The fight against financial crime and how to make it matter

Prof Tom Kirchmaier
Centre for Economic Performance, London School of Economics &
Center for Corporate Governance, Copenhagen Business School

24 September 2024

A quick word about myself

- I am an **empirical economist** (loves data)
- Director Policing and Crime at the CEP/LSE
- Co-organiser of the European ‘Economics of Crime’ Seminar; the annual Chicago-LSE Conference on the Economics of Crime
- Working on the full spectrum of **questions** of Crime and Policing – amongst others on police **productivity**, **OCGs** and **Financial Crime**
- Together with Home Office, RCT on **predicting** areas of high **fraud**, and then hardening households
- Reference model on **crime prediction** in the UK
- Grant by the Swedish Research Council to **study Encrochat / OCG** (with Malmö U)

The issue

- **Large** issue between 1% and 5% of GDP might be problematic. Hence between 1 and 5 trillion dollars are looking to be washed every year (Global GDPe in 2022: $100 trillion)
- **Market Price** for (large) OCG Money Laundering Services: **6-8%**
- **Expensive** (manual) and cumbersome on the supply side (Banks)
- **Professional organisations** with global networks on the demand side (OCG)
- Very **limited understanding of OCGs**. Enrochat a reminder that we know that we don't know. What we think we know we have seen in Hollywood movies.

Where are we now?

- We **cleaned up the house**, and are AML standards are now on international level
- The Nordea story is a bit of a non-story (as all of it is in the past)
- My argument is that the international **standards are out-dated**, and in urgent need of reform
- There are too many people in this space that **defend the status-quo**, and we don't always attract the best
- Banks in Denmark and the Nordics are solid in general; in DK many small banks that lack a business model
- The **Nordics** are the place to **start the (AML) process revolution**, if it can be brave enough

Institutional Framework

- Born out of G7 in **1989**, and with it the creation of FATF (40 rules)
- Europe immediately falls behind after Nov ‘89
- The US is further helped by the large defence industrial complex, but the ‘poison papers’ are now always helpful
- **09/11 brings CFT** (Anti-Money Laundering and Combating the Financing of Terrorism
- **AMLA** (Authority for Anti-Money Laundering and Countering the Financing of Terrorism) probably the wrong way forward for Europe
- **Europol** might be much better suited
- **Banks as the policeman** you ‘don’t need to pay for’

The Costs

- **USD 800m - 900m p.a.** for Compliance and AML (up from USD 280m in 2017)
- This is for all banks operating in Denmark and estimated up from the Danske Bank accounts

- There are 2.82m households in Denmark
- That implies **USD 285 - 320 per household**

- Alternatively, there are 6 million inhabitants in Denmark
- That means USD 133 - 150 per person

Regulation – a word of warning

- Observe the push to **argue for over-regulation**, and Brussels is blamed
- Now a **common market** is a market of rules - there is no other way of keeping a market for 450 million people together
- Bureaucracies ratchet up rules, but the way you deal with them is **automation** (not starting a fight against the windmills)
- I agree with Draghi that the issue is that the **common capital market is not working**
- **BREXIT** should be a warning for everyone; Brussels was blamed for all the local problems, but the issues only got (much) worse
- My own paper: Banks in which managers were more insulated from shareholders in 2003 were significantly less likely to be bailed out in 2008/09

Modern systems require regulation

- Air traffic control systems: 96m aircraft movements, 8.7bn passengers in 2023.
- No fatalities on jet airliners, but 72 deaths on board Yeti Airlines ATR 72 in Nepal.

