How designers can reshape public controversies

CHRISTIAN NOLD is an artist, designer and academic who builds participatory technologies for collective representation. In the last decade he has been creating large-scale public projects such as the widely acclaimed Bio Mapping and Emotion Mapping projects, which have been staged with thousands of participants across sixteen different countries.

Using a case study about the expansion of Heathrow airport, Christian Nold argues that designers should engage with public controversies. According to Nold designers are uniquely equipped to make the underlying social and technical infrastructures of public controversies visible and redesign them.

The expansion of Heathrow airport in recent years has been at the centre of a public controversy. While proponents argue airport expansion is needed to support growth, opponents argue that it will dramatically increase air and noise pollution. The expansion is of national importance and the media are reflecting the strength of public feelings about the issue. For politicians the decision on whether to expand is seen as a 'toxic dilemma' that will alienate large parts of the electorate.

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Public controversies – such as the Heathrow airport expansion – are scientific, societal or environmental transformations that affect large numbers of people and typically have a technical as well as ethical and political dimension. My argument is that these public controversies have hidden infrastructures that define the way debates can take place. These infrastructures are not just technical pipelines or cables but relational socio-technical networks that literally connect many different groups and interests together.

As designers we are uniquely equipped to make these relational infrastructures visible and redesign them to create more democratic ways of dealing with public controversies. I call this approach micro/macro prototyping since it uses participatory prototyping to build new connections between the micro of individuals and objects and the macro of public concerns.

This approach differs from the traditional perspective on design. The role of design has typically been to solve technical problems, while political discussions are expected to take place far away from design in the media sphere. The micro/macro prototyping approach identifies new sites and subjects for design, which allow the dynamics of problems to be reshaped. I will use the Heathrow airport case study to highlight new sites for design and a new role for designers.

Heathrow

To explain the infrastructure of the controversy surrounding the Heathrow airport expansion requires some technical explanation. For the last 50 years the governance of the airport has been focused on quantifying the impact on local residents as 'community annoyance'. The metric is based on interviews carried out during 1982, with a small number of residents, who were asked how bothered they were by noise: 'very much, moderately, a little, not at all'. The data was then correlated with local noise levels measured at the interview sites and used to identify a threshold of 57 LAeq at which 'serious community annoyance' was said to occur. This threshold is still being used today to plot an annoyance contour emanating from the airport. Residents living within the contour area are said to be affected by the noise, while those living outside of it are not. The official reports use the contour and number of affected people as the basis for comparing different airport expansion options.

Yet local residents in the surrounding area are extremely angry, since this metric excludes millions of other residents who also claim to be affected by the aircraft noise. This metric forms the key infrastructure that connects the airport, residents and politicians, and yet is based on an arcane, 30 year old metric that residents and decision makers don't trust. Even acousticians argue that these metrics are largely arbitrary and simply a technically convenient way of simplifying the noise controversy. A number of acousticians are suggesting a move away from social surveys that create little trust, towards computer systems that allow residents to register their real-time noise complaints in relation to specific flights.→

I argue that this socio-technical infrastructure is too important to leave as just a technical problem and needs to be created via a public process of collective design.

Public Prototyping
This analysis led me to setup a participatory process of building prototypes that explored and proposed different infrastructures for the noise controversy. The prototypes were developed in participatory workshops with residents and other stakeholder organisations and led to forming a local noise-monitoring group that has been collecting data for the last six months.

The prototypes were created as functioning hardware and software devices, designed to let the participants experience alternative noise infrastructures and provoke discussions about how noise should be handled. One prototype translated measured noise by using a scale of emotive words on an LCD screen, 'audible, loud, very loud, extremely loud and painful'. This prototype triggered a heated discussion amongst the group about different ways of gathering evidence for the impact of noise. The consensus was to "take it all!" and try to combine a range of different technical and qualitative approaches. A different prototype was designed to be mounted on the exterior of resident's houses with a display that would light up when a particular noise level was exceeded. The concept was designed to bring attention to noise in public space and address residents and passers-by.

The participants were enthusiastic but suggested the prototype should be mounted on public buildings rather than their own homes, otherwise they would be singled out as troublemakers. This tendency identified the need for a more covert rather than public noise-monitoring network. A different prototype sent an SMS message to a mobile phone whenever a particular noise level was exceeded. I showed the group how they could change the target phone number to any number they liked by altering the source code of the device. The whole group started laughing as they realised that they could insert the personal mobile numbers of politicians or airport authorities. This triggered a discussion about the aims of a noise-monitoring group. Should they be creating confrontational stunts directed at political representatives or something more publically acceptable? There was no agreement, which suggested that to support this group would require the development of a device that could support a multiplicity of ways of relating to the authorities.

The final prototype took into account this workshop feedback and supported two different ways of representing and communicating the impact of noise. It measures noise using the officially accepted metric and uploads it to an online repository. At the same time it creates an online audio stream that allows people to listen to the sound in real-time. These devices are now installed in resident's gardens near Heathrow and have allowed people to make targeted complaints about night-time flights that take place outside of their legal timeslots. The deployment of this device has enabled the creation of a new metric that can monitor long-term changes in airport operations and identify whether the overall noise impact is increasing or decreasing. Finally the sound streaming function of the prototype has enabled a live sound installation at a public venue where thousands of visitors could listen and compare the sounds of the aircraft at multiple locations in real-time. The project is on going and continuing to provide evidence to residents and organisations that are contesting the expansion of the third runway.

Conclusion
This case study has identified the annoyance metric as an infrastructure at the centre of the noise controversy and turned it into a site for participatory redesign. In this way, the controversy has become more than a political disagreement. By prototyping new ways of mediating between the airport, residents and politicians, the relational infrastructure has become visible, accessible and participatory. The process of public redesign has allowed a community to take part in redefining the technical mechanisms that frame the political decision-making processes directly affecting them.

My argument is that this approach is applicable to many other public controversies we face. Adopting such an approach would open up a wide variety of new situations as design problems and bring forth new possibilities for change. The vision outlined here creates a unique role for design that no other discipline can fulfil, i.e. that of uncovering the socio-technical infrastructure of controversies and prototyping new platforms for collective change.