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The Hidden Economy & Our Evolution of Third-Party Data Risking



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OFFICIAL-SENSITIVE

HMRC – Risking & Intelligence Service (RIS)

Enabling HMRC to manage risks to the tax system

HMRC's Risk and Intelligence Service

Our role is to use data and intelligence to identify, understand and help HMRC respond to the tax risks.

1 → 2 → 3 → 4 → 5

THE HIDDEN ECONOMY CHALLENGE

Why identifying the taxpayer can be the first challenge

UNLOCKING THE DATA

How TPD helps us access richer sources of insight

ANALYTICAL RESPONSE

How our techniques have developed and matured

OPERATIONALISATION

How insight becomes useful for compliance teams

RRDP CASE STUDY

How we responded to a significant new acquisition

The Hidden Economy provides a clear example of why every stage of this journey matters.

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The Hidden Economy Challenge

We may see the economic activity before we know who the taxpayer is.

ACTIVITY
What can we observe?

→

IDENTITY
Who is behind it?

→

ENTITY
What else do we know?

→

TAX POSITION
What has been declared?

→

RISK
Does the picture make sense?

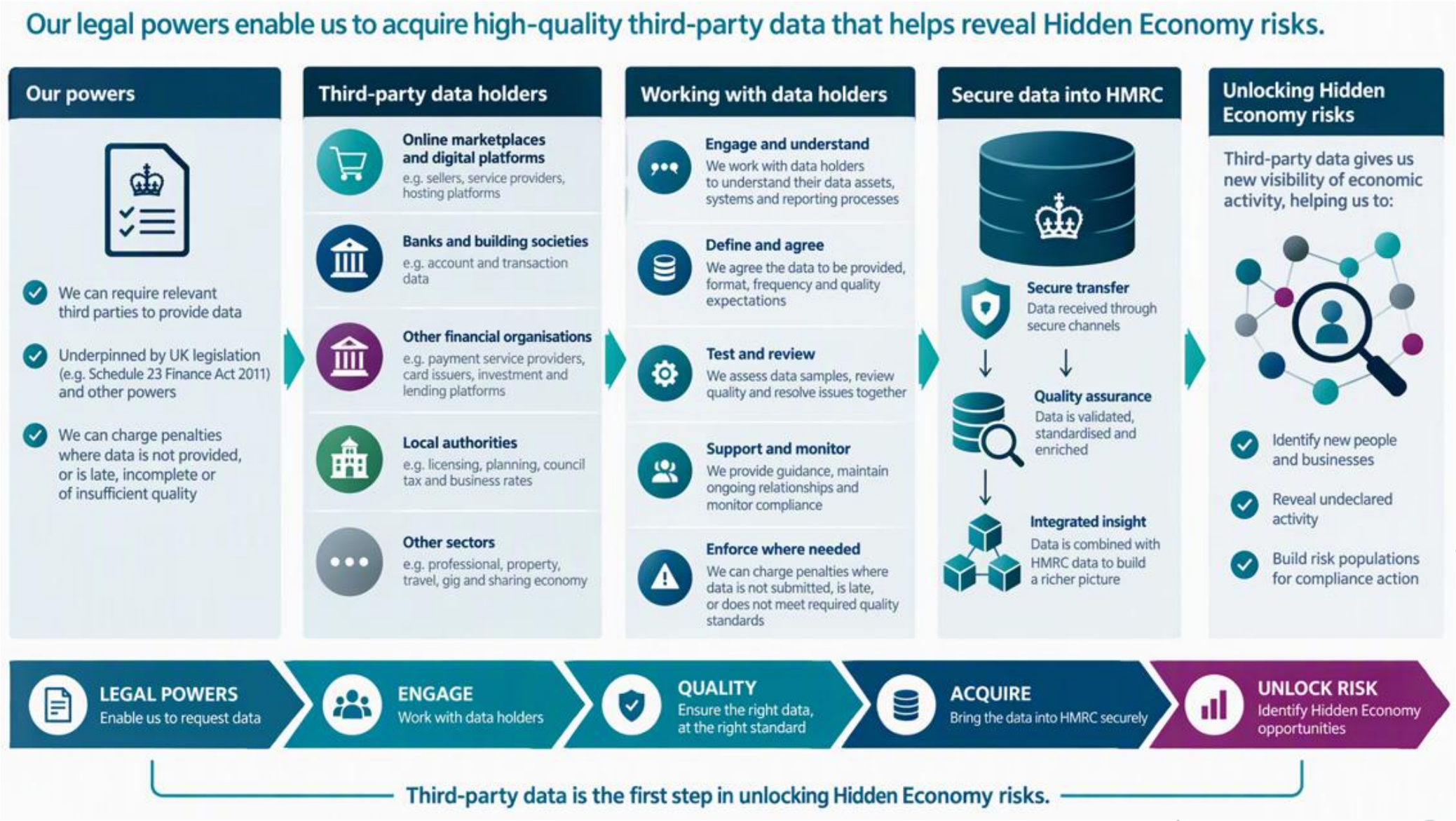


The analytical challenge

Connect fragmented signals to build a reliable picture of the person or business, then determine whether observed activity is consistent with their tax position.

Before we assess the risk, we often have to establish who or what we are actually risking.

Unlocking the Risk

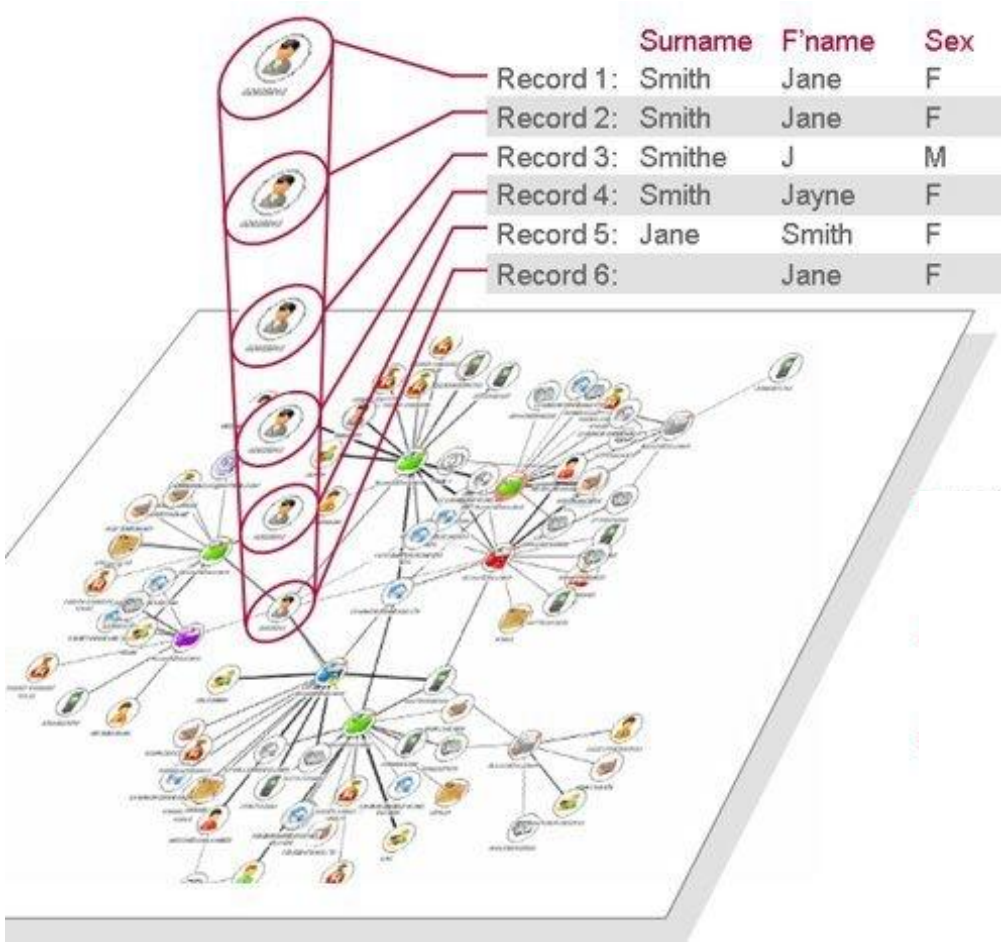


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Evolving Our Analytical Capability

With new data come the challenge of identifying the taxpayer.

