

‘Platform Urbanism’: Evaluating Artificial Intelligence and Algorithms within Smart Cities

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ABSTRACT

‘Smart cities’ are contemporary urban models that promise high efficiency, connectivity, improved quality of life and thereby long-term sustenance. They integrate artificial intelligence and digital platforms to facilitate and promote better quality of life for urban citizens; projecting cities as inclusive and future ready environments. However, in reality most of these systems are limited in their geographical reach, access, ease of use raising concerns about who are the true benefitters from such technological advancements. This paper examines the idea of ‘Platform Urbanism’, where urban life is highly governed by algorithmic digital platforms and systems. The research intends to evaluate the operation of such technologies within smart cities as inclusive or exclusive. The research adopts a qualitative and theoretical approach centered around understanding digital outreach of such platforms, respective capitalistic motives and thereby spatial inequality.

The objective of the study is to critically examine the unsaid relationship between digital urban systems and accessibility in urban areas. It seeks to uncover and understand how such technologies, in the pretext of promoting efficiency and convenience, remain often concentrated within technologically connected populations, eventually marginalizing the others. Such fragmented urban experiences serve as important markers of uneven spatial developments. The paper thus highlights the need for more equitable and spatially responsive frameworks that address diverse on-ground realities in contemporary urban areas; highlighting re-evaluation of existing disconnections and urban experiences.

Keywords: *platform urbanism, capitalist model, urban governance, common man, right to the city, smart city*

1. INTRODUCTION

The emergence of smart cities in the contemporary urban discourse reflected a broader shift from physical urban development to technology driven urban development. This shift was essentially made possible with the introduction of artificial intelligence that increasingly enabled the influence, management and delivery of urban services. They also helped create new interfaces of interaction between multiple stakeholders, making

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collected urban data an important valuable resource of value creation and innovation in the market. In this sense, the implications of AI in contemporary business extend beyond conventional processes to the way multiple business and institutional urban systems participate in shaping urban ecosystems and experiences. However, such an increasing integration of AI also raises questions of equitable distribution of benefits. Examining the intersection of AI, business, technology and urban development therefore becomes essential to understanding how smart city systems could create and deliver evenly across contemporary urban environments. In the Indian context, such a convergence found a significant expression through the ‘Smart Cities Mission’, launched in the year 2015.

2. THE SMART CITY CONCEPT

The Smart Cities Mission was launched by the Ministry of Housing and Urban Affairs (MoHUA) in India in 2015. It aimed to transform urban areas by providing efficient services with robust infrastructure to achieve sustainable development. It projected high quality of living through its smart solutions and proposed comprehensive methods of strengthening physical, social, economic and institutional pillars. It mainly focused on three pillars - livability, economic ability and sustainability with basic access to housing, transport, education, healthcare and recreation; tailored to meet diverse needs of city dwellers. It also aimed at fostering local area development and leveraging technology for smart outcomes. Its ultimate goal was to connect technology, governance and community to improve urban performance and deliver better quality public services through replicable models that could be used in other cities. With urbanization continuing to surge globally, smart cities emerged as beacons of hope, promising efficiency, sustainability and an enhanced quality of life. Smart cities subsequently expanded as models with pillars such as smart economy, smart governance, smart mobility, smart environment and smart living.

Fig.1: The Smart City Concept illustrated and its outreach



Source: www.iasgyan.in/daily-current-affairs

However, the idea was not meant to be just a technological proposition, it also proposed ways of understanding how a city was meant to function, perform and be governed. Such an emphasis on technology introduced a critical question, ‘Does making a smart city necessarily make it inclusive?’ This question becomes significant as the role of technology slowly and gradually extends beyond just the provision of infrastructure to shaping citizen access, participation and interaction with business and institutions.

3. RESEARCH QUESTIONS

i) Central Question:

1. How does the ‘Smart city’ framework shape ‘Platform Urbanism’? Under what conditions, do they provide for inclusive or exclusionary experiences?

ii) Sub- Questions:

1. What are the visions and goals of smart cities in India in the contemporary urban discourse?
2. What are the multiple tools and methods used in the Indian planning framework of smart cities?
3. What is the concept of Platform Urbanism? How could the multiple methods and systems discussed above be understood through this concept?
4. Are these frameworks purely neutral technological frameworks?
5. Who benefits from such frameworks? How do these frameworks affect the common man?
6. What principles and theories could enable in improving equity and spatial justice within the smart cities? What are suggestive ways in creating a resilient thought process for re-visualizing the Smart City?

