

The influences of user generated 'Big data' on urban development

Mai Mahmoud

Junior researcher at Alexandria
University, Faculty of Engineering,
Computer aided design lab.

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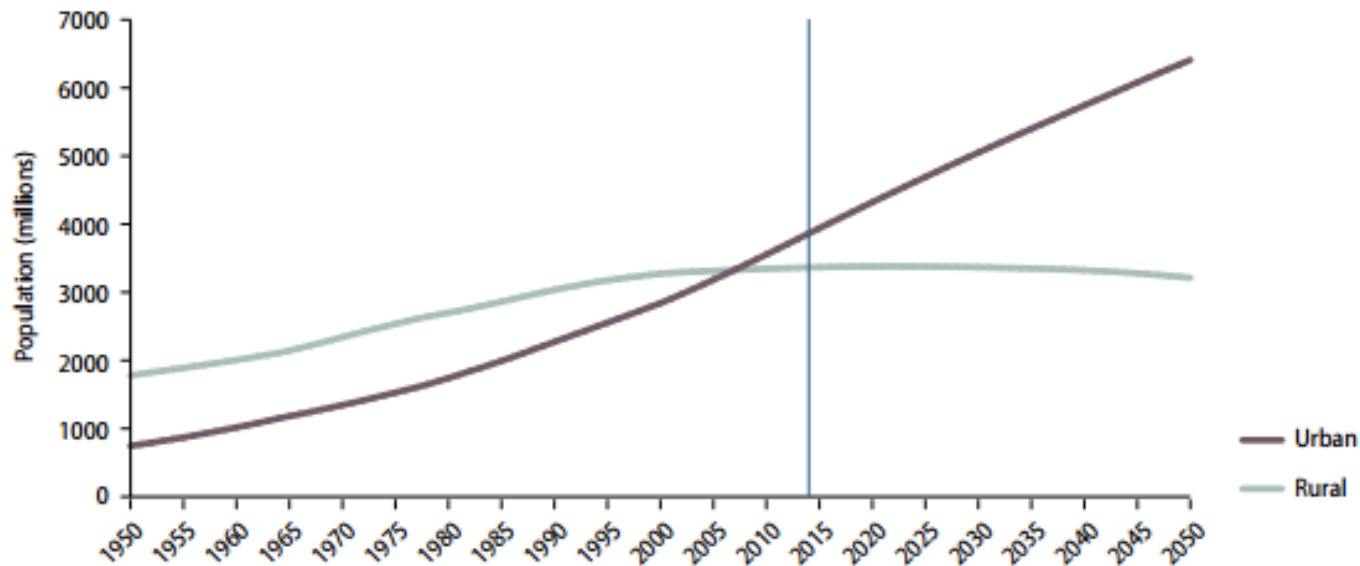
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Problem statement

- Cities are the nucleus for creativity and ideas, this magnet in the cities created the problem of population.
- Approximately 50% of world's population lives in urban areas, a number which is expected to increase to nearly 60% by 2030.

Source: Mutizwa-Mangiza ND, Arimah B C, Jensen I, Yemeru EA, Kinyanjui MK. (2011).
Cities and climate change: Global report on human settlements.



