

INTESA  SANPAOLO

**Anti Financial Crime**



**Politecnico  
di Torino**

**Data Science Lab**

*Knowledge sharing  
meeting*

Torino, 2022.12.13

# Introduction & Goals



## ❑ Bio:

- Dario Moncalvo
  - Head of Models, Analytics and Special Investigations
  - Anti Financial Crime | Transaction Monitoring | Intesa Sanpaolo SpA
  - Maturità classica (1997) @ Collegio Sacra Famiglia + Master Degree (2003) and PhD (2008) @ PoliT



## ❑ Disclaimer:

- Info security | Sanitized material for illustrative purpose only
- Pragmatic, industrial approach | No involvement or outreach on philosophical / political sensitive topics



## ❑ Goals:

- Disseminate Anti Financial Crime domain basics:
  - Fundamental concepts (keyword and players)
  - Data science application @ Transaction Monitoring
- Spread awareness of opportunities of your potential interest:
  - as a student
  - as a worker

# Content spoiler and testing

Are you able to explain the following concept ?



## Banking

- Agent
- Cash
- Currency
- Debtor
- Creditor
- BIC
- IBAN
- IP
- Mean of payment
- Remittance info
- Value date
- VA Wallet
- Wire transfer



## Anti Financial Crime domain

- ABC
- AML
- Asset freezing
- Case
- CFT
- CRR
- Detection
- Enterprise syndicate
- FATF
- FIU
- High Risk Geography
- KYC
- Mandatory reporting
- Mixer
- Multi-Jurisdiction
- OSINT
- Power syndicate
- RFI
- Risk intelligence
- SAN
- SAR
- Shell company
- TXM



## Data science @ Anti Financial Crime

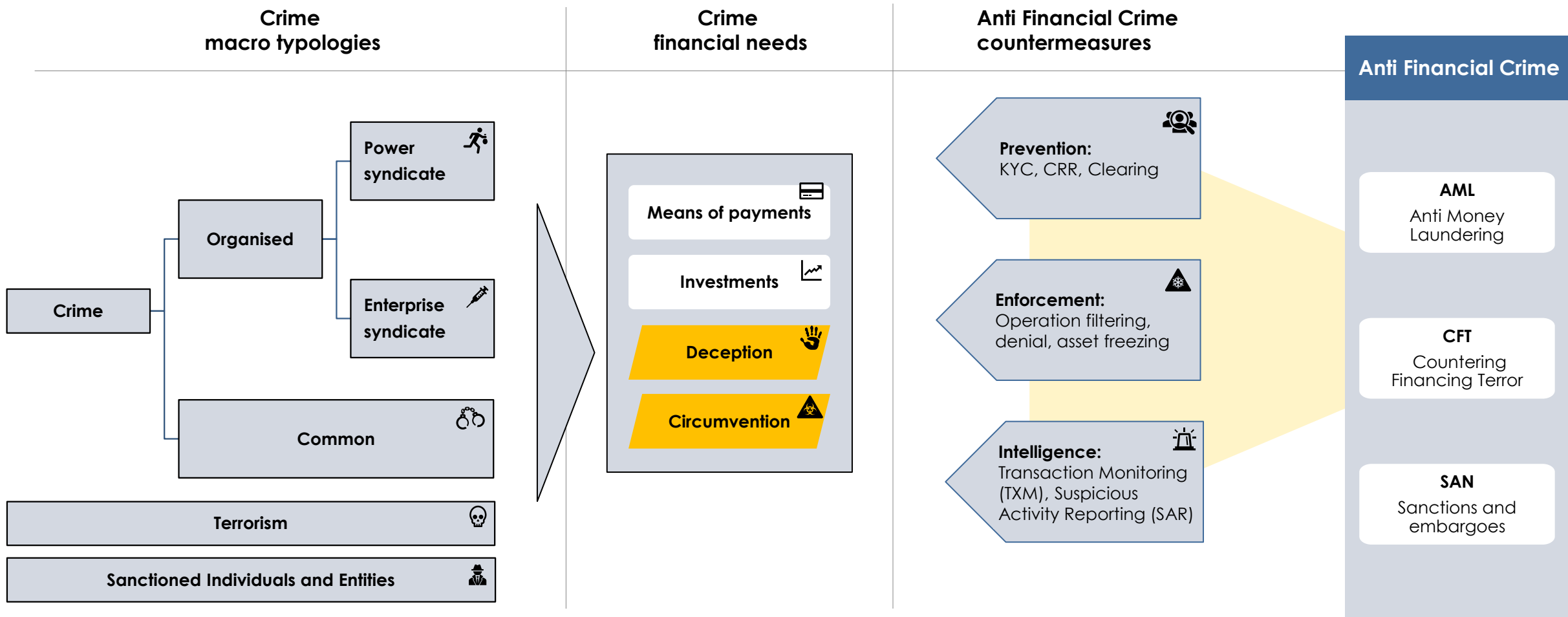
- Algorithm calibration
- Anomaly detection
- ATL analysis
- BTL analysis
- Calibration heat map
- Collective anomaly
- Context anomaly
- Coverage analysis
- Monitoring scenarios
- Point anomaly
- Red flag
- Rule-base algo
- SME Opinion



# Key concepts & definitions

# Anti Financial Crime (AFC) overall picture

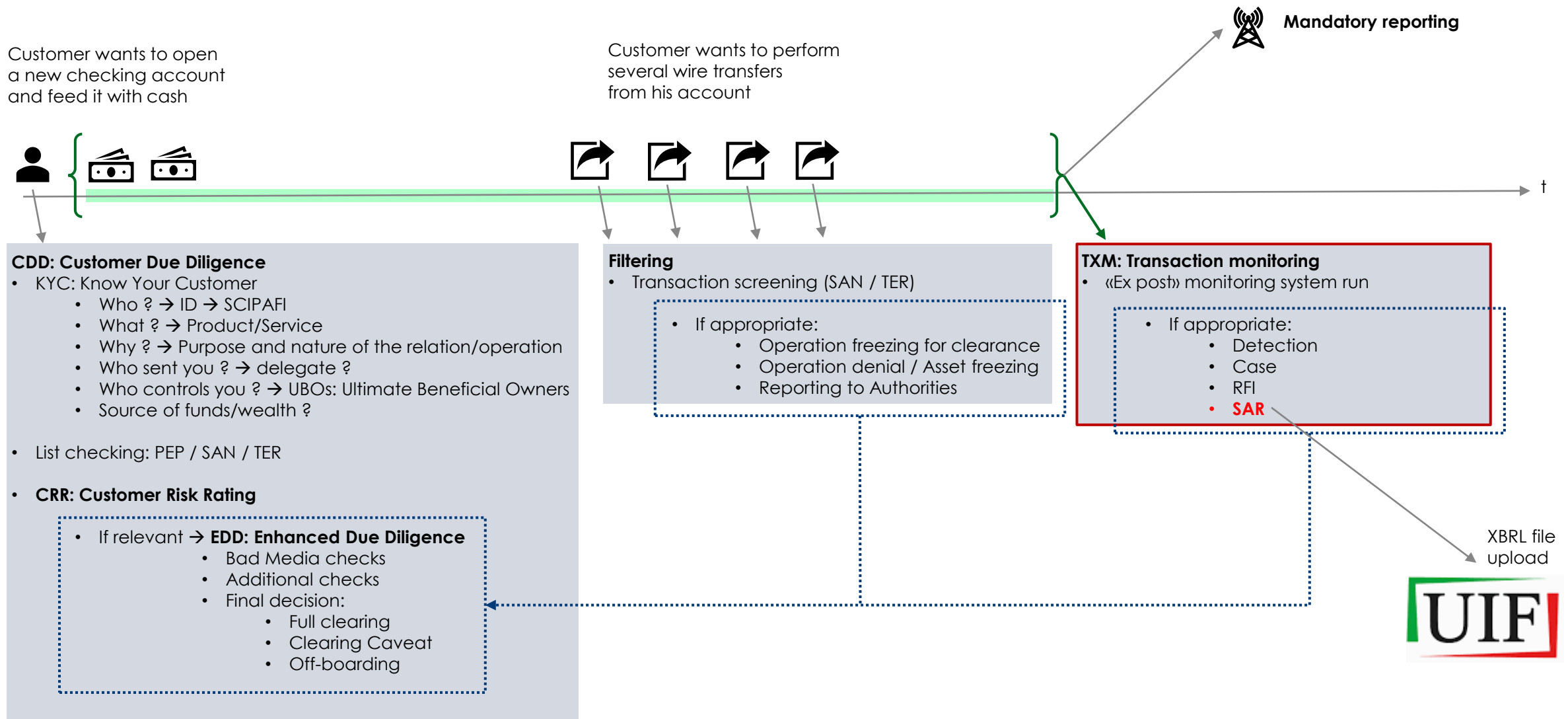
«Anti-social» behaving individuals and organisations have **financial needs** that they try to satisfy leveraging the services offered by the banking industry. Financial Institutions are therefore called to fulfill specific obligations in order to enable or to enforce the competent Authorities provisions against them.



