

Designing smarter cities using computer game thinking

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Dr. Willem-Jan Renger, head of the Innovation Studio at HKU University of the Arts Utrecht, is driving citizen engagement in smart city planning using methods generally seen in computer game creation,

as part of an international consortium of cities, IRIS.

Why do we need to engage citizens in urban planning?

The most important thing to know [when planning a city] is what do citizens want... What do they need? If we start talking to people, they bring key concerns that they have on their level to the table. One such concern in Utrecht was there's some street racing going on and some nasty incidents. When we were dealing with issues that the citizens had put forward, traffic safety was something we considered combining with smart street lighting solutions by creating some clever combinations to help pedestrians to cross the street, for example, or give cars feedback on the basis of their driving.

How did you bring computer game and design thinking into this gathering of information?

We set up a series of three meetings in a very short space of time. The first was focused on getting [citizen](#) input on their requirements and demands, and the second was within the realm of creatives and technicians from companies that deal with smart street lighting, to turn the demands of the citizens into possible solutions. Finally, we got back to the citizen representatives and we had to pitch our ideas to them in a way that resembled Dragon's Den. The citizens were empowered by giving them fake euros and they could 'buy' into the best ideas. We presented seven concepts and the citizens massively rewarded two of those. This empathic involvement with end-users is a well-established good practice in (game) design and other design disciplines.

Any other elements of smart street lighting that will be implemented in Utrecht?

Other concepts explored ways where the street lights would follow an individual walking in a dark park. Lights would switch on where you are, and the next one behind your back would switch off, so the light would follow you, instead of being steadily on or off. It's quite an exciting technology and it's still unclear what we can take forward in terms of costs and production difficulty and maintenance, and whether it's safe enough or robust enough from vandalism and all those kinds of ideas.

What about other smart city innovations for Utrecht?

A number of the solutions are very smart ways of dealing with electricity going to the grid and coming back from the grid, using electric cars and buses and using garage boxes with batteries to store the energy and bring it back to the grid. Then there are other technologies that will find their way into the homes – [smart meters](#) to manage your electricity and energy demands in your home, where the solar panels will feed into in terms of bringing back energy or in terms of feeding into energy, where you can monitor your costs and expenditure etc.

In certain cities, smart solutions have backfired, bringing a range of problems that were not foreseen. Take for example electric scooters in San Francisco, which are now cluttering up pedestrian footpaths. What is IRIS doing to anticipate such issues and to minimise the potential problems that could arise?

The San Francisco example shows that the problems that you run into are hardly the ones that you thought about when the plans were drawn up behind the desk. I don't know if within IRIS we can 100 percent avoid coming up with a solution that might backfire one way or another, but I believe that all the Utrecht partners are very aware that there are hidden risks that we might have to face. Personally, I think looking at issues from a [design](#) or user-centred perspective can overcome challenges and find creative solutions. Maybe we need to begin this type of engagement

and thinking earlier in the process. Design thinking as a methodology, using iterative steps involving end-users along that process, has proven to be quite a good way of predicting these things happening, compared to more traditional ways of handling.

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