
A TALE OF (MANY) CITIES

Collectively digital citizens of New York, London, Hong Kong and Los Angeles show the unique characteristics of their cities.

The continuously changing landscape of workplaces and internal migration of inhabitants calls for adaptive urban planning. To help authorities cope with this evolving environment and prepare the infrastructure of cities to deal with the challenges of the future, standard census-based analysis of a city's structure can be complemented with traffic-based land use detection. Based on mobile traffic data that can be updated more frequently and automatically, this information provides a much more reflective view of the modern city.

Researchers from [SENSEable City Lab](#) at [MIT](#) and [Ericsson](#) (NASDAQ: ERIC), a world leader in communications technology and services, have carried out an unprecedented comparative analysis of city level network usage in four major global cities: London, New York, Los Angeles and Hong Kong. The project explores aggregated data on collective calls, SMS, data queries, and data traffic within and between the cities. Initial findings are being presented in a [scientific paper](#) and also made available through an intuitive web application tool, called [ManyCities](#), first presented at the New Cities Foundation Summit on 18 June 2014.

“The ubiquitous use of cellphones provides us with the opportunity to generate unprecedented data driven insights into the ways communities inhabit cities,” said Professor Carlo Ratti, Director of the MIT SENSEable City Lab. “This data outlines the invisible dimensions of urban life; we believe that these findings should be shared and made accessible to anyone and everyone – from researchers to politicians to artists.”

The ManyCities web application offers unique control over the data. “We wanted to let people compare the typical patterns in the area they live with those of other areas in the same or other cities,” says Pierrick Thébaud, designer at the MIT SENSEable City Lab and developer of the platform. “Visitors of the tool can save, share and annotate comparisons and ‘explorations’ so that a rich set of interpretations can allow even non-specialists to make sense of the complex data patterns.”

“Ericsson's collaboration with SENSEable City Lab at MIT has enabled an increased understanding regarding how city life is reflected in mobile traffic,” said Niklas Björk (Research Director, Ericsson). “The project would like to present insights and knowledge in a transparent way so that people can learn about and comprehend the potential benefits of smart city data, information and insights. Ultimately, we would like to empower people and society to utilize the benefits of smarter cities.”

Already, researchers have gleaned insights about the four urban spaces from the ManyCities application. “Our analysis reveals a universal pattern – closely following the business hours – shared by all city centers,” said Sébastien Grauwin, researcher at the MIT

SENSEable City Lab. “However, we can clearly differentiate the cities through the activity patterns of their residential areas. For example, people in the United States send significantly more SMS in the evening; and during Christmas week in London, the activity drops down quite significantly, but not in New York or Hong Kong.”

The manycities.org opens up a new possibility to see patterns never seen before, and with this knowledge we may be able to improve the lives in the networked society, by providing a more accurate picture of the city.

As mentioned, standard census-based analysis of a city’s structure can be complemented with traffic-based land use detection. In the example of New York, the traffic patterns of some manufacturing areas, like western Staten Island, are more similar to residential areas than to industrial areas. As another example, the traffic pattern of southern Central Park is more similar to commercial and business areas than to recreational areas. Respecting the individual right to privacy, no personal information has been used in the project, only aggregated, anonymized data on city district level. Furthermore, the tool shows only normalized values of the load of the network.

The research was carried out at the MIT SENSEable City Lab as part of Ericsson’s Signature of Humanity project, a wider research agenda that focuses on the digital traces how humans impact the network usage across the world and unearthing knowledge that can be used not only to make a descriptive analysis of the past, but also to generate insights to make proactive actions for the future. The ManyCities application is the latest project within the Signature of Humanity.

*ManyCities is available at <http://www.manycities.org>.
More information on: <http://senseable.mit.edu/manycities/>.*

NOTES TO THE EDITORS

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