

Web Mapping and Analysis - Carto

1 Context - Move Right:

This document outlines the context, design and technical decisions that inform the development of **Move Right**, an interactive geo-visualisation dashboard intended to project neighbourhood data to home-buyers in the metropolitan area of Liverpool. Move Right is an explorative device constructed using open data and dynamic maps to allows users to discover the most attractive locations to live relative to their personal preferences and financial opportunity. By simpling dragging the cursor over a neighbourhood demarcation, lower super output area (LSOA) boundaries can be explored in depth, providing a rich social observatory from which home-buyers, or other interested parties, can come to decisions regarding the attractiveness of neighbourhood to them.

To demonstrate IMD score, we use the `d3.js` library , which we populate with IMD score data hosted on the Carto database server. In addition to showing IMD score, we compile LSOA-level data on the local housing market, distance-based measures to desirable local amenities, local population data, and finally online activity data.

Regarding our distance measures, we use the following PostGIS spatial queries to identify nearest amenities:¹

```
-- distance to railway stations
SELECT    imd_2.cartodb_id,
          Round(Min(St_distance_sphere(imd_2.the_geom, railway.the_geom))::numeric, 0)
          AS railway_dist
FROM      imd_2,
          railway
GROUP BY  imd_2.cartodb_id

-- distance to schools
SELECT  c.cartodb_id,
        round(st_distance_sphere( c.the_geom,
        (
            SELECT    the_geom
            FROM      schools
            ORDER BY  the_geom <-> c.the_geom limit 1 ))::numeric, 0) AS school_dist
FROM    imd_2 c
```

In our case, we use `ST_distance_sphere` to return the minimum distance between two geometries in metres. The output of these queries are left joined to the master dataframe to become usable in the Move Right dashboard.

Several stylistic factors contribute to the aesthetical properties of the dashboard. Firstly, the `Bootstrap` library to allow us to work within a responsive web framework that is suitable for mobile technologies. Moreover, `Bootstrap` provides glyphicons which we use

Next, as opposed to LSOA codes which are meaningless to the end user, we use the ONS best-fit lookup table between 2011 LSOA and 2015 electoral wards to project on hover place names.

¹School and railway station shapefiles are loaded into Carto to calculate nearest distances.

