hackdays
Germany

GERMAN FOOTBALL LEAGUE CHALLENGE

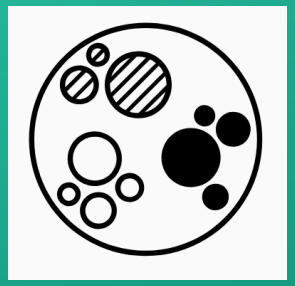
Pepperl+Fuchs

THE PROBLEM

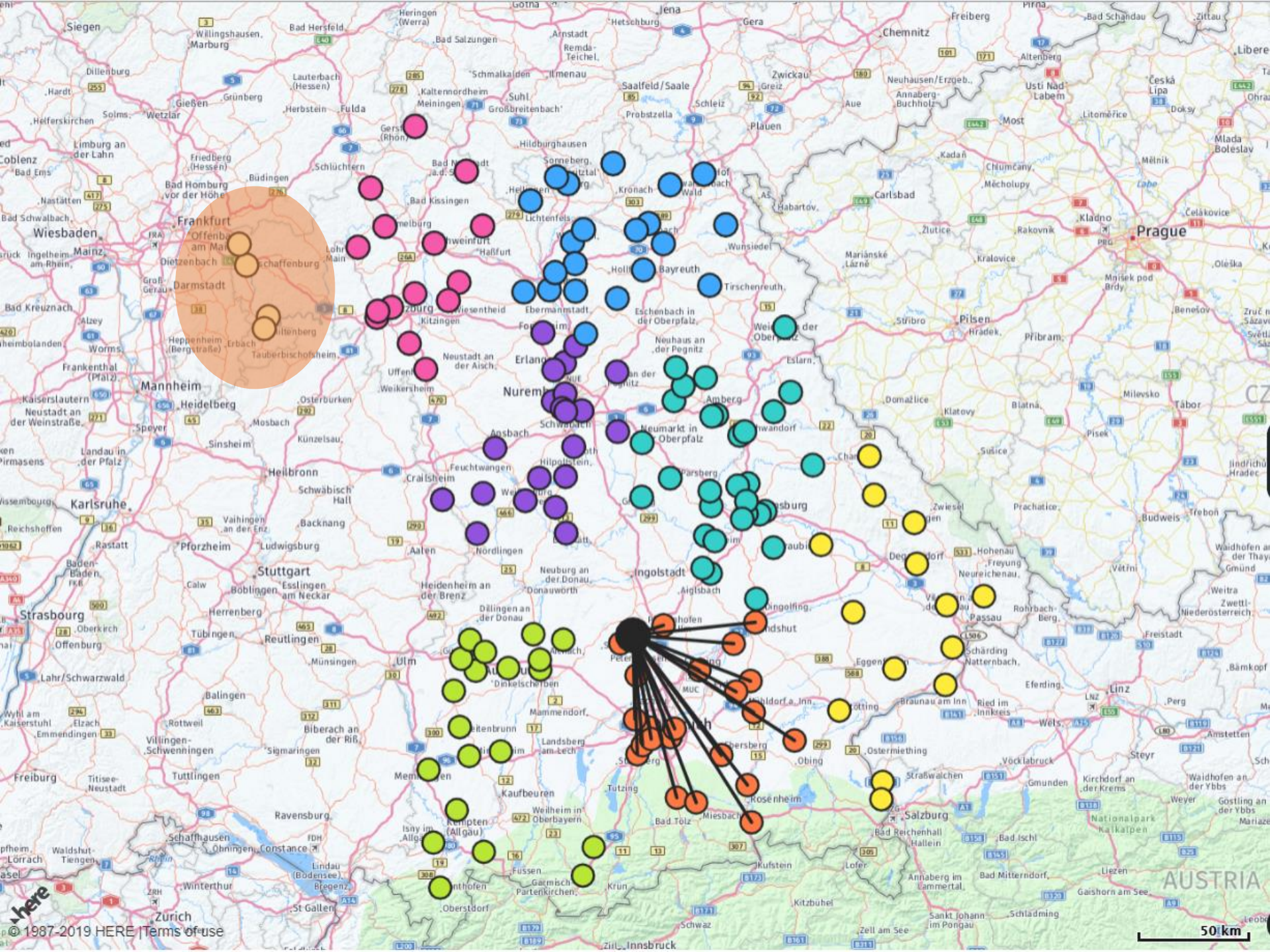
- Decreasing number of teams in youth and amateur sports leagues
- Long travel distances
- Unbalanced and small leagues
- Urbanization

WHAT DID WE DO?

