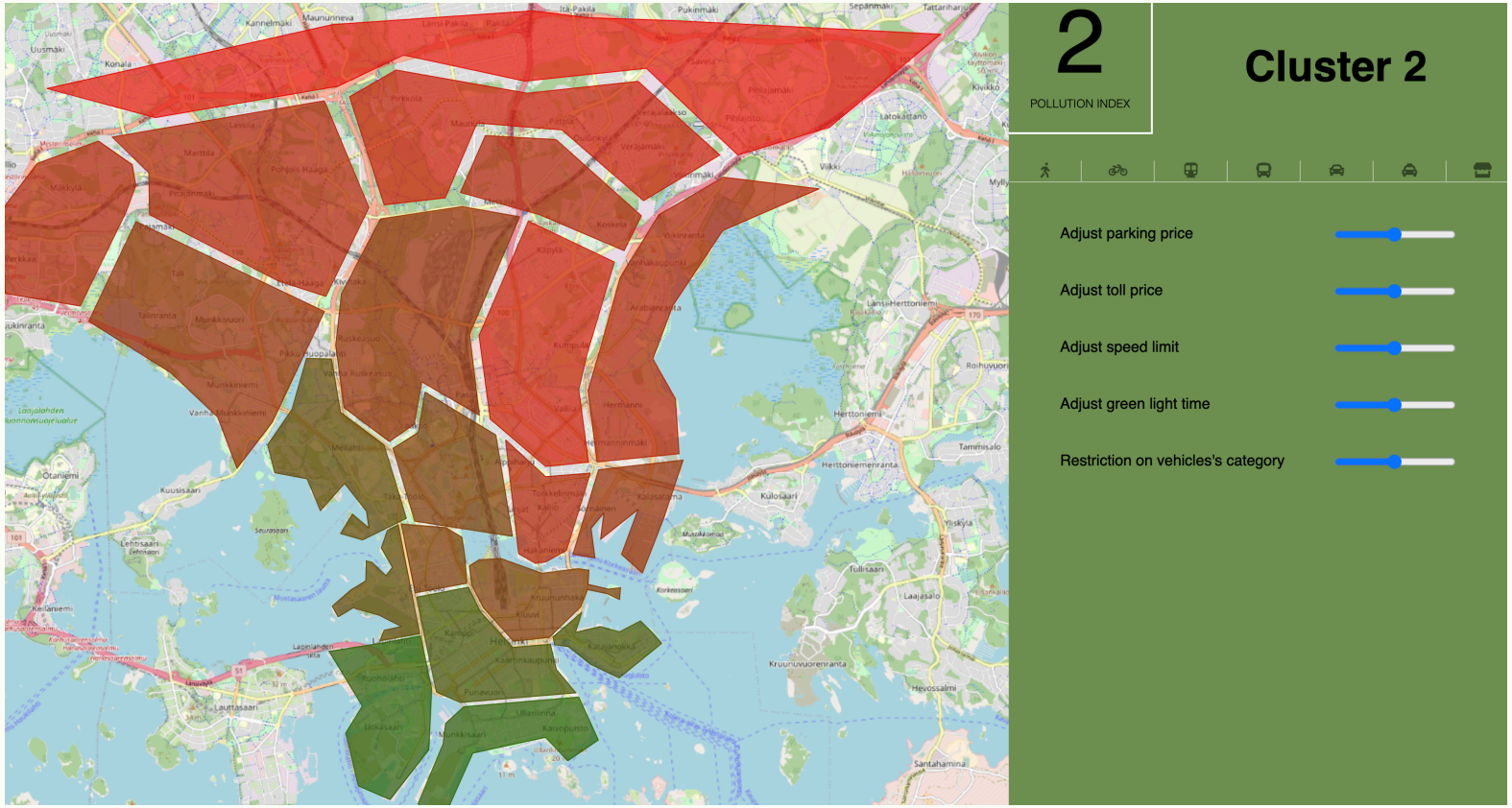
An innovative dashboard for targeted policies in smart cities

HelpThinkIt

This is our tool



It is the best way for cities to tackle pollution.

Let us take you through the process of building it and demonstrating its impact.

