



The Companies We Keep

Building a network graph of UK corporate ownership data

Dr Adam Hill



Who am I?

Why is this person talking to me?

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Who are DataKind?

What does this organisation do?

02

What was the problem before us?

What is "beneficial owner" data and what can it be used for?

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What was our solution?

How did we construct and analyse a network of corporate ownership?

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What was the impact of the work?

What came out of the project and how were the results important?

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Closing remarks

...



01

Who am I?

Why is this person talking to me?



Adam Hill

tldr;



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DataKind

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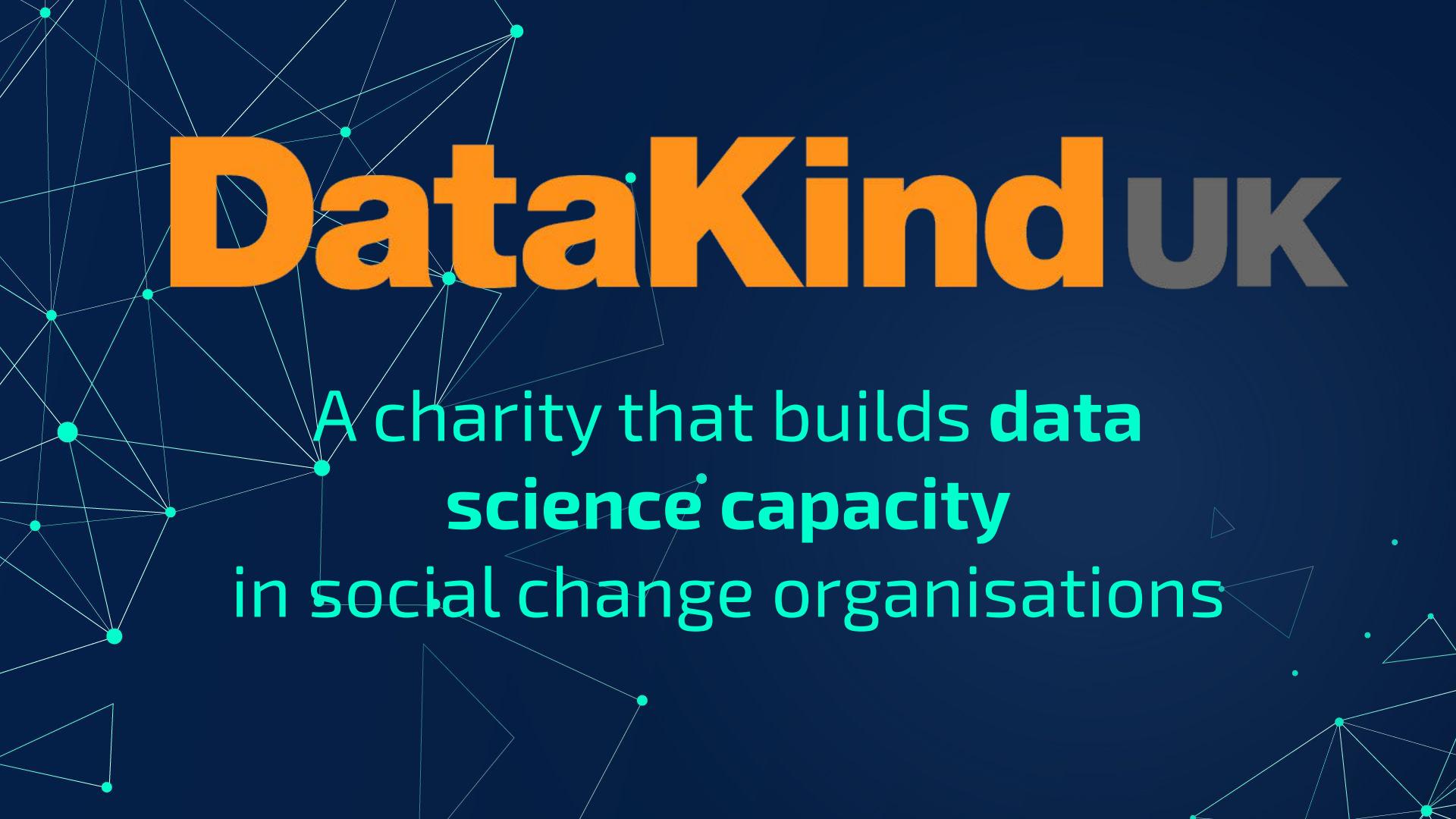
A complex network graph composed of numerous cyan-colored nodes and white connecting lines, forming a dense web of connections against a dark blue background.