# AFC end-to-end walk-through

6  
(simplified)

As an illustrative example, the following picture shows the core activities required by the AML/CFT/SAN regulations that, even with national peculiarities, are basically in place in almost every jurisdiction.



**Intesa  
Sanpaolo**

# Banking @ ISP

## EUROPE

### Direct Branches Representative Offices

Amsterdam	Brussels <sup>(1)</sup>
Frankfurt	Moscow
Istanbul	
London	
Madrid	
Paris	
Warsaw	

Country	Subsidiaries	Branches
Albania	Intesa Sanpaolo Bank Albania	33
Belgium	Compagnie de Banque Privée S.A. Quilvest	2
Bosnia and Herzegovina	Intesa Sanpaolo Banka Bosna i Hercegovina	46
Croatia	Privredna Banka Zagreb	146
Czech Republic	VUB Banka	1
Hungary	CIB Bank	61
Ireland	Intesa Sanpaolo Bank Ireland	1
Luxembourg	Compagnie de Banque Privée S.A. Quilvest Fideuram Bank Luxembourg Intesa Sanpaolo Bank Luxembourg	1 1 1
Moldova	Eximbank	17
Romania	Intesa Sanpaolo Bank Romania	34
Russian Federation	Banca Intesa	27
Serbia	Banca Intesa Beograd	147
Slovakia	VUB Banka	160
Slovenia	Intesa Sanpaolo Bank	41
Switzerland	Reyl Intesa Sanpaolo	3
Ukraine	Pravex Bank	45

## AFRICA

Representative Offices	Country	Subsidiaries	Branches
Cairo	Egypt	Bank of Alexandria	174



## AMERICA

Direct Branches	Representative Offices
New York	Washington D.C.

Country	Subsidiaries	Branches
Brazil	Intesa Sanpaolo Brasil	1

## AUSTRALIA/OCEANIA

Direct Branches
Sydney

## ASIA

Direct Branches	Representative Offices
Abu Dhabi	Beijing
Doha	Beirut
Dubai	Ho Chi Minh City
Hong Kong	Jakarta
Shanghai	Mumbai
Singapore	Seoul
Tokyo	

Total Assets euro 1,023,005 m
Loans to Customers euro 473,746 m
Direct Deposits from Banking Business euro 550,678 m
Direct Deposits from Insurance Business and Technical Reserves euro 173,945 m
Shareholders' Equity <sup>(1)</sup> euro 62,705 m
9M22 Net Income euro 3,284 m

~ 20.6 million Customers	~ 13.6 million in Italy
	~ 7 million abroad
4,620 Branches	3,662 in Italy
	958 abroad
Market Capitalisation <sup>(2)</sup> euro 40.3 bn	

Figures as at 30 September 2022

(1) Including Net Income

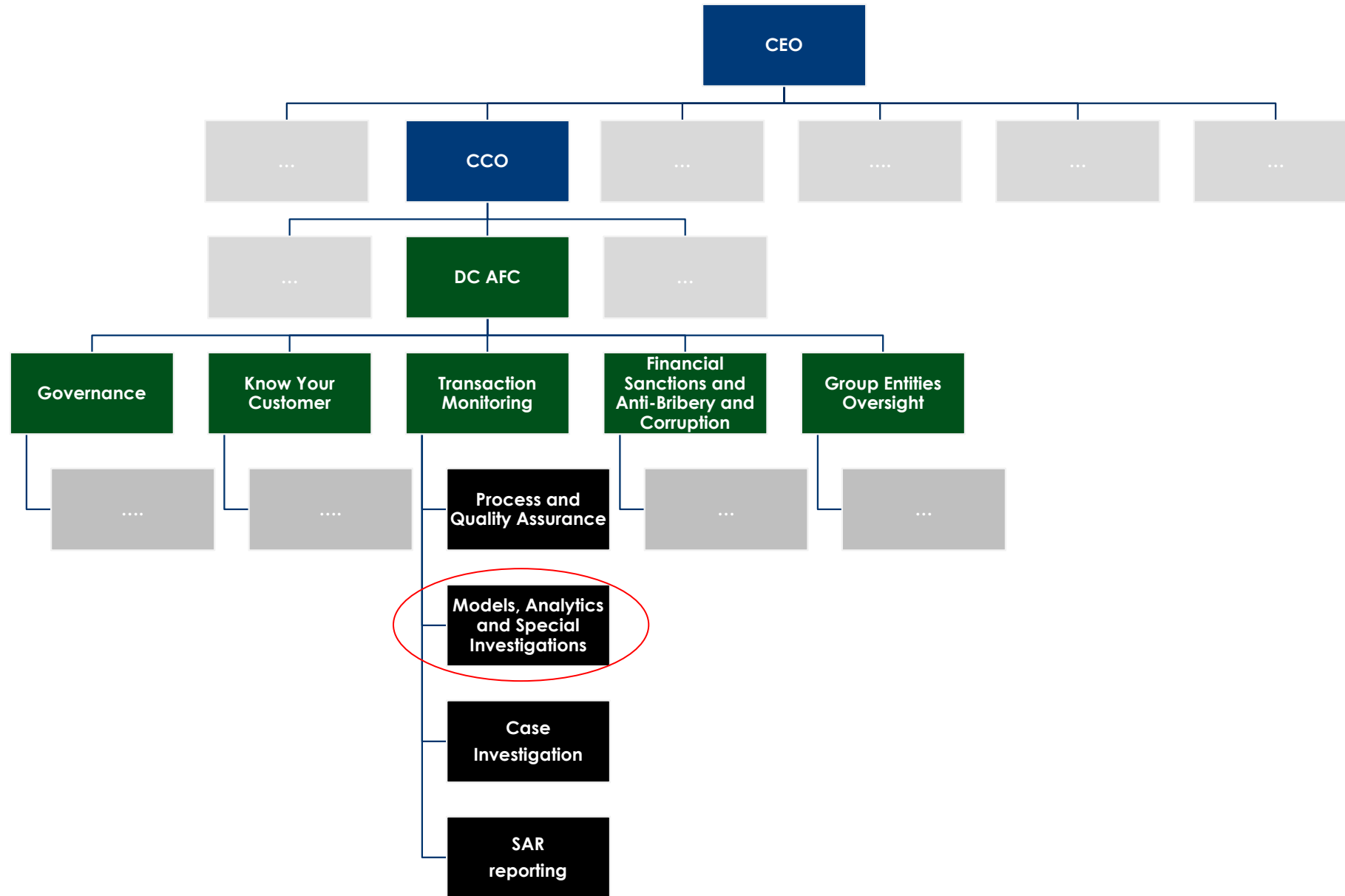
(2) As at 30 November 2022



# Anti Financial Crime @ ISP

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(simplified)



# Models, Analytics and Special Investigations

Leveraging skills coming from **diverse knowledge domains** (Banking, AFC, Quant, IT) the team is engaged in **solving tasks, frequently unplannable** in an **end-to-end** logic, regarding Transaction Monitoring (**TXM**) and Customer Risk Rating (**CRR**).

## Core activity

### Risk intelligence

- Oversight of technical literature, Red Flags, external and internal cases, OSINT
- Specific professional networking for continuous learning



### Models and Algos development

- Analysis of digital footprint of phenomena of interest starting from available data
- Development of Algos for monitoring and profiling



### Calibration and impact assessment

- Sensitivity analysis, parameter fine-tuning
- Performance simulations on production data



### Solution delivery & Improvement

- UAT, direct TXM products delivery, performance review, improvement actions, extensive documentation and knowledge management

## Deliverable

Risk analysis  
Coverage analysis

Data feeding analysis  
CRR models  
TXM algorithms

Parameters settings  
Performance simulations

Actionable products  
Performance reporting  
Improvement proposals

## Target

**Group Applications** (*Avaloq, Detica, Gianos, NetReveal, SafeWatch, Swift Compliance Analytics, WeAnti, ecc...*)

**Proprietary Algorithms** (*SQL, SAS, Python...*)

**Special investigations** (*Leaks, Cooperation with LEAs on specific target, Quant-intensive analysis*)

## Example 1

# Anomaly detection in wire transfers

# Wire transfers data

- ❑ One of the most powerful **mean of payment** in the financial industry is the **wire transfer** allowing the moving of relevant amount of funds almost in every corner of the planet with high speed of delivery provided that both the terminals party have a **banking account**.
- ❑ To perform a wire transfer, the following minimal vector of information should be arranged to identify **relevant players and items**:



Debtor (free text)	Debtor Agent (BIC.8)	Debtor Account (IBAN)	Creditor Account (IBAN)	Creditor Agent (BIC.8)	Creditor (free text)
Paolo Rossi Piazza Paolo Ferrari, 10 Milano	BCITITMM	IT03069077440123...	DE12123546781234...	DEUTDEFF	Martin Repulus, Frankfurt am Main, Germany

- ❑ **Transaction data** are required as well:

Amount	Currency	Value date	Remittance info
12.000,00	Euro	25/12/2022	Merry Christmas and happy new year!

