

## Clusters and Innovation in the life-science sector

The paper investigates the impact of clusters - aggregations of industrial, academic and institutional players in a localized network - on innovation in the life-science setting and aims to enrich the line of inquiry into cluster-based innovation by applying social network analysis (SNA) approach and methods.

The cluster concept has been defined in ambiguous ways, it is rather flexible, corresponding to a large variety of spatial and organizational concrete configurations. Trying to understand which of them drives to a higher cluster's innovative outcome is the paper general aim. The addressed research question is: *What is the impact of intra-cluster and inter-cluster network characteristics on the cluster's innovative performance in the life-science sector?*

More specifically we analyze what structural and nodal characteristics are best suited to maximize the likelihood of clusters' innovation, from an intra-cluster and an inter-cluster perspective: we focus on network size and density/spanning of structural holes as main explanatory variables; on nodal vertical heterogeneity, industrial and geographical distance among the nodes, as contingency factors.

Quantitative methods are applied to relational and nodal data, using SNA and a regression model.

The paper can make a theoretical and empirical contribution, filling some gaps: the absence of significant contributions analyzing clusters of clusters and inter-cluster dynamics; the lack of agreement on the network structure most beneficial for innovation; the scarce attention to the network's overall performance as a dependent, aggregated variable; the only occasional use of constructs and concepts derived from social network analysis in clusters' actual operationalization.