02

Who are DataKind

What does this organisation do?

DataKind UK



A charity that builds **data
science capacity**
in social change organisations

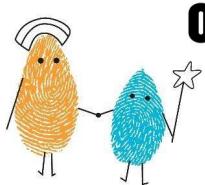


We ❤️ volunteer data scientists



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CAFÉDIRECT Producers' Foundation



Shooting Star Chase

Children's Hospice Care

centre point
give homeless young people a future

American Red Cross

CONCERN worldwide

AMNESTY INTERNATIONAL

STREETS OF LONDON

TACKLING HOMELESSNESS

the trussell trust
Stop UK Hunger

Plan



Oxfam

Ark

THEATRE FOR A CHANGE

NORTH EAST

CHILD POVERTY COMMISSION

mind for better mental health

NCVO

BUTTLEuk FOR CHILDREN & YOUNG PEOPLE

Shelter

DO the audience agency

St Mungo's Broadway

Rebuilding lives, day by day

Islington age UK

experian

COFFEES OF CHARACTER
CAFÉDIRECT
MADE THE SMALL WAY

STREET LEAGUE

THE MIX



WeFarm

HelpAge International

The Welcome Centre

more...
Oasis Community Learning
CDI
Responding To Needs, Driving Change

Suas Educational Development

The Access Project

WOODLAND TRUST

one world

the key YOUR POTENTIAL UNLOCKED

THE YOUNG FOUNDATION

03

What was the problem set before us?

What is “beneficial owner” data and what can it be used for?

The project question



How can we better spot corruption and economic crime, especially when it is hidden by anonymous companies?



What are anonymous companies?



Anonymous companies exist mainly to disguise people doing things they'd rather not have the public know about



Full video: <https://youtu.be/Fy0VMqAlFw8>



What are anonymous companies used for?



04

What was our solution?

How did we construct and analyse a network of corporate ownership?



People with significant control (PSC) snapshot

What is it?

The People with significant control (PSC) snapshot is a downloadable data snapshot containing the full list of PSCs provided to Companies House.

This data file is provided in JSON format and can be downloaded as a single file or as multiple files for ease of download. All files are overwritten daily with the latest information.

This snapshot is provided free of charge and will not be supported.

When will it be updated?

The latest snapshot will be updated every morning before 10am (UK).

Additional Information

The contents of the snapshot have been compiled up to the end of the previous day.

By following the link below you can find further information on PSCs, details of the PSC Screening API, a list of the data fields contained in the snapshot and example data files.

PSC Screening API information

How to download PSC data

User download the PSC data as one large file or as smaller multiple files (for ease of download).

PSC data as one file:

- [people-with-significant-control-snapshot-2018-04-25_1.zip](#) (62MB)
- [people-with-significant-control-snapshot-2018-04-25_2.zip](#) (62MB)
- [people-with-significant-control-snapshot-2018-04-25_3.zip](#) (62MB)
- [people-with-significant-control-snapshot-2018-04-25_4.zip](#) (62MB)
- [people-with-significant-control-snapshot-2018-04-25_5.zip](#) (62MB)
- [people-with-significant-control-snapshot-2018-04-25_6.zip](#) (62MB)
- [people-with-significant-control-snapshot-2018-04-25_7.zip](#) (62MB)
- [people-with-significant-control-snapshot-2018-04-25_8.zip](#) (62MB)
- [people-with-significant-control-snapshot-2018-04-25_9.zip](#) (62MB)
- [people-with-significant-control-snapshot-2018-04-25_10.zip](#) (62MB)
- [people-with-significant-control-snapshot-2018-04-25_11.zip](#) (62MB)
- [people-with-significant-control-snapshot-2018-04-25_12.zip](#) (62MB)
- [people-with-significant-control-snapshot-2018-04-25_13.zip](#) (62MB)
- [people-with-significant-control-snapshot-2018-04-25_14.zip](#) (62MB)
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- [people-with-significant-control-snapshot-2018-04-25_24.zip](#) (62MB)
