

SERVICE DESCRIPTION

NQM Economic Analyser

Using data to improve the local economy



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# Nquiringminds Economic Analyser

## 1. Overview

The Economic Analyser application helps local authorities improve decision making to regenerate and expand the local economy. Using data analysis and forecasting the application improves understanding to help plan and manage the local economy. Intelligent analysis of business rates data and variables from other data sources, including GIS and Companies House, provides a rich context around the underlying rates data. The Economic Analyser has been developed hand in hand with local authorities and to increase revenue, improve the environment and deliver a better quality of life to citizens.

### 1.1. Features

- Data import from Local Authority datasets, either via API or CSV/Excel export
- Reconciliation with Companies House API to classify and identify sectors for limited companies
- Geocoding addresses to provide fine grained visualisation of properties and revenue
- Historical view of collected rates over time
- Breakdown of reliefs granted
- Breakdown of reliefs by sector, ward, company
- Easy to use filtering and refinement of data
- Calculation of Tax Base Concentration Risk, a metric that summarises the economic health of an area

### 1.2. Benefits

- Smarter planning: Understand the health of the local economy, the impact over time of different measures, and analyse data in a geographical context
- Resilience: Identify risks and threats to economic health. Mitigate the potential damage of over reliance and struggling sectors.

## 2. Modules

### 2.1. Data Import

The data import module is part of the back-end system, it enables the import of data from diverse data sources into a standardised format (or schema) which powers the Economic Analyser. This system works with a wide variety of datasets, for example business rates released under freedom of information requests have commonly include the required data and it is simple to import from these formats. Additionally, by taking imports from either an API or CSV/Excel export the frequency of the data points available in the system can be increased to give a much more accurate view of the economy over time.

## 2.2. Data Reconciliation

To provide a context rich tool for exploration of data, the data reconciliation module matches properties for which rates have been collected against company profiles in Companies House data. Additionally, various rules are applied to classify properties that do not appear in the Companies House database so that the health of the economy can be analysed across sectors.

The final stage of the data reconciliation module involves geocoding properties so that they can be analysed in a geographical context.

## 2.3. Data Visualisation

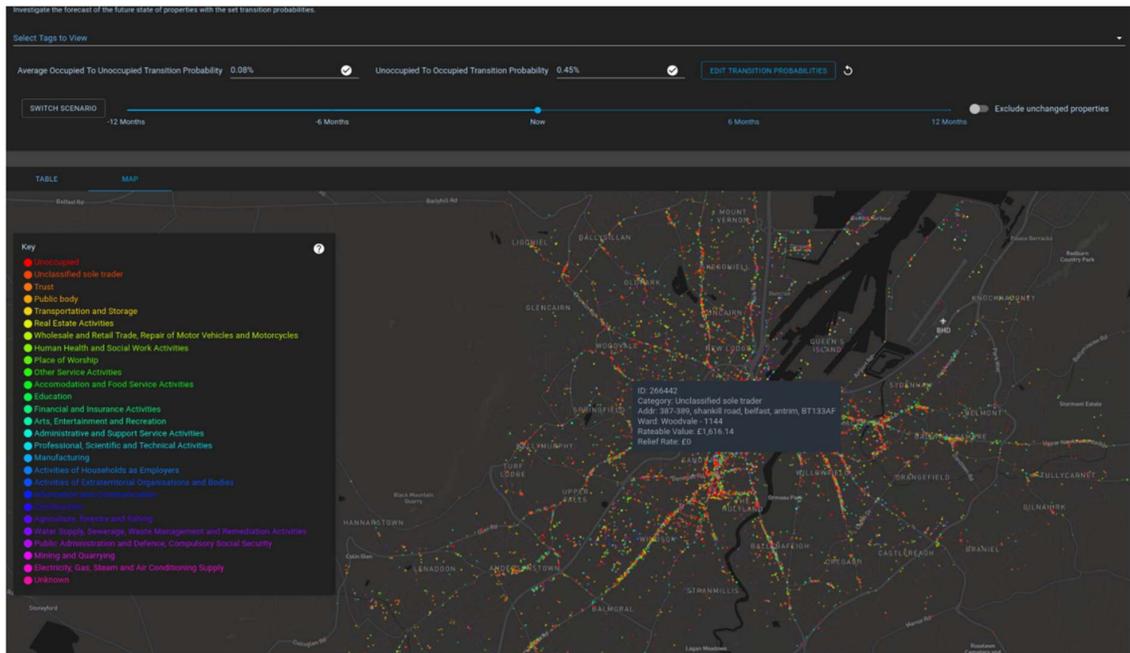
The data visualisation module provides an easy to use, filterable view of business rates collected over time. It allows sub-setting the data across a broad range of parameters including sector, ward, and relief.



## 2.4. Scenario Planning

The scenario planner displays visually in both GIS and tabular format the state of properties in the selected timeframe: past, present, and future. We forecast the future state using the transition probabilities derived from the data. The transition probabilities can be amended

by changing the occupied to unoccupied ratio, as well as the likelihood of transitioning between specific uses.



### 3. Methodology

#### 3.1. Reconciliation

Reconciliation is performed using a data pipeline in which the highest confidence matches are removed first. The matching algorithm is tuned over the course of the pipeline such that increasing numbers of lower confidence items of evidence are required before a decision on a match is made. This methodology is efficient as it prevents more computationally intensive methods of matching being used on items where a clear match can be obtained with simple methods.

#### 3.2. Tax Base Concentration Risk

The tax base concentration risk is a metric designed to quickly summarise the economic health of a region. It calculates a region’s resilience by assessing the diversity of ratepayers, sectors, and size of properties. Although not an in-depth analysis, it provides a quick indicator of which regions may need attention.

### 4. Background

NQM Economic Analyser has been built in collaboration with UK local authorities specifically to address problems they face in managing the local authority.

Nquiringminds is a British company specialising in Smart Cities, Secure IOT, and AI Analytics. Established in 2010, our solutions focus on digital transformation, using our expertise in IoT and data analytics to unlock efficiency and cost savings. We have won multiple awards for our work.

## 5. Further Details

If you are interested to learn more about the Economic Analyser, please do get in touch. We would be happy to talk in more detail, put you in touch with existing customers or provide a demonstration account so that you can explore the features described in this document.

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