Smart cities: Bridging physical and digital

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One of the challenges we face is how to best design and change cities into smart intelligent and sustainable environments. Researchers will explain how new technology can make our cities more habitable, and help the people who live in them understand them better.

Researchers at the Centre for Spatial Analysis and Policy, University of Leeds, and the Centre for Advanced Spatial Analysis, University College London, have been developing a range of high-technology ways to see and think about the modern city. An exhibition in Leeds which forms part of the Economic and Social Research Council (ESRC) Festival of Social Science 2012 explains how cities are becoming 'smart' and demonstrates how tools, such as online mapping and modelling, are transforming the urban experience.

Mapping and modelling technologies of this kind can show how major disruptions to public transport affect traffic flow. Computer simulations can help to emulate vehicle movement patterns and help people to plan ways of avoiding the worst delays.

Amy O'Neill at the University of Leeds, organiser of the Smarter Cities exhibition, says: "Today's technology allows us to engage with people in real time. This means that it can be used to provide intelligence about cities, for example, through social media such as Twitter and Facebook. We have been combining data from traditional sources such as government and commercial surveys, data that has been captured from buildings and vehicles using sensor devices, personal data, for example from tweets, and data which has been volunteered by the public, for

example on traffic movements."

The exhibition will allow people to engage with the possibilities that this creates. There are now an increasing number of ways of getting real-time information on the cities we live in, often via Smartphone applications. Many of these applications involve engaging with your friends in real time and in new ways. The existence of this data and the innovative ways it can be visualised and used, means that cities are becoming smarter. One of our exhibits, for example, will showcase how the study of twitter data provides us with powerful conclusions about movement and activity patterns in our cities.

Another of the exhibits will be 'Pigeon Sim', a computer model adapted from video gaming. This allows the user to 'fly' across the cityscape, using games controllers to direct their flight and seeing the view on a near-immersive big screen. Amy says: "This is a technology that enhances our perception of the urban environment and is especially good for engaging young people." Pigeon Sim does not use recordings. Instead it is fed by real-time data on anything from water levels in rivers to traffic jams or air pollution.

Amy concludes: "The emphasis will be on exhibits that people can use, not just look at. There will be a lot of hand-held devices that can help people imagine how they might use these resources in their own lives. This technology is also useful for local government, businesses, researchers and other professional stake holders".

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