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Decoding the differential spaces of the smart city

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Abstract

Smart cities are premised on digital systems which aim at providing large amounts of real-time data to urban governments and agencies. This paper traces the genealogy of the Smart Cities initiative and maps its wider implications on spatial governance. The paper argues that smart cities have effectuated 'differential spaces' of urban governance by engendering a) big data spaces of governance and b) spaces of creative class lifestyles. Despite all its emancipatory rhetoric, the paper argues that smart cities need to be vigilant about the inherent conflict that exists between the democratization of information databases on one hand and issues of equity and access on the other.

Keywords: *Big data, creative class, smart city, technology and urban development*

Introduction

Terms like smart/digital cities, sustainable cities, or creative cities have become the new buzzwords in the current discourse on urban planning and development. These initiatives have brought in a team of urban professionals, consultants, and marketing specialists who have completely reinvented the very indices through which cities are planned and conceptualized (Vanolo, 2013). This paper explores these issues through a two-pronged approach. Firstly, it tracks the evolution of the smart city discourse. Secondly, it then discusses the history of the rhetoric surrounding smart cities. The discussion of big data and technological know-how and the emergence of a creative class ethos helps to flesh out the dialectics of urban development in smart cities.

History and evolution of smart cities

Seeing cities through the lenses of 'Smart City', encourages scholars like Attaran *et al.* (2022) to rethink metropolitan areas as a new, integrated place of smart economics, environment, lifestyle, transportation, people, and governance. For Komninos (2002) smart or what he prefers to term as 'intelligent' city, has a wide range of electronic and digital applications which combine the idea of the cyber, digital, wired, informational, or knowledge-based city. It promotes information and communication technology by establishing a relationship between citizens and ICTs to increase the capacity of innovation and to create institutions for knowledge management. On a different tangent however, Hollands (2008) criticized this definition of intelligent city because conflating terms like cyber, digital, wired, knowledge-based city, etc. is problematic for these ideas have different connotations. For example, a 'wired' city (Dutton, 1987) is concerned with cable and connectivity but digital cities

focus upon the virtual transformation of cities and knowledge-based cities emphasise the relationship that universities and academics establish with business houses. Further, Information Technology (IT) impacts not only the technologies of cities but also on several aspects of smart cities. Some aspects may include social networks (business innovation, knowledge creation, etc.) and human capital (education, skills, creativity, etc.).

Further Hollands (2008), in his work also hails the smart city model as a tech-savvy form of urban entrepreneurialism which narrows down the negative impact of new technologies on cities, such as that of social polarization. In other words, the smart city has emerged as such a hub of concentration of 'big high-tech data' that it has propelled a technocratic mode of urban governance (Kitchin, 2014, Coe *et al*., 2001). Similarly, Vanolo (2013) in a neo-Foucauldian vein remarked that the smart city model will be a driving tool to make 'smart citizens' and will compel them to be technologically literate. In this sense, smart cities are seen as the product of society and technology. Everyday urban life in smart cities is seen to be managed by the technology of IT companies, wherein, under the guise of creating socio-technical relationships, urban policy actors need to provide smart solutions for urban problems, through what he termed 'obligatory passage points' (OPPs) in his work e.g. the indispensable vaccine created by a pharmacy company in the event of an epidemic. Nevertheless, one must first examine how the phrase 'smart city' has subsequently come to be used in the discourse of local governments, the media, and particularly private companies. IBM was the first corporate body that focused upon the idea of the 'Smart Planet' in 2008. It conceived the smart planet to be a new-age concept that pivoted itself around an intelligent, instrumental, and connected planet.

