Spatial data preprocessing

Spatial unit of study

To conduct the spatial study that captures the intensity, diversity and character of industrial activities in Southwark is necessary to establish a definition of the spatial unit of study. Conceptually, the physical study of 'Industrial Activities' encompasses two core ideas: the nature of the industrial activity or function and the premises where that activity takes place. The spatial unit of study has been conceptualized as a **'Functional Unit'**, which is an industrial economic activity that doesn't necessarily fits spatially across an entire building or parcel (the two most common spatial units on urban topographic surveys). In many cases, more than one 'Industrial Activity' takes place within a building or parcel.

In the context of this study **'Functional Unit'** is defined as:

The premises where a uniform industrial activity takes place, disregarding the type of tenure or physical structure of the space that accommodates the activity.

(based on Basic Land and Property Unit)

Data sources

There exist a variety of available open and proprietary data sources relevant for the SIA study. In order to come up with a systematic methodology of data selection two criterias were defined: precision and accuracy.

To identify where do industrial activities take place three key data set sets were analysed:

Description	SIA name	URL
INSPIRE Index Polygons Cadastral parcels. Registered extent of freehold properties in England and Wales	Parcels	https://www.gov.uk/government/publications/south inspire-index-polygon-data
GLA_Ind_Land_Baseline_2015_Designations	Baseline	Proprietary GLA (Alex Marsh)
OS MasterMap Topography Layer - Buildings (Digimap)	Buildings	https://www.ordnancesurvey.co.uk/business-and-government/products/topography-layer.html

These datasets have a spatial resolution at the parcel/building level (1:1000 approximately). The cadastral **Parcels** have a more detailed demarcation of land divisions than the topographic representation in OS Mastermap ('General Surface' layer). Therefore, it was considered more appropiate to survey the associated exterior spaces of industrial **Functional Units**. To get a better representation of the subject of study it is necessary to integrate the selected datasets.

Data integration

Both datasets were intergrated and combined to get a merge of **Parcels** polygons with the **Baseline** industrial designations. Not all the cadastral **Parcels** overlay with the industrial polygons so the following geoproecesses were applied:

- Intersect **Parcels** with **Baseline** polygons (Parcels which 'point on surface' are within Baseline polygons)

- Add those **Baseline** polygons that are *outside* the **Parcels** polygons definition.

Data generalization

As a result of the previous operation we get 1922 features from the **Parcels** layer. However, a visual inspection of some features shows some innacuracies specially in the **Baseline** polygons classified as NAL. These innacuracies correspond to: uncertain industrial activity verified by street level observation (Google Street View) and parcel boundaries shape with too much detail that describe a building rather than a parcel or 'site' boundary (e.g.: docks).

Similarly, the analysis of the **Buildings** layer has polygons that are too small or have 'elongated' shapes where it is unlikely that an industrial activity might take place.

Geometric generalization

Parcels

- Delete parcels with area <= 10 sqm & delete duplicates (154 features) /Volumes/ucfnnap/SINDA/GIS_analysis/PARCEL (n = 1768)

Next step the polygons of the **Buildings** layer (OS MasterMap) that overlay with the **Parcels** layers are selected n = 2958 buildings.

Buildings

- Delete polygons <= 15 sqm (526 features)
- Delete 'elongated' polygons (31 features)
- Delete duplicates (and topological errors) (373 features) /Volumes/ucfnnap/SINDA/GIS_analysis/BUILDINGS_ed.shp (n = 2128)

Semantic generalization

For the **Buildings** and **Parcels** layers a generalization according to 'Land Use' attribute was applied. - All polygons with 'Land Use' = *Other* were excluded from the analysis - Polygons in the **Buildings** layer with 'Land Use' = *Utilities* and 'Area' < 200 sqm were excluded from the analysis

/Volumes/ucfnnap/SINDA/GIS_analysis/BUILDINGS_final_FUC.shp (n = 1822)

Summary of building polygons in the Opportunity Area

The area within the Opportunity Area defined by the Southwark council (Old Kent Road and suroundings) has been surveyed recently (see image below). The data of that survey might be integrated to the SIA, therefore is necessary to identify and quantify them so that the surveys are not duplicated.

Area	Number of building polygons
Opportunity Area (OA)	768
Outside OA	1054
Total	1822