

Ideas in practice: Smart cities case study - MK: Smart

In our Ideas in Practice series, we look at a range of social issues, approaches to tackling these problems, and innovative projects and initiatives which have had an impact in these areas.

Introduction

According to the Open University, smart cities involve “ICT-led urban innovation that addresses sustainability issues”.

Last year, Milton Keynes competed alongside global cities such as Barcelona, Amsterdam, and Seoul in the 2015 World Smart City Awards. Although it eventually lost to Shijiazhuang in China, judges described MK: Smart, (the project from Milton Keynes), as ‘a great example of applied innovation derived from collaborative endeavour’.

The issue

As one of the fastest growing towns in the UK, Milton Keynes has had to address the challenge of creating sustainable growth (without exceeding the capacity of the infrastructure), and meeting key carbon reduction targets.



MK: Smart is a £16 million collaborative initiative, partly funded by HEFCE (the Higher Education Funding Council for England) and led by The Open University, who have been developing innovative solutions to support sustainable economic growth in Milton Keynes. It aims to improve the town’s key infrastructure in areas such as transport, energy, and water. The project also involves a number of partners, including Milton Keynes Council, the University of Cambridge, and BT.

Approaches

Data Hub

Key to the success of the project is the ‘MK Data Hub’, which supports the collection, integration and application of large amounts of data from a variety of the city’s data sources.

The hub includes:

- > data from local and national open data sources
- > data from key infrastructure networks (energy, transport, and water)
- > sensor data (weather and pollution data)
- > data crowdsourced from social media and mobile applications

Smart API’s (application programming interfaces) are used to deliver this data in a useful format for developers.

Citizens

A major part of MK: Smart has been ‘collaboration’, including encouraging citizens to have their say on the





the potential to install rooftop solar panels, including a cost-benefit estimate for each installation. Soon, the Catapult hopes to develop apps that help to manage flooding, plan for extreme weather, and detect tree diseases.

Transport

MK: Smart has introduced a number of transport related initiatives to help reduce travel congestion and encourage the use of public transport. Cloud Enabled Mobility (CEM) has been seen as key to achieving these goals i.e. connecting users with travel information and other cloud-based services (e.g. booking and billing systems).

For instance, Milton Keynes has introduced a [smart parking](#) trial (300 SmartEye sensors) in the city's B4-1 Car Park on South Second Street. This new technology means that car park users don't have to return to their vehicle to display their ticket. They can also download an app which provides parking availability in real-time.

In addition, MK: Smart is currently working on a service called MotionMap, which it hopes will be able to provide real-time data on the movements of vehicles and people across the city. The plan is for the app to provide information such as bus timetables, estimates of congestion and crowd density of pedestrians.

Education

Education is a key part of the MK: Smart project. This includes raising the awareness of schools pupils, higher education students, businesses, and the wider community on what is meant by 'smart cities'. Some of the main initiatives include:

- > a free massive open online course (MOOC) on smart cities
- > a data literacy education programme for primary and secondary pupils
- > SME training courses to help SMEs exploit the commercial opportunities that data can bring

town's sustainable future. As Robbie Macpherson, Chief Operating Officer of Community Action: MK explains:

"When people are involved in developing ideas, other people's ideas as well as their own, those people become committed to making those ideas work"

A website was established, [ourmk.org](#), to help collect these ideas and develop them into projects. One success story has been the Breastfeeding Hub App, which Milton Keynes hopes to use to promote the use of breastfeeding. A key feature of this app will be a map detailing the best locations in Milton Keynes to breastfeed.

Putting ideas into practice

Satellite Applications Catapult

The [Satellite Applications Catapult](#) is a partnership between Milton Keynes (MK) Council and The Open University, which has successfully developed a series of satellite-based apps that will enable the council to optimise town planning and infrastructure development.