Contrast this with:

- **Boeing** 737 Max (and subsequent issues) - it will probably need a state bailout
- **BP** Deepwater Horizon

- **People trust regulation**. Removing regulation will not instil trust.
- Trust also comes from **running efficient and error free systems** - people observe very quickly the state of affairs

Modern systems require regulation

... and people trust them

- Air traffic control systems: 96m aircraft movements, 8.7bn passengers in 2023
- No fatalities on jet airliners, but 72 deaths on board Yeti Airlines ATR 72 in Nepal

Contrast this with:

- **Boeing** 737 Max (and subsequent issues) - it will probably need a state bailout
- **BP** Deepwater Horizon

- **People trust regulation**. Removing regulation will not instil trust
- Trust also comes from **running efficient and error free systems** - people observe very quickly the state of affairs

Risk management and compliance: a source of profits

- In a competitive market, rents are competed away. How to make profits nevertheless:
  1. Central banks (higher spread)
  2. Scale, scope, and learning (difficult in a small nation)
  3. **Better risk management** (financial and non-financial risk)
- Financial risk: good models, albeit uncorrelated risk becomes correlated under stress
- Non-financial risk: weak to no models. Probably the area with the highest rewards for automation (for you to work on ;)). Taxonomy of risk as the starting point
  - AML is a subset of non-financial risk compliance

Risk management and compliance: a source of profits (II)

- Compliance is a potential **profit center**, and not a cost-center (as it helps to avoid - losses)
- But risk **implies** that we accdeI agreet losses at times. There needs to be a MC=MB calculation. To pretend and aim at zero loss or suspicious transaction is non-sensical.

- Once we accept that non-financial risk management and compliance (incl. AML) is a profit centre our approach to it is changing:

  - we hire the **best people** into it, and we invest in the future
  - we **stop** approaching it as **box ticking** exercises
  - we start thinking about how to **detect risk cheaper, better, and faster**,
  - hence we **start automating**

- This will also require a change of heart by the regulator, the parliament, and the public at large. For a start we need to **change the sandboxing laws** so that we can **test new models**

On to the Model

A Reminder

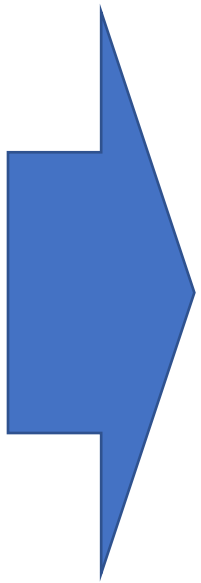
Sources of funds, classified as ML

1. Proceeds of (Serious) Criminal Activity
   - Drugs. Human Slavery. Child Sexual Exploitation. Racketeering. Fraud. Cyber & Organised Crime. Environmental crime.
   - Real impact on society, and asset prices (property & businesses)
   - Organised crime and jihadi groups increasingly intertwined
2. Embezzlement of State Funds, Tax Evasion, and Serious Corruption
3. Avoidance of Currency Controls (China)
4. [Terror Finance]

A Reminder

Sources of funds, classified as ML

1. Proceeds of (Serious) Criminal Activity
   - Drugs. Human Slavery. Child Sexual Exploitation. Racketeering. Fraud. Cyber & Organised Crime
   - *Primary and secondary effect:* real impact on society, and asset prices Organised crime and jihadi groups at one point intertwined
2. Embezzlement of State Funds, Tax Evasion, and Serious Corruption
3. Avoidance of Currency Controls (China)
4. [Terror Finance]



Each ‘customer group’ / demand category requires its own detection model

A Reminder

Sources of funds, classified as ML

1. Proceeds of (Serious) Criminal Activity
   - Drugs. Human Slavery. Child Sexual Exploitation. Racketeering. Fraud. Cyber & Organised Crime. Environmental crime.
   - Real impact on society, and asset prices (property & businesses)
   - Organised crime and jihadi groups increasingly intertwined
2. Embezzlement of State Funds, Tax Evasion, and Serious Corruption
3. Avoidance of Currency Controls (China)
4. [Terror Finance]

How to think about a model

Demand = Supply

How to think about a model

Demand (OCGs) = Supply (Banks)

How to think about a model

Demand (OCGs) = Supply (Banks)

The police services (or equiv.) currently don’t share data with the banks in an automated way.

How could a solution look like?