# Wire transfers data & types of anomaly /1

Even in a small set of data such as the wire transfer ones, several types of anomaly are detectable:

❑ (single) **Point anomaly**: Multi-Jurisdiction

ORIGINATOR			ORIGINATOR BANK		TRANSACTION	BENEFICIARY BANK		BENEFICIARY		
Name	Country	Address	Name	Country	Amount	Name	Country	Name	Country	Address
Antonio Bianchi	Italy	Via Nuova del Campo 55 (Messina)	Bank A	Italy	€ 500,00	Bank A	Italy	Francesco Verdi	Italy	Via Sacchi 146 (Udine)
Azzurra Baldo	Italy	Via Spalato 136 (Venezia)	Bank A	Italy	€ 9.450,00	Bank B	Germany	Max Gerta	Germany	Leopoldstraße 73 (Berlin)
Zhelyazko Zorka	Bulgaria	24A, Gen. Ivan Kolev (Sofia)	Bank C	France	€ 14.450,00	Bank C	France	Madeleine Romane	France	47 cours Franklin Roosevelt (Marseille)

Regular  
transactions

Originator Country different from Ordering Bank Country

➤ This kind of anomaly could be spotted relying on a single datapoint feature (single wire transfer data)

→ In this example: why a Bulgarian customer is using an account in a Bank grounded in France ?



# Wire transfers data & types of anomaly /2

Even in a small set of data such as the wire transfer ones, several types of anomaly are detectable:

- ❑ **Context anomaly** → **velocity** (handling of funds **immediately** after having received them).

ORIGINATOR			ORIGINATOR BANK		TRANSACTION	BENEFICIARY BANK		BENEFICIARY		
Name	Country	Address	Name	Country	Amount	Name	Country	Name	Country	Address
Humberto Jenny	Spain	Puerto Lugar 92 (Malaga)	Bank D	Spain	€ 26.000,00	Bank D	Spain	Maite Antonia	Spain	Ventanilla de Beas 81 (Madrid)
Maite Antonia	Spain	Ventanilla de Beas 81 (Madrid)	Bank D	Spain	€ 26.000,00	Bank D	Spain	Maja Benedykt	Poland	ul. łowicka 97 (Warszawa)

- To spot this kind of anomaly a time-series (context) of transaction both incoming and outgoing from/to the same account should be considered.

→ In this example: why funds are just landed and wiped-out during the very same day ?



# Wire transfers data & types of anomaly /3

Even in a small set of data such as the wire transfer ones, several types of anomaly are detectable:

## ❑ Collective anomaly → shell companies?

ORIGINATOR			ORIGINATOR BANK		TRANSACTION	BENEFICIARY BANK		BENEFICIARY		
Name	Country	Address	Name	Country	Amount	Name	Country	Name	Country	Address
Angelo Mario	Italy	Discesa Gaiola 96 (Potenza)	Bank A	Italy	€ 17.230,00	Bank G	UK	Iconic Tech	UK	85 Great Portland Street (London)
Achilleas Areti	Croatia	Mate Lovraka 4 (Rijeka)	Bank E	Croatia	€ 9.582,00	Bank G	UK	Sport Hero	UK	85 Great Portland Street (London)
Rute Diana	Portugal	R Tapada Marinha 52 (Porto)	Bank F	Portugal	€ 14.345,00	Bank G	UK	Finance Solve	UK	85 Great Portland Street (London)

Different companies registered at the same address

- To spot this kind of anomaly a collective ensemble of transaction should be scrutinized to find out a remarkable anomaly consisting in the very same address hosting a number of different companies.

→ In this example: how many companies in the same address? Are they real or just on paper ?



## Illustrative examples from WWW

<https://find-and-update.company-information.service.gov.uk/advanced-search/get-results?companyNameIncludes=&companyNameExcludes=&registeredOfficeAddress=great+portland%2C+85&incorporationFromDay=&incorporationFromMonth=&incorporationFromYear=&incorporationToDay=&incorporationToMonth=&incorporationToYear=&sicCodes=&dissolvedFromDay=&dissolvedFromMonth=&dissolvedFromYear=&dissolvedToDay=&dissolvedToMonth=&dissolvedToYear=>

<https://www.google.com/maps/place/85+Great+Portland+St,+London+W1W+7LT,+Regno+Unito/@51.5184791,-0.1420221,3a,75y,262.45h,105.26t/data=!3m6!1e1!3m4!1saR1qiS1Gb2KRvSQ3PR55IA!2e0!7i13312!8i6656!4m5!3m4!1s0x48761ad5966688f5:0x7f597ce753ed6230!8m2!3d51.5185048!4d-0.142214>

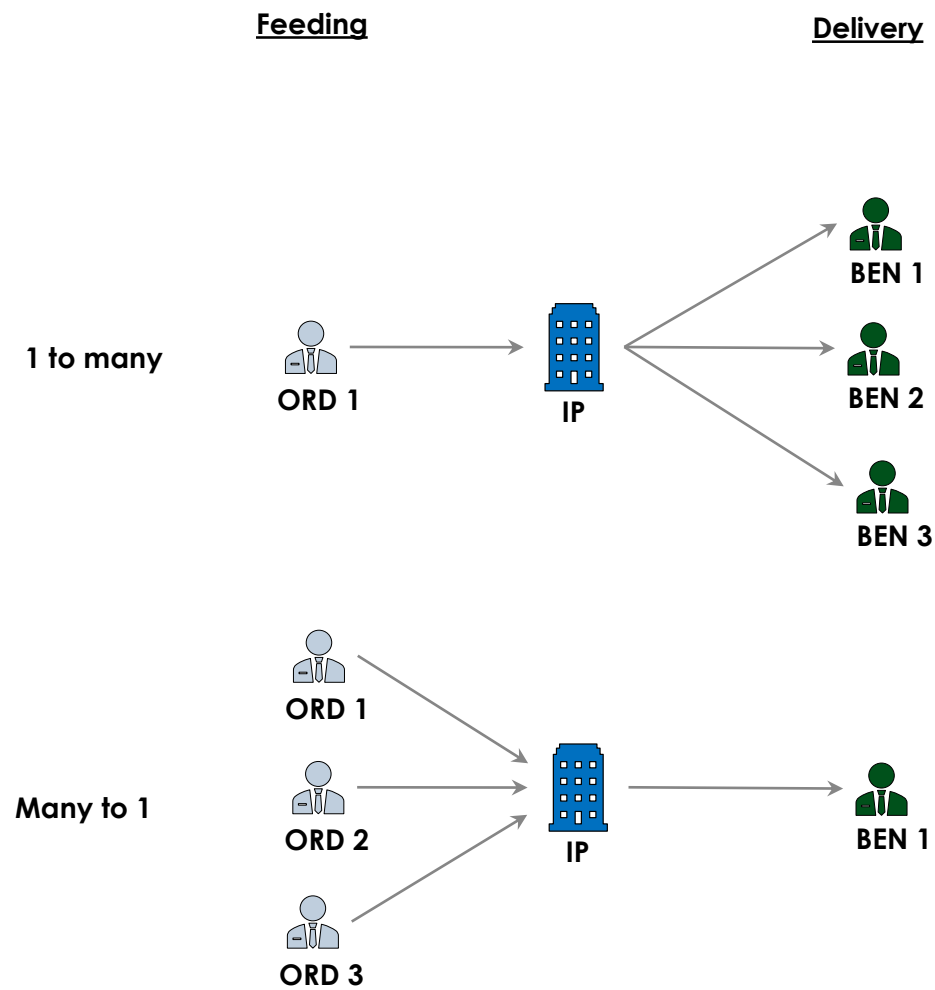
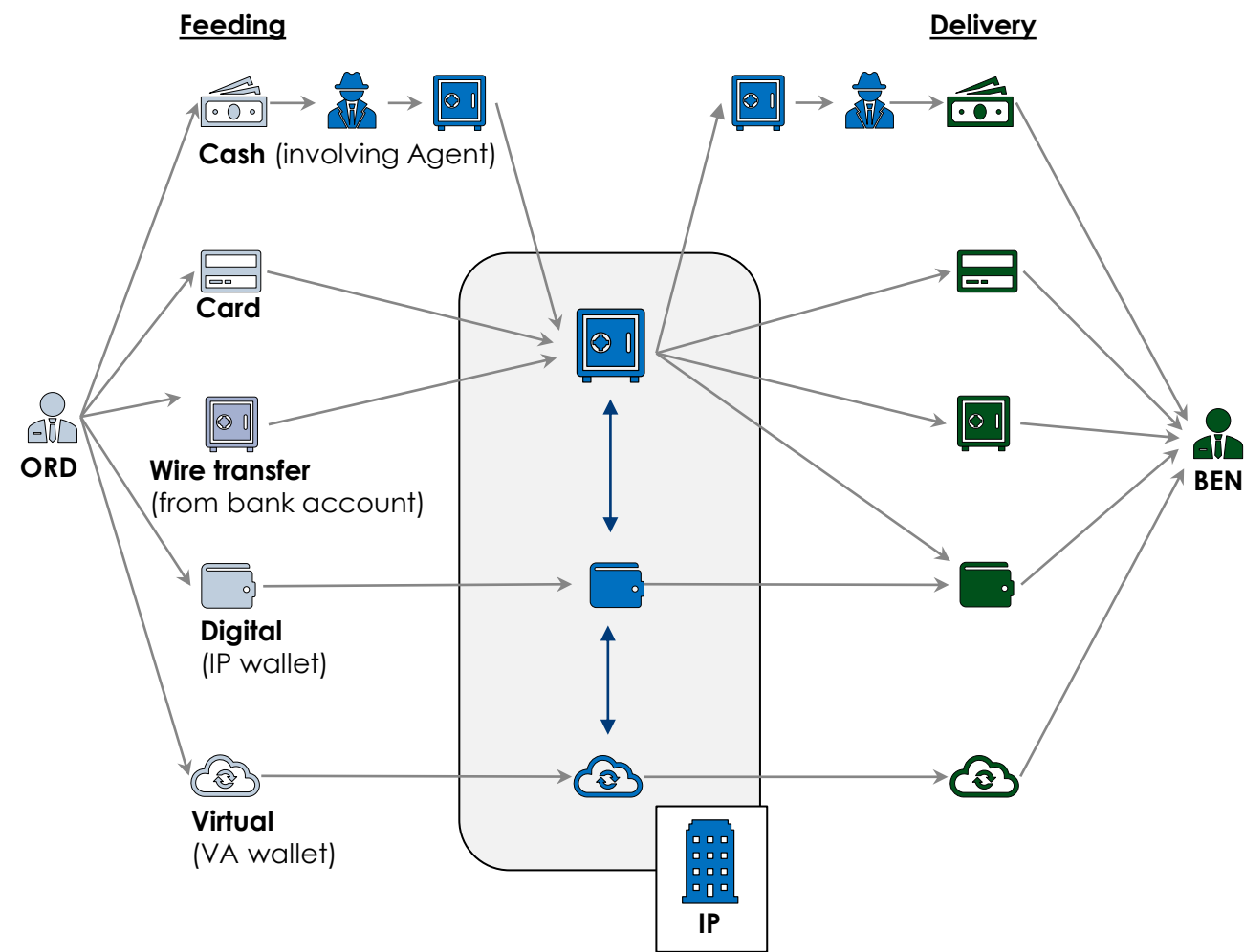
[https://thelondonoffice.com/?gclid=Cj0KCQiAnKeCBhDPArlsAFDTLTJNDXTJSCms51PLHNUf4pjW01HX9eKjjFdBc9IzVbjDhiRJnIfNhSaAvTIEALw\\_wcB](https://thelondonoffice.com/?gclid=Cj0KCQiAnKeCBhDPArlsAFDTLTJNDXTJSCms51PLHNUf4pjW01HX9eKjjFdBc9IzVbjDhiRJnIfNhSaAvTIEALw_wcB)