	Surname	F'name	Sex	DoB	Address
Record 1:	Smith	Jane	F	10/12/68	15 Green Close
Record 2:	Smith	Jane	F	10/12/68	
Record 3:	Smithe	J	M	10/12/68	15 Green Close
Record 4:	Smith	Jayne	F	10/12/68	15 Green Road
Record 5:	Jane	Smith	F	12/10/68	15 Green Close
Record 6:		Jane	F	1/1/70	15Green Close



ENTITY CREATION
A single view of an entity is created from multiple data sources

DATA MATCHING
Data is matched across multiple fields and data sources to add to entities

POOR QUALITY DATA
Poor data quality – even with blank or missing fields will still link to entities

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Spines: Data-to-Network Mapping Tables

Lookup tables use identifiers from TPI documents to discover related HMRC records and retain Supporting Evidence

1 HOW MATCHING WORKS

Extract identifiers

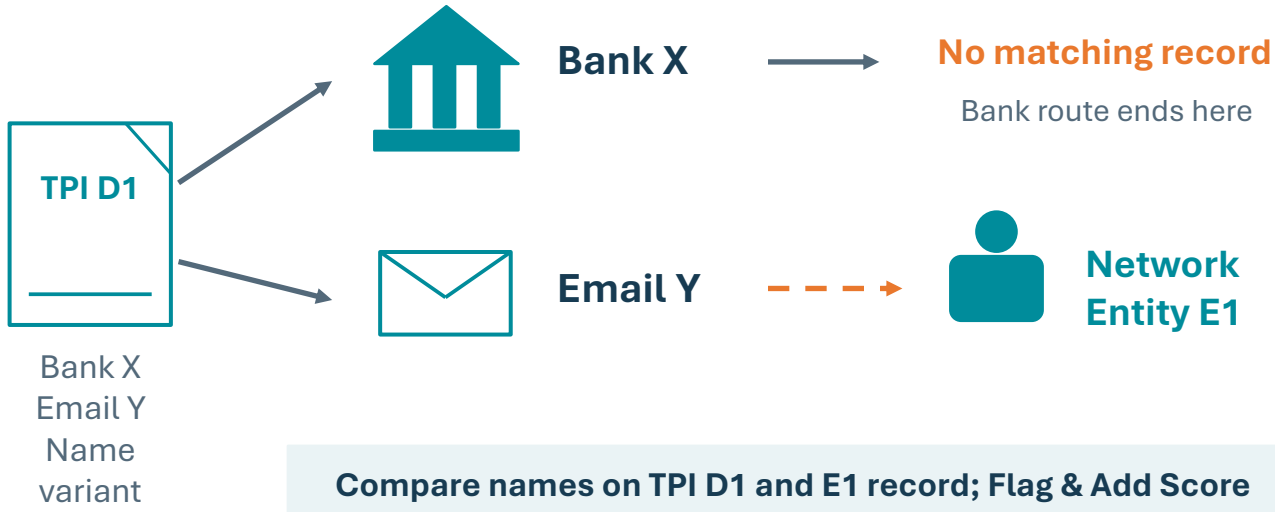
Names, bank details, email, address and tax references

Look up in HMRC reference tables

Find records sharing an identifier; not every name against every record

Compare names and retain evidence

2 ONE DOCUMENT, Multiple LOOKUP ROUTES



Compare names on TPI D1 and E1 record; Flag & Add Score

Retain the Name Match Flag and supporting match evidence

3 THREE SPINE OUTPUTS



IND spine

Document to individual entity

BIZ spine

Document to business entity



Tax spine

Tax-document links via matched entities

ILLUSTRATIVE LINK ROW

TPI doc	Network doc	Route	Name Match	Score
D1	D2	Email	Flag	Name March Score

Dashed orange = additional identifier route

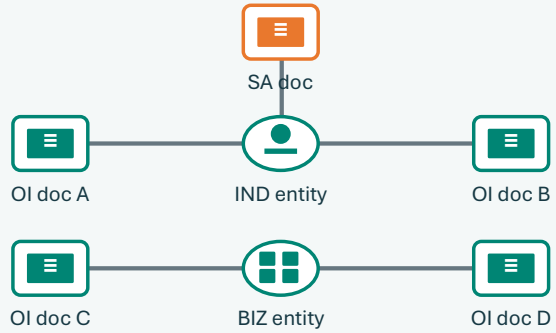
Connected components: from Spines to case membership

Spines supply the accepted links; connected-components analysis groups every document and entity reachable through those links.

