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London – 4 July 2019

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Financial Crime: AI, systems and process. Building trust in the digital age

David Hannan

4th July 2019

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Financial crime – still rarely identified

UN: *"at least* **US$1.6 trillion** *is laundered through the global financial system each year"*

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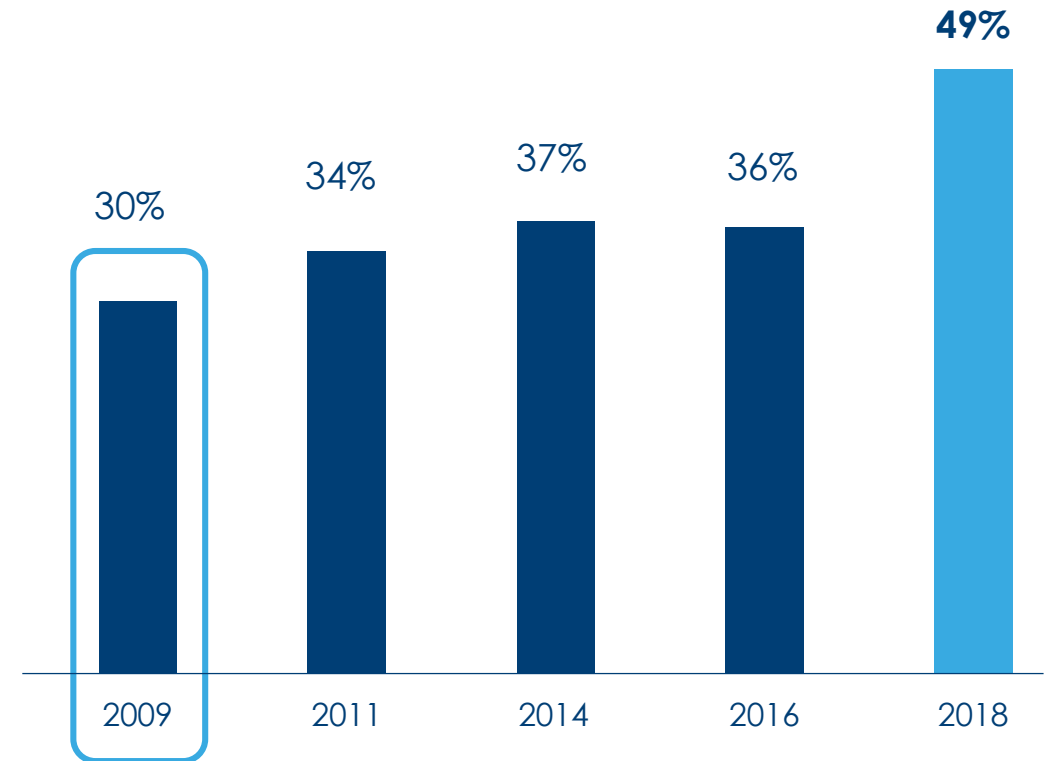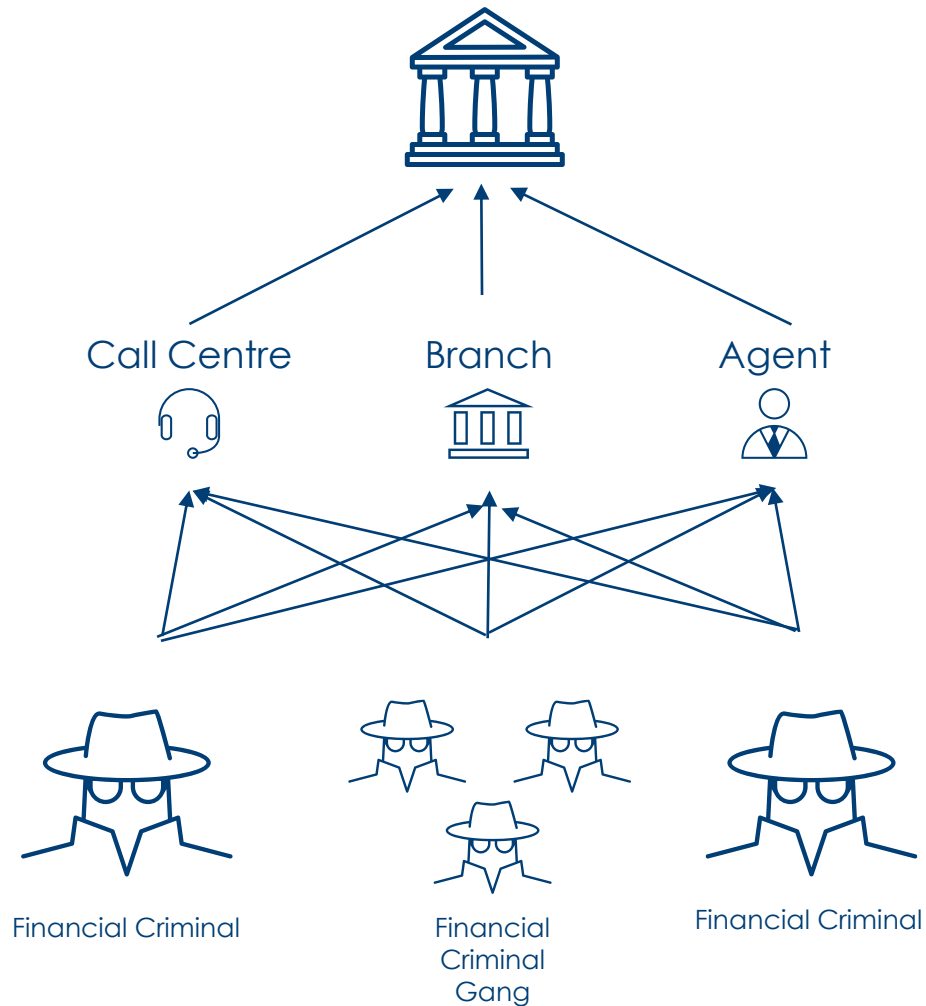
Financial crime – still rarely identified