# IP transaction flows properties → impacts

IP flows may involve **seamlessly different payment means** only partially observable by involved banks:

IP flows possible may **aggregate or decoupling** several transactions coming from or directed to the **same players**, potentially **using a single operating IBAN** thus impairing the banks' standard safeguards:

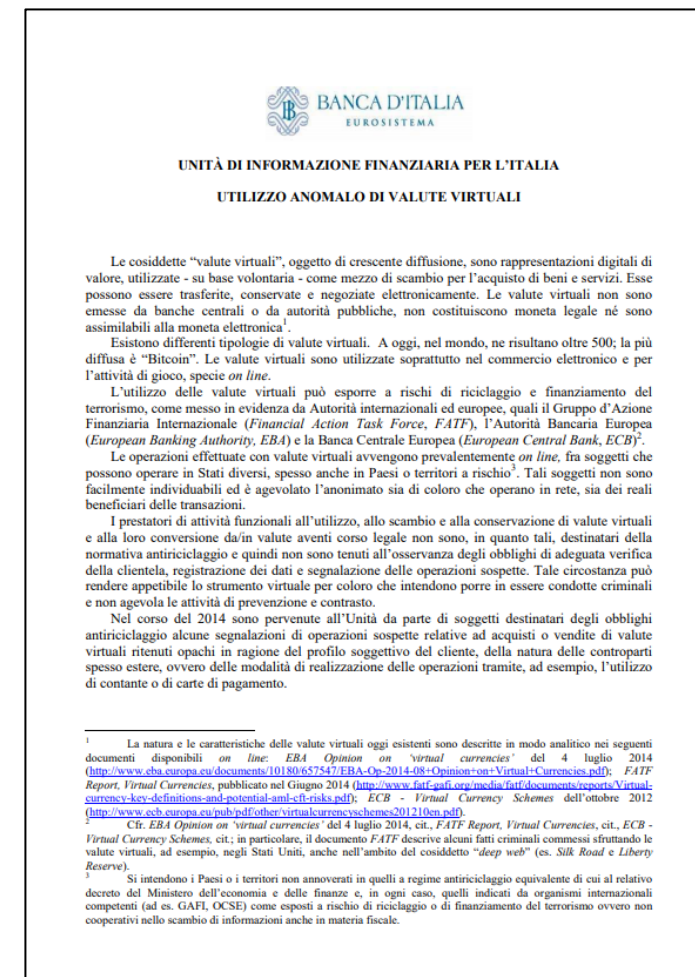


## Example 2

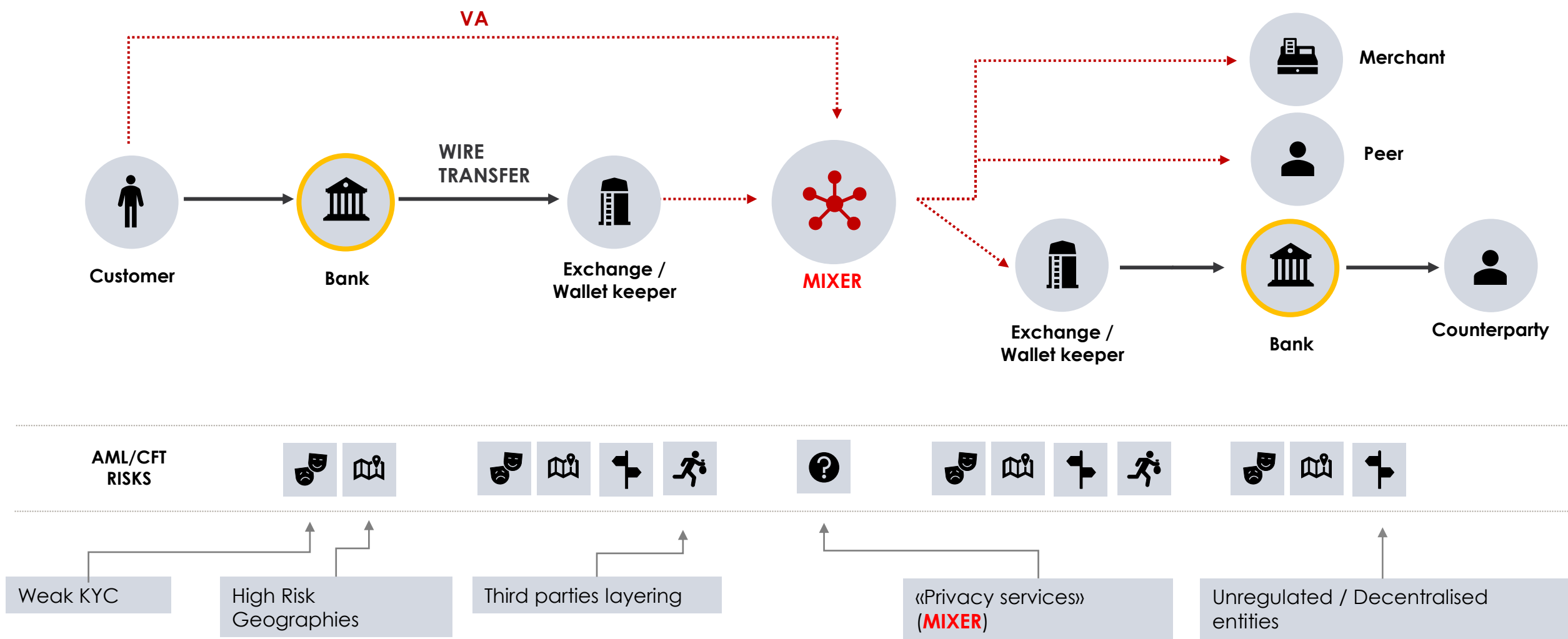
## Virtual Assets

# Virtual Assets: risk intelligence /1

- ❑ Utilizzo anomalo valute virtuali (UIF, 30.01.2015 e UIF, 28.05.2019)
- ❑ Virtual Assets Red Flag Indicators of Money Laundering and Terrorist Financing (FATF, 14.09.2020)
- ❑ Cryptocurrencies: tracing the evolution of criminal finances (Europol, 02.09.2022)



