

## **Mathematical optimization for fair, robust, and transparent electoral districting in Germany**

Initiative: "Experiment!"

Ausschreibung: Explorative Phase

Bewilligung: 08.12.2015

Laufzeit: 1 Jahre 6 Monate

Projekt-Website: <http://www.or.rwth-aachen.de/de/forschung/projekte/wkopt/>

For every German federal election the 299 constituencies have to be adjusted in order to obey all legal requirements. Electoral equality requires that the population of every constituency has to be nearly the same. Strict limits for deviations from the average are defined by law. Demographic changes require regular updates. Further, a high degree of stability of the constituencies is a desirable property. Current practice has exploited the deviation limits to a almost full extent. As a consequence of this fragility, for every election even comparatively slight changes in the population distribution will cause a demand for restructuring the constituencies. Furthermore, all planning is currently done by hand, and the process has natural limits concerning transparency. The idea is to demonstrate that mathematical optimization can support electoral districting for the German Bundestag. Models and algorithms packaged in a ready-to-use planning tool will be realized allowing for fair and transparent districting.

### **Projektbeteiligte**

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