G = (V, E): V = documents and entities; E = accepted spine links.

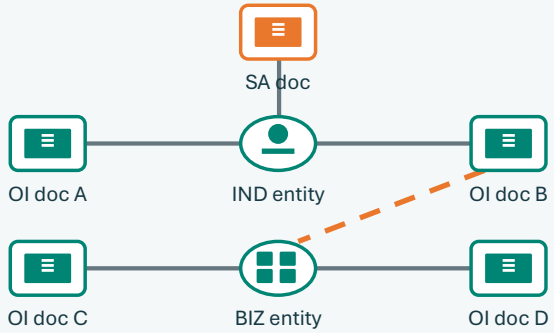
Node	SA doc	OI A	IND entity	OI B	OI C	BIZ entity	OI D
Before	A	A	A	A	B	B	B
After	1	1	1	1	1	1	1

1 Two components



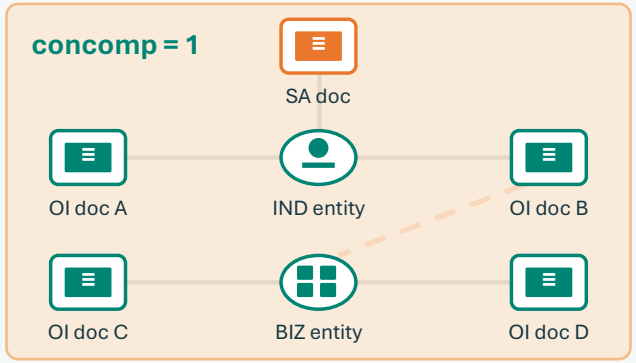
Two disconnected groups: 4 + 3 nodes

2 Accepted bridge from Spines



OI doc B ↔ BIZ entity joins the groups

3 One component



7 nodes share membership; no new edges

Reachability, not pairwise matching

SA doc → IND entity → OI doc B → BIZ entity → OI doc D

A path is sufficient. Nodes do not need a direct match.
A component is maximal: every reachable node is included.