The IBM story needs to be explored further in this context because it showcases the intricacies of how a private commercial company was roped in to build a resurgent and resilient centre of urban planning and governance. It needs to be iterated here that the 'smart city' concept derives its inspiration from the smart growth movement (Bollier, 1998) of the late 1990s. The smart growth movement had advocated for upgrading the quality of urban life. Through digitally streamlining urban infrastructure and services, several IT companies these days have adopted the strategy to devolve novel tools and applications that helped in easing the way urban life is conceived and lived. It is in this context that the story of IBM and its corporate strategies are of import to our own discussion here. It was the 1990s and 2000s that saw IBM baffle through a critical phase of corporate reconsolidation (Söderström *et al.* 2014). At a point in time, when its annual losses had plummeted to USD 8 billion, IBM decided to shift gears from an exclusive focus on the production of computer hardware to making a foray into delivery software services. Not only did it sell off its PC division to Lenovo, the Chinese IT giant but also made a bold entry into creating customised solutions as per the needs of the state bureaucracy. It aimed that shouldering the responsibilities of the U.S. government, which aimed at a fast and progressive technocratization of public services and bureaucratic requirements. Söderström *et al.* (2014) remark that Sam Palmisano, the then CEO of IBM, in a critical address dated the 6th of November 2008,

titled “A Smart Planet: The Next Leadership Agenda” argued that cities need to become intelligent and smarter, both in terms of governance and service delivery, if at all, they aimed at promoting an economically efficient, sustainable way of life, the company even went on to officially register the terms *Smarter Cities* as a trademark. The smart city campaign, thus unfurled by the company aimed at capitalising on the US market, which was estimated to be 39.5 billion USD in 2020. IBM developed a two-pronged strategy which aimed at (a) providing elaborate contracts to municipal governments and (b) roping in 100 municipalities of the world that would avail consultancy services for upgrading them to international standards of global governance through contracts with smart city initiatives in Rio and Singapore. Vanolo (2013) interestingly remarks that such an initiative by IBM attained two objectives. Firstly, it codified the city and its myriad problems into a single coded language for which customised solutions could be developed within a comparative international framework. Secondly, it ensured that by unpacking various derivatives of this code, one could create solutions for urban renewal and regeneration.

Unpacking differential spaces of the smart city

Consequently, as the smart cities model has been adopted by cities in both the Global North and South, two 'differential spaces' of the urban in the contemporary era have emerged. Firstly, it evidences how ‘big data’ has become indispensable. Secondly, it also shows how smart cities have made highly skilled workers (i.e., the creative class) an inevitable component of urban life. It thus ‘splinters’ up (Graham and Marvin, 1999 and Graham 2002) the city into two different realms of urban life whereby access to or lack of networked infrastructure differentially influences the lifestyles of city dwellers. Networked infrastructures have created such urban landscapes within the same city that they look poles apart. It is in this context that I discuss below the two ‘differential’ spaces created by the smart city.

Spaces of big data

Large datasets such as national census records, citizenship accounts, geometrical surveys, social audits, etc., can be among the most important sources of information about cities. Similarly, businesses collect vast quantities of information regarding their patterns of operations, the demographic base of customers, and the quantum of their market share. Large data sets typically rely on samples with many discrete variables collected via spatially constrained small studies such as questionnaires, ethnographies, and interviews. With the emergence of smart cities and big data as prominent themes in urban policy and management contexts, several national and city governments have begun investing in smart systems, including air quality, energy consumption, and well-being in cities such as Dublin and Birmingham (Jesse, 2006, Kitchin, 2014 and Miller, 2010). Even some have made substantial investments in recently constructed software technology enclaves such as Cyberjaya, Malaysia (Brooker, 2012). From the perspective of urban management, a crucial question remains regarding the completely unexplored potentials of and barriers to city governance through smart technologies and systems. The capacity of smart systems to collect, measure, and transmit real-time data is crucial to the integration of smart

city technologies and systems within urban governance frameworks.