*Only **1%** of money laundering illicit flows are intercepted*

Any sort of Financial crime leads to Money laundering because the illegitimate funds must be made available and legitimized.
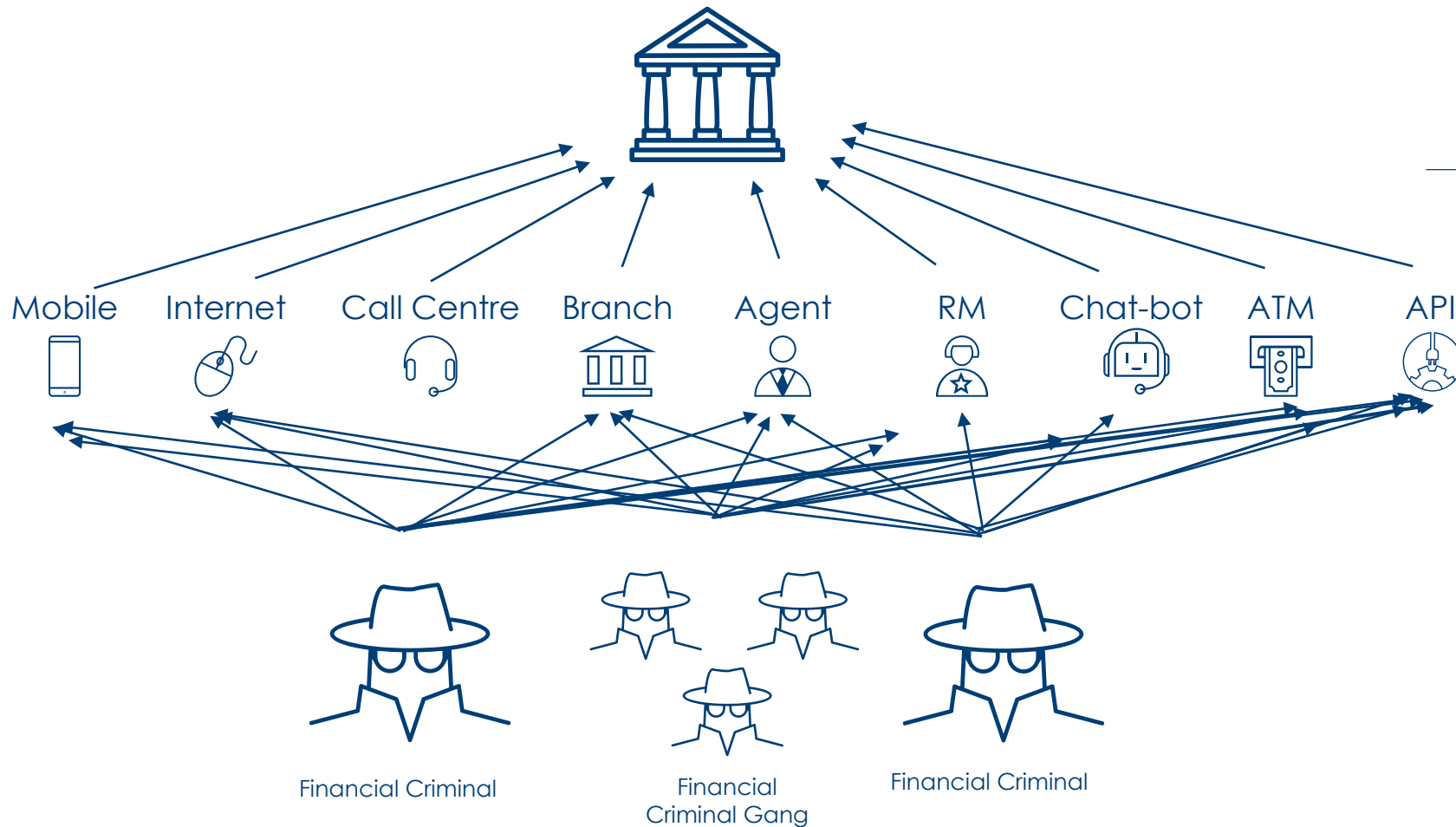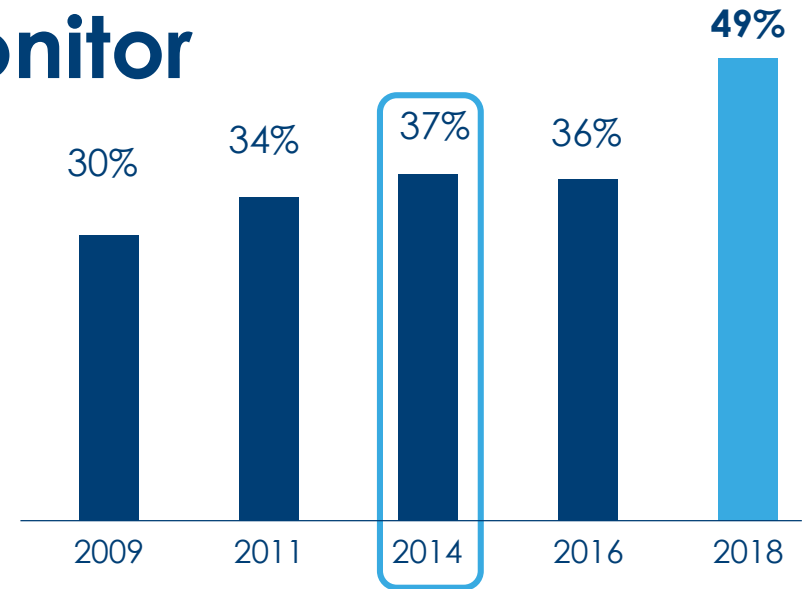
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Regulator Trust – there is still a problem

US$321 billion fines since 2008

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Before Digital – only a few channels to monitor