4. METHODOLOGY

The study adopts a qualitative approach structured in six segments:

1. Review the Smart City framework, mission policies, government documents and necessary literature to understand its overall vision and implementation strategy.
2. Interpret the concept of Platform urbanism: Review literature to understand the establishment of the concept, review it further to establish the relationship between digital platforms, algorithms and governance to assess its effectiveness at grassroots level.
3. Comparative analysis through case studies: Five smart city cases are selected for comparison based on the presence of distinctiveness of technology addressing different and varied dimensions of urban governance, to identify and compare different forms of algorithmic systems, in turn identifying differentiated urban experiences.

4. Theoretical Review: Additional review of literature to help one understand the aspect of access through theories of “Right to the city” by David Harvey and Henri Lefebvre; identifying the aspect of exclusion and spatial justice.
5. Framework Development: To create the framework for equity, spatial justice and derive multiple possibilities for improvement for urban planning of smart cities.

5. FRAMEWORKS USED IN SMART CITIES

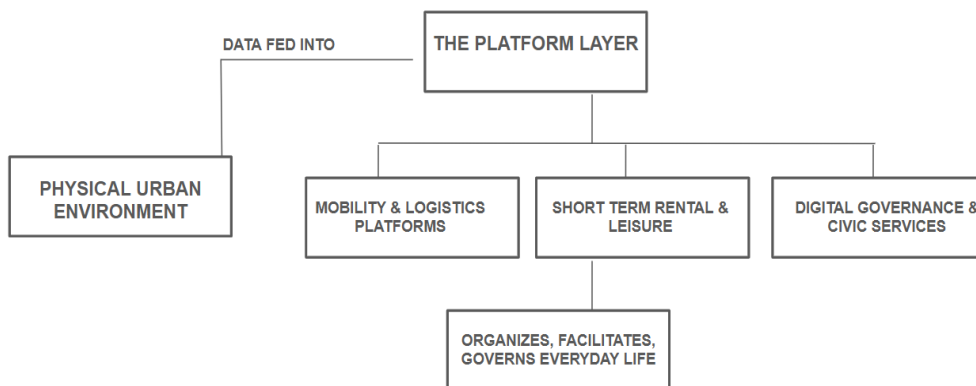
5.1 Platform urbanism

The evolution of the Smart city infrastructure as an enabler of efficiency to being an active mediator between citizens, businesses and institutions marked a shift towards a more platform mediated urban condition. The emergence of ‘Platform Urbanism’ could be situated within this broader transformation. Although the term began circulating in the context of research before 2020, it gained conceptual prominence through multiple studies that examined the growing influence of digital platforms and its impact on everyday life. Dallas Rodgers and Toby Moore were the first to explore and identify this concept in the year 2018 as an emerging field for understanding digital platforms as new forms of urban infrastructure. This was followed by Jathan Sadowski in 2020, who examined its emergence with the intersection of capital, technology and its impact in cities. Sarah Barns further developed the concept in later 2020, by connecting platforms as strategies with business models, data infrastructures and urban governance. He argued that digital platforms were increasingly mediating and shaping design, experience and largely, the governance of cities. The concept subsequently evolved into socio -economic and political intermediaries. Finally, Federico Caprotti, I-Chun C. Chang and Simon Joss in 2022, positioned the concept as extending beyond the conventional model towards connecting urban development with wider dynamics of capitalism.

This shift is significant because platforms do not merely provide technological capacity; they organize interactions, collect and process data, influence visibility and access, and create new mechanisms for producing and capturing value. It is within this evolutionary understanding of Smart City infrastructure to an intermediary, ‘Platform urbanism’ gets its meaning. While the ‘Smart City’ emphasized and propagated the integration of technology into planning, ‘Platform urbanism’ refers and represents a further condition in which **everyday activities are increasingly regulated through the mediums of digital platforms and algorithms. It also refers to increasing mediation of urban life through digital platforms that organize, facilitate, govern and monetize the everyday life of its citizens.** These might include mobility platforms, short term rental platforms, e-commerce systems, food delivery apps, civic technology interfaces, digital payment systems and data driven governance infrastructures. These platforms are not just add-ons of technology to the city’s infrastructure, but operate as algorithmic intermediaries between citizens, businesses,

institutions and service providers; from being an enabling infrastructure to an active mediator of urban life.

