offences such as theft of a mobile phone involves lowly intrusive data (names and address).



The more intrusive the data used for crime detection, the more serious must be the crimes.

## The Netherlands social security fraud case

The Court of the Hague recently applied the proportionality test regarding an algorithm used by the social security authorities to detect social security fraud. It found that the measure was “provided for by law” because the law was sufficiently detailed, and that the objective was a social interest. However, it found that the system lacked transparency and explainability.



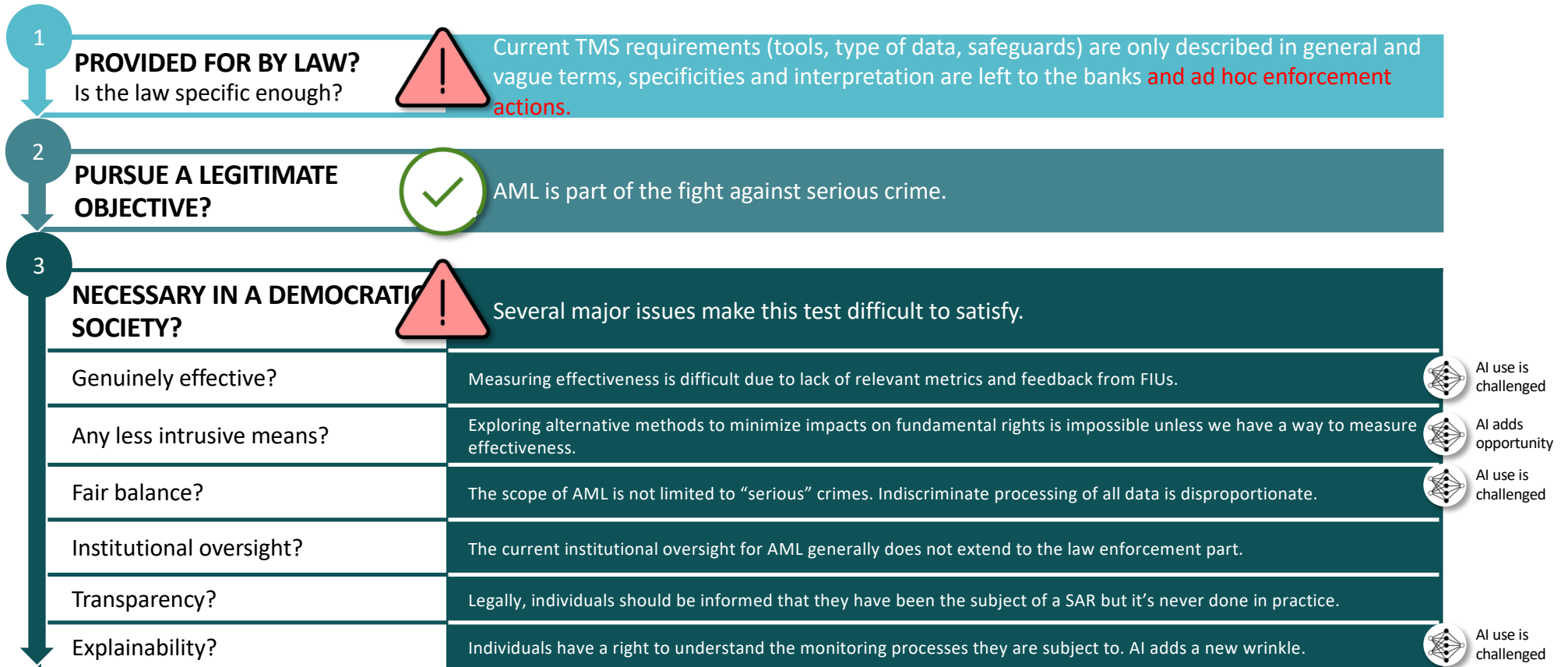
Systems involving unexplainable AI models are likely to fail the proportionality test. Idem for systems that do not inform individuals they exist nor give an understanding of their functioning.

