Methodology for the Spatial Clustering of CTAS data to identify high risk workplace settings

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Objectives

Overarching objective:

- To identify high risk workplace settings for Covid-19 transmission

Subobjectives:

- Development of a more robust pandemic tool to analyse common exposure settings
- Improve our understanding of enduring transmission over time and the role of workplace settings

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Lessons Learning & Next Steps

Rapid Response Methodology: Postcode level clustering

- Spatial clustering by postcode
- Standardisation of cluster categories: Mapped CTAS to 5 levels of Industrial Categories at LTLA level
- *Rates conversion* to compare geographical areas and sectors at national, regional, LTLA level
    - *Employee count* = size of workplace outbreaks by week
    - Building count = cluster denominator

Capacity to analyse outbreak composition

- Outbreak size by week, location, setting type description (postcode level)

Data verified

- Verified against venue alerts, pillar 2 cases, and HP Zone data

Longer term time trend analysis (1 year+) Retrospective analysis

- Distinction between *prevalence and incidence* with UPRN add
- Tracking of cluster growth
- Improving the granularity of analysis to improve data quality (specificity)
- Reduction in cluster numbers/fragmentation over time

Spatial clustering: the rational for UPRNs and their application across government

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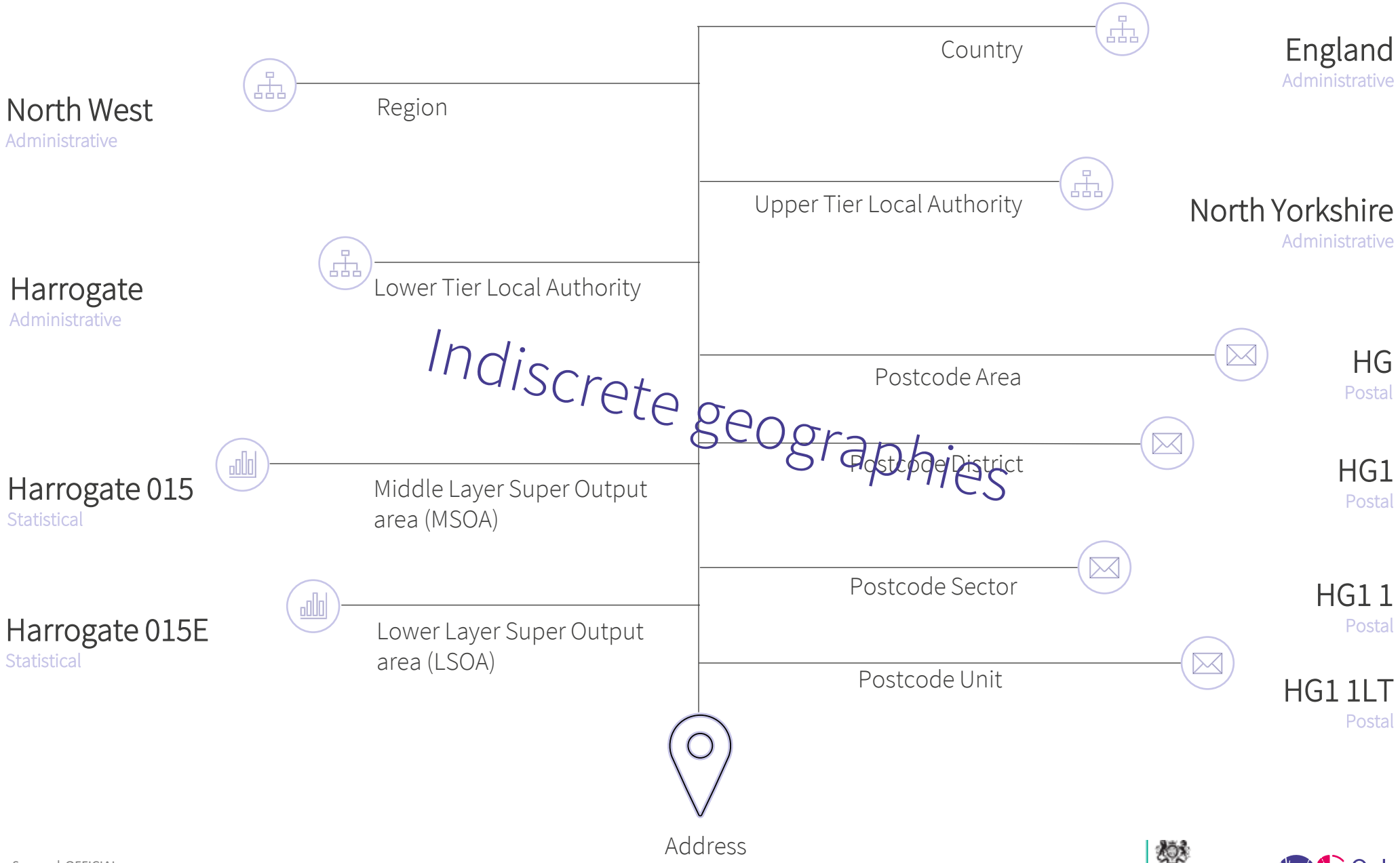