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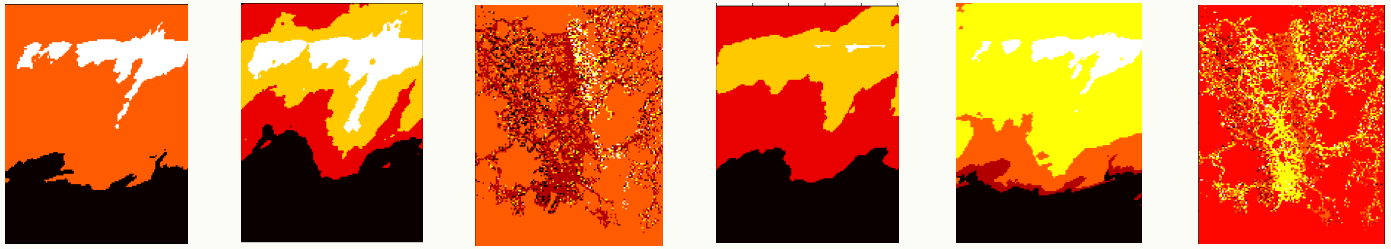
Making sense of the data

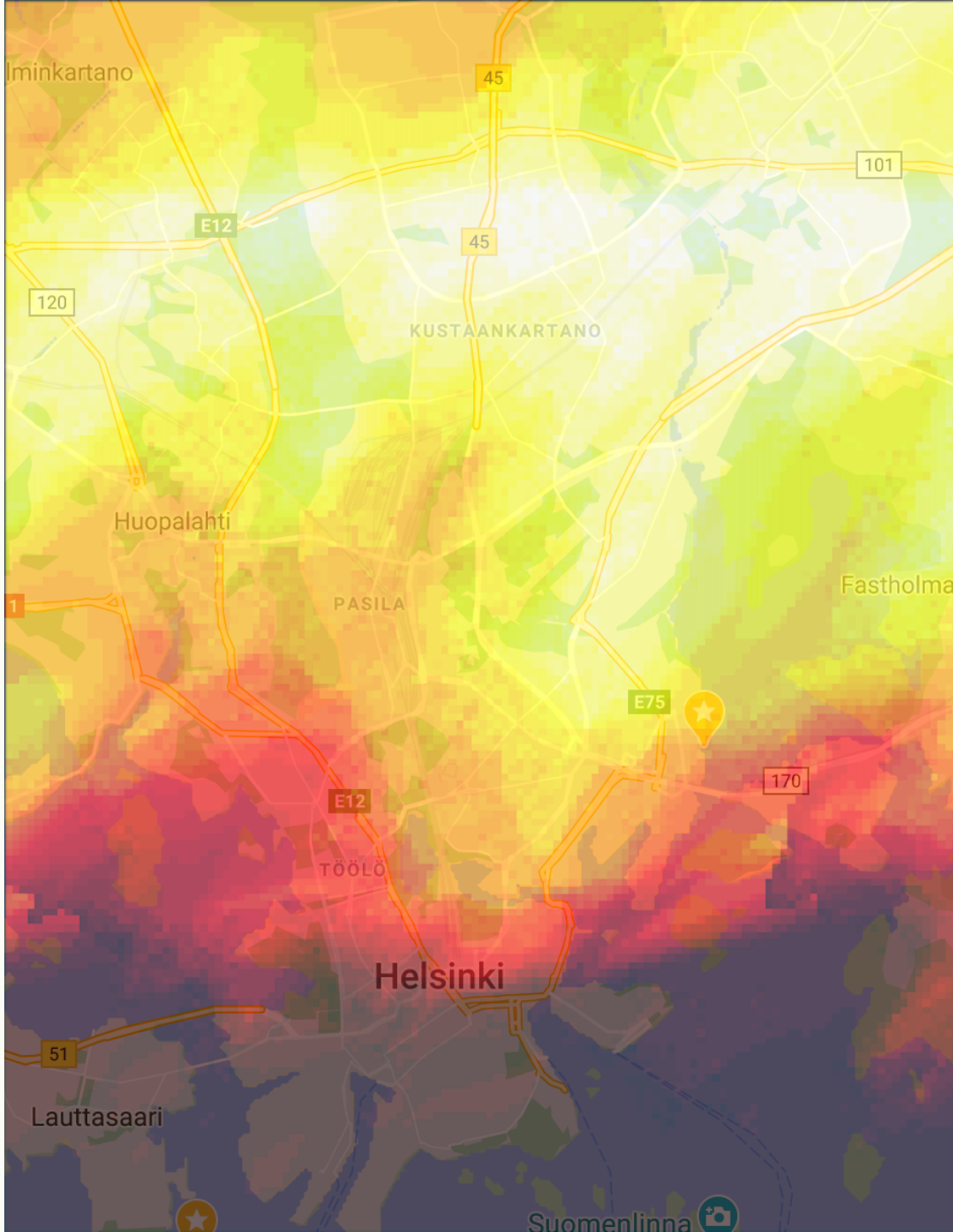


NO SO 03 PM10 PM2.5 AQI

We preprocess the pollutant entries by assigning a unitless scaled value to each of them (like the air quality index provided). From there we can merge them according to a custom ratio.