- We are currently looking for a LHS to estimate our model, hence:

1. We need to find a model that enable data sharing across banks, institutions (Supervisors/FIUs, Police, …), and jurisdictions, or …
2. We need to bootstrap it out ourselves from conviction (courts) data

Solution II

We estimate:

Bottom-up models

Solution

The solution is to use **small spaces** as the **unit of analysis**

- People select into homogenous groups, which we can exploit
- This allows us to strip out personal identifiers without using much information that is relevant to us

‘People Based’ Approach

Census Output Areas (OA)

- 181,408 OAs (ONS 2011) in E&W
- Each is a socially homogeneous parcel of 125 households (median)

- Census, wealth, and non-residential infrastructure (POI) as explanatory variables (bottom-up)
- 18 forces, 50 million data points for 2009 – 2015/6
- Four variables (Time, Place, Grade, Closing Code)
- Using Machine Learning techniques (Lasso) to narrow down coefficients of crimes / incidents

The data that is available to us

1. The physical infrastructure (points of interest)
2. Socio-economic profile (census)
3. Affluence...deprivation (house prices)

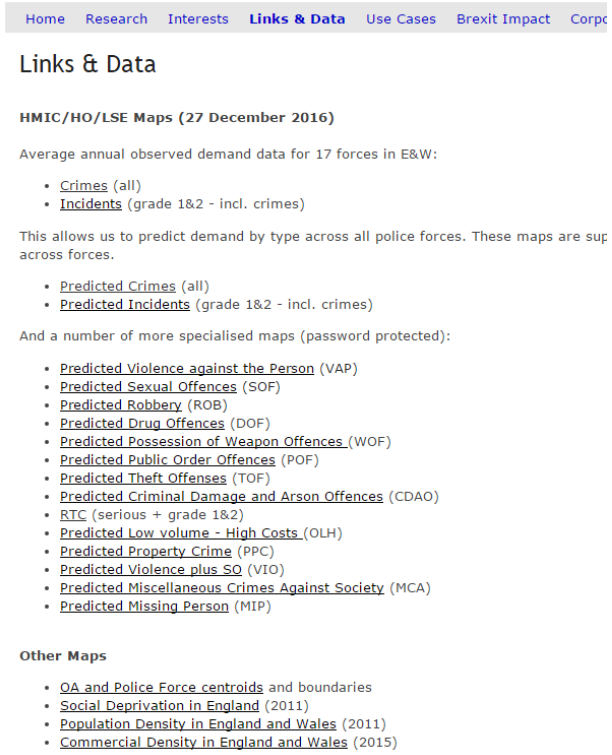
In short

We estimate the underlying features of the space, and not the person (or firm)

This will give us a generalisable model which we can then roll out across countrie(s)

Maps

- Public, but not publicised. PW: 16692
- tomkirchmaier.com - Links & Data, or here



Home Research Interests **Links & Data** Use Cases Brexit Impact Corpo

Links & Data

HMIC/HO/LSE Maps (27 December 2016)

Average annual observed demand data for 17 forces in E&W:

- Crimes (all)
- Incidents (grade 1&2 - incl. crimes)

This allows us to predict demand by type across all police forces. These maps are sup
across forces.