Fig 2: An interpretation of 'Platform Urbanism'



Source: Author's analysis and data

5.2 Evaluating Smart City Frameworks: Platform urbanism and its repercussions

Governance and frameworks in such smart cities were often conceived just in terms of optimization, efficiency and service delivery rather than access or participation. The emphasis of the goals was to make systems 'smarter' with a major focus on improving speed and efficiency with integration of data platforms, digital technologies and algorithmic systems. While the interventions aimed at improving urban performance in totality, they triggered a shift in the way cities were understood and governed; from socio-political systems to systems that were measured, predicted, optimized and monitored. The frameworks projected measurable outcomes for resource management, service delivery, mobility, real time monitoring etc. with the assumption that such integration would auto result in better urban experiences. However, technology alone could not automatically derive or result in universal accessibility. The effectiveness of the smart system depended also on whether urban citizens could reach, understand, operate and benefit from it.

Geographical location or coverage, economic capacity, digital literacy, access to devices and internet connectivity, basic familiarity with the digital interfaces in terms of barriers such as age, language etc. were also key factors for citizens to engage and benefit from the framework. A digital platform or a technologically advanced service may have existed, but its limited coverage and in-access pushed in producing uneven patterns of distribution of the smart services across the city. Further, the increased involvement of private companies and platform-based businesses in the delivery of these smart services led to discussions on the quality and priority of services, its availability and its overall influence. 'Smartness' therefore became questioned, it

became less about technology and more about who could firstly ‘understand’, secondly ‘access’ and finally ‘use and benefit’ from it. It brought up questions of ownership, control, commercial interests, transparency and accountability into the planning domain for discussion. The smart city therefore becomes not just a technological system, but also a controlling ‘political and economic driver’ for shaping digital infrastructure within the larger planning discourse. These questions therefore, require a critical examination of not efficiency alone, but the balance of inclusiveness, accessibility, spatial equity and sustainability with efficiency.

6. EVALUATING ALGORITHMS OF URBAN EXPERIENCE: CASE STUDIES

The Smart cities mission has introduced algorithmic systems into the everyday functioning of cities through Integrated command and control centers (ICCCs), intelligent mobility systems, surveillance networks, civic applications, GIS platforms and data-driven governance. As per the current Ministry of Housing and Urban Affairs (MoHUA) dashboard, a total of approximately 7790 of 8017 projects are completed under the Smart cities mission with an investment of approximately ₹1,57,784 crore. However, this does not necessarily imply or guarantee universal urban experience. This makes it necessary to evaluate the algorithms in few case studies across India.

6.1 Smart City of Pune - Algorithmic assessment of Safety

The smart initiative in Pune is a clear example of how diverse urban data could be converted into an assessment for safe initiative implementation in the city. The Safety Index of Pune incorporates data such as street lighting, surveillance, crime, pedestrian activity, gender diversity and perception of citizens to generate a holistic database for safety. In the process, the system attempts to transform **the idea of safety from a subjective and experiential condition into a measurable urban indicator.**

6.2 Smart City of Indore - Algorithmic assessment of Citizen participation and Governance

The ICCC and the 311 platform of Indore are digitally set up for grievance redressal for citizens. The complaints of citizens are geographically mapped and analyzed further to understand recurring patterns of services, concerns and needs of people. In the process, the system highlights a significant limitation - **only those concerns that get reported get visible, whereas the other non-digital ones stay invisible, silent and outside the system.**

6.3 Smart city of Surat: Algorithmic assessment of infrastructure

Surat boasts of an extensive CCTV, traffic monitoring and urban surveillance mechanism enabling continuous observation, real time monitoring and municipal surveillance of urban activity. In the process, the city transforms into a continuously

observed environment, where **urban activity is constantly recorded and monitored, raising questions on privacy, consent, ownership and accountability of data, transparency of surveillance systems etc.**

6.4 Smart city of Bhopal: Algorithmic assessment of Centralized Planning Mechanisms

The ICCC of Bhopal demonstrates an efficient central platform that integrates all the city data. The system compiles together multiple data sources and supports constant monitoring, effective decision making and efficient service delivery. The planning mechanism here raises a fundamental concern of representation of complexities through standardized datasets. **The concern therefore is not just privacy and security here, but how urban realities are represented.**

6.5 Smart city of Jaipur - Algorithmic assessment of Technological Infrastructure

The City of Jaipur presents a critical case of the gaps between provisions of systems and its actual performance. Evaluations of its ICCC have identified multiple concerning challenges like functioning, maintenance and its optimum use. This city demonstrates that **ample provisions of technology alone do not account for effective urban outcomes and performance.**