Visualization of air quality made easy with our very own **pollution index** that you can adapt to your priorities.

By interpolating the different variables, we get a final image that fully describes the city's situation.



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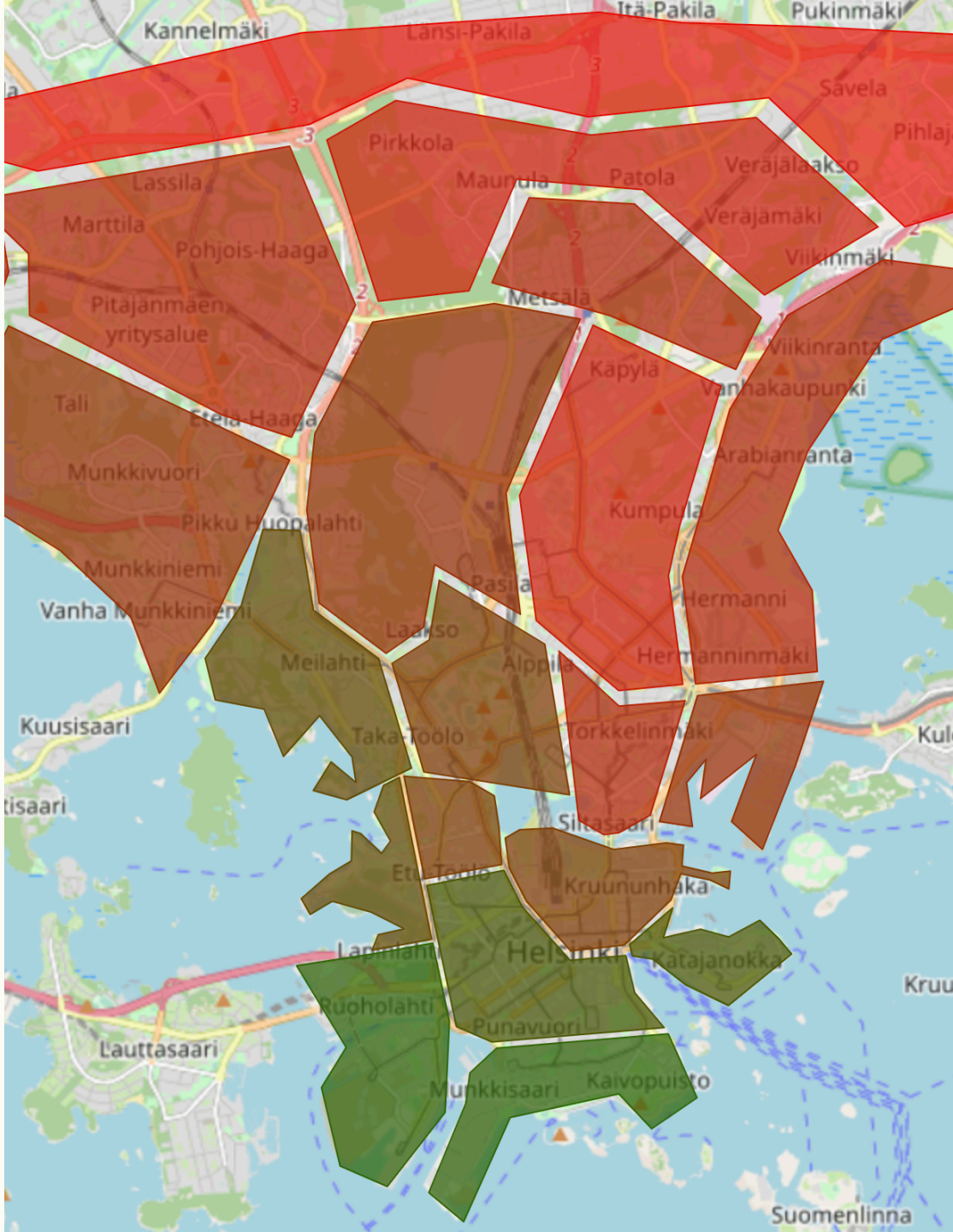
Generating clusters

From the previously generated image, we can identify regions that tend to have a similar air quality; b<u>ecause pollution doesn't stop at district's borders.</u>

A cluster can now be represented by a single number and thus a color. On our scale, the redder a district is, the worse its pollution index.

Because clusters are calculated over time, they are unlikely to change shape, and so they provide already great insight on the dynamics of air quality in different neighborhoods.