Since Digital – more channels to monitor

Mobile   Internet   Call Centre   Branch   Agent   RM   Chat-bot   ATM   API

Financial Criminal

Financial Criminal Gang

Financial Criminal

30%   34%   37%   36%   49%

2009   2011   2014   2016   2018

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With Open Banking - channels multiply
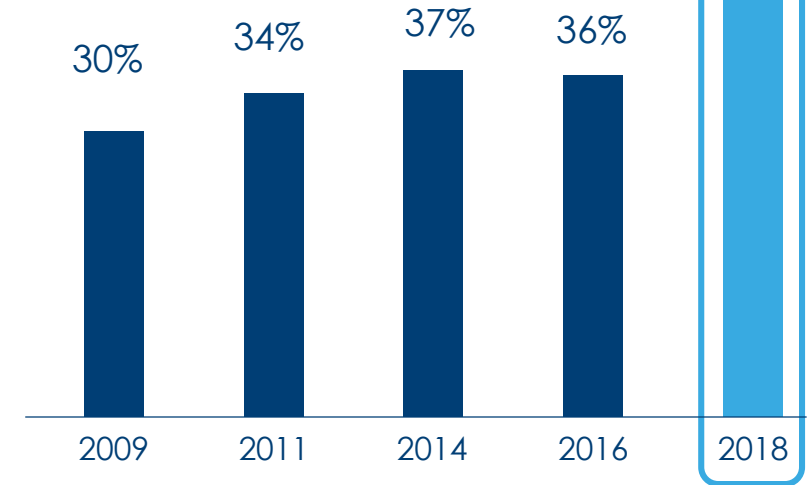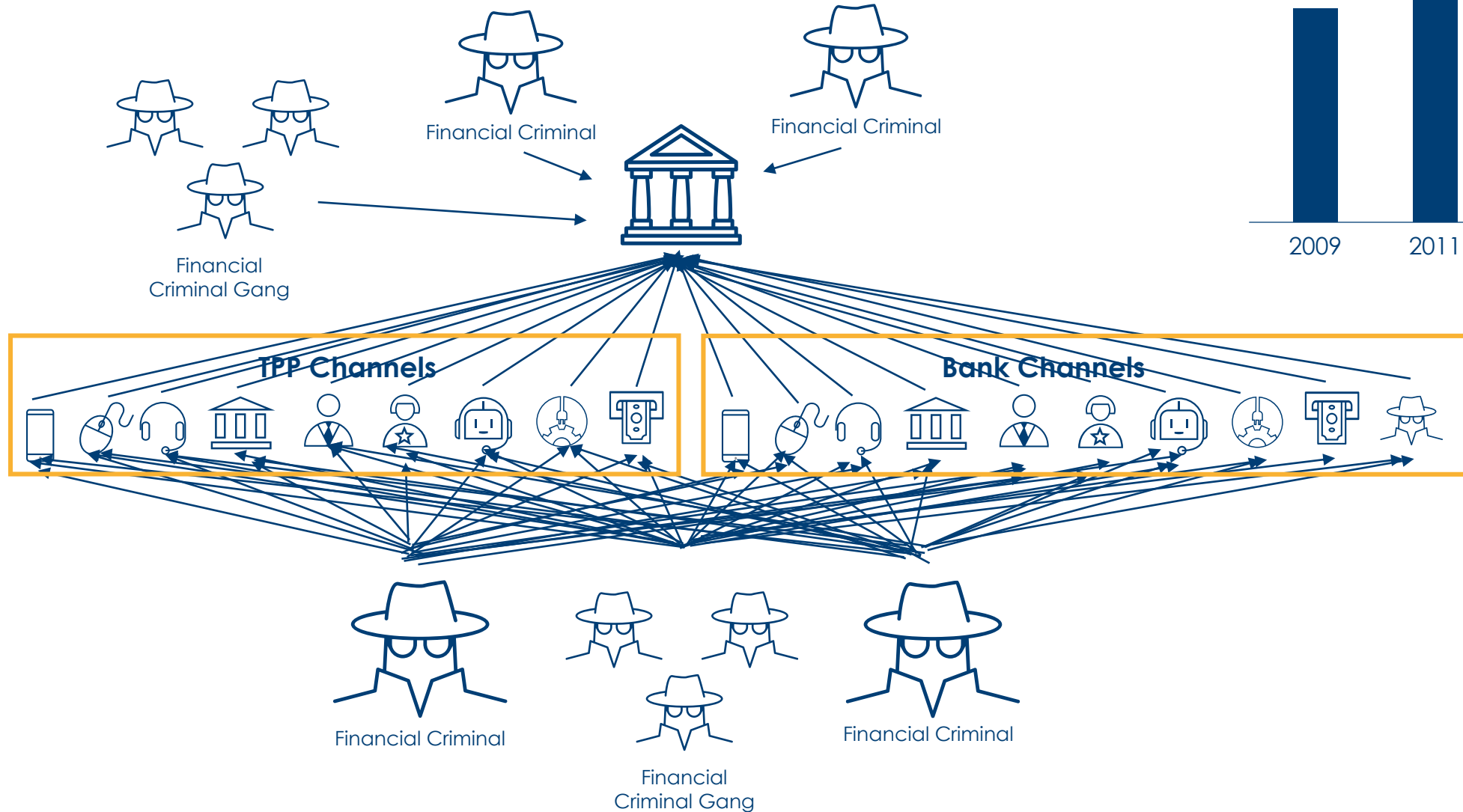
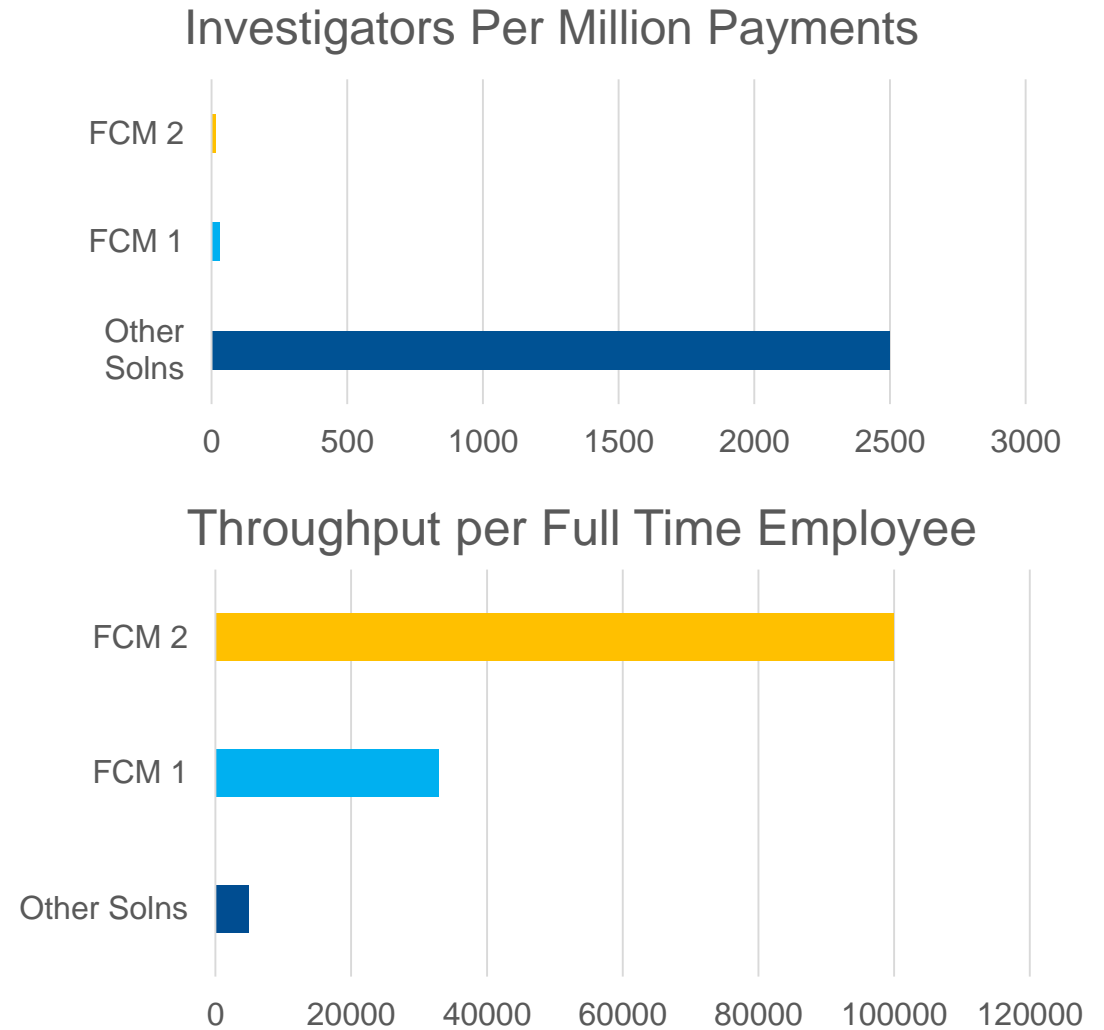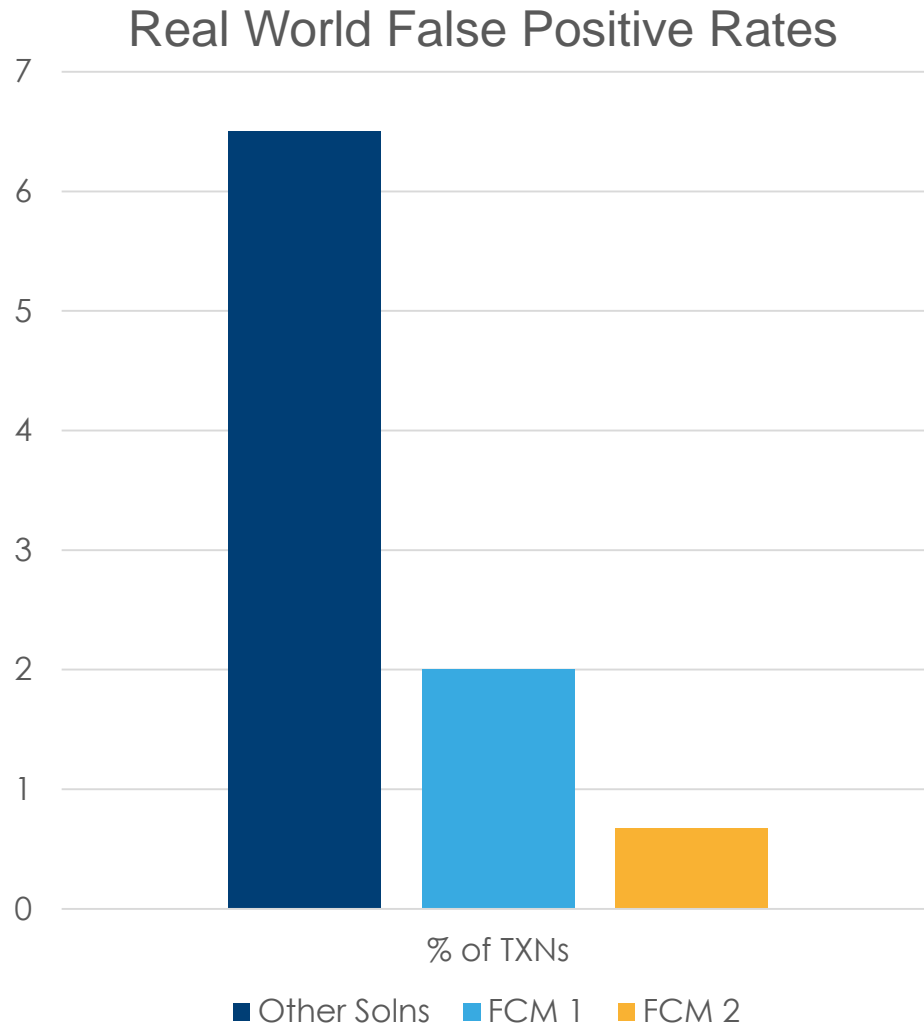# Regulator Trust – essential to enable business