6.6 Comparative Summary of the Case studies:

Table.1: Comparative analysis of Smart infrastructure across selected smart cities

Smart City	Provision (What has been installed)	Experience(What has been recorded)
Pune	The Safetipin Safety Audit evaluates 9 parameters: Lighting, Openness, Visibility, Crowd/ People, Security, Walkpath, Public Transport, Gender Diversity and Feeling (Safetipin, 2021).	Pune's 2019 safety mapping generated 6,632 safety audits , based on 52,280 images covering approximately 650 km of roads (Safetipin, 2021).
Indore	The Indore 311 platform enables citizens to digitally register and track civic complaints through the municipal system (Indore Municipal Corporation, 2024).	The municipal dashboard records 206,288 registered complaints, 71,603 closed complaints and 316 pending complaints (Indore Municipal Corporation, 2024).
Surat	Surat has 4,300 CCTV cameras: 3,500 operated by SMC and 800 by the police. The ICCC operates 24/7 with 80+ personnel, including a dedicated 10-member team for AI-based monitoring (Times of India, 2025).	The AI system identifies at least 3 documented urban conditions: potholes, waterlogging and traffic congestion , generating real-time alerts for municipal action (Times of India, 2025).

Smart City	Provision (What has been installed)	Experience(What has been recorded)
Bhopal	A documented surveillance network comprises 751 CCTV cameras. Of these, 142 newer cameras were installed at city entry/exit points and 332 functioning ITMS cameras were reported under the Smart City initiative (Times of India, 2025).	351 of 751 cameras were non-functional , representing approximately 46.7% of the documented network (Times of India, 2025).
Jaipur	Jaipur has 192 public Wi-Fi hotspots and 16 environmental sensor locations. Smart parking uses real-time occupancy data, while mobility infrastructure includes ANPR, RLVD and surveillance systems (NIUA, 2023).	The environmental sensors capture 13 parameters including temperature, humidity, air pressure, UV radiation, light, rainfall, noise, CO, O ₃ , NO ₂ , SO ₂ , PM2.5 and PM10. Smart parking additionally records real-time parking occupancy and availability (NIUA, 2023).

Source: Author's analysis based on documented evidence cited as sources

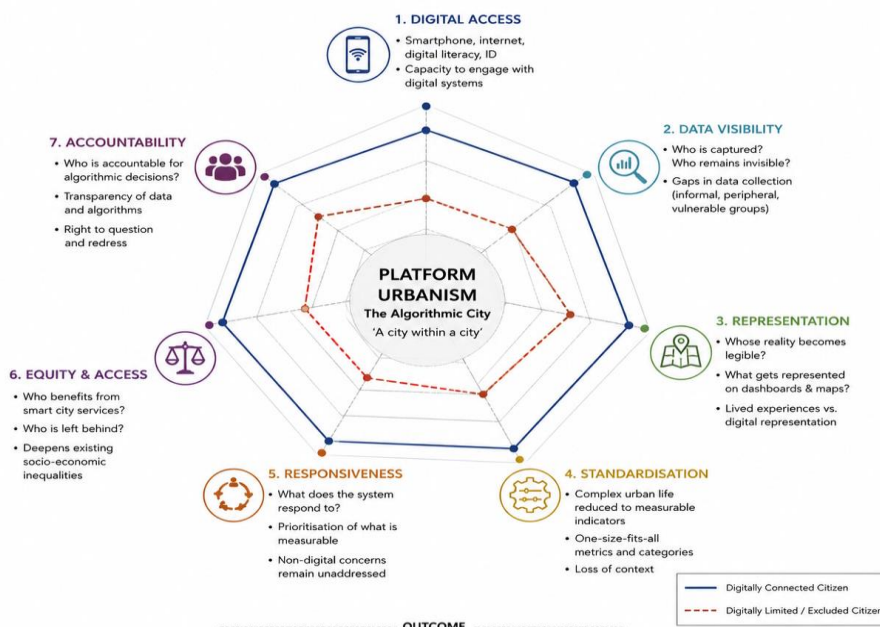
Table.2: Comparative analysis of the algorithms of selected smart cities and resulting implications of urban experience