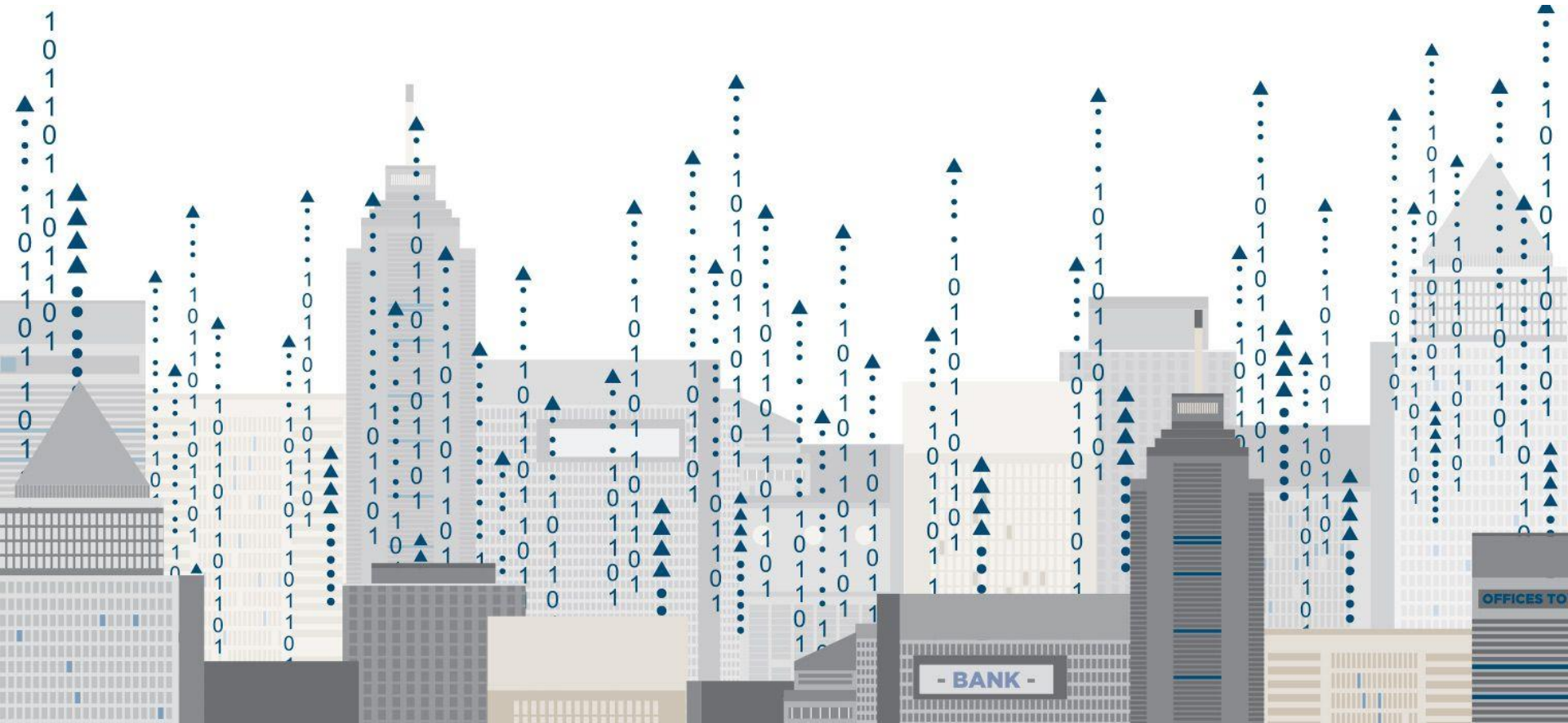
Urban and rural population of the world, 1950–2050

Source: World Urbanization Prospects The 2014 Revision

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Cities current status

- In cities, Data comes from weather channels, street security cameras, Facebook, Twitter, sensor networks, in-car devices, location-based smartphone apps, RFID tags, smart meters, among other sources



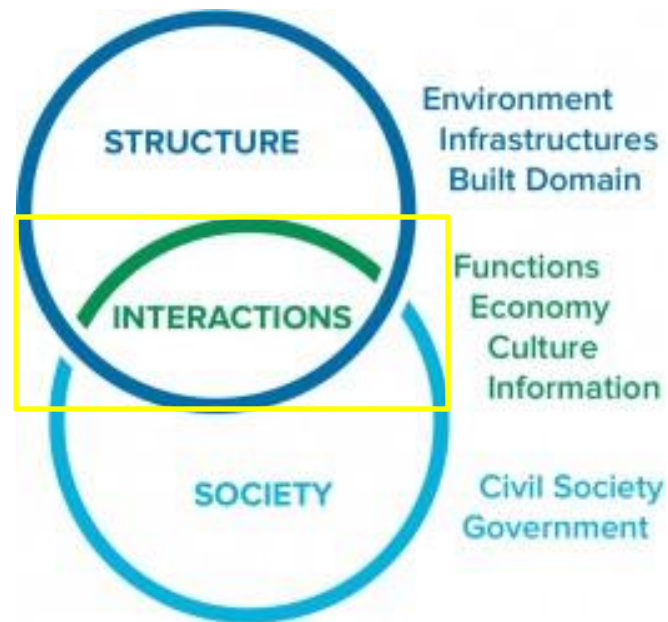
How can we make use of these data?