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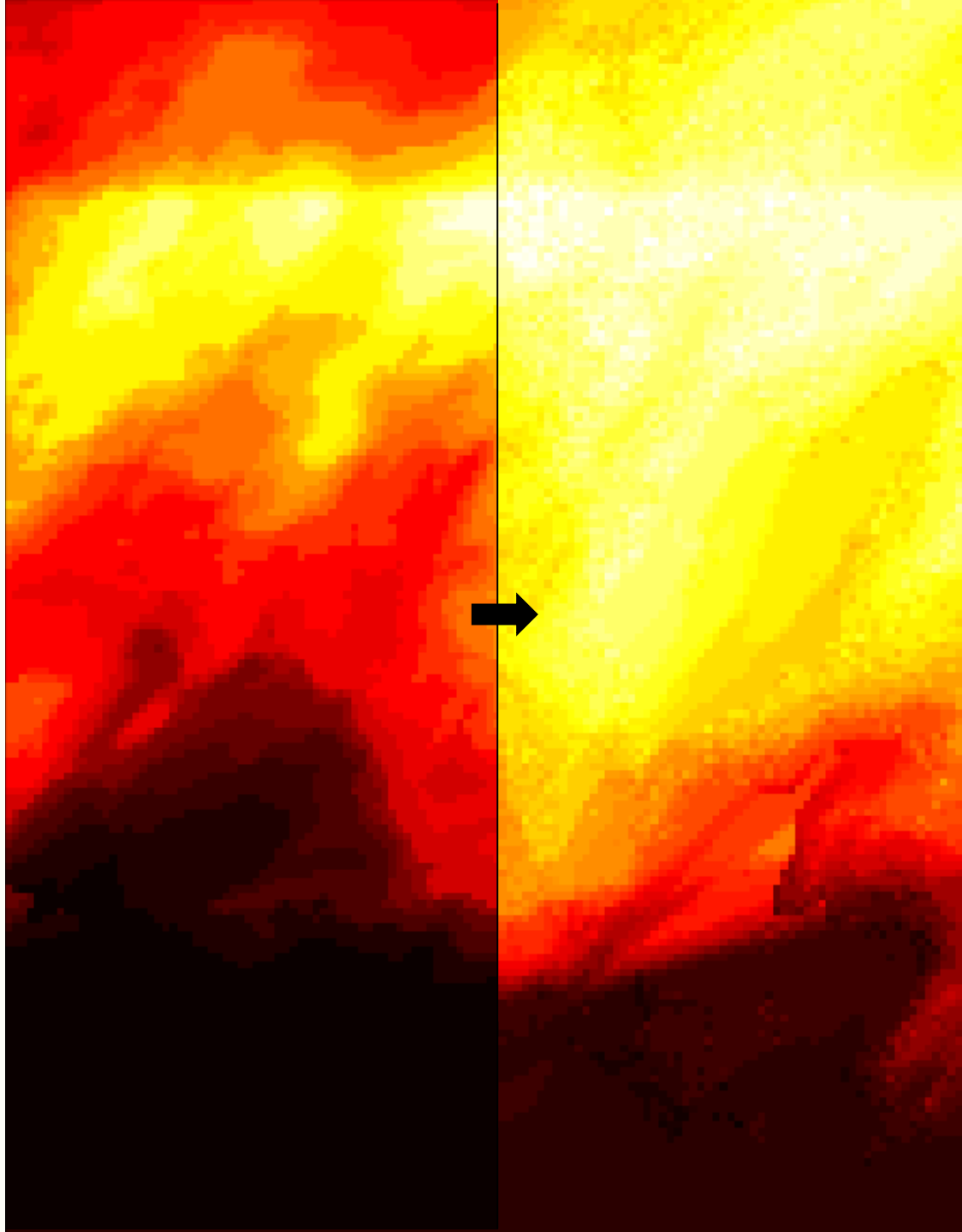
Predicting the trend

Now that the city is split in areas of uniform air quality, predicting the pollution index of any district over the next few days becomes **easier** and more **reliable.**

Plug in the different variables we got access to, in addition to historical data, weather, etc.
All of these will make our model more efficient.

If we can plan what's coming our way, we can do something about it !