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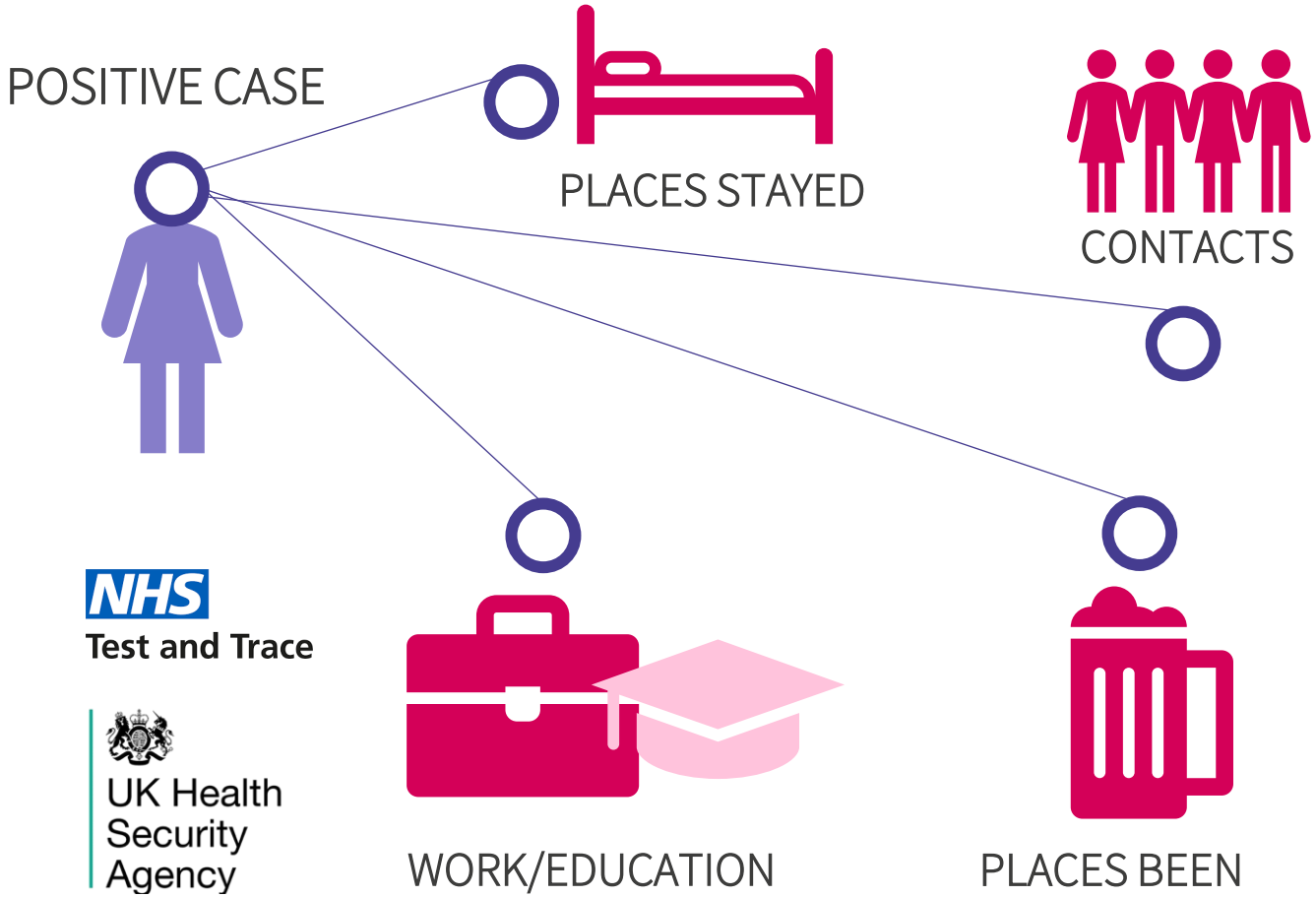
Capture and verification of UPRNs