- ✓ Protect against fines and penalties
- ✓ Protect reputation
- ✓ Improve Customer trust
- ✓ **Enable business**

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Regulator Trust – not for lack of trying

"The global cost of regulatory compliance is currently estimated to be around **US$80 Billion** *and on course reach $120 Billion in the next five years"*

(Thomson Reuters)

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FCM Delivers Real World Efficiencies

Real World False Positive Rates

(Bar chart showing % of TXNs)
- Other Solns: ~6.5
- FCM 1: 2.0
- FCM 2: ~0.7

Legend: Other Solns | FCM 1 | FCM 2

Investigators Per Million Payments

- FCM 2: ~10
- FCM 1: ~25
- Other Solns: ~2500

Throughput per Full Time Employee

- FCM 2: ~100000
- FCM 1: ~33000
- Other Solns: ~5000

Screen | Know Customer Plus | Profile | Suspicious Activity Prevention

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Efficiency from a Temenos Risk Based Approach
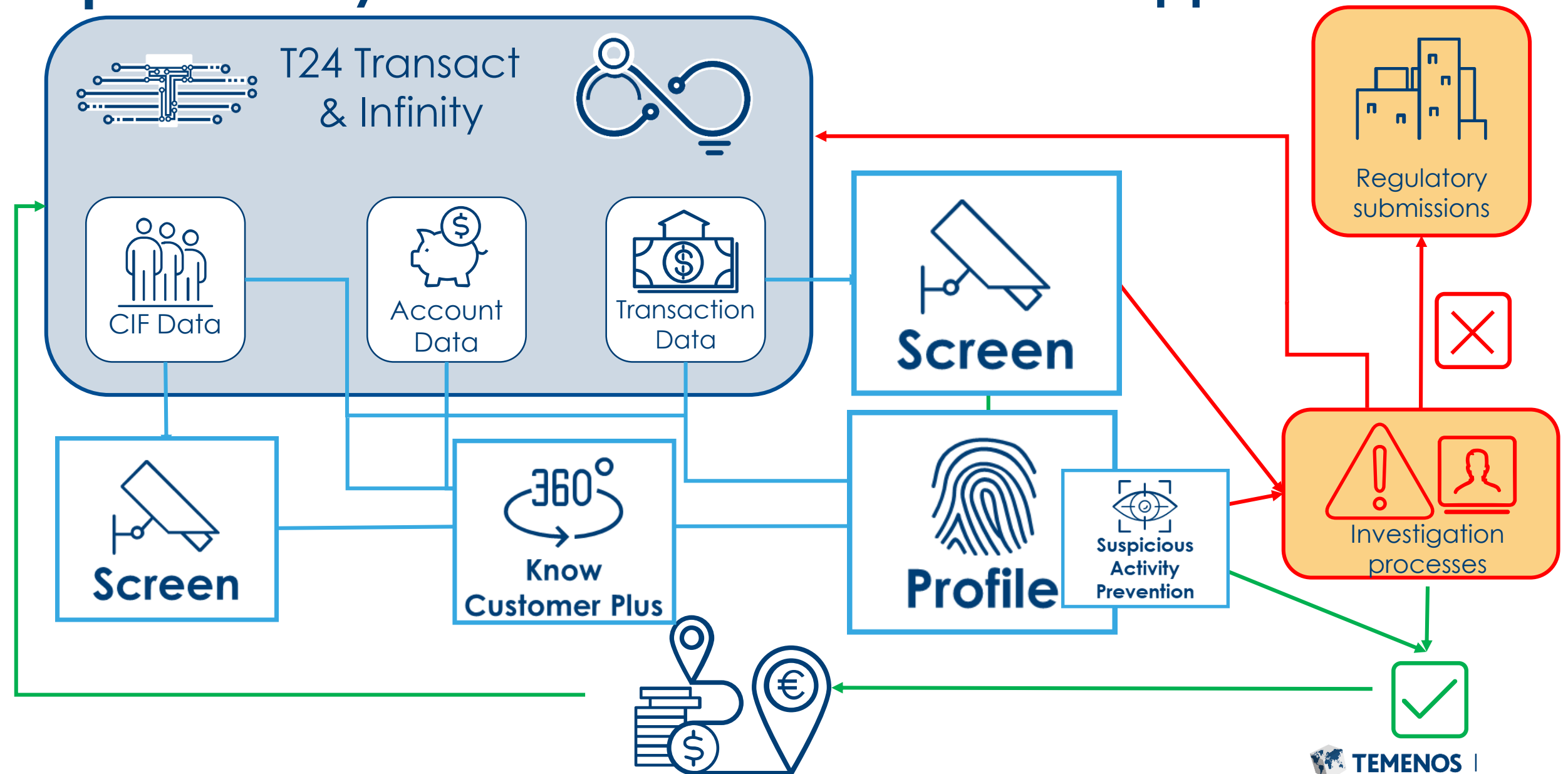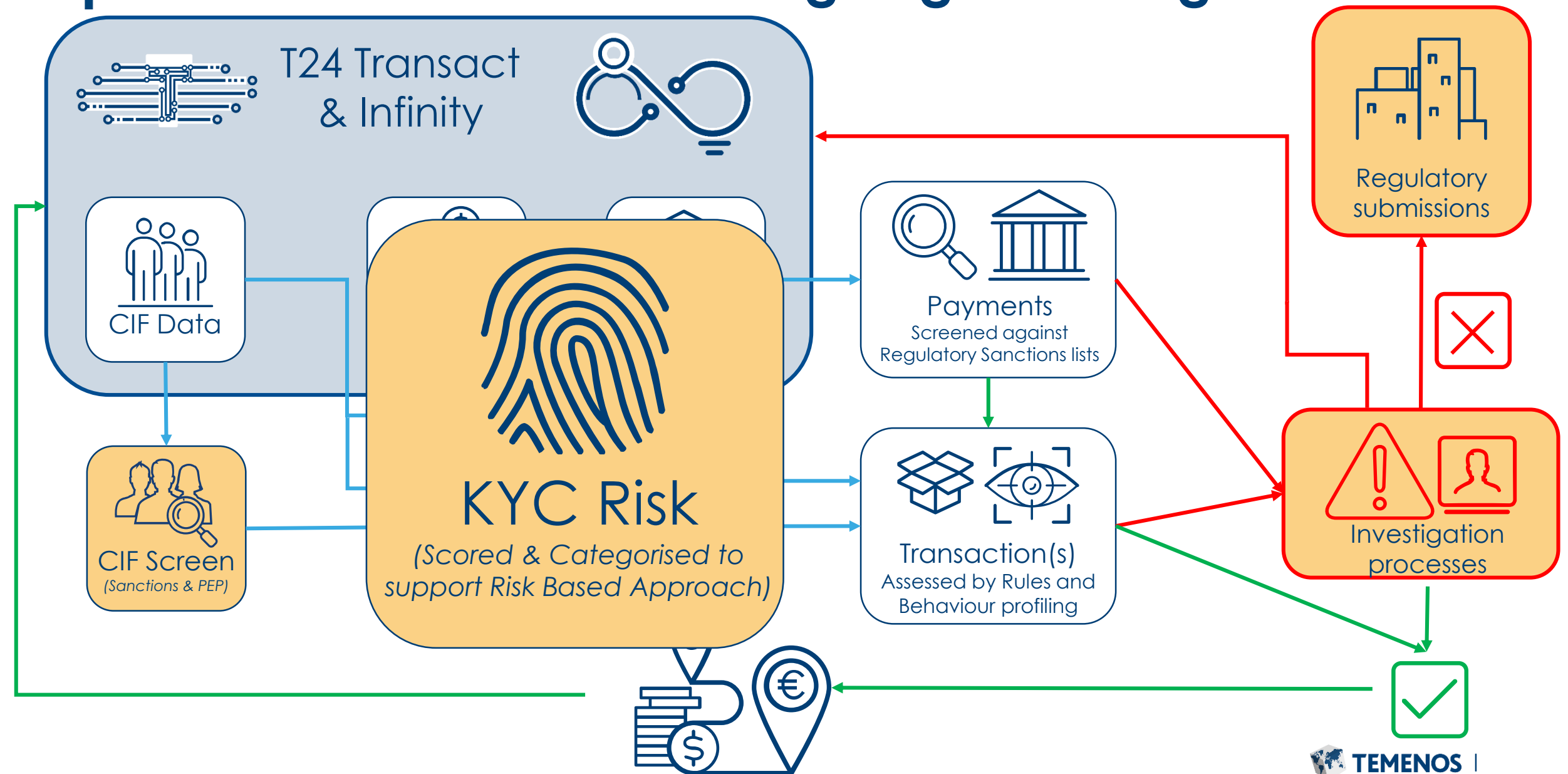
Artificial intelligence – less checks required to achieve greater detection

