# Fighting Financial Crime using Advanced Analytics

Stefanie Vonk



**Christiaan Huygens** | Applied Mathematics Computer Science Study Association

**Deloitte.**

# Human Trafficking's Newest Abuse: Forcing Victims Into Cyberscamming

by Cezary Podkul, with Cindy Liu for ProPublica

Sept. 13, 5 a.m. EDT

## Iran and Russia seek new sanctions evasion corridor

As the Russian invasion of Ukraine continues, the push to evade Western sanctions accelerates, and Iran seems willing to assist the Kremlin.

## Dirty water scam linked to Syria's deadly cholera outbreak

The outbreak has infected an estimated 6,000 people and killed 36 – with figures expected to keep rising

## How drug runners use 'narco submarines' to traffic cocaine, money & more

By Michael Kaplan

March 12, 2022 | 8:19am | Updated

### Rhino poaching must be tackled as crime crisis, not as a conservation crisis

Sheree Bega    26 Sep 2022

# How to earn money and how to spend it? Financial Crime!



*Earn*

*Spend*

Fraud

Bribery & Corruption

Cyber Crime

Terrorist Financing

**Money Laundering**

MONEY. POWER. CONTROL.
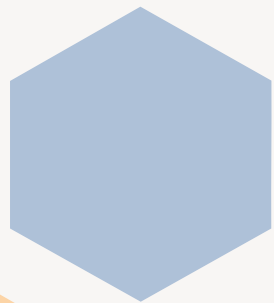
# Money laundering?
# 'Troika Laundromat'

"The Laundromat allowed Russian oligarchs and politicians to secretly acquire shares in state-owned companies, buy real estate in Russia and abroad, purchase luxury yachts, hire music superstars for private parties, pay medical bills, and much more.

To protect themselves, the wealthy people behind this system used the identities of poor people as unwitting signatories in the secretive offshore companies that ran the system.." – OCCRP, 2019

# Total money transferred: €26,290,143,484

## 15 countries involved

For the period 2006 - 2013

## 2908 linked companies

Of which at least 75 companies established by the Russian investment bank
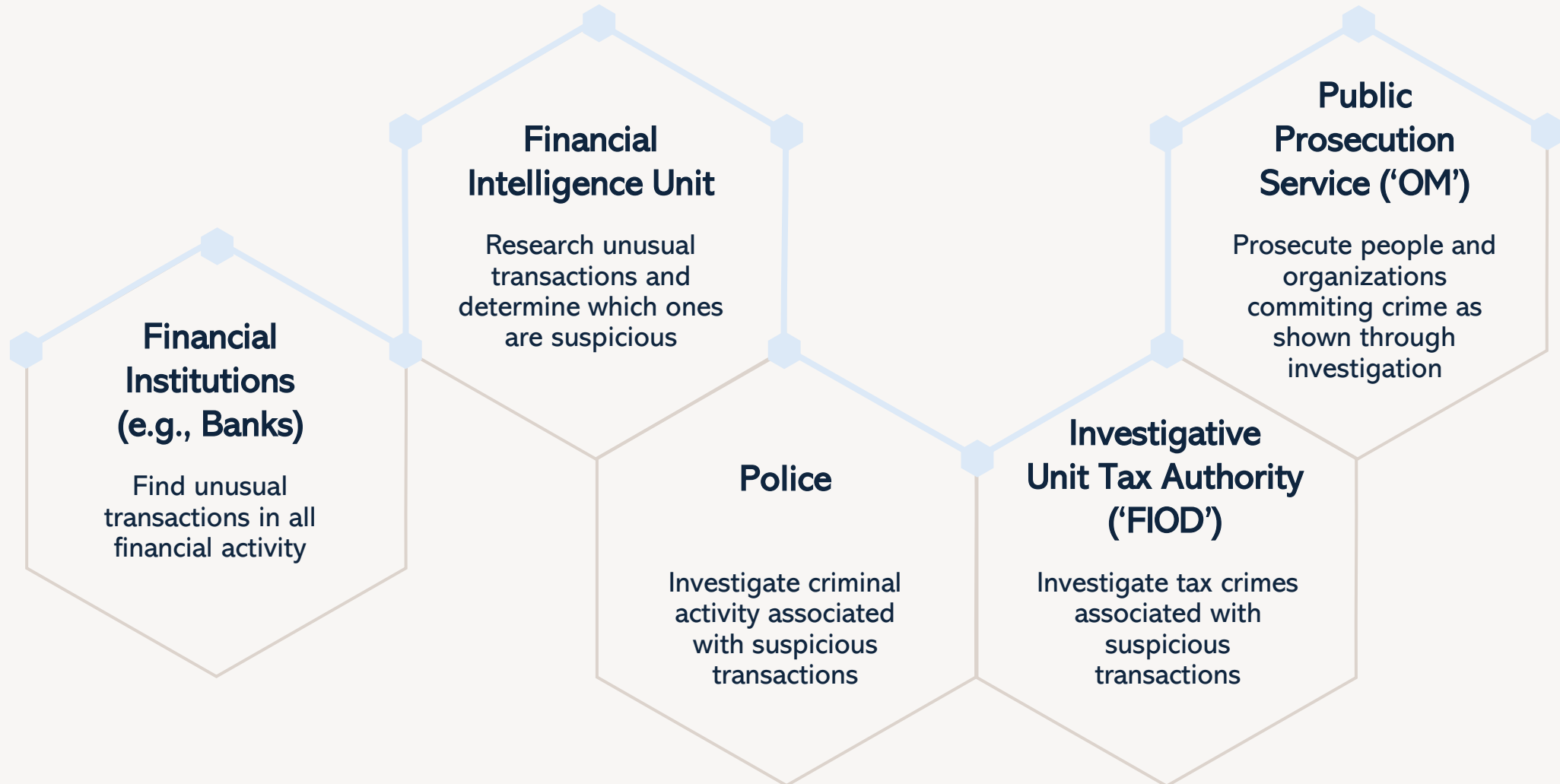
# But what does that have to do with NL?