# Virtual Assets: risk intelligence /2



# From Red Flags to monitoring features definition

**CUSTOMER PROFILING**

- High Risk (SAR, Investigation, HRG, ecc...)
- Customer unfitting a VA operational activity or potential role of collecting money from others

**COLLECTION OF FUNDS → VA**

Anomalous collection of funds apparently related to Virtual Assets purchasing:

- ① CASH
- ② WIRE / CARDS

**VA → USAGE OF FUNDS**

Anomalous usage of funds apparently connected from Virtual Assets trading:

- ④ CASH
- ⑤ Wipe-out speed by WIRE / CARDS
- ⑦ From VA to VA

N	Monitoring scenarios - Collection
1	CASH to VA
2	Other channels to VA
3	VA from unfitting / High Risk customers
7	From VA to VA

N	Monitoring scenarios - Usage
4	VA to CASH
5	VA to Other channels
6	VA to unfitting / High Risk customers
7	From VA to VA

# Simplified operational workflow /1



22



## Virtual Assets e Cryptocurrencies

- **Over 5.600** different VA, with largely diverse degree of maturity
- Source: OSINT



## Virtual Asset Service Providers

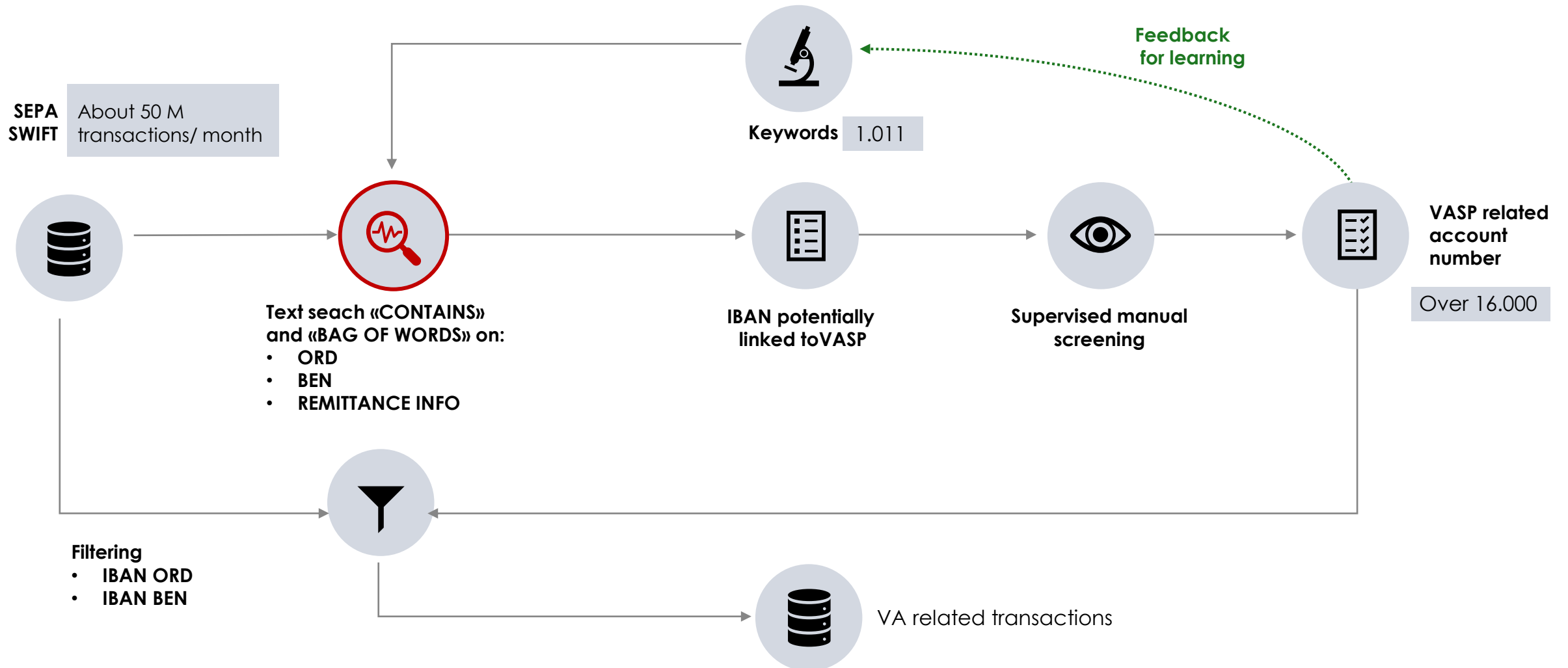
- **Over 280** with very diverse business model, fiat currency approach, regulation
- Source: OSINT



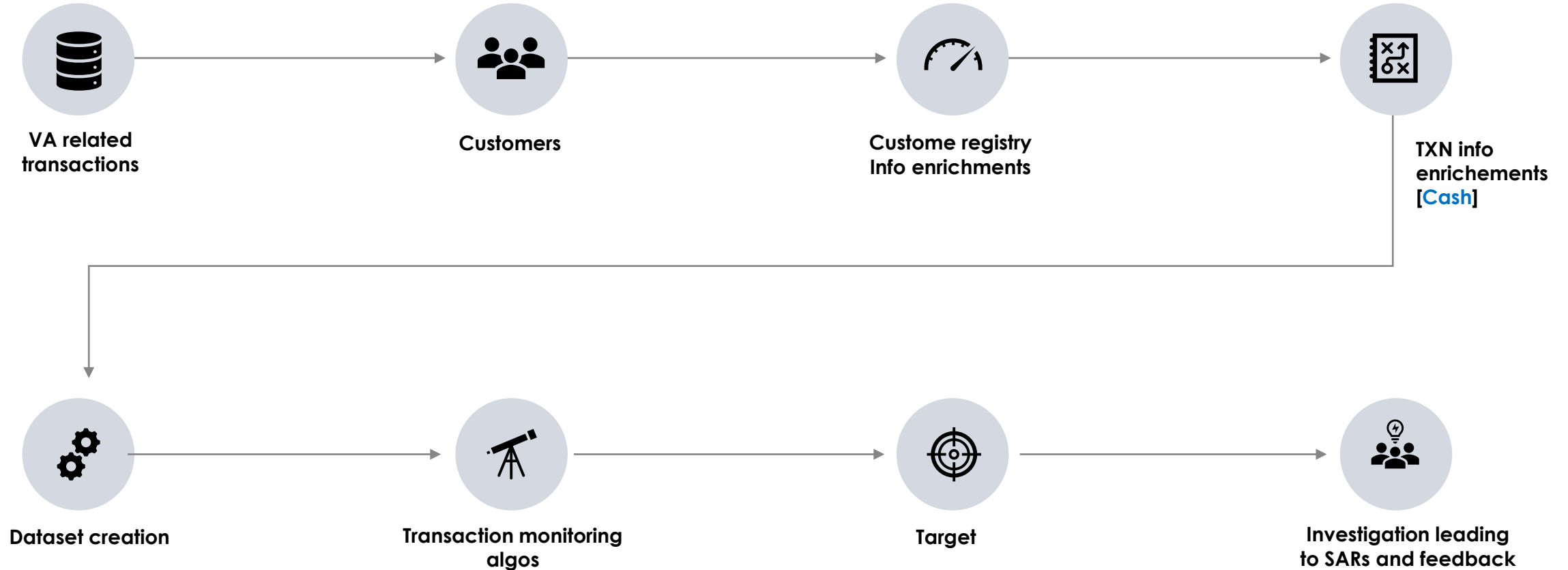
## Keywords

- Candidate keyword registration
- Elimination of not adequately discriminant terms (AGI, BAL, ELECTRON)
- VA → VASP & VASP → VA cross-check
- → Over **1.011 keyword**