Percentage of Crime Detected (y-axis): 50%, 65%, 80%, 100%

Percentage of Records (Transactions) (x-axis): 0%, 10%, 25%, 50%, 100%

Perfect Information (AUC 90+%)

Artificial Intelligence (AUC 80+%)

Business Expertise & Rules (AUC 70%)

Random Sampling (AUC 50%)

Gain

AUC (*Area Under Curve*) also a measure of model effectiveness
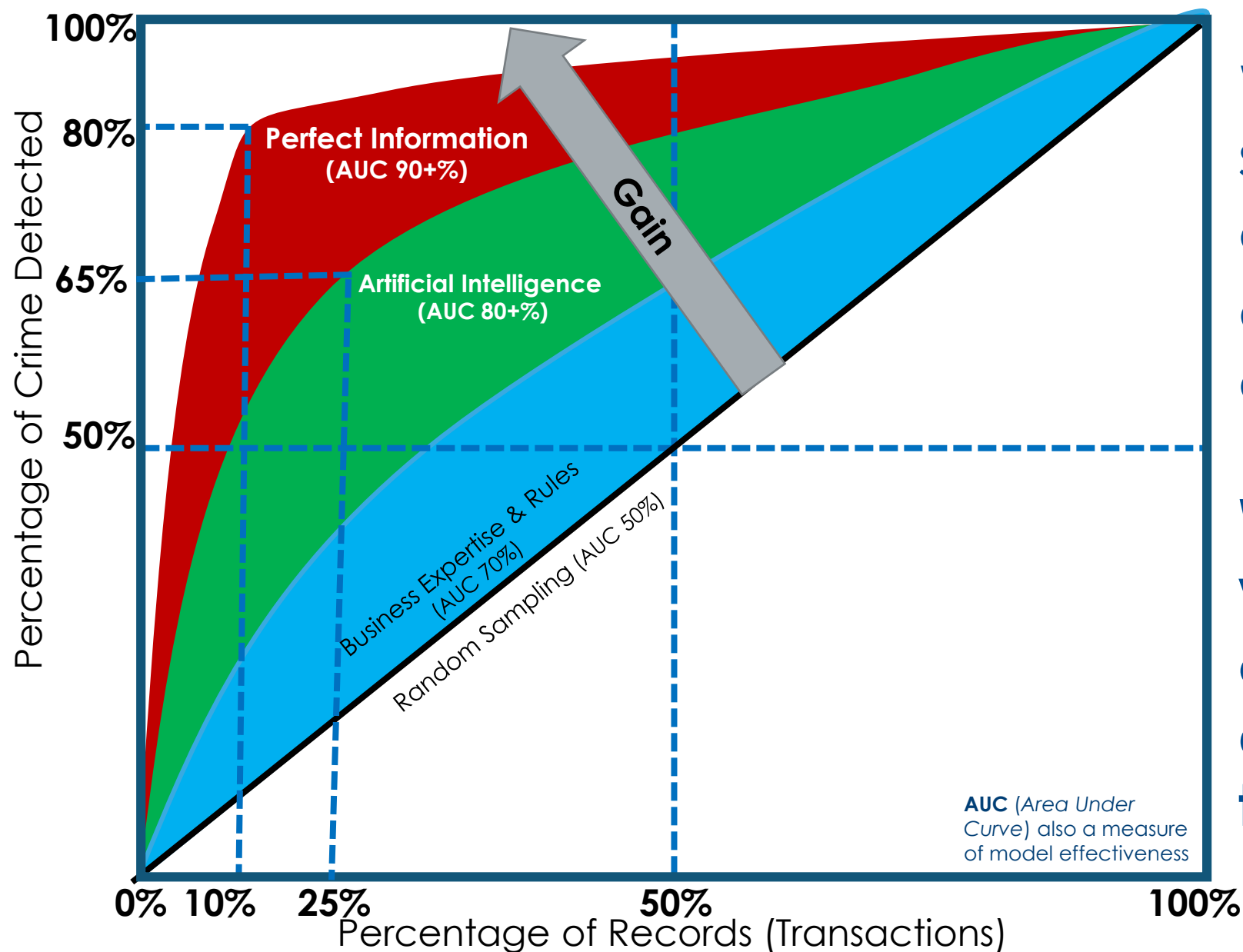
With just random sampling we need to check **50%** of the data to detect **50%** of the crime