## Dutch banks

RBS (formerly part of ABN AMRO) has facilitated payments
Money ends up on bank accounts with ATB and Garantibank
Multiple clients of ING's Russia location were involved

## Dutch companies

Yacht builder 'Heesen' has received 43 million euro from the laundromat scheme for the construction of 2 luxury yachts for a Russian senator
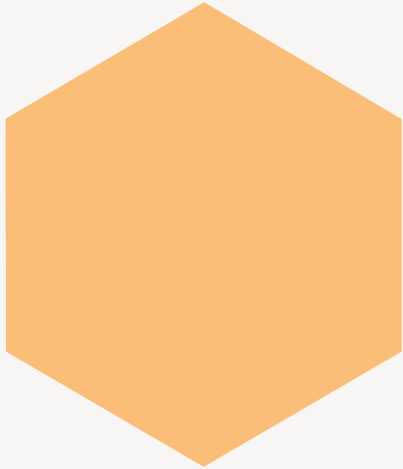
# What do we do about it?



**Financial Institutions (e.g., Banks)**

Find unusual transactions in all financial activity

**Financial Intelligence Unit**

Research unusual transactions and determine which ones are suspicious

**Police**

Investigate criminal activity associated with suspicious transactions

**Investigative Unit Tax Authority ('FIOD')**

Investigate tax crimes associated with suspicious transactions

**Public Prosecution Service ('OM')**

Prosecute people and organizations commiting crime as shown through investigation

Financial Institutions (e.g., Banks)

Find unusual transactions in the big financial system

How do banks detect unusual behavior in **over 6 billion** transactions per year?

# DNB: "…with use of technologically innovative solutions"

*De Nederlandsche Bank ('DNB') is the supervisory body keeping track of how good financial institutions are holding up to their legal role of gatekeeper of the financial system*
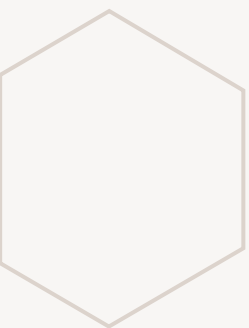
# Innovative solutions

Unsupervised Machine Learning

Network analytics

... and many more

# Clustering



# Unsupervised Machine Learning

# Network analytics

# An... ...on

Path finding

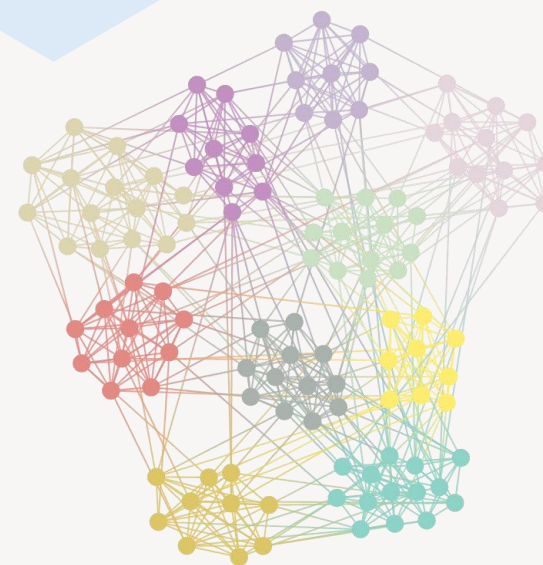Unsupervised Machine
Learning



Network analytics

Community detection

# That means..

We need mathematics and computer science to fight these crimes and make the world a slightly better place!

# How is dirty money typically laundered?

# Where does the money come from?

1. Participation in an organised criminal group and racketeering
2. Terrorism
3. Trafficking in human beings and migrant smuggling
4. **Sexual exploitation**
5. Illicit trafficking in narcotic drugs and psychotropic substances
6. Illicit arms trafficking
7. illicit trafficking in stolen and other goods
8. Corruption
9. Fraud
10. Counterfeiting of currency
11. Counterfeiting and pirating of products
12. Environmental crime
13. **Murder and grievous bodily injury**
14. Kidnapping, illegal restraint and hostage-taking
15. Robbery or theft
16. Smuggling
17. Tax crimes relating to direct and indirect taxes
18. Extortion
19. Forgery
20. Piracy
21. Insider trading and market manipulation
22. Cybercrime