Towards Post-Anthropocentric Cities: Reconceptualising Smart Cities to Evade Urban Ecocide

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Abstract: This short communication piece focuses on the future of our cities and societies. It, firstly, provides a retrospective view on the origins of the popular smart city concept. The paper, secondly, presents the most recent perspectives on the new interpretations of the smart city notion. It, then, provides a commentary on the potential directions for a better reconceptualisation of smart cities to evade a most likely urban ecocide. Lastly, the short communication concludes by asking two critical questions: (a) Whether urban scholars, planners, designers and activists will be able to convince urban policymakers and the general public of the need for a post-anthropocentric urban turnaround; (b) If so, how to pave—jointly by public, private and academic sectors along with communities—the way for post-anthropocentric cities and more-than-human futures.

Keywords: *intelligent city; smart city; urban informatics; responsive city; post-anthropocentric city; more-than-human city; sustainable urban development*

Introduction: Can Technology Save Us?

The current Anthropocene era is characterised by greenhouse gas emissions and human domination (Crutzen & Steffen, 2003). As a result, the world is being confronted with severe environmental, economic and social crises (Moore, 2017). This is combined with rapid urbanisation, increased mobilisation, heightened globalisation, ruthless neoliberal capitalism, vigorous industrialisation, intensified agriculture, excessive consumption, and highly materialised lifestyles (Yigitcanlar& Dizdaroglu, 2015; Monbiot, 2016). At this dire strait, contemporary urban policy and practice tend to place all its bets on technology as a panacea to ensure our survival (Wiig, 2015). Yet, can technology alone really save us?

Rapid advancements on the technology front—particularly as a result of the second wave of the digital revolution and the fourth industrial revolution—along with aggressive marketing by technology companies gave policymakers and urban administrators a false hope (Söderström et al., 2014). The hope is that the impacts of global scale environmental and socioeconomic crises can be reversed through feasible technology solutions. Consequently, the amalgamation of technology and the city is widely seen as an effective instrument to manage the challenges that cities and societies are facing (Yigitcanlar, 2016). This fusion of

technology and city, today, is referred to as ‘smart cities’ which has evolved through different stages (Foth, 2018; Yigitcanlar et al., 2018).

The First Generation: Intelligent Cities

Even though the smart city concept was popularised by the technology companies around the mid-2000s, its origin dates back to the intelligent city notion of the 1990s. The ‘intelligent cities’ paradigm brought together the trajectories of the knowledge and innovation economy, and the spread of the Internet and World Wide Web as major technological innovations (Komninos, 2011). Intelligent cities (the first-generation smart city) were the realm of technology companies providing innovative technologies to local governments in order to improve and optimise the efficiency of specific city functions. This conceptualisation was heavily expert focused and almost no opportunity was given for citizens to participate in the decision-making process.

The Second Generation: Smart Cities

In the late-2000s, as an extension of the intelligent city movement, the ‘smart cities’ concept emphasised a greater degree of involvement of local authorities in deploying smart technologies (Yigitcanlar, 2015). Targeting city infrastructure and services, these technologies established a new digital data layer to drive efficiencies through smart meters and shared mobility. This second-generation smart city employs sensors and other Internet-of-Things (IoT) devices with a growing emphasis on urban informatics, urban science and data analytics aiming to solve urban problems (Lim & Taeihagh, 2018). Yet, the highly top-down approach in investment and governance remains—leaving only limited room for the community’s voice in the policymaking process.

The Third Generation: Responsive Cities

As a reaction to the conceptualisation and practice limitations of smart cities, a new type of city model is envisaged: A city that provides citizens with active engagement in and usage of smart solutions to improve living standards and urban sustainability. This is referred to as ‘responsive cities’ (Goldsmith & Crawford, 2014). These cities restore the citizen’s right to the digital city by giving citizens power to use smart technology to contribute to planning, design and management of their cities (Foth et al., 2015). The responsive city (the third-generation smart city) relies on IoT and mobile devices communicating autonomously with

the aim of improving urban life.

The Challenge: Can Smart Cities Address the Causes of Our Urban Ills?

The progression from intelligent to smart and from there to responsive cities are positive moves and contributed cumulatively to the urban policymaking practice. However, city innovation remains largely technocentric with much needed governance, policy and regulatory reform lagging behind in both speed and scope (Noy & Givoni, 2018). Technocratic approaches generate serious doubts about their capability of addressing the aforementioned root problems causing environmental, economic and social crises (Kunzmann, 2014).

