The Innovation Potential of Human-Centred Cities

Cities designed around the individual can support sustainable urban development and create lasting value and innovation.

Every year, the New York City Economic Development Corporation (NYCEDC) provides programmers, designers and entrepreneurs with access to municipal data sets that they can use to build programmes for the **NYC BigApps** competition to solve issues affecting city residents. Among the winners last year were **JustFix.nyc**, which helps tenants build their case for getting adversarial landlords to fix things in their apartments and **Treasures**, which won the "zero waste" challenge for its mobile app that allows users to share unwanted household items such as furniture with someone who wants them, instead of throwing them away.

Such an "open data" policy spurs public innovations of everyday relevance to citizens, attracts entrepreneurs to come to cities with such treasure troves of data and enables universities to research urban solutions more effectively. Open data is fertile ground to create urban value.

In my **last article** I argued that cities can capture more value by developing a "smart and sustainable" strategy based on a systemic urban management platform: cities can optimise their urban expenditures and generate new revenues. But the success of a "smart and sustainable city" depends not on gadgets and broad innovation.

Urban innovations are only meaningful if they are human-centered. Human-centered innovations can be created thanks to three components that are enhanced by a "smart" city environment: hardware, software, and business models.

It starts with data gathering

The human-centred "smart" city begins at the level of sensors, which play a key role in providing data on a situation happening in one part of the city. A sensor, such as a camera, speedometer, thermostat, public internet kiosk, payment card reader, mobile phone or other tracking device transforms information on a situation into a digital or analog format for analysis.

For one example of what smart sensors can do, we turn to Finland. In the summer of 2011, the local waste management authority of Porvoo was having challenges handling the increasing amount of waste. By utilising a smart sensor service inside bins, the city was able to 1) reduce the amount of collections by 51 percent, 2) reduce unnecessary driving and emissions from garbage vehicles, 3) reduce the overfilling problem at recycling stations and 4) achieve a net savings rate of 47 percent.

Leveraging the data

Then a communication network will capture and transfer that data from the sensors to information systems. In those information systems the data are analysed by elaborated software algorithms. Data analytics tools are used to find patterns in sets of data using mathematical artefacts like correlation and regression analysis.

All the data cities can collect with sensors can be used to develop software innovations. For example, in the city of Issy-les-Moulineaux in France. IssyGrid developed a software programme that collects energy consumption data and shares the results with citizens to build awareness about energy consumption, encouraging them to take actions, such as switching off televisions nobody is watching, to lowering the heater temperature if their homes are warm enough. They've found citizens reducing their consumption and their energy bills by 10-20 percent as a result.
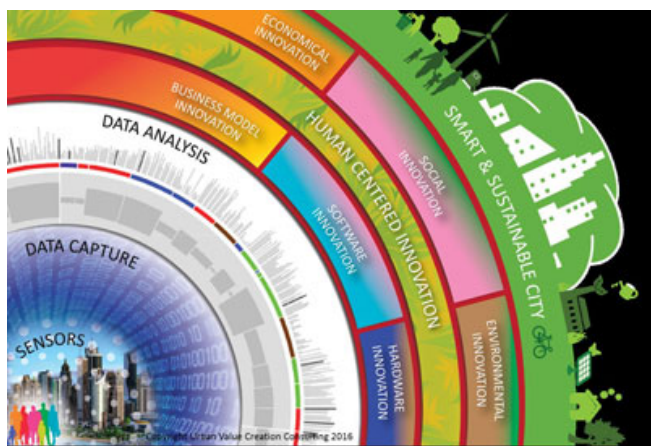
New modes of operating

Data analysis can be used to create business model innovations. In new buildings the use of technology to manage properties has helped owners to reduce the total cost of ownership. Moving from distributed technical rooms for fire, security, IT, water, etc. to a centralised maintenance center can cut (in 1 building) energy use by up to 24%, reduce operations costs by up to 15% and improve the comfort uptime to more than 99%. Asset management companies have revised their business models as they can now manage more and more buildings from a centralised operations center that they can own.

Sustainable urban innovations

When cities start building on this kind of momentum, resulting productivity gains can become social, economic, and environmental innovations too. In Pittsburgh, USA, the city wanted to reduce emissions due to traffic congestion so the city implemented an adaptive traffic signal system which saw reductions of 40 percent in vehicle wait

time, 26 percent in travel time and 21 percent in vehicle emissions.

Urban value innovations are innovations that create value for the people and support the sustainable development of the city. From a business perspective urban value innovations need to align innovation with utility (improved quality of living in sustainable cities), price (competitive market price) and cost (to produce the product or service). The city of tomorrow should be a "smart" and a sustainable one, where urban value innovations based on human-centered innovations will support social, economic and environmental innovations.

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