We used HERE Map API to get the real driving distance



Use k-means clustering to divide the teams into initial cluster groups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Wiesbaden
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Darmstadt
Aschaffenburg
Mannheim
Heidelberg
Karlsruhe
Stuttgart
Nuremberg
Ingolstadt
Regensburg
Passau
Prague
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Linz
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Innsbruck
Zurich
Strasbourg
Munich
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Augsburg
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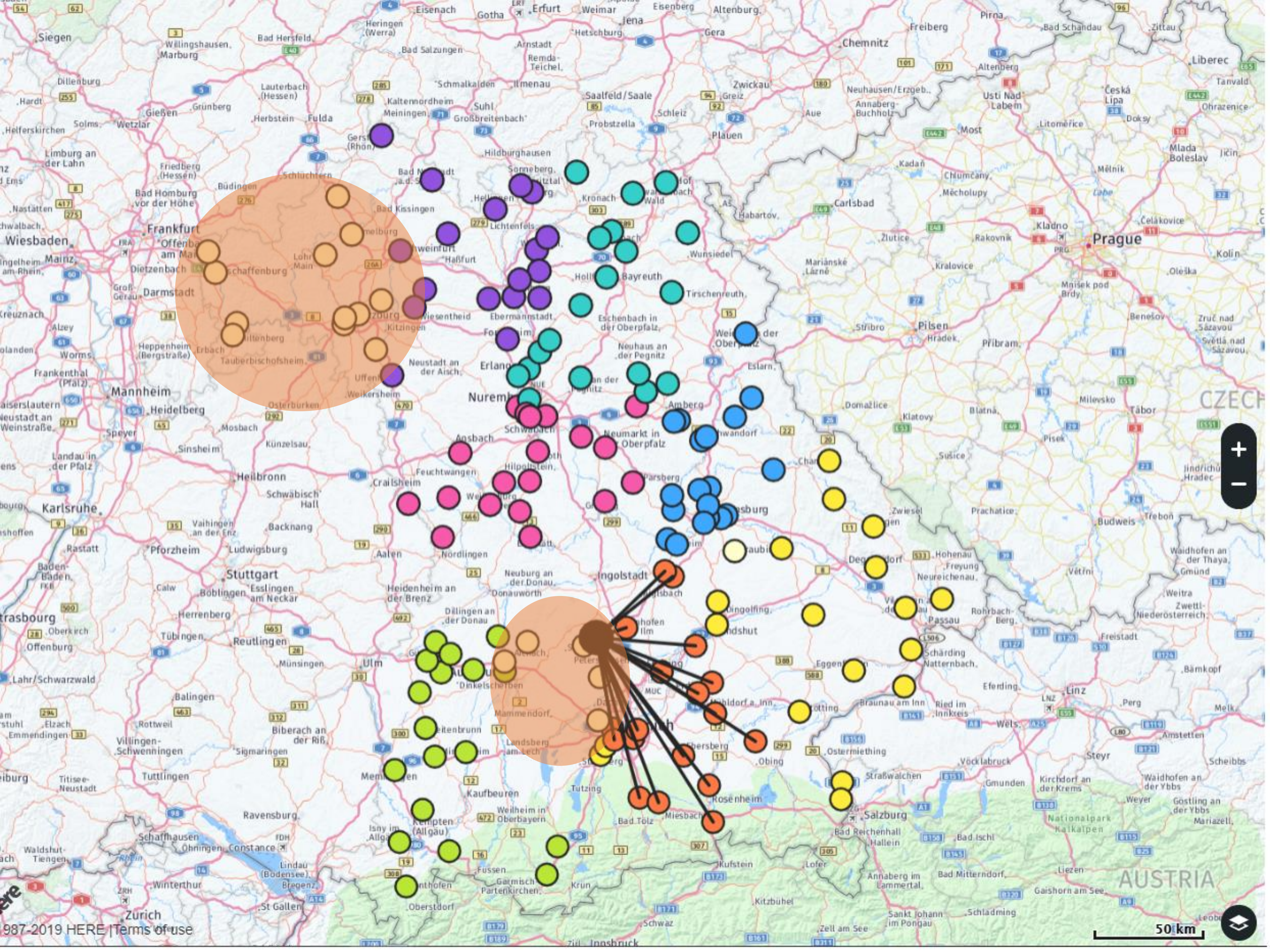
50 km