To

- Utilize intelligent prediction tools to deliver a better way of living.
- Improve cities infrastructure and their vital systems.
- Deliver an analytical framework for urban optimization.

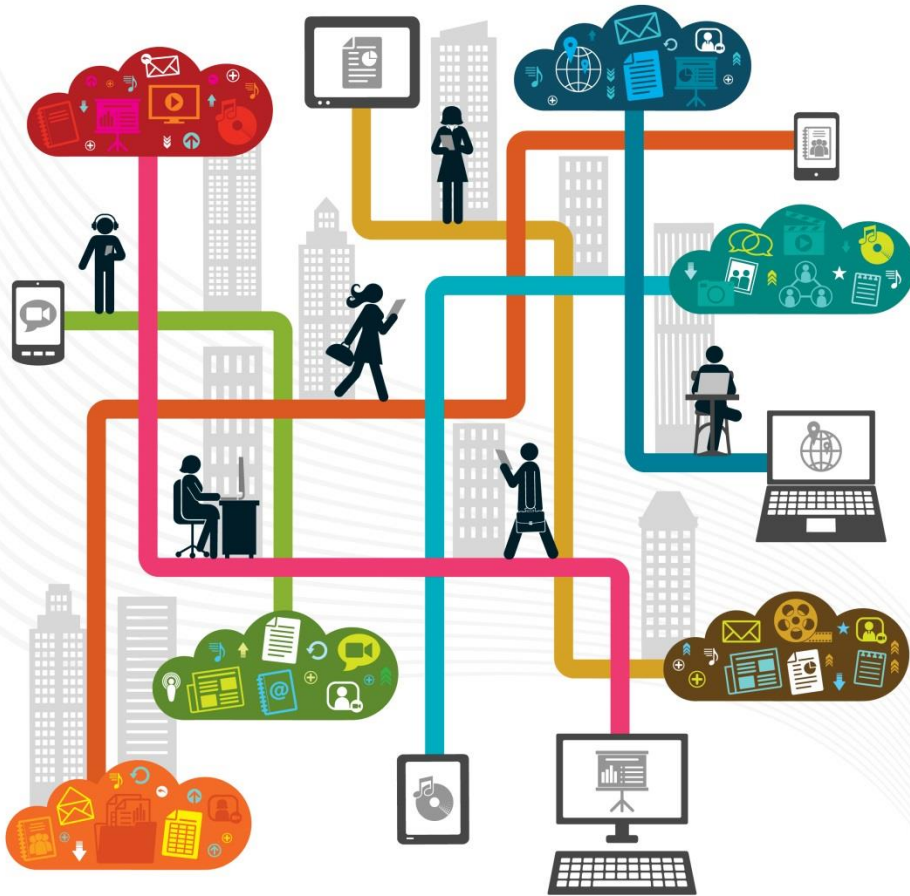
City anatomy

- City anatomy by City Protocol: (1) the physical structure (structure); (2) the people who live in this physical space (society); and (3) the interactions between people and their physical structure.
- The focus will be on the third element investigating how people can communicate with their physical environment



Technologies and trends

Ubiquitous computing



Internet of things (IOT)