- [people-with-significant-control-snapshot-2018-04-25_25.zip](#) (62MB)

Last Updated: 25/04/2018

Email: pscs@companieshouse.gov.uk

Telephone: +44 (0)161 2234 5032 Mon-Fri 08:00-17:00 (UK) Monday to Friday

GRAPH ALL

THE DATA



Tools

Data

Techniques

How are we going to do this?

aws

python

jupyter

neo4j

pandas

BETA This is a new service.[Forum](#) [Sign in / Register](#)[Companies House API](#)

- [Getting started](#)
- [Quick start](#)
- [Overview](#)
- [Introduction](#)
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- [Rate limiting](#)
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- [Company profile](#)
- [Registered office address](#)
- [Company Officers](#)
 - [list](#)
 - [Resources](#)
 - [error resource](#)
 - [officerList resource](#)
- [Filing history](#)
- [Insolvency](#)
- [Charges](#)
- [Officer Appointment List](#)
- [Officer disqualifications](#)
- [UK establishment companies](#)
- [Persons with significant control](#)
- [Company registers](#)
- [Company exemptions](#)
- [Document API](#)

List the company officers

Request

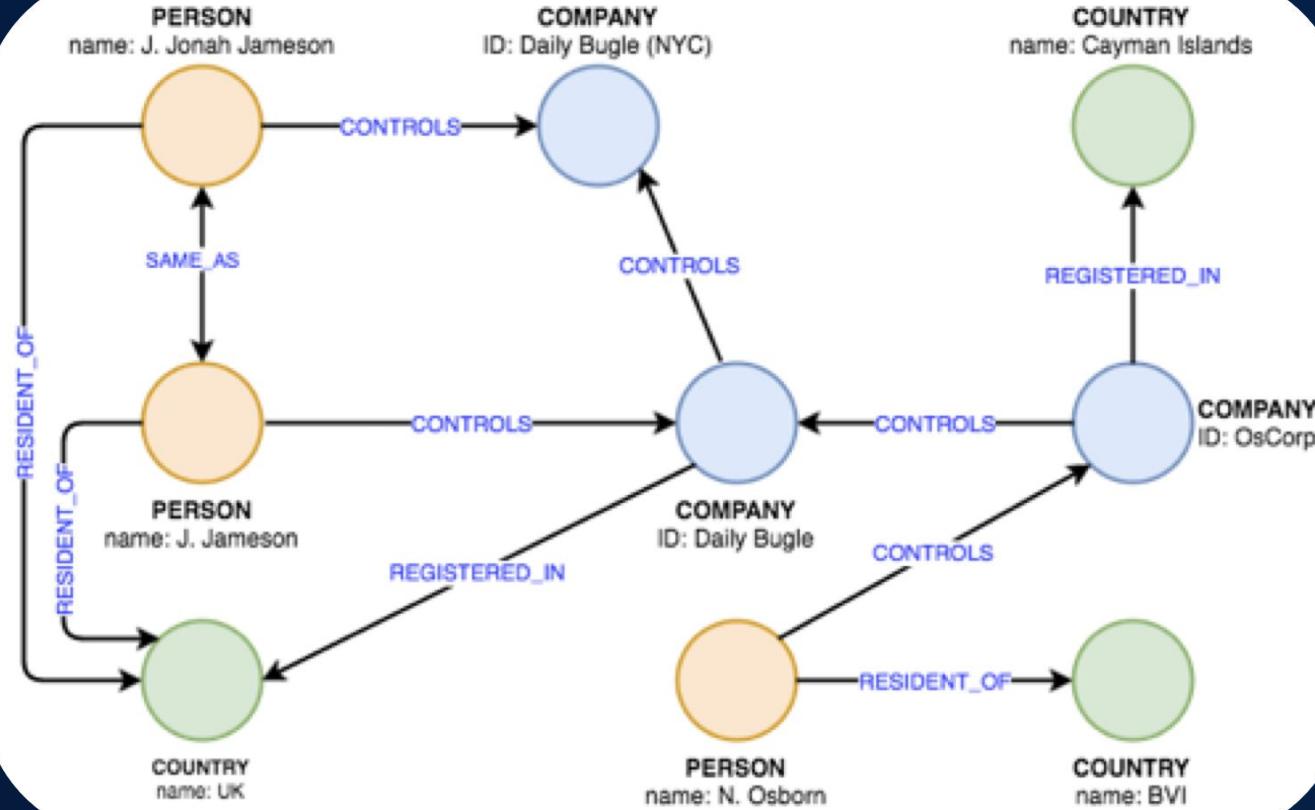
```
GET https://api.companieshouse.gov.uk/company/{company_number}/officers
```