How membership is assigned



Start
Each node begins as its own set

Process edges
Read each accepted link

Merge
Join endpoint sets

Label
Assign one component ID

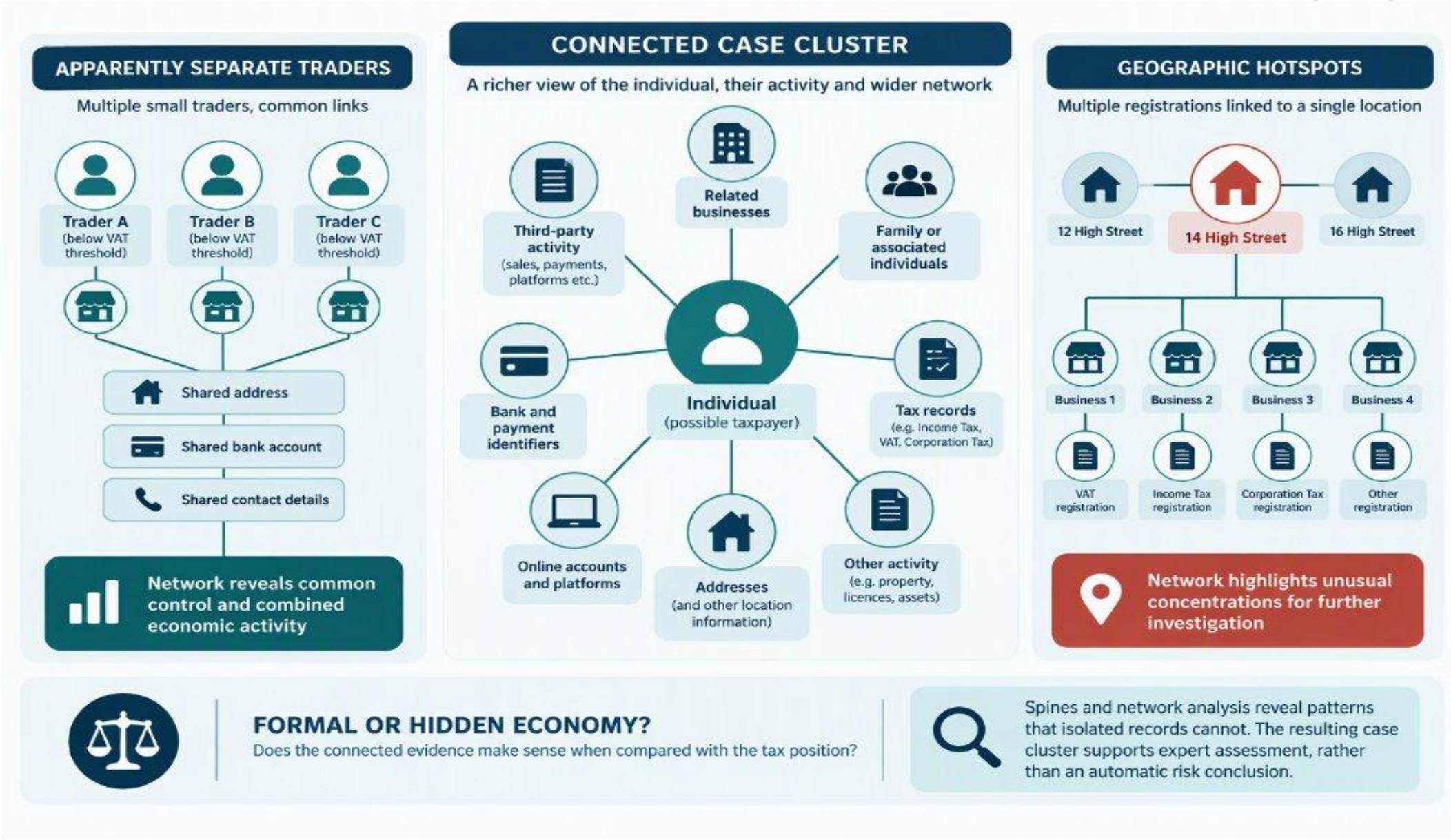
Example run: 1,782,446 nodes | 1,368,988 links | 611,413 components

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Spines supply accepted edges. Connected-components analysis assigns shared membership. Connectivity supports case grouping, not proof of identity.

Evolving Our Analytical Capability

From Connected Clusters to Risk Questions



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Digital Platforms: A change to HMRC's approach

Reporting Rules for Digital Platforms RRDP

OECD led legislation that came into effect in January 2024. This mandates online digital platforms to provide details of taxpayer's income to the relevant tax jurisdiction.

DATA RECEIPT
Data received by HMRC each January for the previous year.

→

INGESTION
Data ingested into our analytical compliance systems.

→

INSIGHT ANALYSIS
Developing understanding of the data available.

→

SPINES
Developing method to identify taxpayers and link data.

→

COMPLIANCE PLANNING
Supporting HMRC's wider compliance activity.

→

COMPLIANCE PROFILES
Incorporating the data into analytical and risking profiles.

Analytical Review

- Data quality testing
- Process review
- Early insight

Analytical Products

- Insight Analysis
- Data summary Dashboard
- Data Linking Spines
- Data documentation

Compliance Activity

- Compliance planning support
- Analyst training & guidance
- Risk profile development

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Evolving Our Analytical Capability

From Risk Signal to the Right Response

1 ENRICH

Build the context around the case

- Location
- Trade
- Estimated unknown income - TEM

2 PRIORITISE

Direct attention to stronger cases

- Learn from outcomes
- Rank the cases

3 RISK TREATMENT

Match the case to a suitable response

- **ONE-TO-ONE**
  Compliance case
- **ONE-TO-MANY**
  Letter or digital prompt
- **AUTO-REGISTRATION**
  Suitable verified cases

TAKEAWAY From finding possible risk to directing the right cases to the right response.

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From Activity to Actionable Risk

The analytical journey

1 SEE THE ACTIVITY

Use third-party data to reveal economic activity that may not yet be visible through the tax system.

2 ESTABLISH THE IDENTITY

Match, link and validate fragmented records to understand the person or business behind that activity.

3 TURN INSIGHT INTO ACTION

Build a connected case, assess the tax position and direct attention towards credible risk.

The goal is not simply more data or more sophisticated networks.

It is to turn data into credible insight, and credible insight into the right response.

Questions & Discussion

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