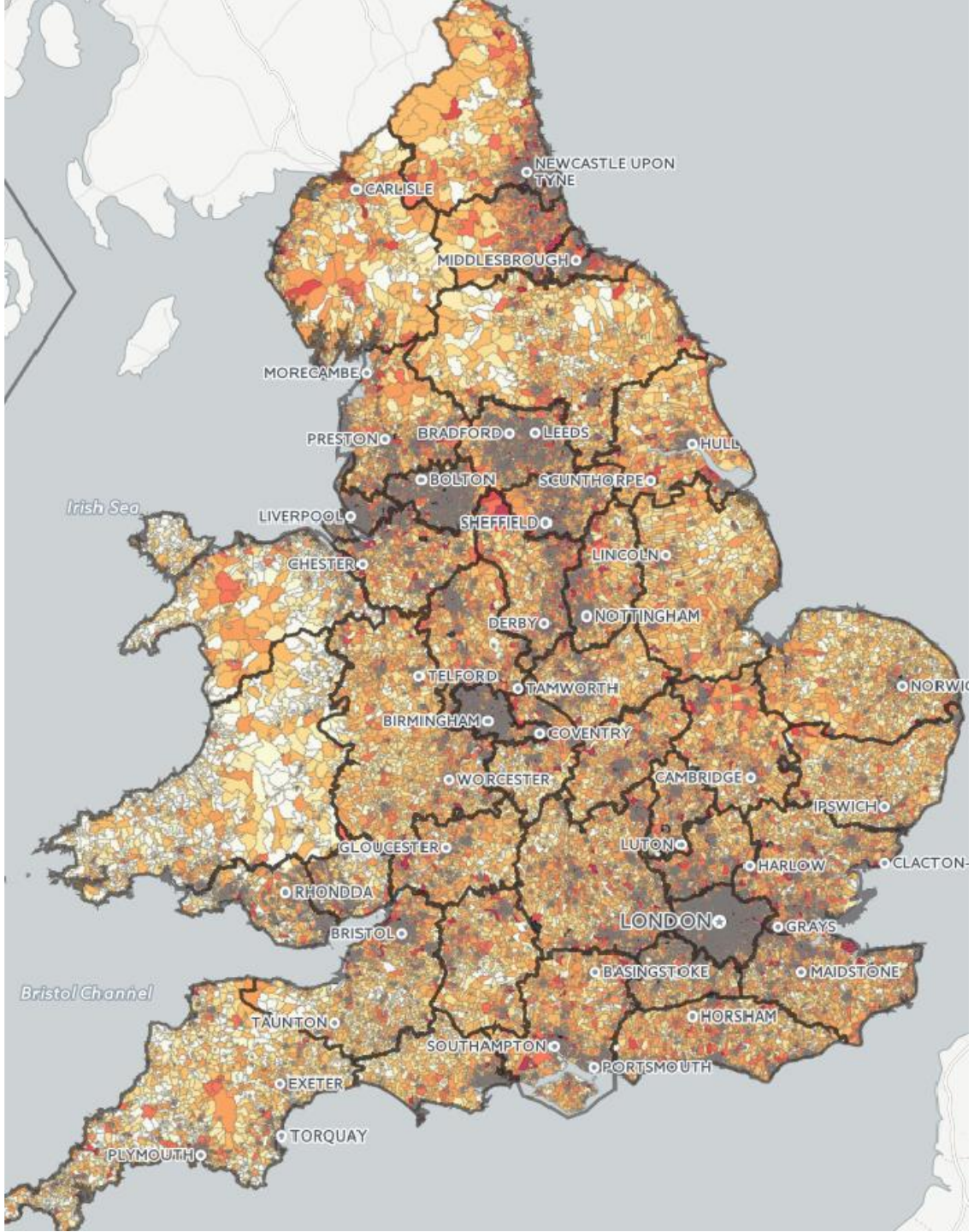
- Predicted Crimes (all)
- Predicted Incidents (grade 1&2 - incl. crimes)

And a number of more specialised maps (password protected):

- Predicted Violence against the Person (VAP)
- Predicted Sexual Offences (SOF)
- Predicted Robbery (ROB)
- Predicted Drug Offences (DOF)
- Predicted Possession of Weapon Offences (WOF)
- Predicted Public Order Offences (POF)
- Predicted Theft Offenses (TOF)
- Predicted Criminal Damage and Arson Offences (CDAO)
- RTC (serious + grade 1&2)
- Predicted Low volume - High Costs (OLH)
- Predicted Property Crime (PPC)
- Predicted Violence plus SO (VIO)
- Predicted Miscellaneous Crimes Against Society (MCA)
- Predicted Missing Person (MIP)

Other Maps

- OA and Police Force centroids and boundaries
- Social Deprivation in England (2011)
- Population Density in England and Wales (2011)
- Commercial Density in England and Wales (2015)



Enabling data sharing
Developing rich prediction models

A short recap

There are now two ways to approach that

Aggregating by small (pre-defined) spaces allows us to:

- Have a very **rich picture about the identity of people (and firms)** that locate in certain areas, and associate them with certain (problematic) behaviour
- Given that we estimate the model based on public data, we can transpose the learnings across countries with equally good data (western world)
- Even in the absence of any useable data (some dev. countries) we can still use the space to create frequencies

