Cities 107 (2020) 102903

Contents lists available at ScienceDirect

Cities

journal homepage: www.elsevier.com/locate/cities

Make good use of big data: A home for everyone

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Editor of Arabic Science Archive (ArabiXiv)

ARTICLE INFO

Keywords:
Housing crisis
Coronavirus
Covid-19
Big data
Homelessness
3D printers
Homeless people
House construction

ABSTRACT

The ongoing COVID-19 pandemic should teach us some lessons at health, environmental and human levels toward more fairness, human cohesion and environmental sustainability. At a health level, the pandemic raises the importance of housing for everyone particularly vulnerable and homeless people to protect them from the disease and against other similar airborne pandemics. Here, I propose to make good use of big data along with 3D construction printers to construct houses and solve some major and pressing housing needs worldwide. Big data can be used to determine how many people do need accommodation and 3D construction printers to build houses accordingly and swiftly. The combination of such facilities- big data and 3D printers- can help solve global housing crises more efficiently than traditional and unguided construction plans, particularly under environmental and major health crises where health and housing are tightly interrelated.

The current worldwide COVID-19 pandemic should teach us many lessons at health, environmental and human levels (Moustafa, 2020). At a health level, the pandemic emphasizes the importance of self-sufficiency in terms of basic health needs and equipment (such as masks, respirators and ventilators). At an environmental level, it emphasizes the need for annual and regular "industrial breaks" (Moustafa, 2017) to reduce pollution levels and to reconsider the question of food consumption on urban public transportation to reduce potential infections with food/airborne pathogens (Moustafa, 2018). At human levels, it emphasizes the need for human cohesion and support for each other at individual, collective and state levels. Big data can be used to help solve many of these and other issues, for example to monitor the efficacy and performance of a drug (Qian, Zhu, & Hoshida, 2019) and to help build shelter for everyone (Moustafa, 2020) particularly homeless people who are among the most vulnerable to diseases.

Big data- as the name suggests- refer to a large volume of information about any item or subject of whatever nature, material or immaterial, such as people, products, genes, proteins, diseases, climate, cities, environment, social behaviors, etc. In hyper-connected societies, data is becoming an increasingly influential source of policy-based plans and decisions. Big data are characterized by three main features: a high velocity (rapidly collectable through Internet and smartphone applications), a great variety (composed of heterogeneous information including texts, audios and videos) and a huge size (hundreds to thousands gigabytes).

However, the importance of big data doesn't turn around what and how much information do we have, about a question of interest, but also and most importantly about what we can do with such information. The number of fields and applications of big data is increasing continuously. Big data can be used to predict and manage the risk of climate change (Guo, Zhang, & Zhu, 2015), to analyze socioeconomic attributes and to personalize healthcare (Cirillo & Valencia, 2019), to better control and transfuse blood (Pendry, 2015), to help detect cancer early (Fitzgerald, 2020), to help make decisions on current and future situations, to target potential consumers and people shopping habits and needs, to measure public attentions to global events such as Olympic competitions (Kassens-Noor, Vertalka, & Wilson, 2019), to predict and spatially/temporally locate land use (Liu et al., 2020; Martín, Julián, & Cos-Gayón, 2019) and traffic congestion in megacities (Zhao & Hu, 2019) etc. Worthy usages of big data can- should- also be focused on providing insights to solve major society issues related for instance to basic human physical needs (food, water, and housing), and environmental sustainability. Big data are one of the pedestals of transforming cities into smart cities (Bunders & Varró, 2019; Lim, Kim, & Maglio, 2018) and to contribute to the urban fabric through Artificial Intelligence (AI) (Allam & Dhunny, 2019).

Here, I would suggest combining big data and 3D house printing to solve housing crisis and substandard lodging. In addition to its harmful social repercussions, inadequate housing and homelessness are persisting societal problems that increase the risk of vulnerability, morbidity and mortality of millions of people worldwide. However, housing crisis is not a fatality. Many solutions exist to help public authorities provide houses for every one of the citizens of a given country or a city in an efficient and a rapid way.

Among these, big data on house ownership can be collected from public and housing tax administration as a start point to know who is an

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https://doi.org/10.1016/j.cities.2020.102903
Received 12 April 2020; Accepted 11 August 2020
Available online 24 August 2020

owner and who needs a home (i.e. tenant or homeless); a kind of formal census on people who need housing and people who do not, based on ownership/rental records. Such census, however, might raise some privacy issues that should be respected in all circumstances in a good balance between providing adequate service and fulfillment to privacy protection laws. Once the number of people in need of accommodations is known, and predicted for future needs too, the authorities of urban development can set up urban plans for house construction to meet the housing projected needs. To build houses more efficiently than traditional construction ways, the industry of 3D construction printers can be considered in current and future city construction plans. While this industry is not yet fully optimized for house construction/printing, it can be a solution of choice for the future- along with big data- to solve housing crises worldwide over the upcoming years. Big data will allow to determine how many people would need homes at a city's or a country's level, and 3D house construction printers will allow to build houses accordingly and rapidly.

It is somewhat surprising to see wealthy countries tremendously investing in less priority fields than housing citizens where thousands of people are still homeless and/or living in substandard houses particularly under harsh weather conditions or pandemic diseases. The current worldwide Corona Virus Disease 2019 (Covid-19) and its subsequent lockdown highlight the paramount need to solve home crisis for those who have no adequate accommodation. Homelessness is a collective responsibility that is still failing to be tackled efficiently even in the most developed countries (Lancet, 2019). Investments to fulfill people's basic needs and to treat health issues should be on the top priorities in all countries. Big data and 3D housing printers can solve housing crisis more efficiently than ever.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reportedin this paper.

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