Query parameters

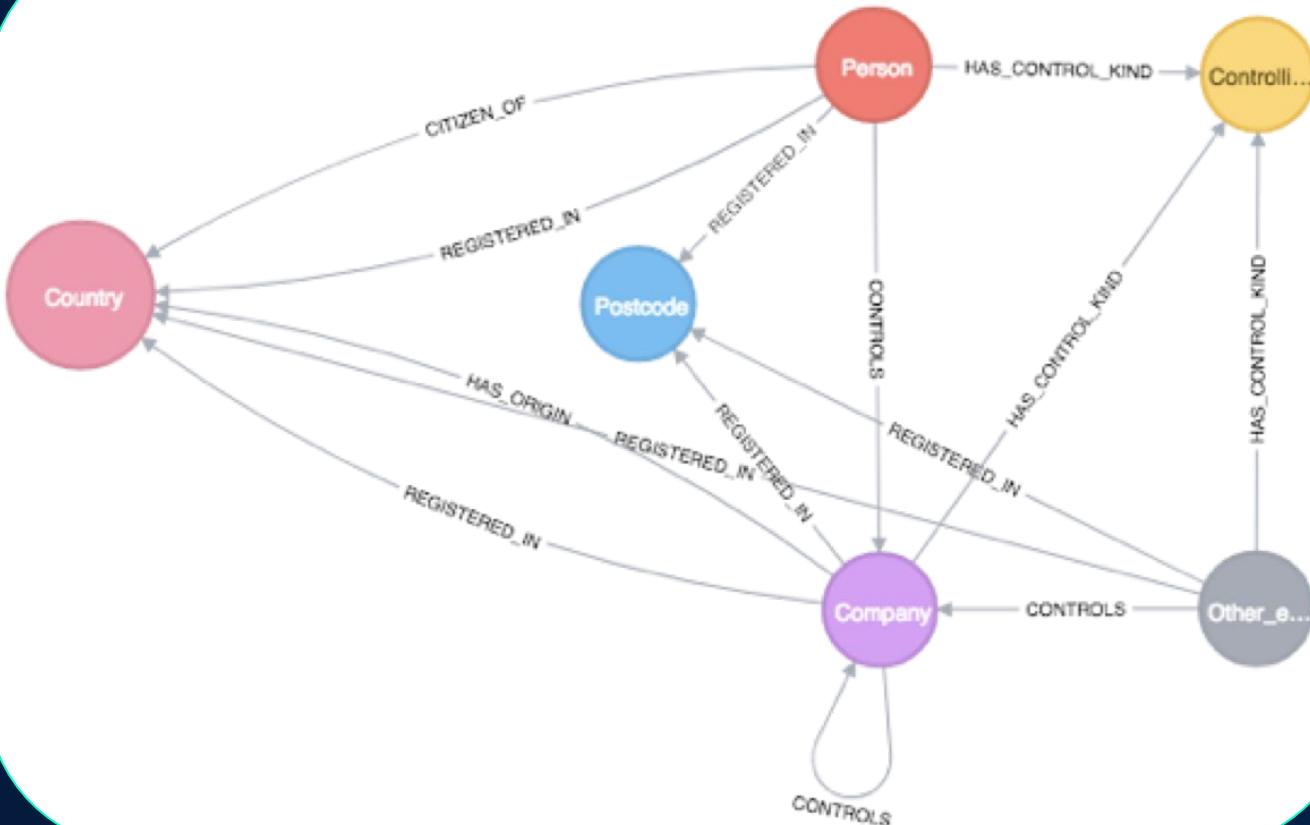
Parameter name	Value	Description	Additional
company_number	string	The company number of the officer list being requested.	
items_per_page	integer	The number of officers to return per page.	Optional.
register_type	string	The register_type determines which officer type is returned for the registers view. Accepted values are: <code>directors</code> <code>secretaries</code> <code>llp-members</code> The register_type field will only work if registers_view is set to true	Optional.
register_view	string	Display register specific information. If given register_type must be specified.	Optional.