# Simplified operational workflow /2







# Simplified operational workflow /3





# Virtual Assets: SARs

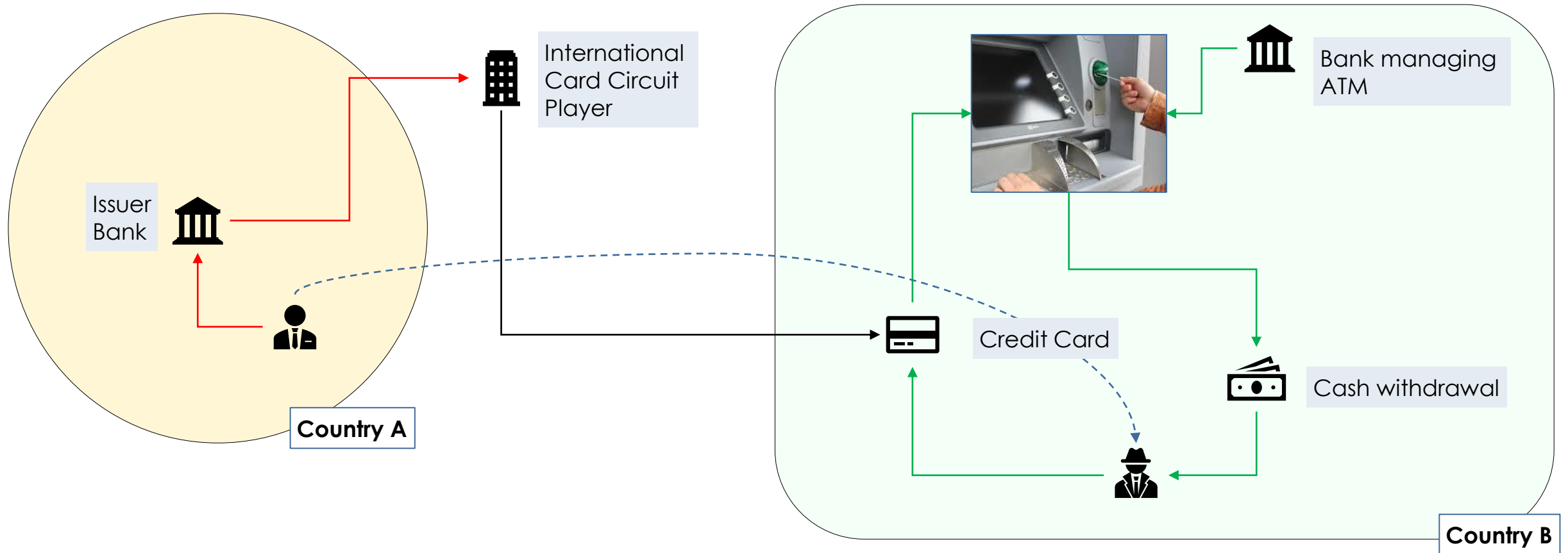
## Illustrative examples

 CASE 1	 CASE 2	 CASE 3	 CASE 4
<ul style="list-style-type: none"><li>• House keeper</li><li>• Argentina</li><li>• 54</li></ul>	<ul style="list-style-type: none"><li>• Unemployed</li><li>• Nigeria</li><li>• 28</li></ul>	<ul style="list-style-type: none"><li>• Unemployed</li><li>• Romania</li><li>• 52</li></ul>	<ul style="list-style-type: none"><li>• Student</li><li>• Italian</li><li>• 22</li></ul>
<ul style="list-style-type: none"><li>• Sell VA: 90.000 €</li></ul>	<ul style="list-style-type: none"><li>• Cash-in: 8.370 €</li></ul>	<ul style="list-style-type: none"><li>• Sell VA: 21.057 €</li></ul>	<ul style="list-style-type: none"><li>• Sell VA: 50.240 €</li></ul>
<ul style="list-style-type: none"><li>• Buy VA: 90.400 €</li></ul>	<ul style="list-style-type: none"><li>• Buy VA: 8.078 €</li></ul>	<ul style="list-style-type: none"><li>• Wire out: 20.924 €</li></ul>	<ul style="list-style-type: none"><li>• Wire out: 53.237 €</li></ul>

## Example 3

## ATM Withdrawals







# Introduction: ATM withdrawals, a blind spot ?

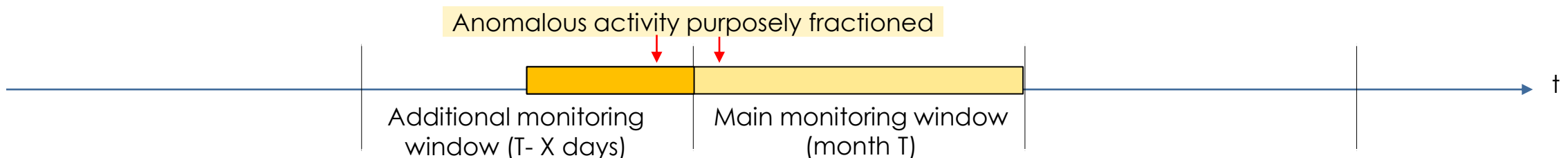


- ❑ Transaction Monitoring about ATM withdrawals in Country B has several **complexity factors** when Issuer is in Country A.
- ❑ Moreover, while the Customer of the Issuer Bank should be the same person performing cash withdrawals in Country B, actually this is not always the case.

# ATM Withdrawals → Risk indicators

- ❑ Following Italian and International Red Flags concerning ATM Withdrawals, the following **Risk Indicators** has been developed and enveloped in a single proprietary transaction monitoring algorithm on «**more than monthly**» basis:

	Risk indicators (RI)	Description	Parameter
	<b>Withdrawals intensity</b>	Amount of withdrawals on monthly basis	$\geq X \text{ €}$
	<b>Withdrawals time</b>	% of withdrawals between XX:XX - XX:XX	$\geq X\%$
	<b>Structuring operations able to circumvent the mandatory reporting obligations</b>	Amount of cash withdrawals performed by single operations $< X \text{ €}$	$\geq X \text{ €}$
	<b>Multiple withdrawals on daily basis</b>	Average withdrawals operations on withdrawal days	$\geq X$
	<b>Multiple consecutive withdrawals by the same card</b>	% amount withdrawn by consecutive operations in X minutes distance on same PAN and same ATM	$\geq X\%$
	<b>Prevalent usage of the card for withdrawal operations</b>	% POS spending / (Cash withdrawals + POS spending)	$\leq X\%$



## Example 4

## TXM system calibration

# Transaction monitoring: rule-based approach /1

- ❑ AML legislation at international level defines the scope for the fight against financial crimes, but does **not provide technical guidance** for the practical implementation of regulatory requirements for two main reasons:
  1. obliged entities are highly heterogeneous
  2. AML obligations must be declined on the basis of the risk to which the subjects are exposed.
- ❑ Most financial institutions today adopt a **rule-based approach** to automate transaction monitoring operations.

**Example:** if the amount of a transfers from a country considered to be a High Risk Geography (HRG) is greater than € X on monthly basis, the transaction must be investigated.



Transfer A  
Amount: € 5.000



Regular  
transaction

Transfer B  
Amount: € 15.000



Reported  
transaction

Human  
investigation

# Transaction monitoring: rule-based approach /2

- ❑ **Monitoring scenarios** (rules) are defined on the basis of **Red Flags** provided by international authorities, which define potential risks of financial crimes.

## Example: the Jurisdiction Risk

- ❑ Some countries are known for their high rates of corruption, unstable governments or inadequate AML/CFT regulation. Transactions involving these nations need to be carefully monitored.
- ❑ ISP has developed **two monitoring scenarios** to counteract this risk:

### Originator Country Different From Ordering Bank Country

This scenario detects if the second party's country differs from the second party bank's country for a certain number of transactions **received** in a month with an aggregate amount equal to/greater a specified threshold.

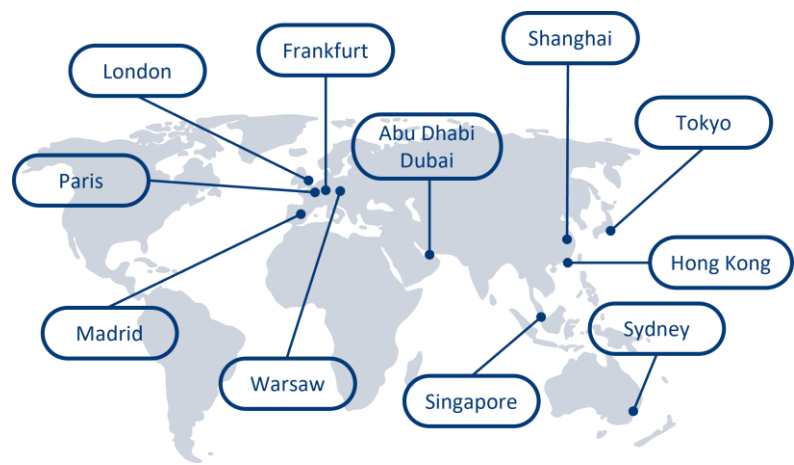
### Beneficiary Country Different From Beneficiary Bank Country

This scenario detects if the second party's country differs from the second party bank's country for a certain number of transactions **sent** in a month with an aggregate amount equal to/greater a specified threshold.

- ❑ **Calibration Refresh exercises** are periodically carried out to review the scenarios' thresholds in light of past results to optimize the monitoring.

# Calibration Refresh Exercise on Foreing Branches /1

❑ The following slides show an example of Calibration Refresh Exercise conducted in 2022 on the portfolio of active monitoring scenarios in the 12 Foreign Branches of the Group.



Monitoring scenario theme	
Funneling	Activities of multiple bank deposits that feed a single bank deposit
Watch list	Transactions to/from monitored customers or bank deposits
Profiling	Comparison between expected use and actual use of banking products by customers
Velocity	Handling of funds immediately after having received them
Structuring	Splitting of transactions with the aim of avoiding AML controls
Geography	Transactions to/from high risk geographies

## Methodology

### Dataset creation



Acquisition of the transactional flows of each Foreign Branch for 13 months.

### Scenario review and fine-tuning



Revision of Python mimics for independent testing on the selected dataset in order to optimize the logics of the monitoring scenarios.

### Heatmaps production and Quantitative analysis



Further details in the next slides

Following the production of the Heatmaps containing the expected monthly detections a quantitative analysis has been executed in order to select proper thresholds

### Results sharing



Further details in the next slides

Results sharing with the AML Local Officers of each Foreign Branch and feedback collection based on their local understading of the business as well as local regulation. Consequently, proceed with the sign-off of the proposed thresholds and go-live.