For example, the Catapult has developed a service which conducts a property-by-property analysis of



Image 1

Lessons and impact

- > The MK Data Hub provides the technical and data infrastructure for the MK: Smart project, and reduces the cost of data-driven application development. In total, the data hub has 497 datasets, 27 data owners and 11 data licenses.
- > The data made available by MK: Smart provides an important resource for the Urban Data School, a pioneering initiative to teach data literacy to primary and secondary pupils.
- > MK: Smart has an integrated programme of business engagement. This includes events such as 'Hackathons' (which provide academics, businesses and students with the opportunity to co-develop smart city solutions), as well as providing short courses such as the Postgraduate Certificate in New Enterprise Creation. So far, the project has engaged with 60 small and medium-sized enterprises (SMEs) and made over 400 business connections.
- > The council believes that the smart parking trial has been a success, as it has encouraged drivers to use limited parking spaces more effectively, as well as providing the council with a better understanding of how parking spaces are being used. This has led to the



council introducing an extra 200 sensors.

- > Community Action: MK has played an important role in gathering ideas from local residents. Between April and September 2014 they held six workshops and to date have visited 22 locations, collecting 591 dialogues with residents.

Further challenges for MK:Smart

In a recent [podcast](#), Professor Enrico Motta from MK: Smart identified two challenges for smart cities. He highlights that developing a large scale internet of things (IOTs) infrastructure (apps, data storage, access technologies and platforms) will be particularly challenging. This is not necessarily a technological issue, he suggests, but rather a challenge in developing shared systems among a number of stakeholders (government, industry and academia).

Secondly, he comments that privacy is still an issue. In his view, technological solutions need to be introduced that allow people to control how much privacy they waive for particular benefits. This becomes a particularly complex issue when data starts to be moved between organisations and combined with other datasets.

Further reading

MK: Smart

<http://www.mksmart.org/>

Community Action: MK

<https://communityactionmk.org/projects/mksmart/>

Milton Keynes Future City Programme

<http://ow.ly/Rrb43002v7m>

MK: Smart Citizen Lab (YouTube channel)

<https://www.youtube.com/channel/UC-aZepSjVpugXLquA6FsweQ>

Developing the smart city: lessons from Milton Keynes

(Cardiff University City Region Exchange, 26 Feb 2016)

https://www.cardiff.ac.uk/_data/assets/pdf_file/0003/211539/Developing-the-smart-city.pdf

On the road to the smart city in Milton Keynes (Wireless, 29 Jan 2016)

<http://www.wireless-mag.com/Features/40288/on-the-road-to-the-smart-city-in-milton-keynes.aspx>

Taking a closer look at the Milton Keynes smart city project

(Computer Weekly, 11 Jan 2016)

<http://www.computerweekly.com/news/4500270203/Taking-a-closer-look-at-the-Milton-Keynes-smart-city-project>





How Milton Keynes is using satellites to help save the planet

(Business Green, 23 Dec 2015)
<http://www.businessgreen.com/bg/feature/2439882/how-milton-keynes-is-using-satellites-to-help-save-the-planet>

The state of our smart cities

(Centre for Cities, 19 May 2015)
<http://www.centreforcities.org/blog/the-state-of-our-smart-cities/>

How MK: Smart is helping improve business efficiency and reduce carbon emissions

(Business Reporter, 20 Feb 2015)
<http://business-reporter.co.uk/2015/02/20/mksmart-helping-improve-business-efficiency-reduce-carbon-emissions/>

Fostering young smart citizens through personal learning environments for urban inquiries

(The Open University, 2015)
http://www.mifav.uniroma2.it/inevent/events/scl2015/docs/SLEECTEL2015_paper_2.pdf

Removing barriers for citizen participation to urban innovation

(The Open University, 2015)
<http://oro.open.ac.uk/43854/1/OU-dc9.pdf>

Reimagining the role of citizens in smart city projects

(The Open University, 2015)
http://oro.open.ac.uk/43770/1/citizenInnovation_ubicomp2015_cameraReady.pdf

Do smart solutions help create sustainable cities?

(The Centre for Sustainable Design, 2014)
<http://cfsd.org.uk/site-pdfs/si14/abstracts/market-transformation-and-policy/Ref%2009%20Abstract-10.15.pdf>

BT is innovating to help Milton Keynes secure sustainable economic growth

(BT, 21 Nov 2013)
<https://btplc.com/Innovation/Innovationnews/miltonkeynes/index.htm>

A data-intensive approach to open innovation in MK: Smart

(The Open University, Anon)
http://www.engerati.com/sites/engerati/files/eventpres/EUW15_Day2_0940_Enrico%20Motta.pdf

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