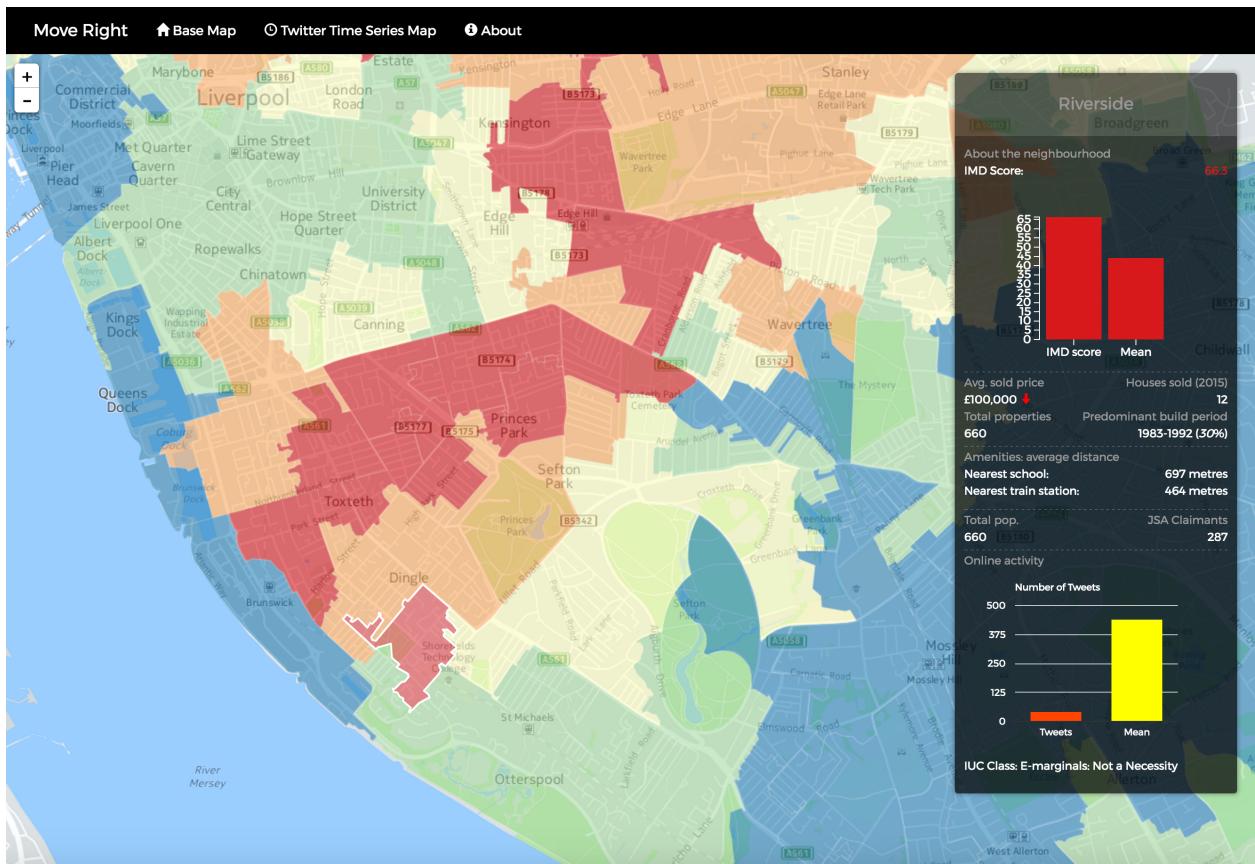


Figure 1: Baseline dashboard for Move Right.

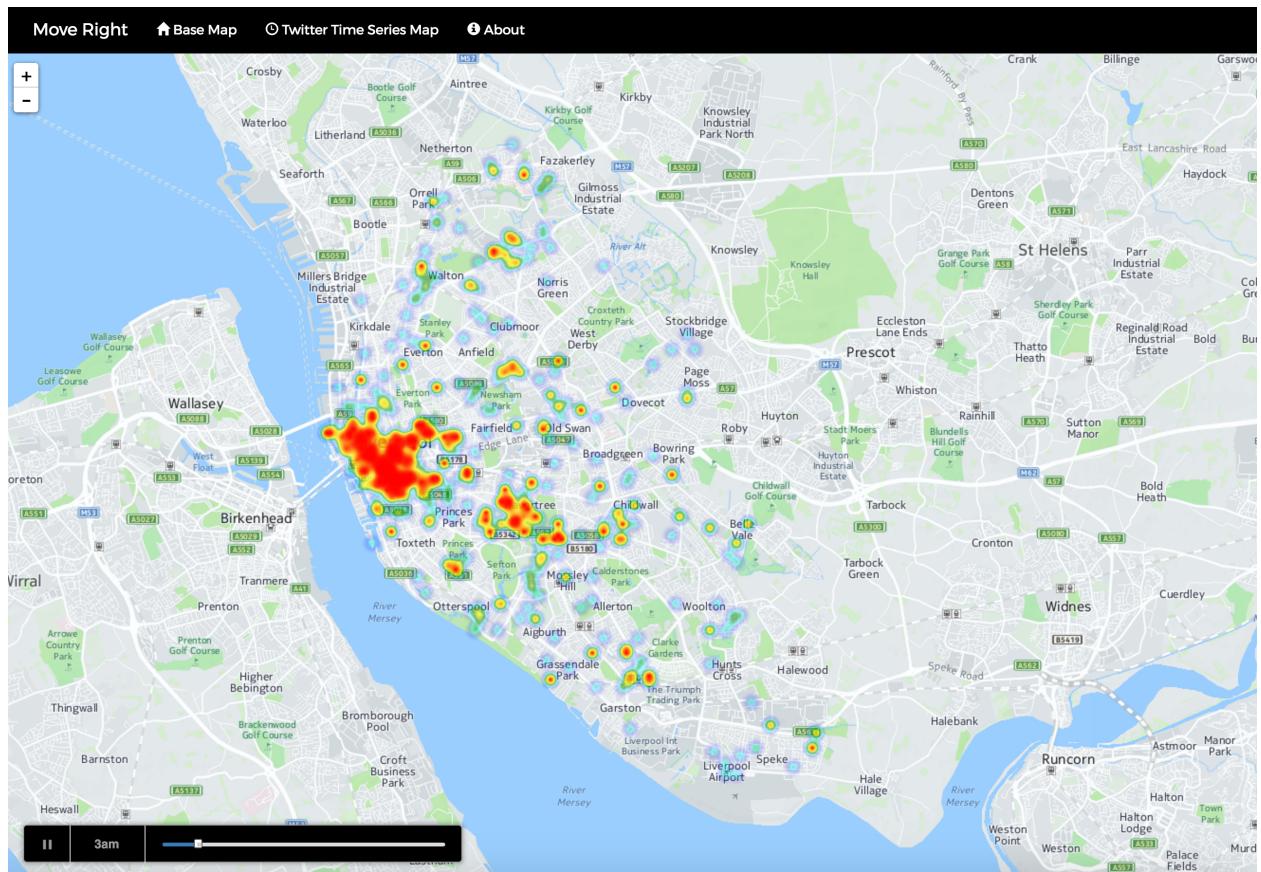


Figure 2: Twitter time series plot using Torque.js.