# What about the GDPR?

- Proportionality is also a requirement under the GDPR
  - Articles 6, 9, 10, 23, 35




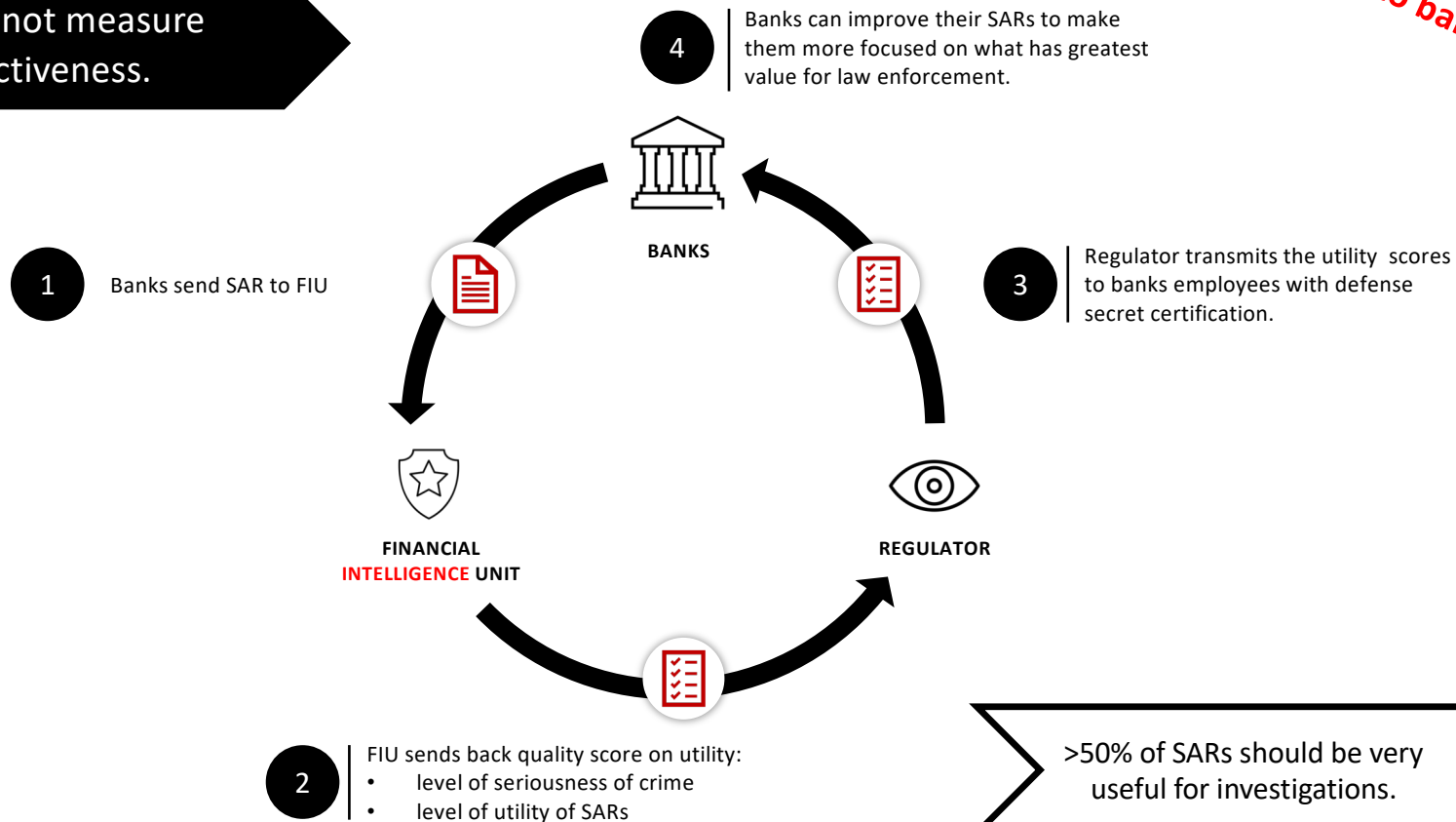
# The proportionality test



# Can these Problems be Cured?

*Our proposal: a new scoring system to provide feedback to banks*

 You cannot measure effectiveness.



>50% of SARs should be very useful for investigations.