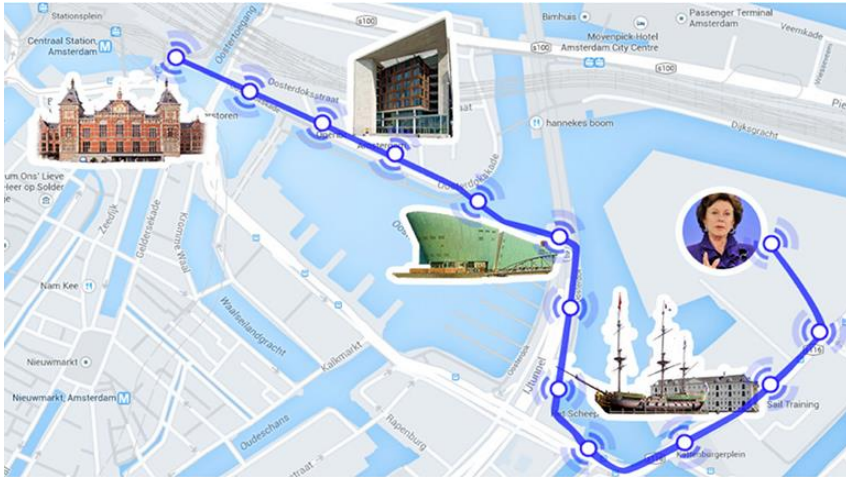
Cloud computing



5 Case studies

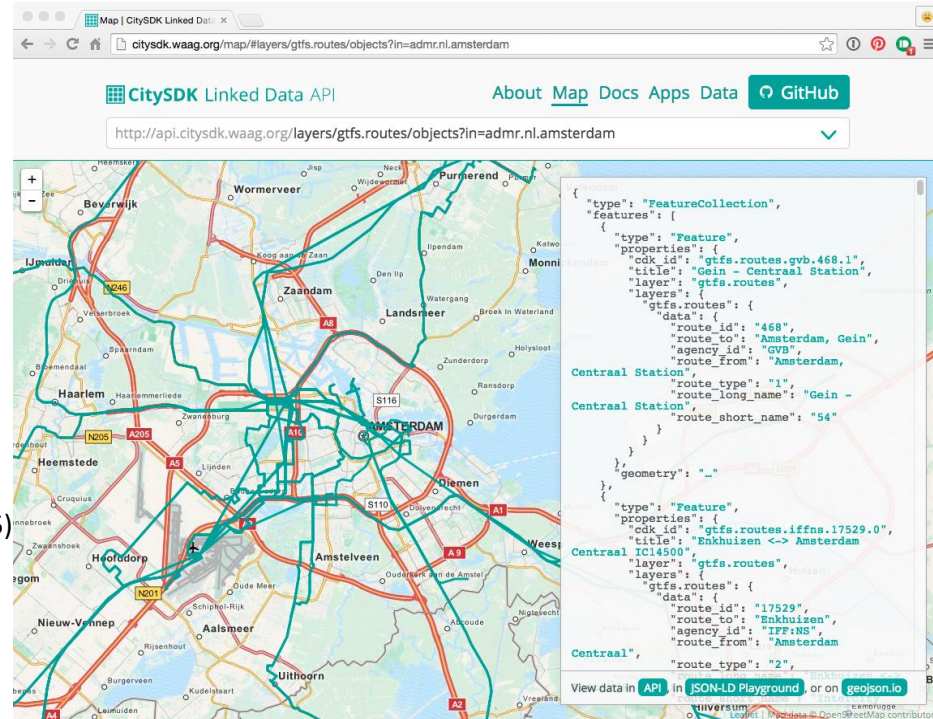
Amsterdam Smart City

iBeacone Living Lab



A route of 2 Km with beacons lining it (Amsterdam smart city: Smart Areas, 2015)

Smart citySDK



CitySDK Linked Data API implementation on Amsterdam (WaagSociety, 2015)