Smart City	Algorithmic System / Application	Key Algorithmic Concern	Implication for Urban Experience
Pune	Safety Index, surveillance and urban safety datasets	Reduction of experiential conditions into measurable indicators	Safety becomes a data-driven condition, potentially privileging what can be measured over what is experienced
Indore	ICCC + 311 Citizen Grievance Platform	Digital visibility and participation bias	Creates differentiated access to governance; digitally active citizens become more visible to the system
Surat	CCTV, traffic monitoring and surveillance networks	Surveillance, privacy and data ownership	Produces a continuously monitored urban environment and alters the relationship between citizen and city
Bhopal	ICCC and centralized data integration	Standardization and representation bias	Urban complexity is translated into datasets, potentially simplifying or misrepresenting lived urban conditions
Jaipur	ICCC and technological infrastructure	Provision–performance gap	Technological infrastructure does not automatically translate into effective or inclusive urban outcomes

Source: Author's analysis and data

The above cases highlight that algorithmic systems within each Smart City operate through different forms of urban mediation. They extend from the classification of urban conditions to the monitoring, representation and management of urban life. One demonstrates the conversion of safety as an experiential condition into a measurable indicator, while the second boasts of responsiveness in spite of inabilities of non-digital concerns being still invisible. The third discusses surveillance and visibility, the fourth computes standardized data sets to represent complexities of urban experiences and the final one highlights gaps between provision and performance. All smart city cases **work on the assumption of a digitally connected urban citizen who possesses access to smart phones, reliable internet connectivity, formal identification, digital literacy and has the economic capacity to engage with technology enabled services**. Distinctions might not exist in all smart city categories, but might be particularly noticed in cities majorly characterized by informality, socio- economic diversity and uneven infrastructure. Low-income communities, elderly groups or any other digitally inexperienced users, peripheral populations are subject to this differentiation even more. **The concern therefore also shifts to the discussion on different capacities to engage with technology**. Moreover, such **algorithmic data may further trigger inequalities as they do not operate on a neutral representation of the city**. Their understanding of conditions is shaped by only **whose data is collected, how it is categorized and what finally is represented** for later planning action.

Fig 3: Differentiated urban experiences of ‘Platform Urbanism’



Source: Author's analysis and data; visual generated using AI tool, 2026

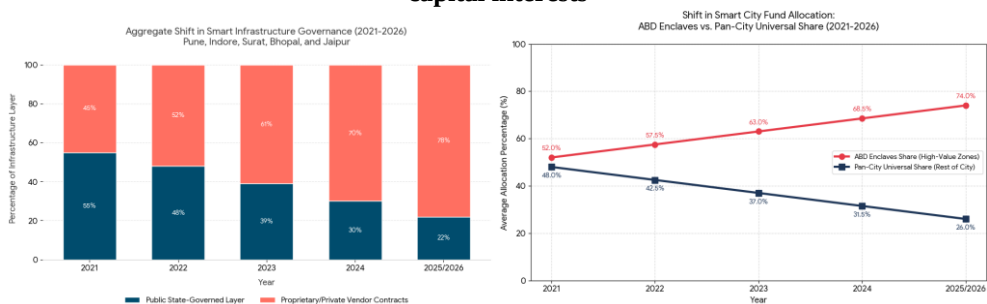
Collectively, the cases suggest that merely the presence of a technical algorithm does not necessarily guarantee an inclusive experience. They actually bring to light **what becomes visible, what is measured, what is represented within the city and how urban decisions are standardized and centered around these**. The resulting condition is one of differentiated urban experience. Some citizens have positive experiences through seamless services, while others continue to navigate and live with fragmented alternatives. Such an overall comparison therefore shifts to questioning equity of distribution and overall accountability, leading to critical concerns of deepening exclusion over inclusion. Platform urbanism therefore creates ‘a city within a city’, where different populations experience different levels of conveniences and its repercussions.

7. THE POLITICS OF POWER AND ECONOMY: GOVERNANCE FRAMEWORK OF SMART CITIES

The conceptual framework of Smart cities cannot be understood in isolation without the study of political and economic forces that drive them. The projection of the Smart City concept as a neutral framework is deeply entangled with capitalist strategies and planning models. They are created with a desire to attract investment, enhance the city as a brand and increase global competitiveness. Governing bodies for Smart Cities often outsource private enterprises to manage and record statistical data for urban management. In this process, technology companies, real estate developers, infrastructure providers and venture capital become important actors in shaping smart infrastructure and creating the digital city. This essentially raises another critical concern of the determinants of smart development; reducing the role of the state in providing services, while increasing reliance on proprietary systems. When such private enterprises govern the delivery of urban services, technology can **no longer be called ‘an instrument of public governance’**.