# Can these Problems be Cured?

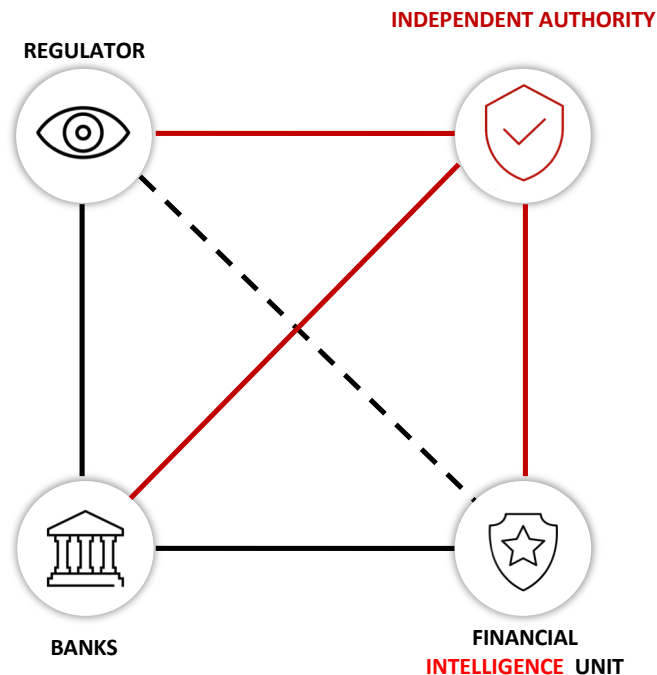


There is no independent supervisory authority with a 360° vision of the system.

Designate an independent authority with specific oversight powers to evaluate the whole AML process and apply ongoing proportionality tests.



Very nice!



*Our proposal: a dedicated oversight commission to measure effectiveness*

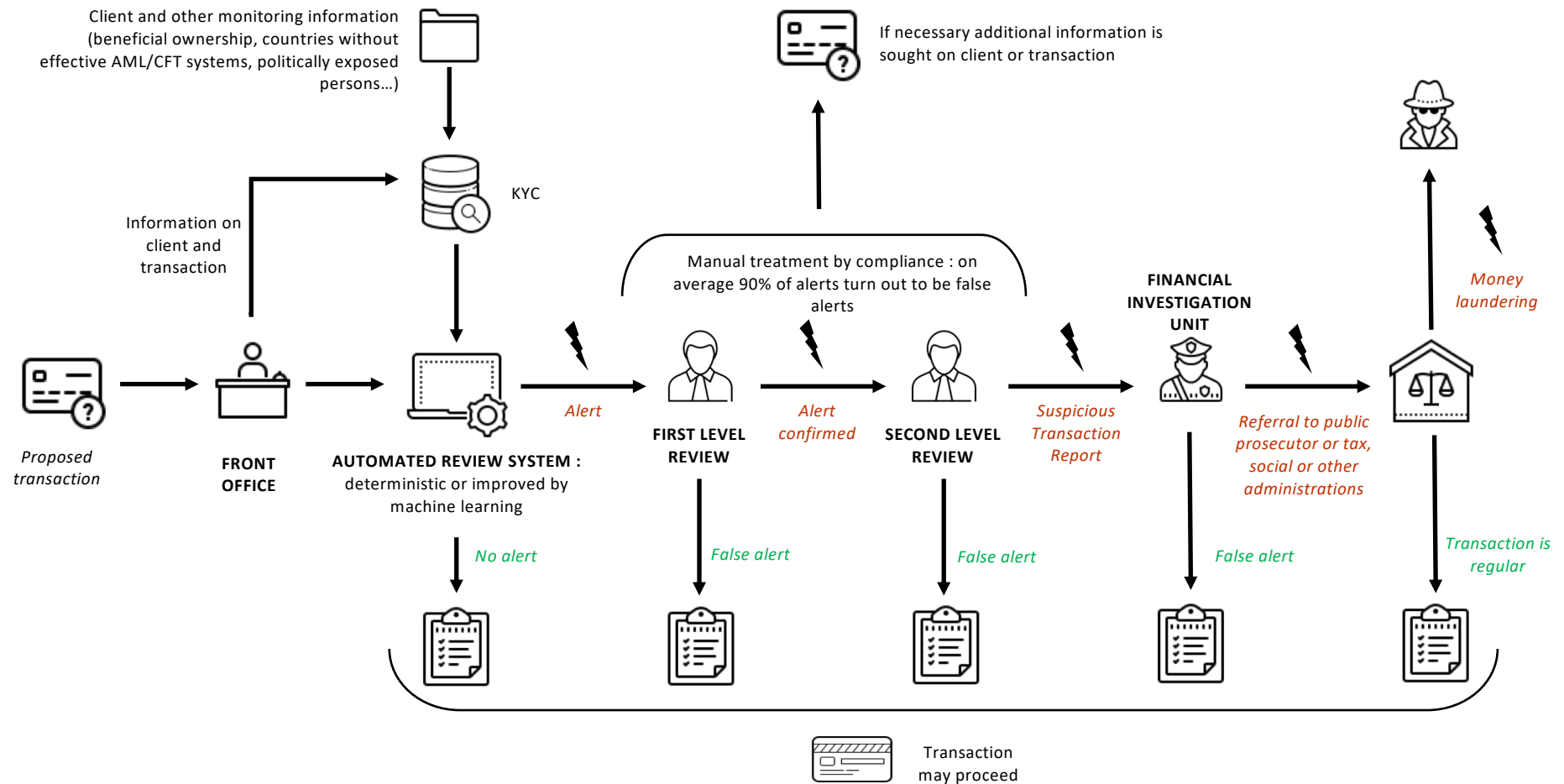
# Thank you for your attention!