Case studies

New York City24/7



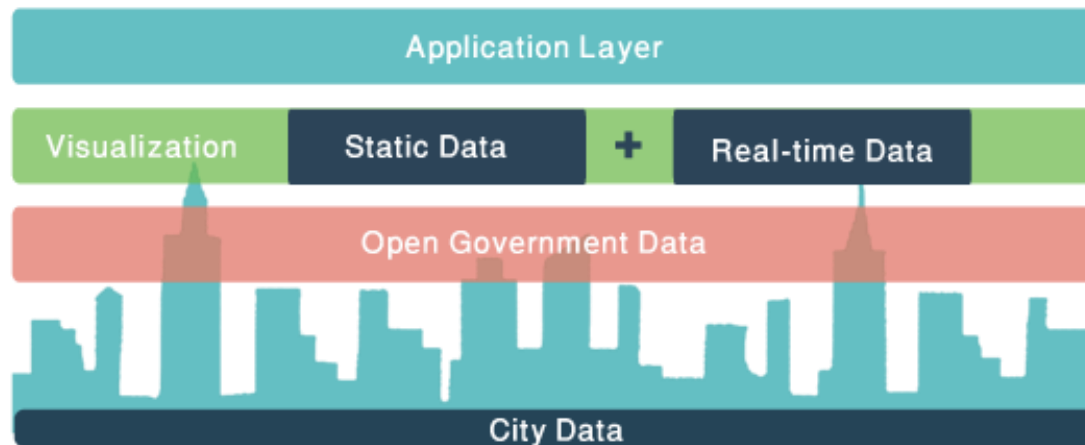
City24/7 Smart Screen Locations (Mitchell, Villa, Stewart-Weeks, & Lange, 2013).

Application

Trend

- Open government data
 - Egypt open government data model
<http://egypt.opendataforafrica.org/>
- IOT applications

Application architecture



Application Architecture

6 Application

Demo

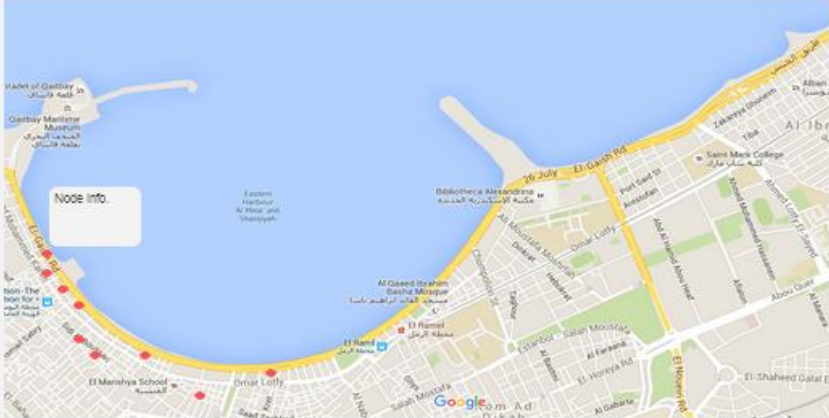
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Map View



Population density(people per sq km) : 1.63K

Choose data to view

Open Government Data

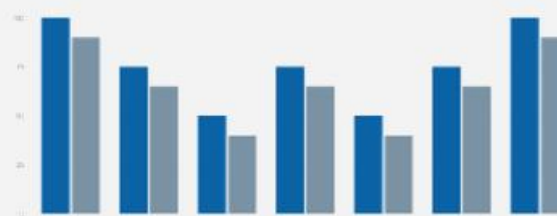
- Population
- Education
- Health
- Employment
- Living conditions

Sensors Data

- Sensor 1
- Sensor 2
- Sensor 3

Charts

#	Date	Time	Amount
3328	10/21/2013	3:29 PM	3321.33
3328	10/21/2013	3:20 PM	3234.34
3324	10/21/2013	3:03 PM	3724.17
3323	10/21/2013	3:00 PM	323.71
3322	10/21/2013	2:49 PM	38348.23
3321	10/21/2013	2:23 PM	3248.12
3320	10/21/2013	2:18 PM	38663.84
3318	10/21/2013	2:13 PM	3943.48



Thank you

Mai Mahmoud

Junior researcher at Alexandria University,
Faculty of Engineering, Computer aided
design lab.

May.yousiff@gmail.com

maymahmoud@hommect.com