Eisenach
Gotha
Erfurt
Weimar
Jena
Eisenberg
Altenburg
Pirna
Siegen
Bad Hersfeld
Gera
Freiberg
Chemnitz
Bad Schandau
Zittau
Marburg
Bad Salzungen
Arnstadt
Liberec
Dillenburg
Schmalkalden
Ilmenau
Zwickau
Altenberg
Lauterbach (Hessen)
Suhl
Saalfeld / Saale
Usti Nad Labem
Česká Lípa
Tanvald
Gießen
Grünberg
Fulda
Meiningen
Schleiz
Aue
Annaberg-Buchholz
Wetzlar
Probstzella
Plauen
Most
Litoměřice
Mladá Boleslav
Limburg an der Lahn
Hildburghausen
Kadaň
Frankfurt
Wiesbaden
Mainz
Darmstadt
Bad Kissingen
Lichtenfels
Kronach
Chomutov
Karlsbad
Kladno
Mělník
Prague
Aschaffenburg
Schweinfurt
Haßfurt
Bayreuth
Wunsiedel
Mariánské Lázně
Kolín
Ebermannstadt
Tirschenreuth
Pilsen
Příbram
Erlangen
Nuremberg
Amberg
Neumarkt in der Oberpfalz
Schwandorf
Domažlice
Klatovy
Tábor
Mannheim
Heidelberg
Worms
Kaiserslautern
Ansbach
Schwabach
Feuchtwangen
Crailsheim
Heilbronn
Karlsruhe
Pforzheim
Stuttgart
Nördlingen
Aalen
Ingolstadt
Neuburg an der Donau
Donauwörth
Landshut
Deggendorf
Passau
Budweis
Strasbourg
Offenburg
Tübingen
Reutlingen
Ulm
Augsburg
Dingolfing
Schärding
Linz
Freising
Mühldorf a. Inn
Altötting
Braunau am Inn
Ried im Innkreis
Wels
Steyr
Landsberg am Lech
Munich
Ebersberg
Kaufbeuren
Memmingen
Kempten (Allgäu)
Rosenheim
Salzburg
Bad Tölz
Miesbach
Tutzing
Weilheim in Oberbayern
Ravensburg
Schaffhausen
Constance
Lindau (Bodensee)
Bregenz
Zurich
St Gallen
Winterthur
Füssen
Garmisch-Partenkirchen
Oberstdorf
Kufstein
Kitzbühel
Bad Ischl
Gmunden
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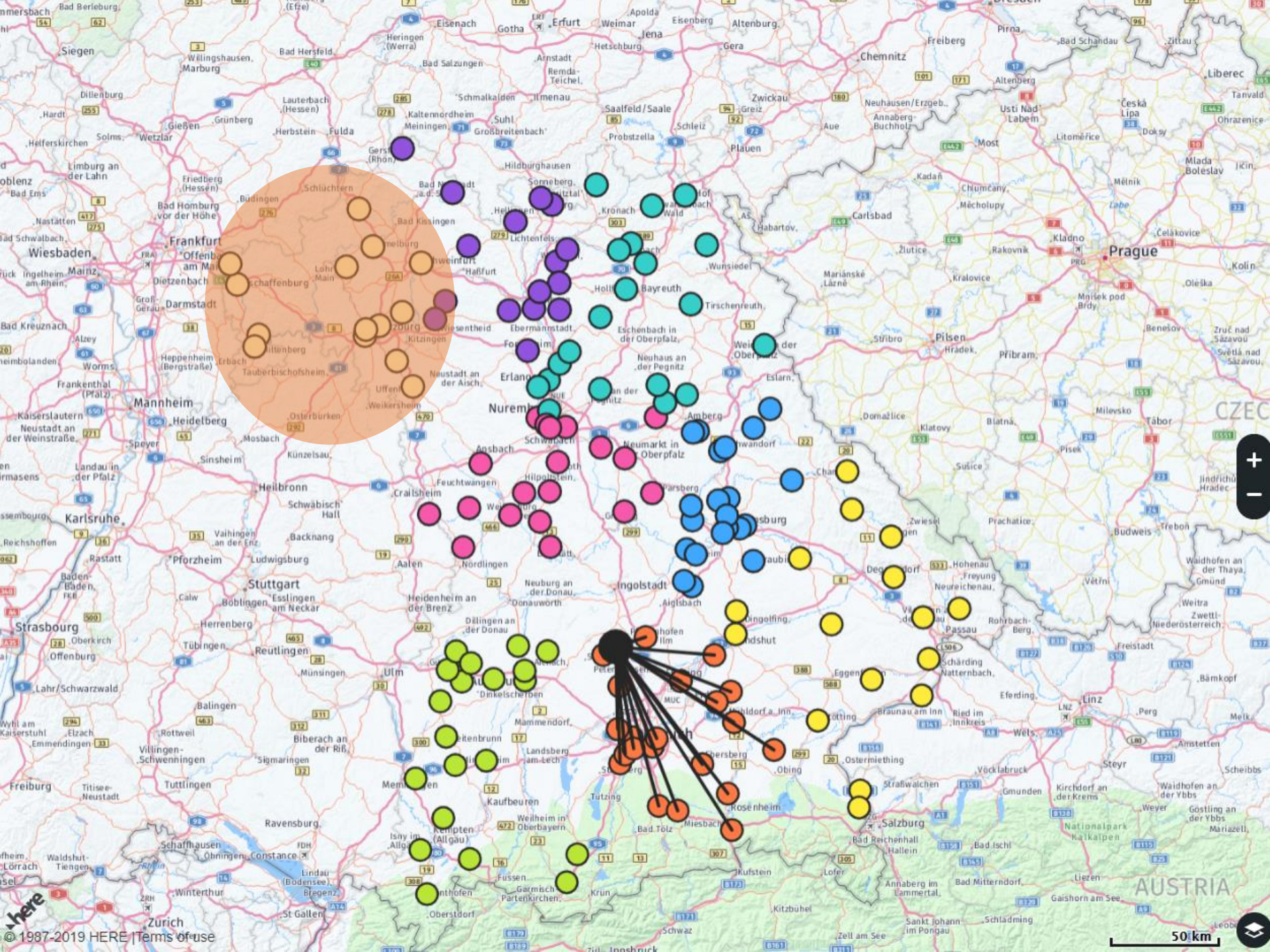
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50 km
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PERFORMANCE EVALUATION