# Calibration Refresh Exercise on Foreing Branches /2<sup>33</sup>

## Heatmaps production

ILLUSTRATIVE

```
for SCENARIO in SCENARIOS:
    print(SCENARIO)
    PARLI = GetParams(SCENARIO=SCENARIO,THS=THS); VARS = PARLI['V'];
    if SCENARIO in ['DS24','DS29']:
        DATA = GetData(SCENARIO,VARS)
        DATA = DATA.reset_index(drop = True)
        DATA.to_feather(percorso_FIL_DATA+SCENARIO+'.ftr')
        #INTESA SAN PAOLO removal
        DATA = DATA[~(DATA['CUSTOMER_SOURCE_UNIQUE_ID'] == ID_ISP)]
        for SEG in SEGMENTS:
            DATA_SEG_DB = DATA[DATA.CUSTOMER_SEGMENT_1==SEG]
            TO_DEL = []
            DATA_SEG = DATA_SEG_DB[~DATA_SEG_DB.CUSTOMER_SOURCE_UNIQUE_ID.isin(TO_DEL)]
            if DATA_SEG.shape[0] == 0:
                DATA_SEGWO = DATA_SEG
            else:
                CHK = OutDet(DATA=DATA_SEG[VARS],SCL=0,ME=0,MCD=False,THMHAL=0.001,Verbose=True,ONLYCHK=True)
                DATA_SEG.loc[:, 'CHK'] = CHK
                DATA_SEGWO = DATA_SEG[DATA_SEG['CHK']==0]

        GRIDXLSX = pd.read_excel(percorso_DOCUMENTI + 'ZZ_SCENARI.xlsx',sheet_name='PARAM')
        TAB_PARAM = GRIDXLSX[(GRIDXLSX['FILIALE']==filiale) & ((GRIDXLSX['SEGMENTO']==SEG)) & ((GRIDXLSX['SCENARIO']==SCENARIO))]
        AVGBAL_SEG_MAX = TAB_PARAM['TH'].values[0]
        DATA_SEGWO.sort_index(inplace=True)
        DATA_SEGWO = DATA_SEGWO[(DATA_SEGWO.Average_Balance < AVGBAL_SEG_MAX)]
        DATA_SEGWO['zg'] = TAB_PARAM['TH']
```

To the left, it is shown a small **Python mimics** code extract of the construction of each scenarios. This part of code is used to handle an exception for 2 particular scenarios, which must produce detections considering three monitoring dimensions.

The **heat map** in the example below refers to a multi-jurisdiction monitoring scenario. The blue identifies the riskiest 15% of the population. The red cell shows the monthly average production of detection using the baseline thresholds.

ILLUSTRATIVE

		accum_month																	
		0	5000	10000	15000	20000	25000	30000	35000	40000	45000	50000	55000	60000	65000	70000	75000	80000	90000
numOps_month	0	31,92	22	17,77	15,31	12,92	11,38	10,77	10,23	9,31	8,77	8,62	8,31	7,77	7,31	7,08	7	6,85	6,85
	1	19,69	16,69	13,92	12,23	10,15	9,08	8,62	8,23	7,38	6,85	6,77	6,62	6,31	6	5,77	5,69	5,54	5,54
	2	14,92	13,69	12	10,46	8,62	7,69	7,23	6,92	6,31	5,92	5,85	5,77	5,54	5,23	5	5	4,92	4,92
	3	11,46	10,69	9,46	8,46	7,08	6,15	5,85	5,62	5,15	4,85	4,77	4,69	4,46	4,23	4	4	3,92	3,92
	4	9	8,46	7,46	6,92	5,85	5,15	4,92	4,77	4,38	4,31	4,23	4,15	4	3,77	3,54	3,54	3,46	3,46
	5	5,92	5,62	4,92	4,62	3,69	3,23	3,08	2,92	2,62	2,62	2,54	2,46	2,38	2,23	2	2	1,92	1,92
	6	4	3,85	3,31	3,08	2,46	2,15	2,08	2	1,85	1,85	1,77	1,69	1,69	1,62	1,38	1,38	1,38	1,38
	7	3,38	3,23	2,69	2,46	2	1,69	1,62	1,54	1,38	1,38	1,31	1,23	1,23	1,15	0,92	0,92	0,92	0,92
	8	2,62	2,54	2	1,85	1,38	1,15	1,15	1,08	1	1	0,92	0,85	0,85	0,77	0,54	0,54	0,54	0,54
	9	2,31	2,23	1,69	1,54	1,08	1	1	0,92	0,85	0,85	0,77	0,69	0,69	0,69	0,46	0,46	0,46	0,46
	10	2,23	2,15	1,62	1,46	1	0,92	0,92	0,85	0,77	0,77	0,69	0,62	0,62	0,62	0,46	0,46	0,46	0,46

# Calibration Refresh Exercise on Foreign Branches /3<sup>34</sup>

## Quantitative analysis and thresholds selection

□ The selection of new thresholds is based on the following rationales:

1. statistical insights deriving from position and dispersion statistical measures;
2. thresholds optimization based on the SARs and Cases (**ATL/BTL analysis**);
3. thresholds Group consistency:



**Fine tuning of parameters** in order to sharpen monitoring focus, while:

- reducing not useful detections (false positive)
- introduce robust parametrisation (local stability and homogeneity of thresholds)



Ensure **twin scenarios consistency** (i.e. incoming/outgoing cross-border wire transfer parameters)



Ensure ISP **Group wide consistency** (i.e. same scenarios in different entities have comparable settings while managing local peculiarities)