What we thought we would build?



The reality of what we built



More details on the coding and how we built it check out:

<https://youtu.be/mWzDXbmvFhQ>

<https://github.com/Global-Witness/the-companies-we-keep-public>



Complexities and Challenges

- 4.1 million company records
- 4+ million beneficial owners
- 40 million corporate officers
- Disqualified director records
- 195+ countries & jurisdictions
- Financial secrecy jurisdiction data
- 40 million corporate officers
- Worldwide politician data



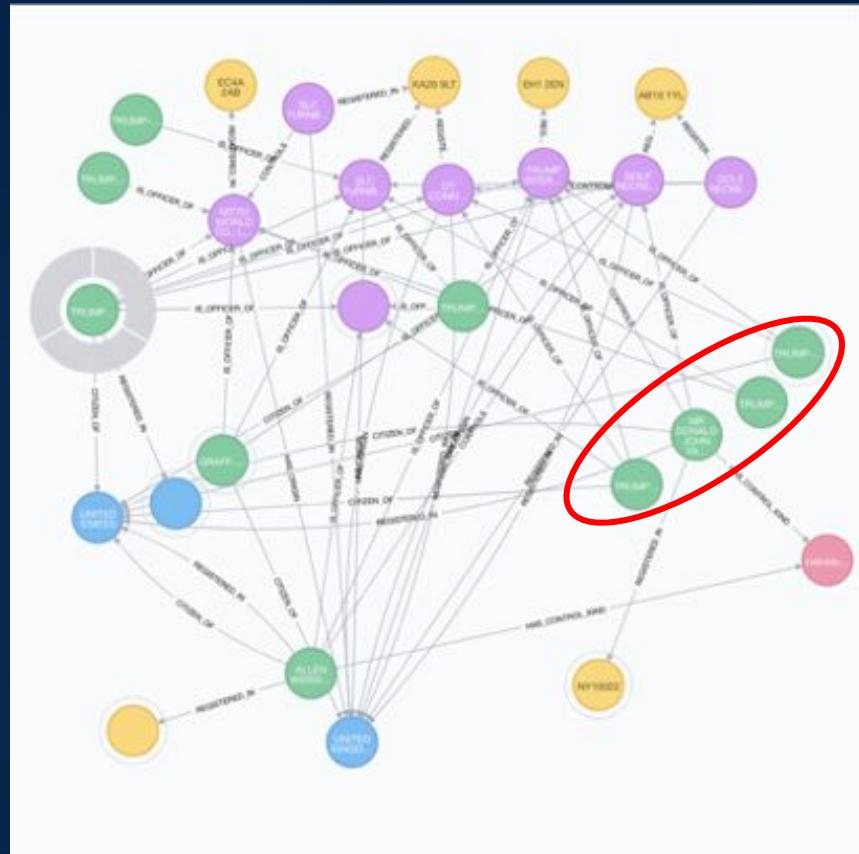
Complexities and Challenges



Fundamental challenge of this project is identifying people who are the same person

UK Company registers do not have a UID for people and no official ID is required when registering a company

On-going work to develop an ML approach to deduping the records building on initial promising developments



BETA This is a trial service — your [feedback](#) will help us to improve it.

[Sign in / Register](#)

Search for a company or officer



CAMBRIDGE ANALYTICA(UK) LIMITED

Company number 09375920

[Follow this company](#)

[File for this company](#)

[Overview](#)

[Filing history](#)

[People](#)

[Insolvency](#)

[Officers](#)

[Persons with significant control](#)

Filter officers



Current officers

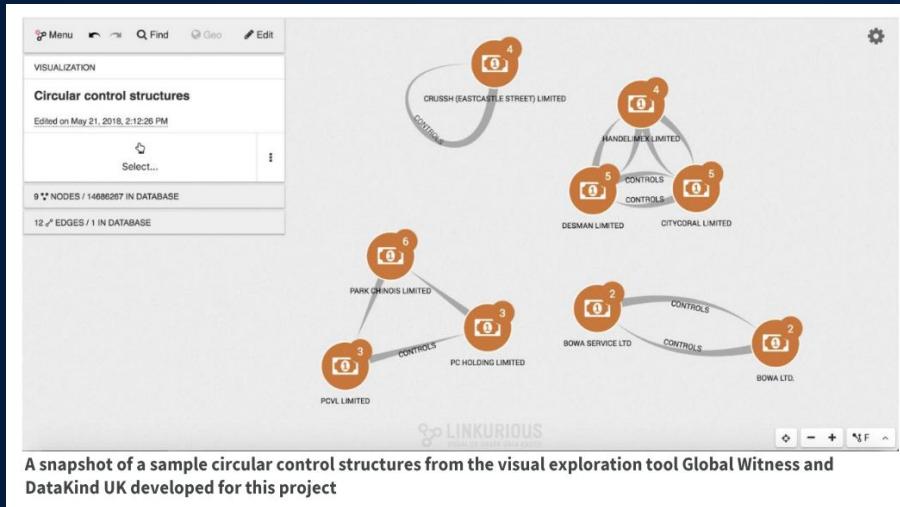
05

What was the impact of the project?

What came out of the project and how were the results important?

Results & Impact

- **4.1 million** companies are now on the beneficial ownership register
- **4,000 owners** are listed under the age of 2, including one who has yet to be born.
- **328 companies** with circular control structures
- **5 beneficial owners** control more than 6,000 companies raising the question of whether some of these individuals are simply stooges put in place by the real owners.
- Demonstrated the value and potential of open, public registers of company ownership