With the AI techniques we only need to check **10%** of the data to detect **80%** of the crime

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Incorporating AI into a Risk Based Approach

Prepare data ❯ **Build & train models** ❯ **Deploy & predict**

Data ingestion

New data

`101010`
`010101`
`101010`

Data storage locations

Data Preparation
- **Normalization**
- **Transformation**
- **Validation**
- **Featurization**

Build & train models

Model building & training

- **Hyper-parameter tuning**
- **Automatic model selection**
- **Model testing**
- **Model validation**

Model deployment
- **Deployment**
- **Batch scoring**

Temenos Provides an Alternative approach bypasses this effort

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Customer AI Segmentation – Base Approach
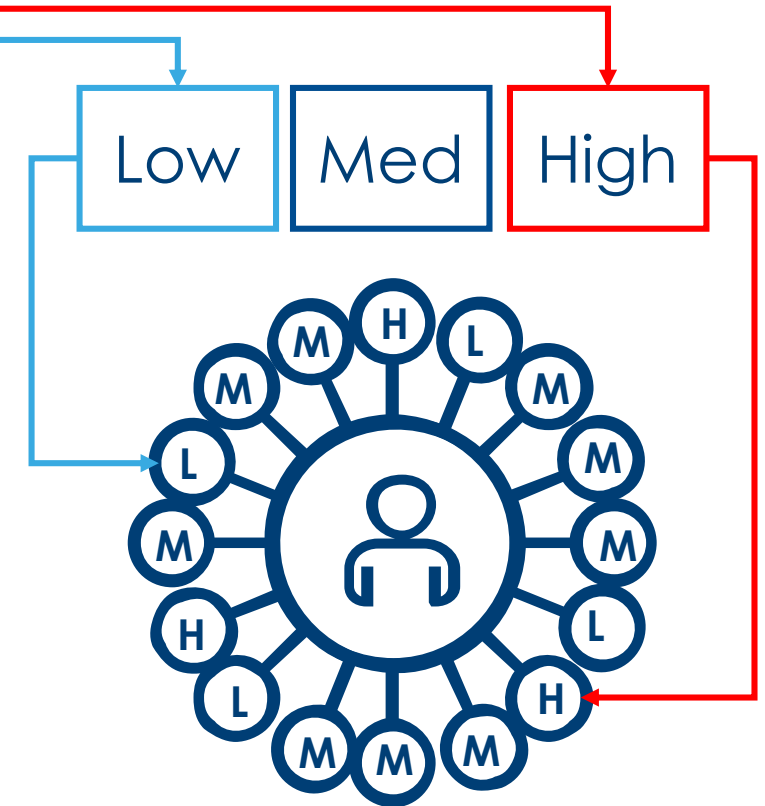
A financial model, not demographic model for phase 1

Customer Profiles
    used

bit cash txns

edit cash txns

bit wires

edit wires

(previous 6 months)

- **Sum of Txns**
- **Number of Txns**
- **Avg Txn Amount**
- **Max Txn Amount**

**Generates 16 cluster types:**

1. Debit cash Sum of amounts
2. Debit cash Number of transactions
3. Debit cash Average amount
4. Debit cash Maximum amount
5. Credit cash Sum of amounts
6. Credit cash Number of transactions
7. Credit cash Average amount
8. Credit cash Maximum amount
9. Debit wire Sum of amounts
10. Debit wire Number of transactions
11. Debit wire Average amount
12. Debit wire Maximum amount
13. Credit wire Sum of amounts
14. Credit wire Number of transactions
15. Credit wire Average amount
16. Credit wire Maximum amount

Low   Med   High

Gives the **Financial Behaviour DNA** for each customer – as customer is in 16 of the 48 possible clusters

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Customer AI Segmentation – Base Approach