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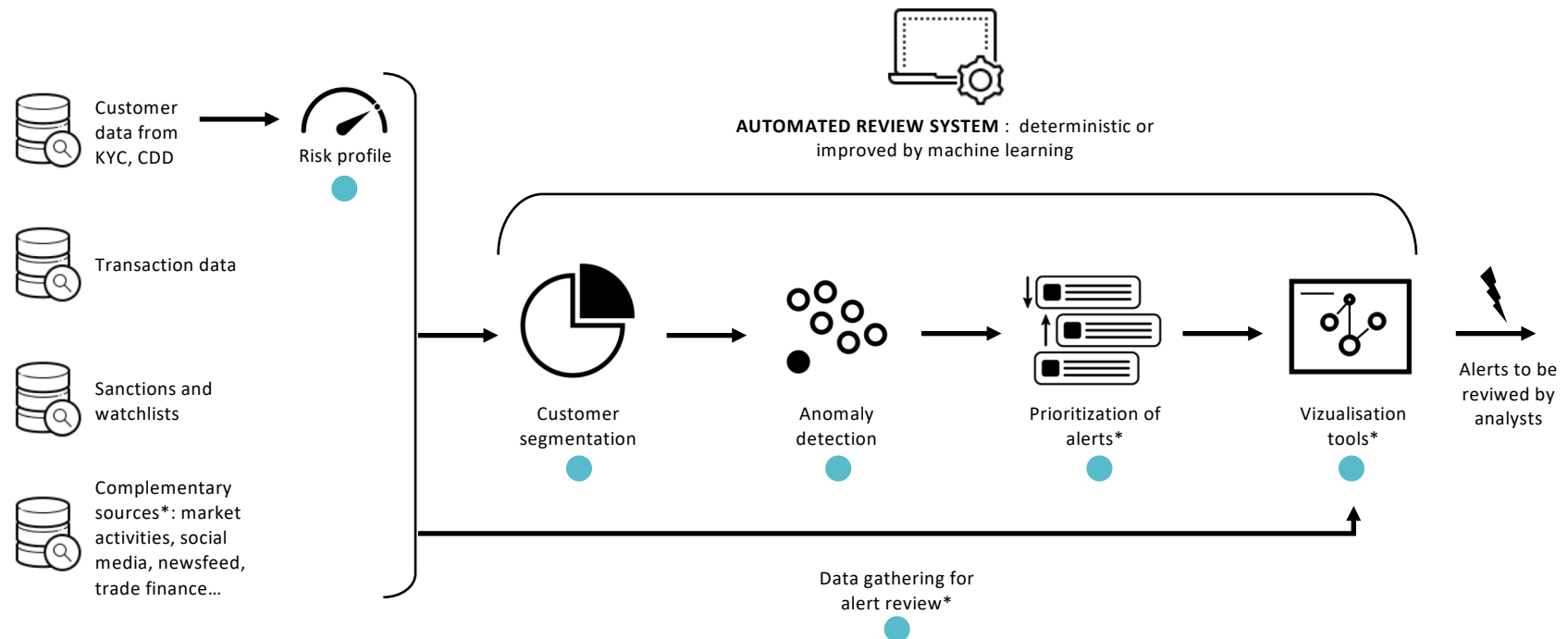
Research Chair website: [www.xai4aml.org](http://www.xai4aml.org)