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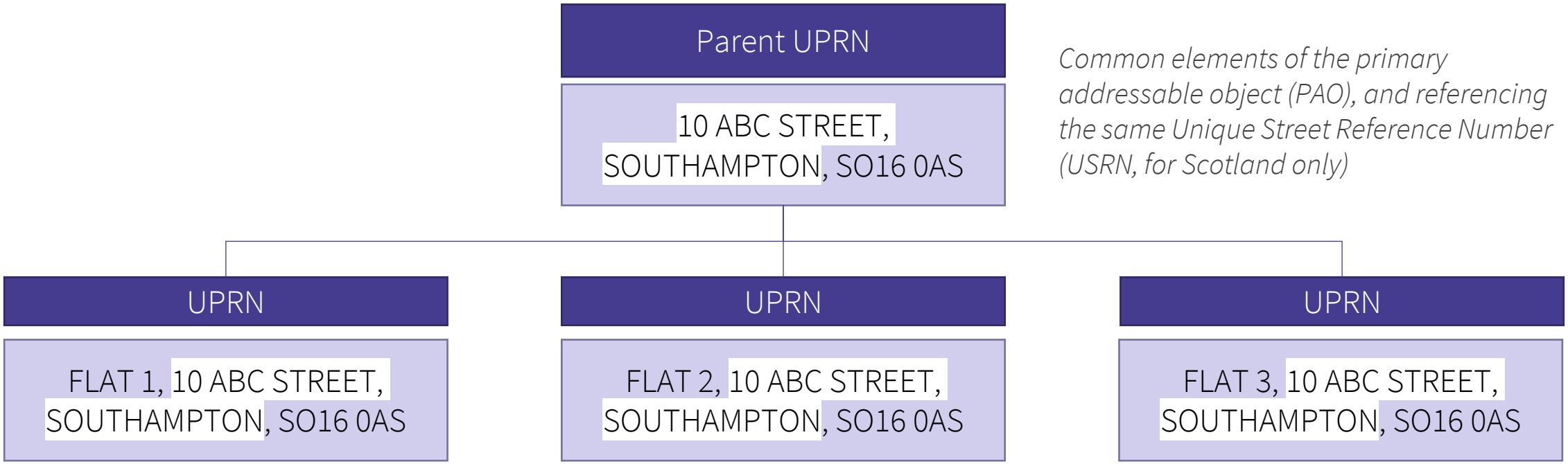
UPRN ancestry



Common elements of the primary addressable object (PAO), and referencing the same Unique Street Reference Number (USRN, for Scotland only)