In recent years, various international, national and regional city ranking exercises listed the best performing smart cities, and various studies provided insights into smart city best practices (Giffinger & Gudrun, 2010). These exercises and studies celebrated the achievements of a number of global smart cities—including Amsterdam, Barcelona, Boston, London, New York, Paris, San Francisco, Seoul, Singapore, Stockholm, Tokyo, and Vienna. However, a closer look into the environmental performance of these cities reveals unsustainable levels of per capita greenhouse gas emissions despite some regulations (Hoornweg et al., 2011; Arbolino et al., 2017).

Moreover, the recent empirical studies reported that smart cities are not after all that smart as they fail to live up to sustainability expectations. For example, a recent study on 15 UK smart cities found no evidence that urban smartness contributes to sustainable outcomes (Yigitcanlar & Kamruzzaman, 2018a). Another research on Australian cities revealed the smartness of cities does not lead to sustainable commuting patterns (Yigitcanlar & Kamruzzaman, 2018b). Additionally, studies on smart cities in Africa and South Korea—including Songdo recognised as the world's 'smartest' city—evidenced the environmental downfalls of these ambitious projects (Watson, 2014; Yigitcanlar & Lee, 2014). Furthermore, it is argued that cities cannot be truly smart unless they produce zero waste (Zaman & Lehmann, 2013) and make a net positive contribution to the ecosystem (Birkeland, 2012).

While useful to describe the changing attitude of local governments towards smart city investments, the trend from 'intelligent', 'smart' to 'responsive' cities remains highly constrained by its focus on technology and technical systems (Anthopoulos, 2017). This in turn begs questions about the depletion of rare earth metals and the accumulation of e-waste. A technocratic approach is also not adequate in recognising our ecological entanglements

with nature (Houston et al., 2018). It does not avoid the ecocide and existential crisis we face in light of forthcoming catastrophes of the Anthropocene era (MacDougall et al., 2013)—such as ecosystem collapse of the Great Barrier Reef (Pandolfi et al., 2003).

The Fourth Generation: What Does a Truly Smart and Sustainable City Look Like?

The current smart city practice is generating a Frankenstein urbanism by forcing the union of different and incompatible elements in cities—in a disingenuous attempt of addressing quality of life and sustainability (Cugurullo, 2018). There is, hence, an urgency to reconceptualise urban planning, design and development paradigms and act upon accordingly and immediately. In such reconceptualisations that question human exceptionalism (Houston et al., 2018), urban space cannot be seen as an entity separate from nature and thus it cannot be designed just or primarily for humans. Decentering the human in urban design (Forlano, 2016) will help to develop post-anthropocentric cities or more-than-human cities (the fourth-generation smart city?) that are truly smart, sustainable and equitable (Foth, 2017; Franklin, 2017).

Concluding Remarks: Towards a Post-Anthropocentric Urban Turnaround?

The current smart city practice, at its best, is a zero-sum game for sustainability—environmental gains are cancelled out by the impact of increased technology and energy use (Ahvenniemi et al., 2017). The biggest challenge, at this instance, is finding a way to change our mentality and politics on how we shape our cities, societies and the environment. We need to move forward instantaneously and quickly by focusing on an ecological human settlement theory (Liaros, 2018) that will create cohabitation spaces to house humans and non-humans in a sustainable and inclusive way in the post-anthropocentric cities of tomorrow.

The sixth extinction is already upon us (Celabllos et al., 2015). Building post-anthropocentric cities for more-than-human futures might be the last resort for the humankind to evolve and not go extinct in the not too distant future. Nevertheless, at this instance, human civilisation is standing at the crossroads. A number of critical decisions must be taken and implemented immediately—for example, moving away from an aggressive population, urban and economic growth dominant viewpoint. Furthermore, the right answers to the following questions will also be extremely critical for our future existence on the planet and its living conditions:

a) Will urban scholars, planners, designers and activists be able to convince urban policymakers and the general public of the urgent need for a post-anthropocentric urban turnaround?
b) How can we—jointly by public, private and academic sectors along with communities—pave the way for post-anthropocentric cities and more-than-human futures?

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