A financial model, not demographic model for phase 1
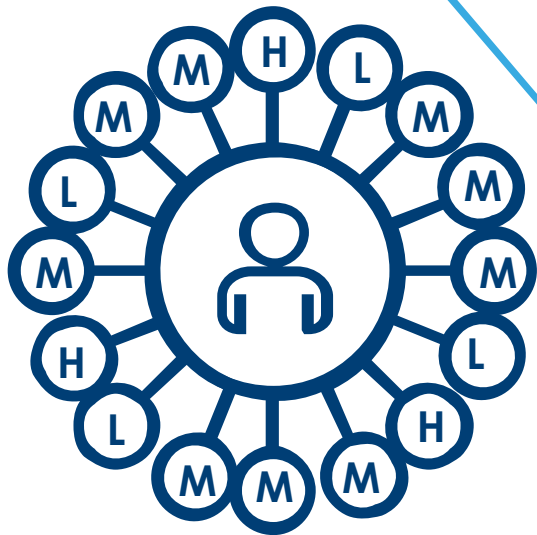
Financial Behaviour DNA for each customer – as customer is in 16 of the 48 possible clusters

2ⁿᵈ Pass on clustering mechanism

- Places each customer in a peer group based on their 16 FDNA's
- Number of Peer Group Clusters based on a a parameterized, manageable volume of final clusters (e.g. 40)
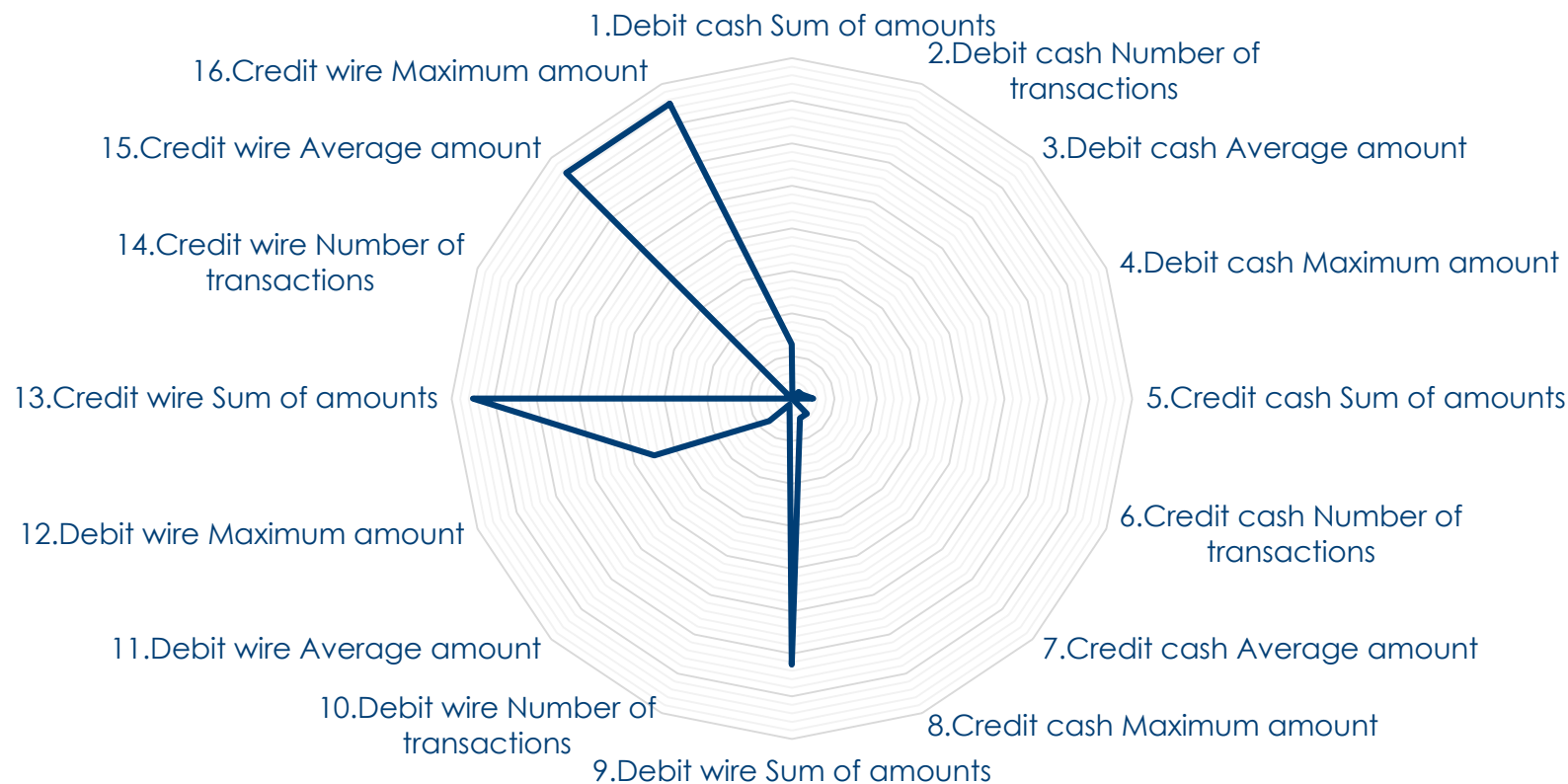
Each Final cluster is profiled as a **Peer Group Profile** (a *new additional entity*)

- **Sum of Txns**
- **Number of Txns**
- **Avg Txn Amount**
- **Max Txn Amount**
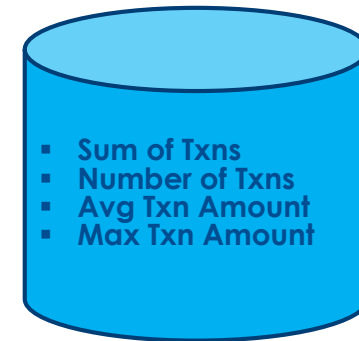
Real Time & Batch Profile rules may be run against Peer Group Activities

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Customer AI Segmentation – Base Approach

Customer financial behaviour DNA

A unique signature for Customer Financial behaviour: a specific shape might be a sign of ML

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Leading Provider for Financial Crime Mitigation

- Leading provider/highest scoring for overall execution

- "Leader" in KYC (including Watch-list screening)
- "Major player" in AML

- Overall, Temenos FCM is positioned as a leader.
- Higher technical and strategic attributes than other major players
- Higher strategic attributes than other major players

Find out why today!

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Thank You