A short recap

There are now two ways to approach that

We now have a system that is:

- Global
- Universal
- Additive
- Open
- Fast and cheap

Application for the various bank data streams

SARs

- Step one is to run a prediction model on SARs, and see if banks is actually catching all those it should?!
- We enhance the SARs data with public data like Sanctions
- We also look at the counter-parties across Europe and the world
- In an ideal world we will then incorporate SARs from other banks/SOIK too, and start to do the same across Europe

OCGs

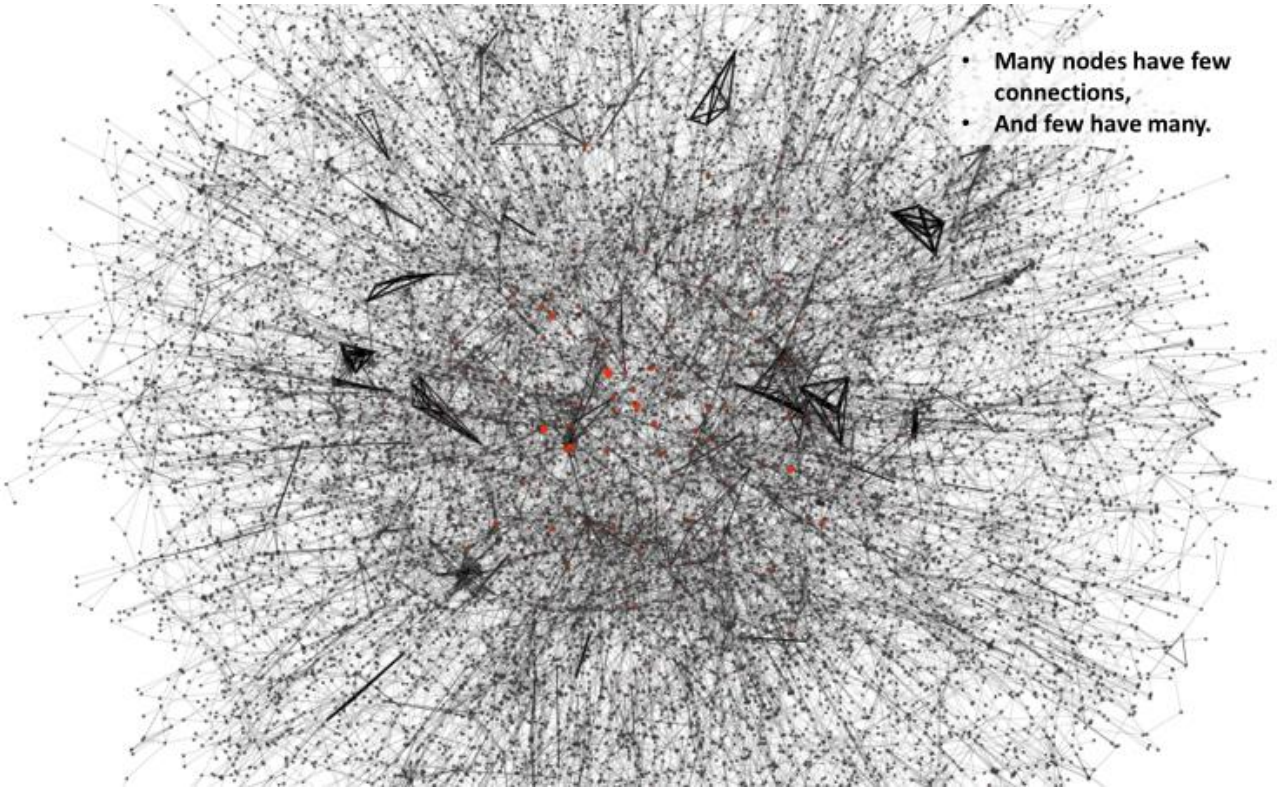