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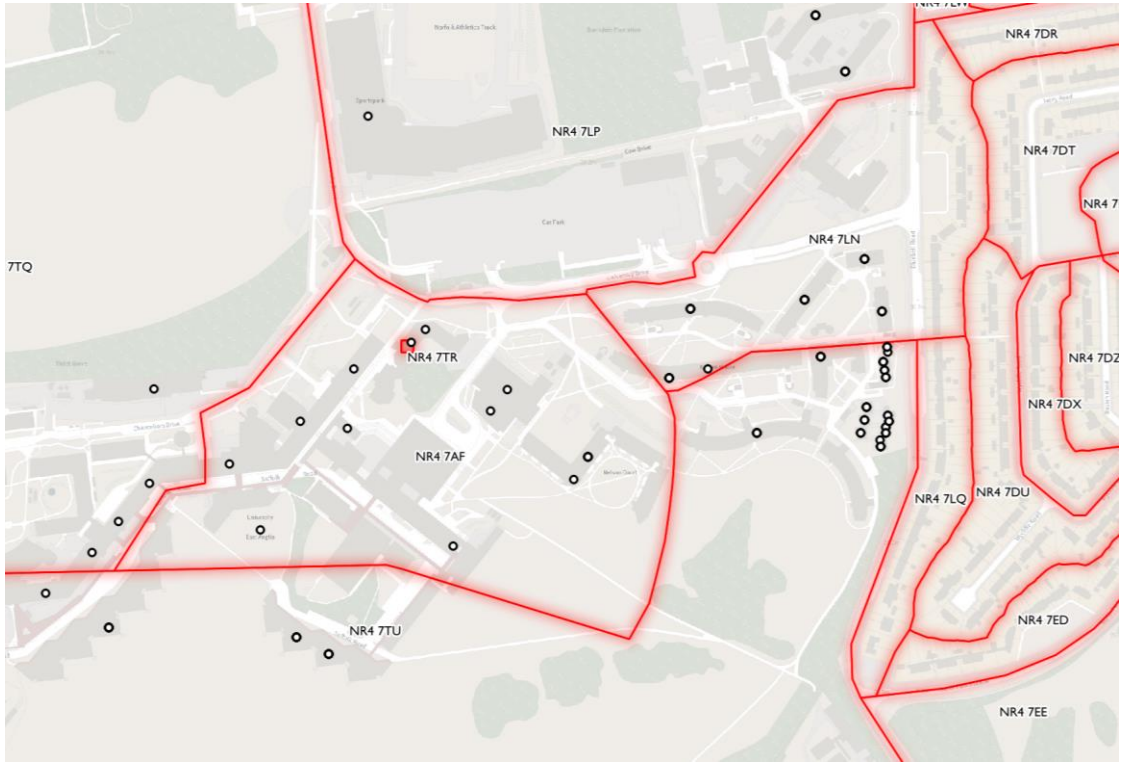
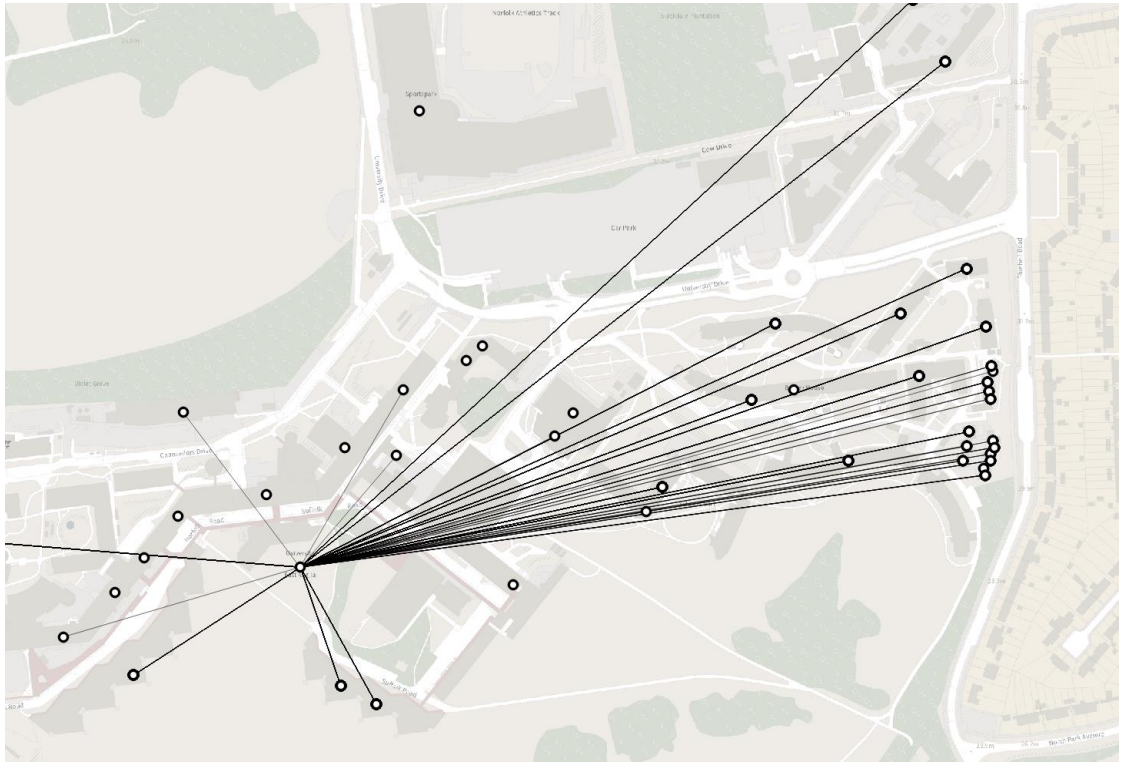
Clustering Strategy: Postcodes to UPRNs