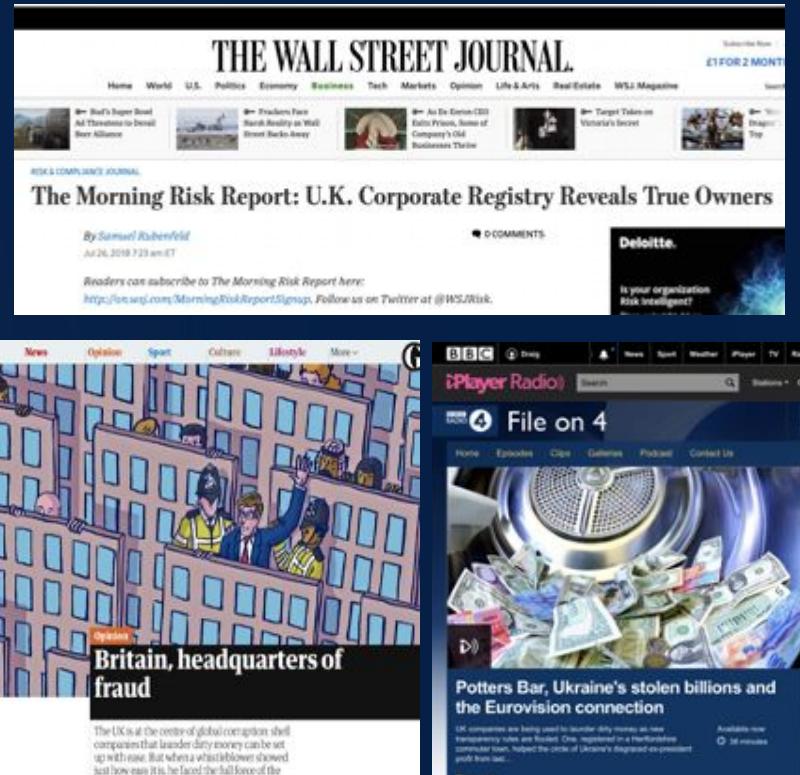


Red flag	Number of companies that have this flag
Company was registered at a company factory or mailbox address ⁶⁵	208,572 ⁶⁶
PSCs of company are disqualified directors ⁶⁷	345
Company shares a PSC, officer or registered postcode with a company suspected of having been involved in money laundering ⁶⁸	7,848 ⁶⁹
Officers or PSCs are based in secrecy jurisdictions e.g. British Virgin Islands ⁷⁰	140,409 ⁷¹
Company officers or PSCs are politicians ⁷²	390 ⁷³
Company frequently changes its name ⁷⁴	416 ⁷⁵
Company's PSCs function as PSCs for a large number of other companies ⁷⁶	9,199 ⁷⁷
Company is controlled via a trust ⁷⁸	143,939 ⁷⁹

Results & Impact

The analysis of the owners of UK companies uncovered serious money laundering risks:

- **345 companies** have an owner who is a disqualified director
- **390 companies** have company officers or owners who are politicians
- **7,848 companies** share an owner, officer, or registered postcode with a company suspected of having been involved in money laundering
- **1 address**
 - = **1,099 companies** without a PSC
 - = **761 companies** with 1 director with 2 convictions for fraud & tax evasion!



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Hours of Commons Hansard

Debates / Public Bill Committee

Sanctions and Anti-Money Laundering Bill [Lords] (Fourth sitting)

01 March 2018

Column 89

Attended List

Public Bill Committee

Thursday 1 March 2018

(Affiliation)

[Steve Barclay (Con) Cheshire]

Sanctions and Anti-Money Laundering Bill [Lords]

5:30 am

One interesting element in the new regime in which companies are required to name a person with significant control, there seems to be some evidence at that regulation suggested that only 20% of SLPs had named a person with significant control. Yet other commentators have said that 30% are now complying, although that is still an incredibly low compliance rate with an important requirement. It is also interesting to note the very high number of beneficial owners involved who are either nationals or former residents of former Soviet countries, or companies incorporated there. That compares very closely to the list of all listed companies across the EU. Of course, in and of itself that might just indicate that there is more engagement of this type of partnership in different areas, but the concern is that among campaigning groups, lawyers and others have raised it that these SLPs can be used for the purposes of money laundering and corruption.

Transparency International, which catalogues what it has done a lot of research on the issue, suggests that 70% of SLPs reported in 2016 were controlled by anonymous companies based in secrecy jurisdictions such as Belize, Switzerland and Panama. Furthermore, 10 SLPs were used to launder \$20 billion to \$10 billion between 2010 and 2014 as part of what has been called the “global洗钱网” (I will go into some of the different examples in a moment).