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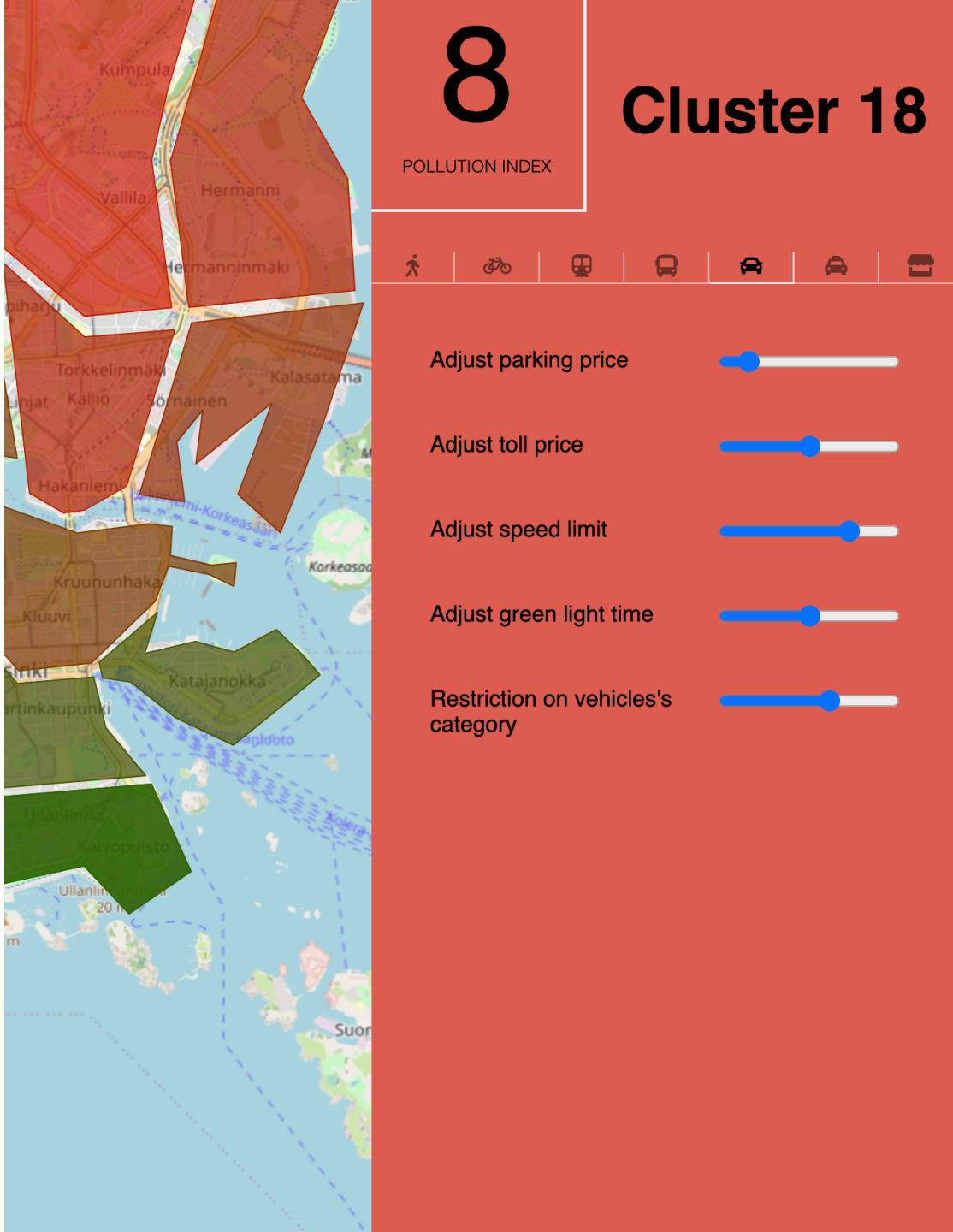
Take action !

Adopt policies cluster by cluster to best tackle what they will each be confronted to.

This centralized dashboard communicates with multiple smart systems all over the city, allowing for a **dynamic and local response** to any pollution event.

For example here in very polluted Cluster 18, we can reduce the price of parking, add frequency of busses, and reduce the speed limit.



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Conclusion

> *A peak of pollution is predicted in two days over one cluster. Let's increase public transportation frequency, make it free for those parking outside the city. Ban cars over 10 years ago and reduce the speed limit. Synchronize with Waze and Uber and send a notification on the HelpThinkIt app.*

This is the view that carried us throughout the project. We very much believe that this dashboard can be the friendly-to-use yet powerful tool cities need in order to best fight pollution.

In this Proof of Concept we were already able to have the rough data pipeline and a first user interface. We are confident that our tool can start changing cities without delay and if necessary, build from there supportive infrastructure for lasting clusters (connected city screens when entering clusters for example).

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Thank you for reviewing our submission

Make sure to checkout our GitHub to get to know all the details, try the interface, discover our code and enjoy cool images we generated for the project.

https://github.com/proust96/HelpThinkIt

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