**Tighten safeguards related to high-risk geographies**

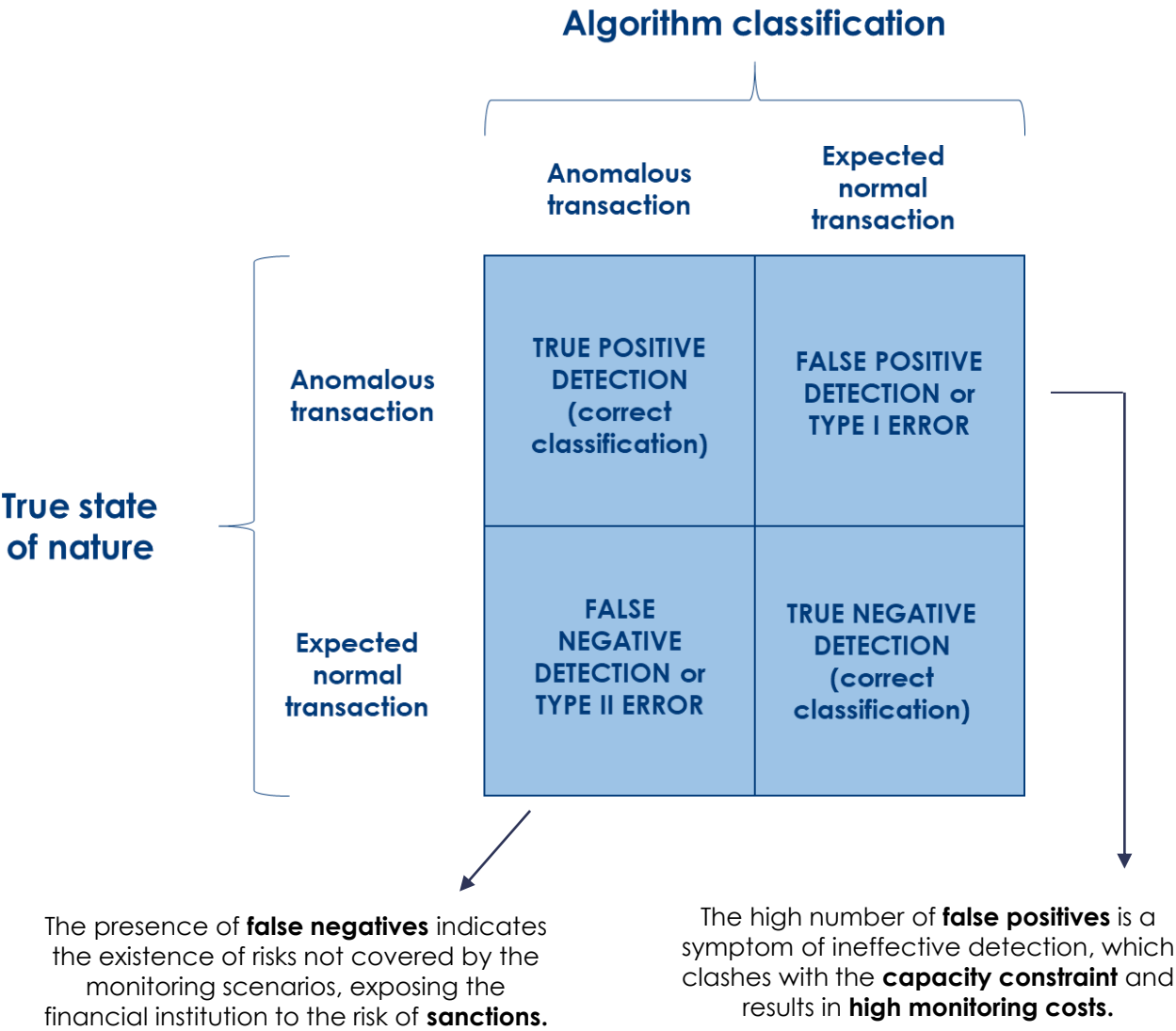
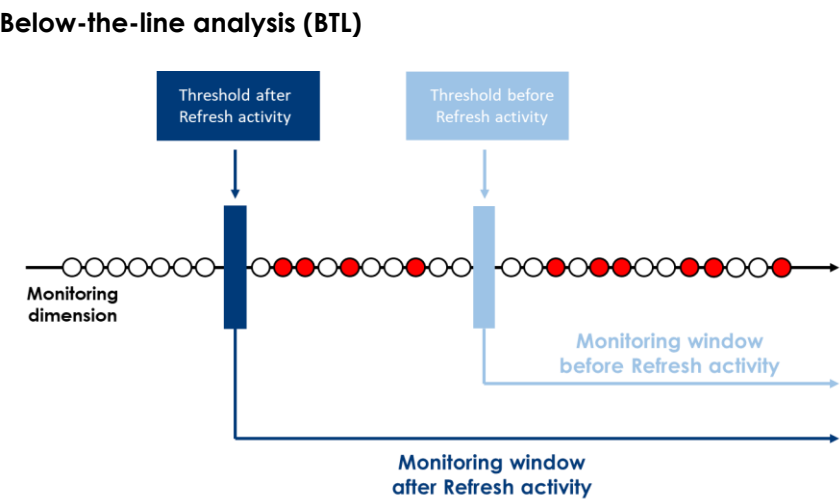
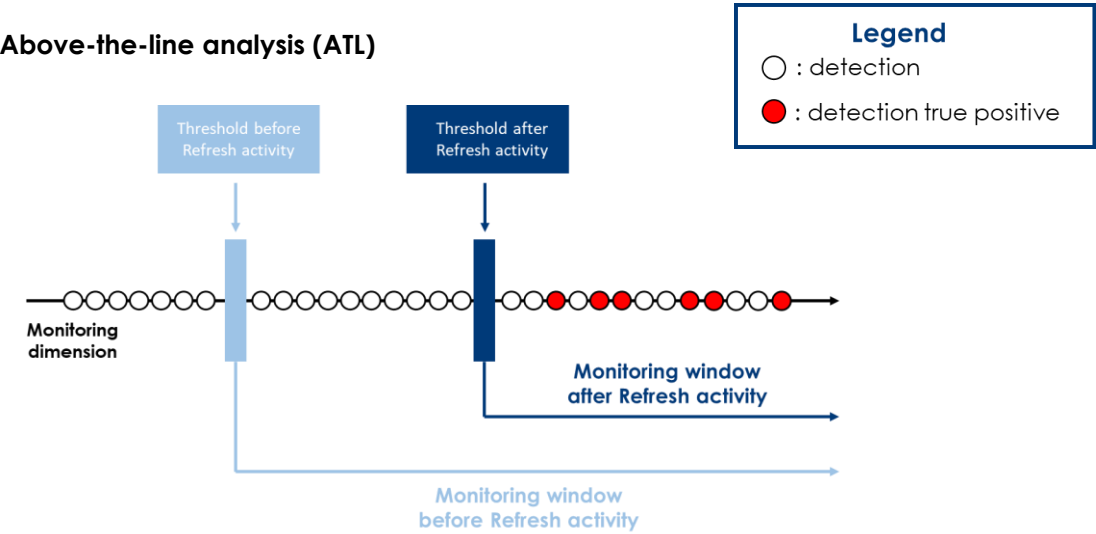


Evaluate **selective switching off** of specific combination scenarios-segments where:

- scenario logic is not fitting with business segment
- time series of detection evaluation present no confirmed true positive while remarkable detection volumes production.

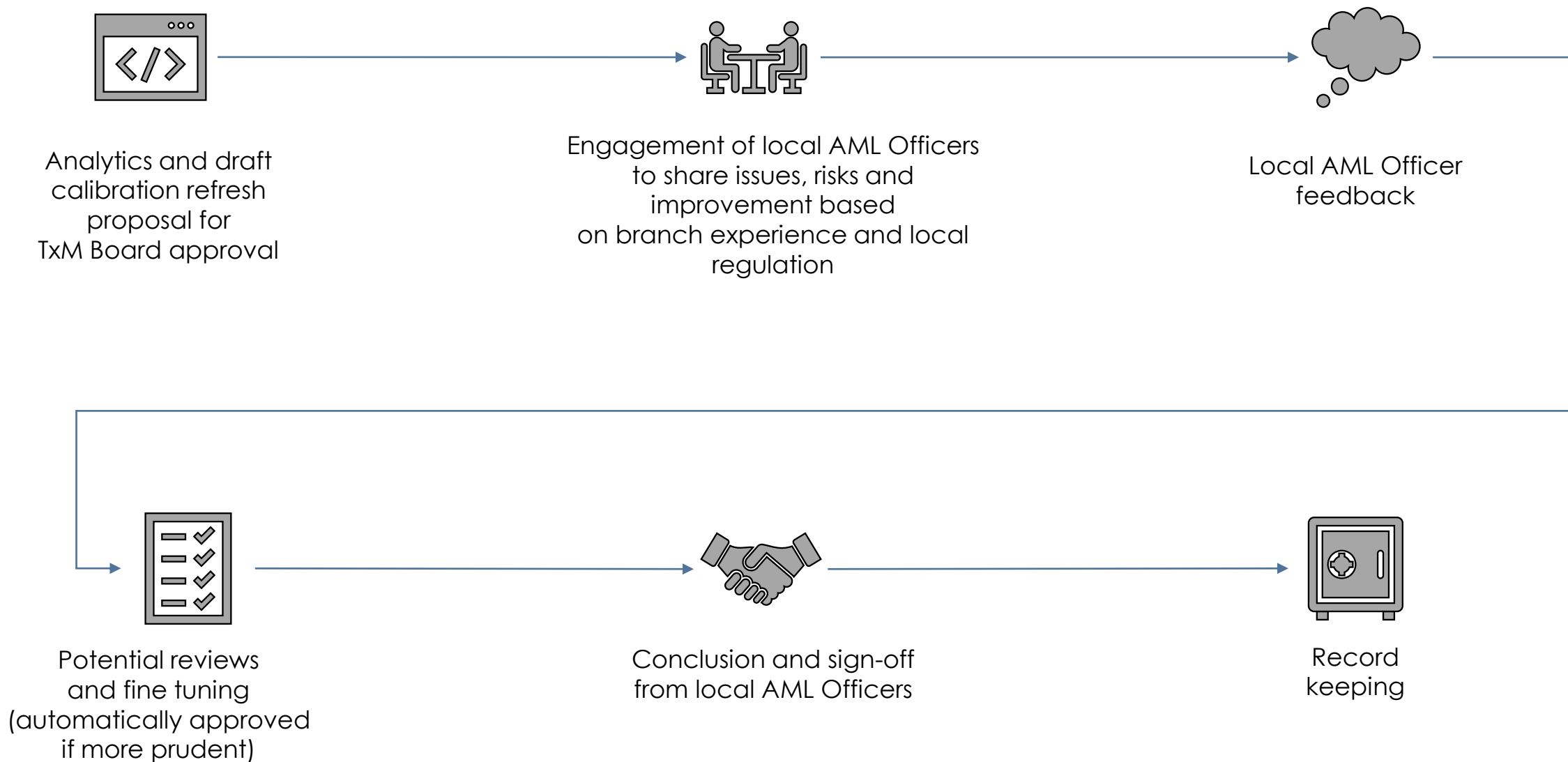
# Calibration Refresh Exercise on Foreing Branches /4<sup>35</sup>

Quantitative analysis and thresholds selection



# Calibration Refresh Exercise on Foreing Branches /5<sup>36</sup>

Sharing process



**Final remarks**

**Opportunities**

# AFC TXM Challenges & Opportunities

## Knowledge complexity



- **Multi-disciplinary** (Banking, Crime, ICT, Data Science... )
- Weak regulatory guidance vs demanding expectations
- Relevance of **private assets for knowledge creation** (e.g. data, payment circuits engagements, etc...)
- Severe **information protection** requirements (security, privacy)

Lack of public  
(operational)  
knowledge

## Technological complexity



- **Data**: Big, diverse, unclean...
- **Algorithm**: reactive, unperforming, OOTB vs Proprietary
- **Process**: legacy constraints, severity of go-pro requirements

Diverse challenges:  
From R&D  
to Technology transfer

## Coverage

- Are we managing all the **AML/CFT risks** ?

## Accuracy

- Maximise **True positive detections** on Total generated detections rate

## Recall

- Are we missing **any relevant case** ?

# Some opportunities