4:30 pm

Referred bill Tuesday 6 March at twenty-five minutes past nine o'clock.

With no evidence reported to the House

334.8.00 (Ratified Decree), Minister of Justice

344.8.00 (Amnesty International)

354.8.00 Transparency International UK

364.8.04 (Global Witness)

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Social Impact

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UK overseas territories to open up ownership registers

Move considered major win for financial transparency

UK to adopt EU laws on combating terrorism and money laundering

Social Impact

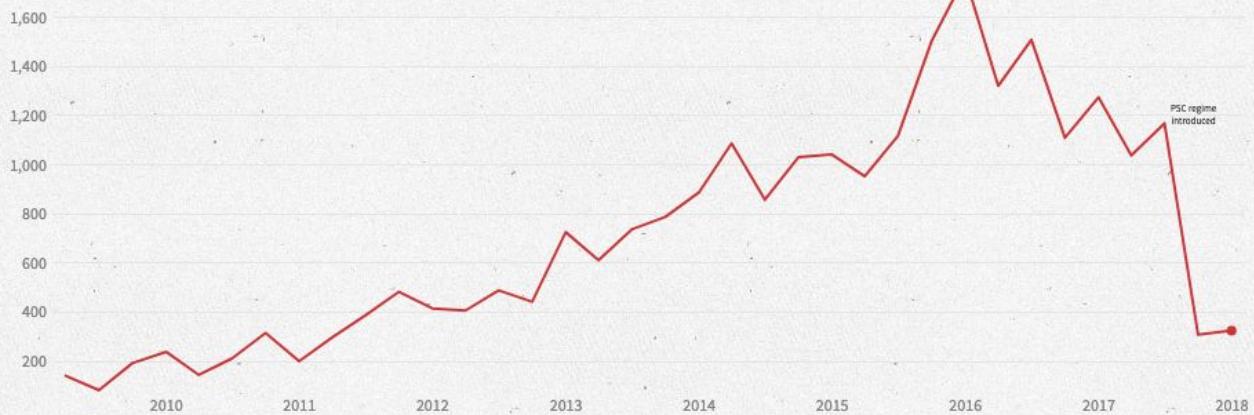


The drop in rate of incorporation of one of the UK's most widely abused corporate entities for money laundering, Scottish Limited Partnerships.

SLPs have been implicated in numerous money laundering scandals, and following their inclusion in the beneficial ownership regime in 2017, their rate of incorporation plummeted.

RATE OF SLP INCORPORATION PER QUARTER

The PSC regime was introduced for SLPs in June 2017 followed by a sharp drop in their rate of incorporation.



Source: [Companies House](#) • [Download Data](#) • [Embed](#)



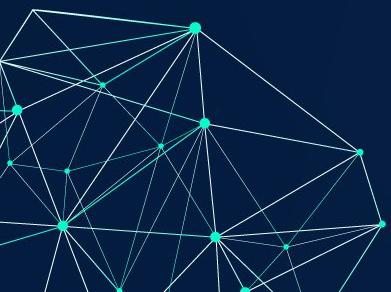
global witness

Impact for Global Witness

- Increased use of data science tools
 - Increased data awareness



- Increased investment in staff & technology
 - Open sourcing their code for reproducibility



06

Closing remarks



"Never doubt that a small group of thoughtful, committed citizens can change the world: indeed, it's the only thing that ever has."

- Margaret Mead



DatSci.Ai

BEST USE OF DATA TO ACHIEVE SOCIAL IMPACT
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DELOITTE UK

NATIONAL
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THANK YOU

Does anyone have any questions?

@astroadamh
@datakinduk



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More details
<http://bit.ly/theCompaniesWeKeep>
<https://youtu.be/mWzDXbmvFhQ>

For more info on DataKind UK
<https://datakind.org.uk/>