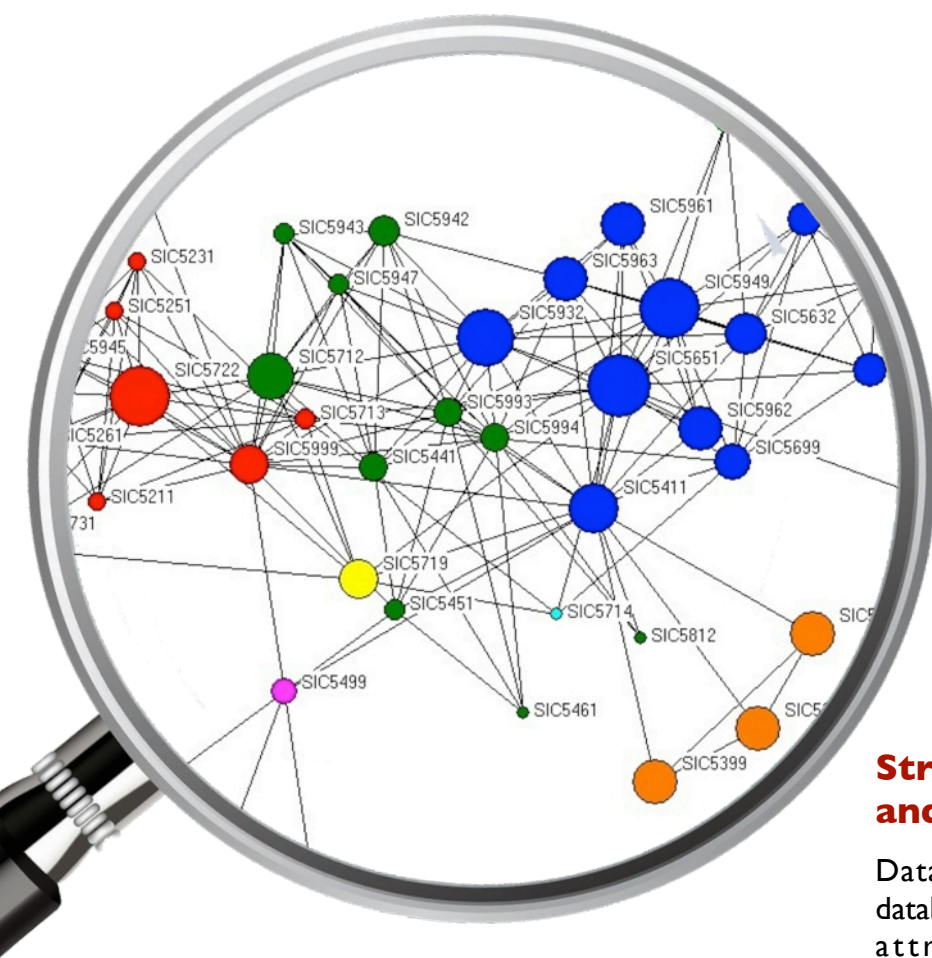


# ANALYTICAL SERVICES BASED ON PATTERN RECOGNITION AND NETWORK MAPPING

In addition to the standard statistical analysis of data, there are numerous emerging methods and techniques, designed to deal with the vast content on the internet, the 'Big Data' challenge, and the rapidly developing field of IoT (Internet-of-Things). The research methodology team at BCNED has developed advanced analytical techniques, which are used in combination with each other, such as:



Structural Analysis

Relational Analysis

Semantic Mapping

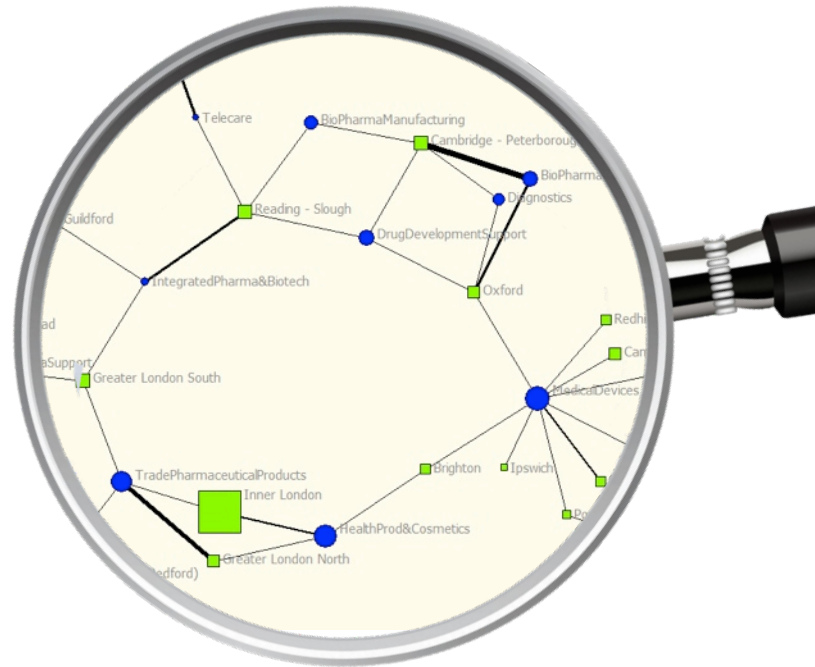
Network Visualisation

## Structural Analysis (using cluster and network analysis techniques)

Data structures exist unnoticed both in databases and in real life – as concentrations of attributes, similarities and patterns. There are many different algorithms for **pattern recognition** capturing clusters, cliques and shared characteristics, that require experienced choices and modifications during application.

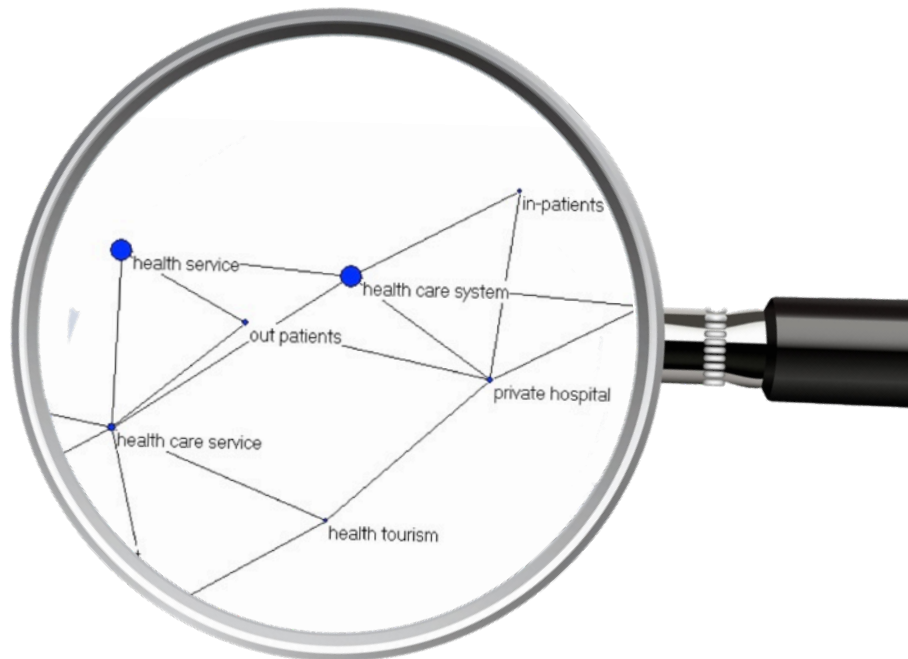
## Relational Analysis

One of the most challenging features of complex phenomena research is to present meaningful stories, with relatively simple messages to a broad audience of educated and non-specifically educated stakeholders. Revealing relationships in data and observations can provide evidence for policy decisions, where the numbers indicate the scale of particular relationships. Revealing repetitive relationships between stakeholders can facilitate further engagement and coalition building.



## Semantic Mapping

One of the advancements of network analytic methodology is the ability of analysts to constitute different actors from data and to demonstrate linkages beyond behavioural and communication patterns. Words as actors constitute semantic maps that reveal deeply engrained structures of meaning and patterns of social behaviour. Text analysis using semantic mapping is a novel method for discovery of emerging social practices.



## Network Visualisation

Graphic visualisation of data has made significant advancement with modern software and analytical tools. The critical aspect of data visualisation is the display of the data and not merely the geographic map. Visualisation of actors, relationships and structural patterns is at the heart of the analytical practice at BCNED.



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