For Rial (2013), 'big data' sources in smart cities are routed through any of three categories of data sets *viz.*, directed, automated, and voluntary data sets. Firstly, the directed data sets refer to such data sets which are based on surveillance-based data like the ones we accumulate through identity documents like passports, fingerprints, retina scans, CCTV cameras and other electronic biometric detectors. Secondly, the automated data sets refer to such information that could be related to activities like scanning of products in a shopping mall or museums, airports, and hotels that ideally work through data encoded in barcodes, or QR codes on travel passes, sales receipts, etc. Thirdly, volunteered data sets are not market-transaction based but are accessed through data available on social networking websites such as Twitter, Facebook, etc. that work upon uploaded images, remarks, comments, and opinions of people. The integrated use of all these types of big data has made city life both exciting and challenging at one and the same time. For example, Eger (2003) gives the example of Southampton, UK, as the first smart city that utilized many cutting-edge facilities of a smart city to create a portal that integrated smartcard applications for public transportation, recreation, and leisure activities. To facilitate this, not only did the Southampton municipal administration develop a smartcard software that provided access to a variety of services but created an algorithm which required the administration of the card through a processing of personal information in accordance with U.K. and EU data protection laws. Each smart card was allotted a one-way encrypted, unique identification number that could be used when transaction data was transmitted to the data repository.

Spaces of the Creative Class

Moreover, the efficacy of smart cities in the modern era depends on how 'creatively' (albeit 'smartly') citizens' daily lives are 'technologized' and synchronized. In fact, the smart/creative city can become more economically targeted and socially, culturally, and spatially differentiated due to the expanding contrast between the various migrant streams that continue to enter and exit the city. Smith (1996) argues that progressive 'waves' of gentrification have of late, ensured that gentrification is not merely viewed as housing, rehabilitation, and so on; rather, it seeks to factor in cultural consumerism and upgradation of lifestyles. In the case of postcolonial, developing countries like India, scholars like Datta (2015) have identified the extraction of markets or capital accumulation as the driving force behind the emergence of smart cities in developing countries like India. Basu (2019) argued that the Smart City Mission (SCM) of India flagged off in 2015 is seen as an extension of elite governmentality in urban planning and policies where data elites (consultancies, IT Companies, think tanks, etc.) influence decision-making processes. The SCM in India encourages new urban middle class, global tech industries, financial and automobile firms, and consulting agencies to participate in the furtherance of smart cities (Mckinsey, 2010). The mission aims at creating world-class cities without any political hurdles through elite aspirations and restructuring of urban spaces (i.e., planned residential households, districts promoting business/enterprises, special economic and export zones). These

urban exclusive landscapes, according to Low (2016), make the city more desirable for upper/skilled middle-class residents and tourists while slowly and steadily casting away unwanted (unskilled poor) segments of the urban population. Such a phenomenon, as per Ghertner (2011) promotes 'elite governmentality'. The Special Purpose Vehicle (SPV) (i.e., the institutional apparatus through which the SCM runs) is a classic example of the tool of elite governmentality, as it is led by a corporate-styled CEO for implementation of the project and hence not democratically accountable to public institutions.

It is opportune to mention at this juncture that in India in the late 1990s, many initiatives were taken to attract global investment in megacities like Delhi, Mumbai, Bangalore, etc. Smart cities need to be seen as the latest avatar of such a syndrome. For instance, in Karnataka, the Bangalore Agenda Task Force in 1999 was launched to govern and implement city development projects which included consulting firms at the cost of excluding elected local bodies. Likewise, in Telangana, Cyberabad Development Authority was set up to look after Hyderabad Information Technology and Engineering Consultancy City (HITEC). The first initiative to promote pan-India neo-liberal urban redevelopment projects was the Jawaharlal Nehru National Urban Renewal Mission (JNNURM) launched in the year 2005. It encouraged state governments to launch neo-liberal urban reforms to enhance the economic competitiveness of the city through infrastructural investment and to increase the financial and operational efficiency of local urban bodies. Meanwhile, Gujarat adopted 'entrepreneurial urbanisation' (Dutta 2015) aiming to attract national and global investment for quick and efficient urban restructuring. SCM in India, according to Basu (2019), has promoted certain fancy, neo-liberal features that attracted the IT Enabled Services (ITES) sector employees. The first neo-liberal feature is that of 'financialisation' wherein to carry out city development projects, state, and local governments need to match central government in raising funds through private and real estate investments, infrastructural loans and debts, municipal taxes and surcharges (MoUD, 2015a, 2015b). Secondly, the SCM mitigates local democracy and power to urban local bodies and instead, it promotes the power and autonomy of SPVs – a private entity headed by a CEO and managed by the Companies Act, 2013. Thirdly, it is data-driven governance as SCM relies heavily on ICTs for its economic prosperity and efficiency. Thus, in other words, smart cities engender a regime of governance that entrenches the role of IT consultants, technocrats, and consultants thereby making such a creative class both inevitable and indispensable for upgrading urban lives.