With **current number of divisions** we improved the travel distance by **5%**

With **one more division**

26%

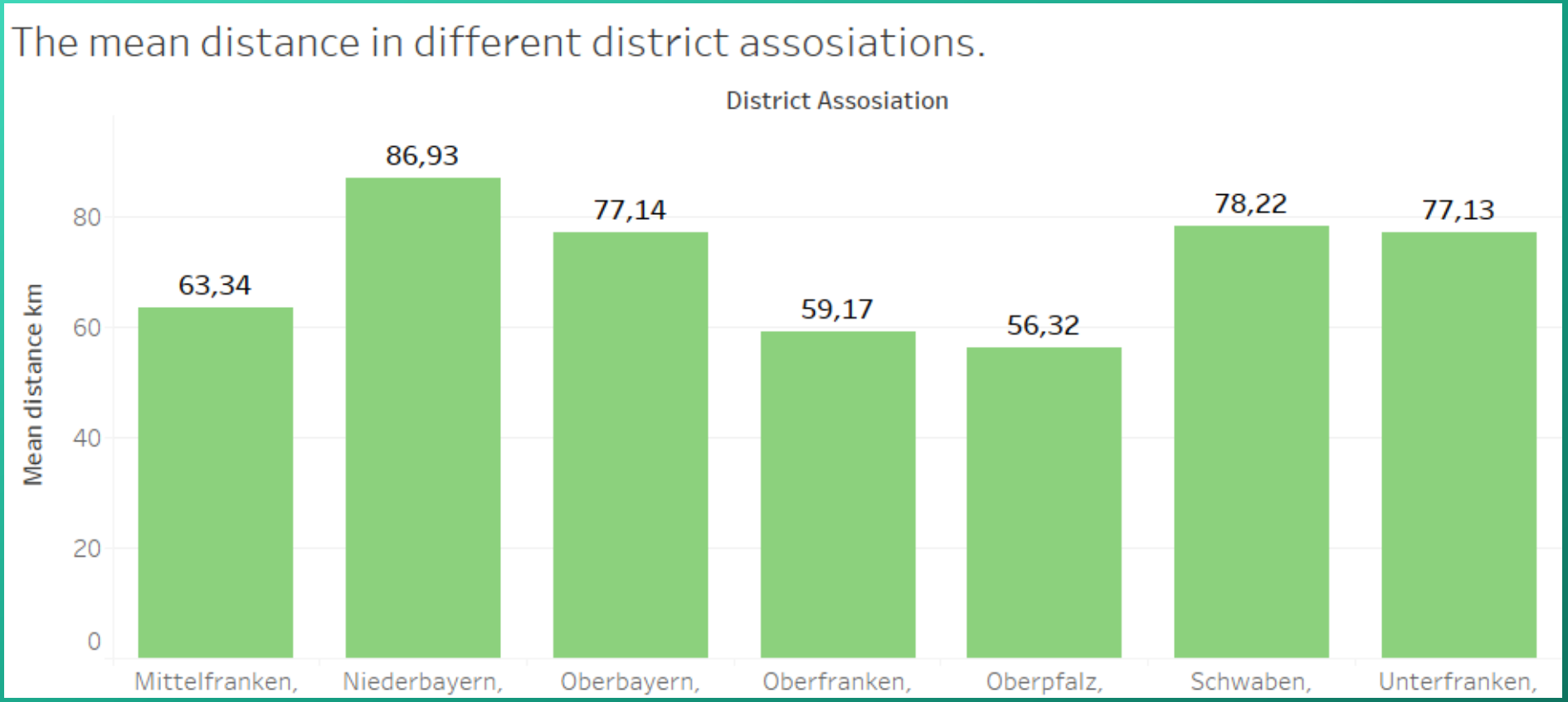
LIVE DEMO

http://hackdays-interactive.herokuapp.com

MADE WITH ❤ FOR **PEPPERL+FUCHS**