Former postcode adjacency lookup



Ancestral lookup hierarchy

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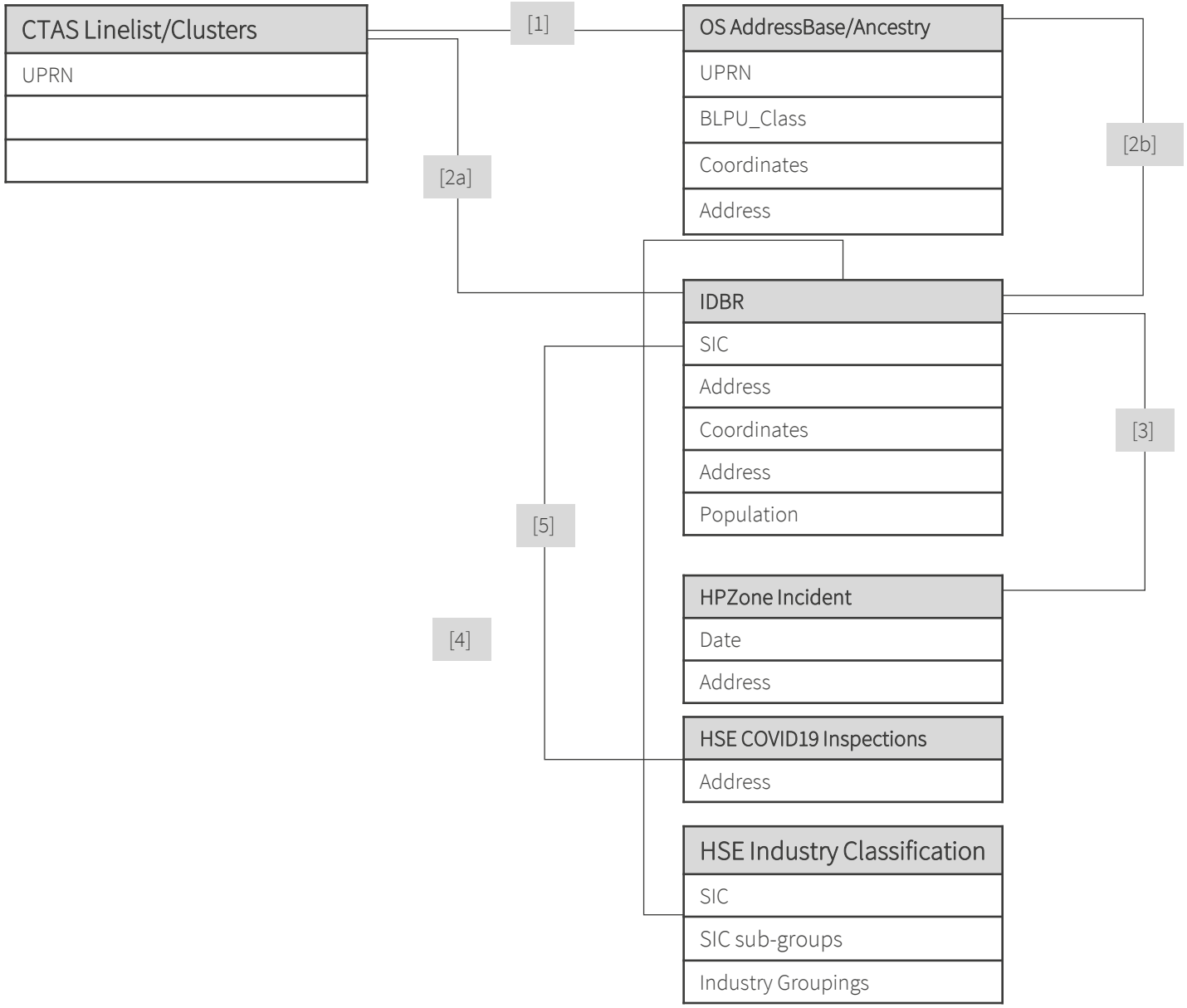

Data Linkage

[1]. CTAS to OS ADB/Ancestry (Key CTAS.UPRN – AS ADB.UPRN)

[2]. IDBR to CTAS – two linkage options
- [2a] Fuzzy match Postcode + Address (Federico method)
- [2b] Address match IDBR CTAS PC subset to OS ADB to CTAS (UPRN)

[3]. HPZone to IDBR (Review method used by HSE from Meng study)

[4]. HSE Industry Classification to IDBR (HSE.SIC – IDBR.SIC)

[5]. HSE Inspections to IDBR (Caleb method)

Linkage schema for CTAS:

CTAS Linelist/Clusters + industry classifications
CTAS.UPRN [1] (primary or ancestry)
OS ADB. BLPU_Class [1]
IDBR.SIC [2a/2b]
IDBR.Population [2a/2b]
HSE Ind Class.SICSubGroup [4]
HSE Ind Class.HSEIndustryGrouping [4]
HPZone [3/2]

Summary: Opportunities to apply UPRNs across all hazards surveillance

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Thank You

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