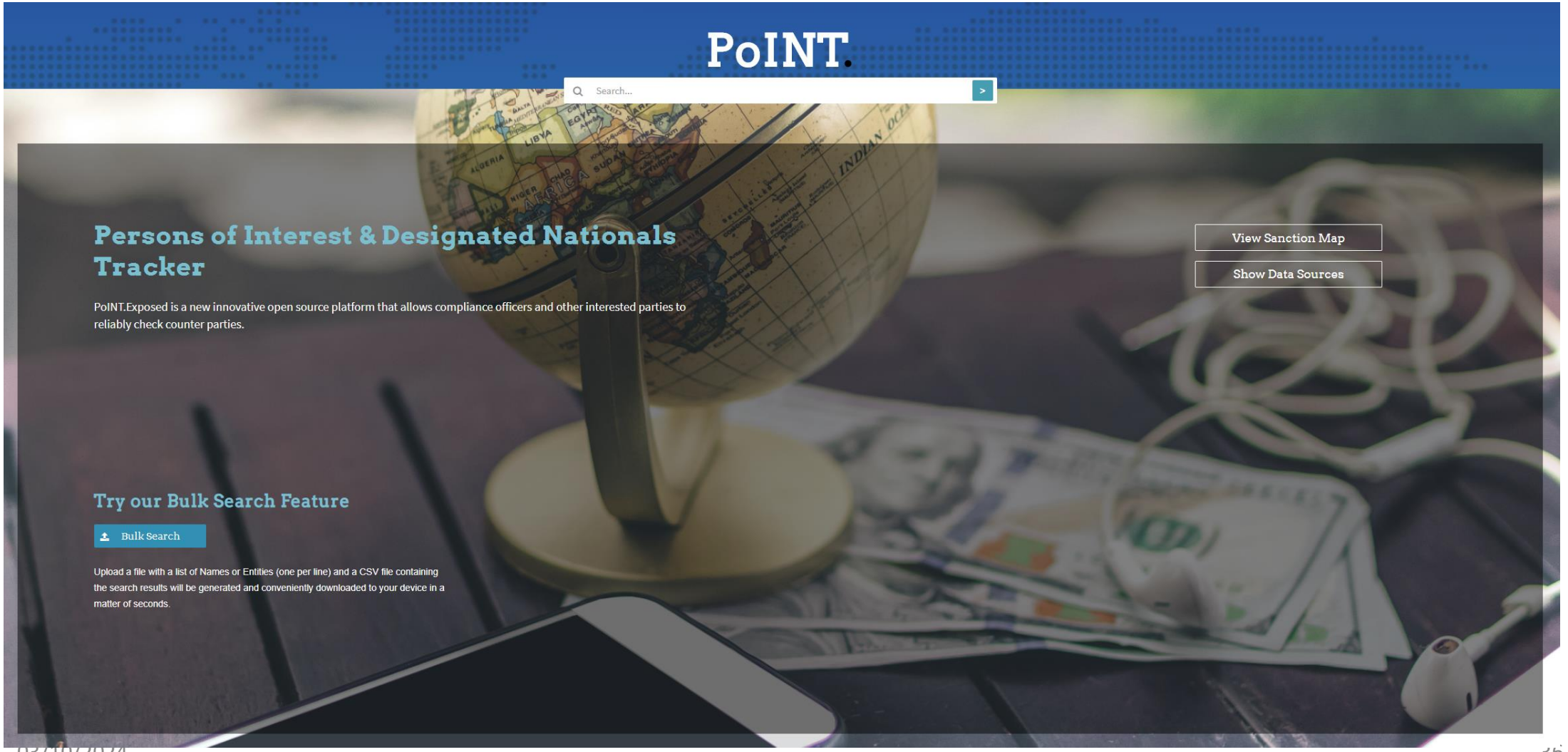
- In the next step we will start to add ‘demand’ data
- We are currently working on a prediction model for firearms and drugs (UK) and OCGs more generally (Sweden)
- This will be the first time crime demand data is applied to AML, ideally in the payment stream
- This will then be enhanced / extended to the other (S)OC crime types

Counter-parties

Sanity check of corporate counter-parties using a vector of controls / sense checks

Network Patterns

- We will then start to look at a location-enhanced network analysis.



https://point.exposed