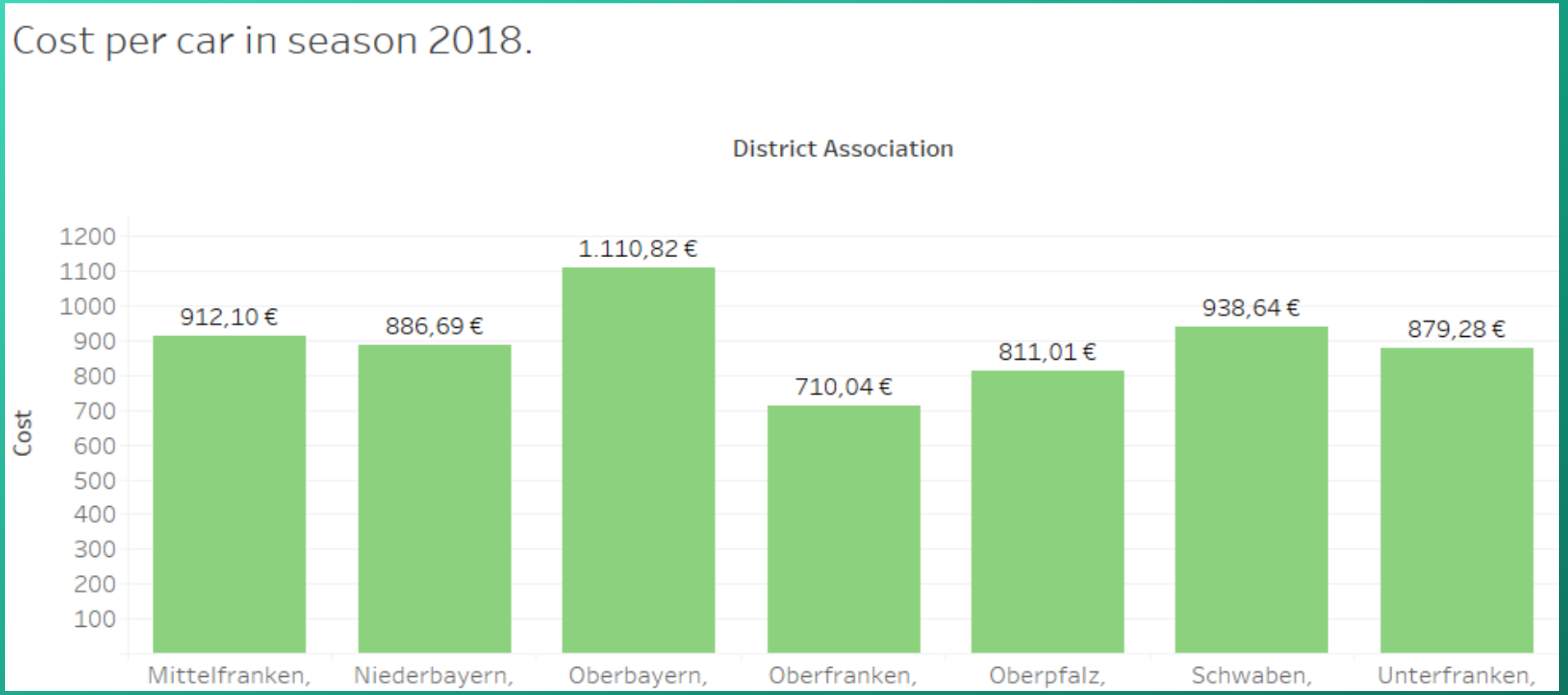
1. Nick Dinges *algorithm*
2. Nikolas Engelhard *algorithm*
3. Liangquan Li *business model*
4. Iryna Pauliak *business model*
5. Sudhanva Rao *algorithm*
6. Sarah Sester *algorithm*
7. Jakub L. Szypulka *interactive visualisation*