# Appendices

# The AML process



# The AI-enabled AML process

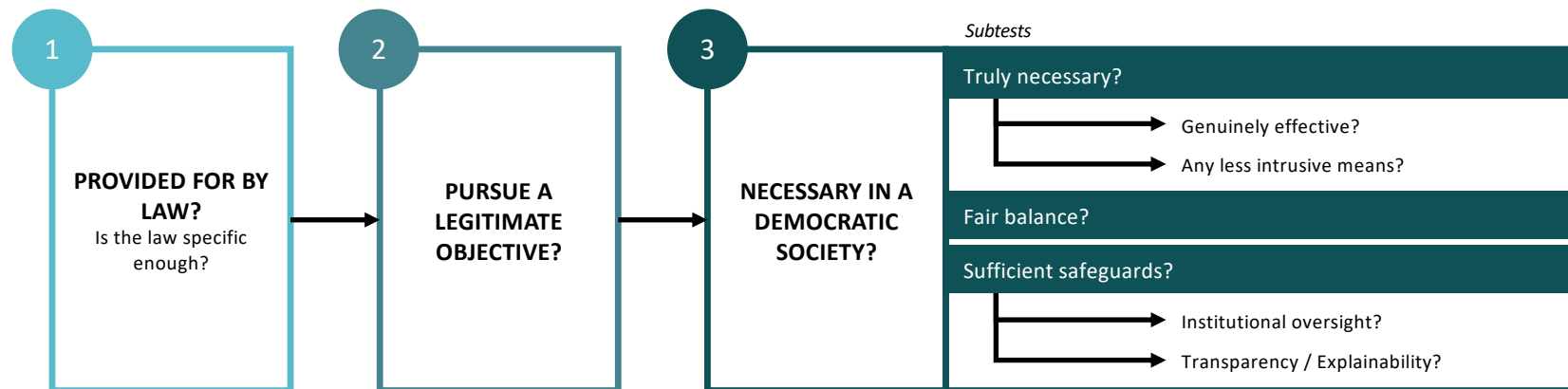


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● AML stages where Machine Learning can be valuable

# The proportionality test

- From **fundamental right texts** (such as ECHR and the Charter): Measures designed to fight crime must be analyzed under the proportionality test to ensure that government powers, for example powers to conduct electronic surveillance, do not unduly restrict privacy or other fundamental rights such as non-discrimination, freedom of expression, or a right to a fair trial.
- Banks must evaluate *"the necessity and proportionality of the processing operations in relation to the purposes"* under **Article 35 of the GDPR**
- Processing must be *"necessary and proportionate"* under the **Police-Justice Directive**
- Simplifying the different approaches to the test, we can summarize the proportionality test into **three steps**:










# AI can enhance AML systems in 5 ways

## Roles

## Examples of techniques used

<b>Automate data gathering</b>	NLP, OCR... are useful to use a broader range of data for AML such as unstructured and external data.
<b>Fine-tune Alert prioritization and Client Risk scoring</b>	Supervised algorithms such as decision trees, random Forests and logistic regressions.
<b>Leverage Link analysis</b>	Social Network Analysis is very useful in AML for analyzing inferences between parties. Graph convolutional networks, random forests...
<b>Improve segmentation</b>	Clustering techniques like K-means algorithm, PCA ...
<b>Improve anomaly detection</b> <ul style="list-style-type: none"><li>• Detect known suspicious patterns</li><li>• Uncover new patterns</li></ul>	Supervised classifiers such as SVM to detect known anomaly patterns. One-class SVM, Deep learning AutoEncoder, BIRCH algorithm, K-means clustering to distinguish suspicious from unsuspecting cases.

## Current AML systems fail the proportionality test in 5 ways. Can these problems be cured?

 The law is not specific enough.	Describe the overall functionalities of the system + the data it may use and keep the details of the algorithm confidential.
 You cannot measure effectiveness.	Develop a quality metric to indicate the crime seriousness + the SAR's actual utility in confiscating criminal funds.
 AML processes conducting “general and indiscriminate” analysis of all transaction data induces lack of fair balance.	Only apply intrusive monitoring to risky clusters.
 AML processed lack transparency and explainability.	Inform customers of the existence of a SAR after a given period has elapsed after transmission to the FIU. Numerous technical solutions exist to explain ML models.
 There is no independent supervisory authority with a 360° vision of the system.	Designate an independent authority with specific oversight powers to evaluate the whole AML process and apply ongoing proportionality tests.