Much in the same vein, concepts like that of 'cognitive-cultural capitalism' (Scott, 2014 and Wyly, 2013), 'creative cities' (Florida, 2003) or for that matter 'knowledge cities' (Castells, 1996), propounded with reference to cities in the global north evidence how smart data and integrated lifestyles could be projected as a desirable product in an informational age that must be consumed by the service class. Commenting on the lure of smart and hi-tech cities, Peck (2005) rightly avers that cities have adopted 'hipsterization strategies' to make cities more attractive for creative workers. Such

strategies to engender a 'creative' class of young professionals are seen as a crucial step in the sociological differentiation (Lees *et al*, 2008) of the city apart from its spatial undercurrents. For instance, the overt digitalization of daily life through CCTV surveillance becomes a crucial indicator for affluent, secure, gated lifestyles, that reinforces the logic of big data surveillance. The Wi-Fi routerism, transponders installed at tollbooths, monitoring the movement of trains and buses, as well as vending of smart tickets like the Oyster card on the London underground (Townsend, 2013 and Wei Choo, 1997) have showcased how in smart cities, IT has become the pivot around which the connotations and significance of work and play were transformed. According to the Government of Singapore's Vision IT 2000 policy, for example, the city was catapulted into an 'intelligent' island with cutting-edge technologies that substantially enhanced Singaporeans' capacity to increase the quantity and productivity of their labour. Similarly, ICTs in San Diego, USA (dubbed as the 'City of the Future') created a consortium of creative industries that have brought in key innovations which acted as a catalyst for high capital-intensive technologies that ultimately helped in monopolizing the interest of IT companies (Kitchin, 2014).

Conclusion

Thus, in conclusion, with regard to smart cities, one can argue that due to neo-liberal developments, cities have evolved as social hubs which facilitate economic transactions. Cities have emerged as sites for technological innovations and circuits for capital circulation. Smart cities in that sense, are fast evolving as the receptacle for tangible, technological artefacts and ubiquitous computational processes. It has also shaped up as a 'knowledge hub' within a larger city region that provides professional services. Therefore, a more pertinent question that has come up in this context is how such an integration of ICTs, human and social capital, shall engender new 'differential spaces' for urban engagement. In so doing, the smart city brings us into critical times whereby the democratic and participatory ethos of a smart urban age is tenuously linked with large-scale corporate databases. It promises to capitalize on facets of social life, which until recent times, was a matter of public propriety.

However, barring these points of caution, from a spatial perspective, I would argue that the worldview of smart cities rests on three main pillars: (a) human services (b) infrastructure services, and (c) management services. These pillars aim to facilitate that the city is no more about mere urban sprawl and concentration of hi-tech grids. Rather it emphasizes new quotients of urban existence like smarter buildings, public safety, agency administration, energy and water services, synchronized transport facilitates, and provisioning of quality health care and educational services. The IT component of smart cities should not be read as merely shorthand for a territorial concentration of service sector units like *Technology Parks*. Rather we need to nuance this understanding and see smart cities as agents that overhaul technology-driven apparatuses like automated and digitalized public services. It also requires a mindset wherein both government and industry players put a premium on developing human capital with education, skills, creativity, and competencies.

Competing interest

The author declares that he has no conflict of interest.

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