CURRENT SITUATION



Travel distance varies by more than 50% between districts.

CURRENT SITUATION



*30 Cents/Km

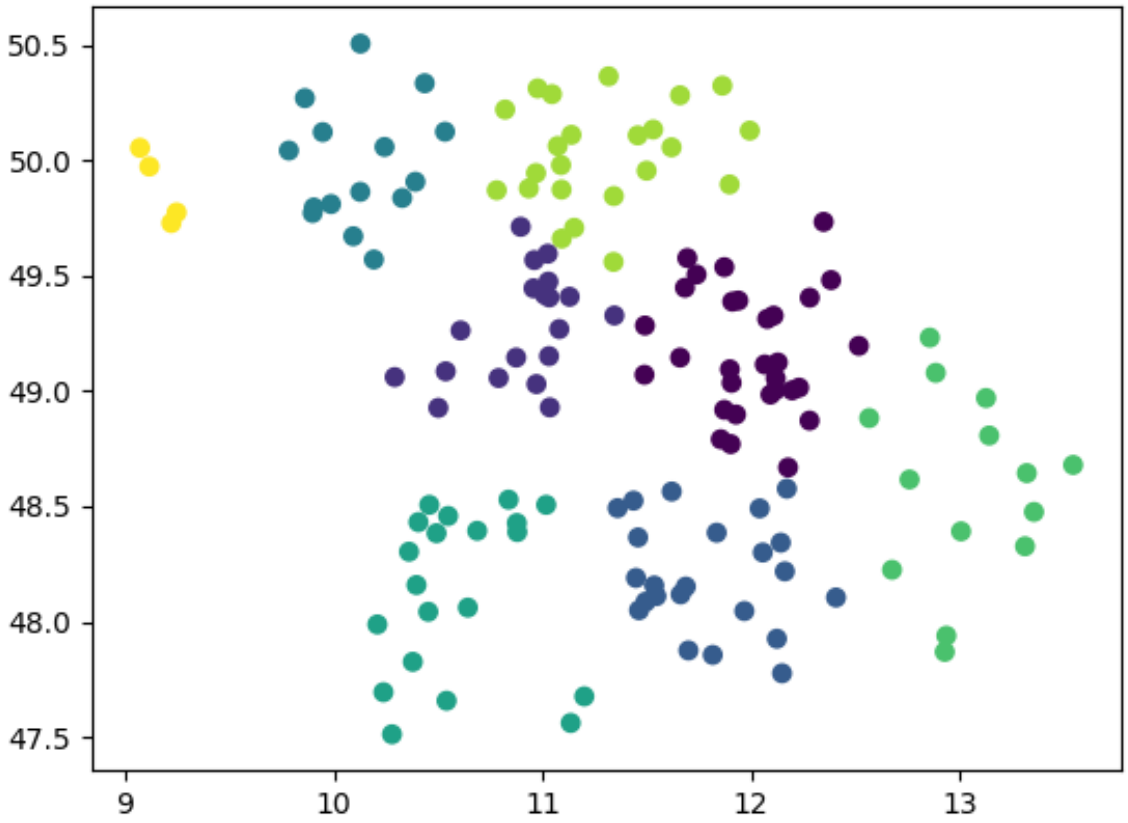
WHAT DID WE DO?

We used HERE Map API to get the real driving distance

We implemented multiple algorithms to create leagues

We implemented a tool to compare the different algorithms

We provided the opportunity for the users to change the team cluster manually



- K-means output without constraint of team size.

THE GRAPHICAL K-MEANS REPRESENTATION OF THE INITIAL DATA DISTRICT DIVISION