

Open Data Boosts Heating Grid

The Dutch Municipality of Zaanstad asked energy network operator Alliander to help it investigate the opportunity for an innovative and open heating grid. The municipality specifically requested that Alliander would not consider the council's wishes alone, but instead would use the interests of all stakeholders as its starting point. Alliander knew from experience that such negotiations could be a lengthy process so it decided to take a different approach in Zaanstad; it enlisted the help of Tygron, a Delft-based start-up specialised in 3D software for urban planning with 20 employees.

Tygron and Alliander created a realistic digital environment in which all those involved in the negotiations could see the effects of their decisions directly projected into a lifelike 3D model of the area. Each entrepreneur, local resident, builder and civil servant saw the impact of his or her choices at a glance. That improved the transparency of the dialogue between the chain partners and helped them to arrive at a plan which was supported by all. Rather than getting caught up in discussions about data or analysis, the negotiations were immediately focused on the interests of the various parties and on the feasibility of the heating grid as a whole.

As a result of the negotiations, bio-energy company Bioforte and the Hollands Noorderkwartier water board will be providing heating for homes, offices and schools in Zaanstad from autumn 2017 onwards. The plan for the innovative EUR16 million heating grid was agreed by suppliers and users of heat alike.

Realistic

The more realistic the representation of the economic and energy-related situations of a heating grid is, the more sense it makes to do such a simulation together, as Roelof Potters, general manager of Alliander's Sustainable Area Development activities, explained. It is already possible to present an initial net projection which is very close to reality, so that the stakeholders at the meetings know which outcomes they can expect. He expects such simulations based on open data to provide an enormous boost to the development of heating grids in The Netherlands.

A realistic model of the actual situation demands reliable, validated data about the area, the buildings, roads, energy needs, energy losses and soil conditions. That data was obtained from the stakeholders for the first version of the game, but it took everyone a lot of time to gather the complete data and validate it. That process moved a lot more quickly once Tygron had alerted Alliander to the use of open data.

New York

Florian Witsenburg, CEO of Tygron, believes that open data plays a crucial role in the success or failure of urban planning tools, and not only in Zaanstad. When Superstorm Sandy highlighted New York's susceptibility to flooding in October 2012, the topic of dikes was placed high on the agenda. In the subsequent months, Witsenburg regularly flew to New York to advise on the use of simulations in improving dialogue between the numerous stakeholders. There was a sense of urgency because people were well aware that such devastation could occur again.

The USA is ahead of The Netherlands in terms of the availability of open data. Witsenburg states that he was surprised about the extensive data files they had access to there. In turn, Tygron's clients were amazed when they saw how easy the data, when it was input into the simulation, gave insight into the effects of various solutions and strategies.

Data silos

According to Witsenburg, urban planning tools are completely dependent on open data. He says that the Dutch government is making good progress, and he expects the new environmental legislation to further improve the availability of data files. He comments that a lot can already be done with the open data that is currently available. For every area in The Netherlands it is possible to obtain precise details about facades, the road network and the soil from sources such as Basisregistraties Adressen en Gebouwen ('Basic Register of Addresses and Buildings' or 'BAG') and the new Actueel Hoogtebestand Nederland ('National Height Model of The Netherlands' or 'AHN2'). This enables a lot of information to be derived, including energy consumption. He regards it as important that this development continues since there is still a long way to go, such as information regarding air pollution close to roads or heat stress in cities. Open data can even reveal insights about the liveability of streets and neighbourhoods, but the relevant data is currently compartmentalised and buried deep in the information silos within the various governmental services. It is only available to experts, and is difficult for citizens to access.

Lower investment costs

Open data has enabled Zaanstad to develop, within a short space of time, an energy-efficient heating grid which all stakeholders are happy with. Potters from Alliander estimates that the use of serious gaming has lowered the investment costs by 10 to 20% compared with the traditional approach to the negotiation process, and he regards that as a major advantage. The next step is to also provide insight into the advantages on a regional scale.

Increase in open data

The Dutch government has released more than 300 data files as open data via the website data.overheid.nl. Anyone may use this data free of charge, such as for websites or apps. High-profile examples of apps using open data are Buienradar (animated rain radar using data from the Royal Netherlands Meteorological Institute, KNMI) and 9292.nl (using data about public transport). Widely used open data files are the National Height Model of The Netherlands and up-to-date satellite data. The Ministry of Economic Affairs stimulates initiatives by the public sector, knowledge institutes and the private sector for making open data available and utilising it in support of innovation.

<https://www.gim-international.com/content/article/open-data-boosts-heating-grid>