Next, is understanding the focus of such enterprises. Policy frameworks frequently emphasize investment, funding and efficiency based on profit motives and commercial logic. High value and well-connected areas and areas with strong market potential are prioritized, while the other areas remain marginalized and disconnected from the core areas. In this sense, the geographical locations of these smart city infrastructures **function more in areas prioritizing capital and are less distributed for universal public value**.

Fig 4 & 5: Graphs indicating dominance of Private Governance and prioritization of capital interests

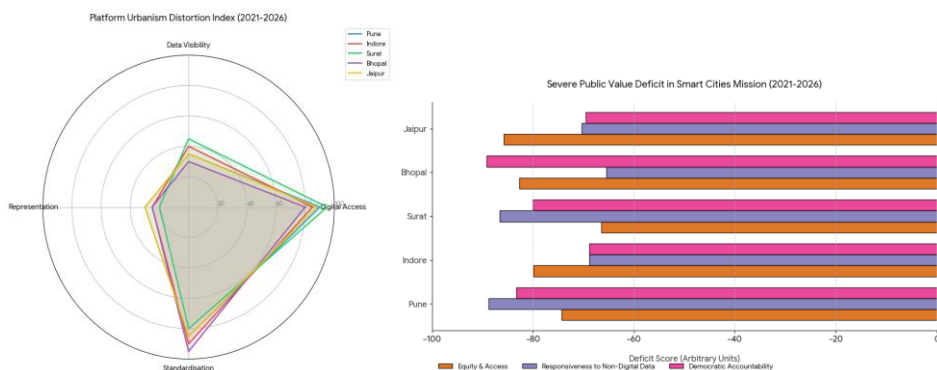


Source: Visual generated using AI tool, 2026 based on author's analysis

Thirdly, these private companies extract data from daily urban activities and monetize it through advertisements for further capital ventures. Within this governing pattern, citizens become producers of urban data, and the urban data, 'a commodity'. In the process, the citizens are completely oblivious of how their data is used, verified and how decisions are made; in turn **technology serves to exercise majorly control, rather than empower citizens.**

Such an intermingling of smart governance frameworks with capitalist motives triggering geographical coverage, economic value, technological access and algorithmic decision making materializes in producing fragmented urban experiences and spatial inequalities. Different populations inhabit different versions of the same city, with varying levels of access, safety and opportunity. Spatial inequality, therefore, is not an accident by- product, but a gradually constructed outcome of platform urbanism. Rather than soothing disparity, the smart city often amplifies them, creating geographies of privilege on one hand, the other, neglect.

Fig 6 & 7: Graphs indicating spatial experiences of citizens in smart cities studied across India



Source: Visual generated using AI tool, 2026 based on author's analysis

8. THEORETICAL PERSPECTIVES ON ACCESS AND RIGHT TO THE CITY

8.1 Henri Lefebvre's 'The Production of Space', (1974)

Henri Lefebvre argues that access is not just getting well equipped with resources but also the ability to participate in and influence the production of urban space. This triggers the thought to push digital platforms to mediate access to mobility, services, commerce, information and governance.

8.2. David Harvey's Right to the City, (2003)

David Harvey in his book 'Right to the City' discusses power, capital and the unequal production of space. He argues that access is not just about availability, it is shaped by controls and capitalistic decision-making processes. The Right to the City, as a normative principle, regardless of income, status or age, therefore extends beyond physical occupation of space to visibility, representation, connection and participation in the realm of urban experience. This expanded understanding provides the base for reconsidering the meaning of access and the need to rethink methods and ways to re-integrate the digital systems into planning for the production of urban space.

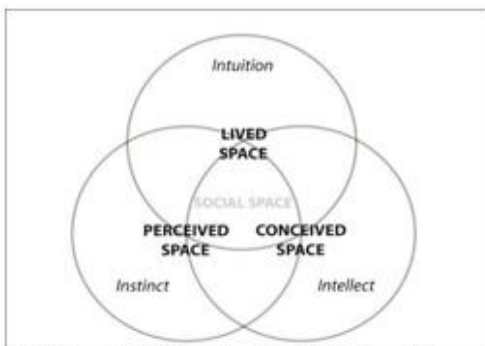


Fig 8: From Social Space to Algorithmic Space, Source: <https://www.researchgate.net/figure/Henri-Lefebvres->

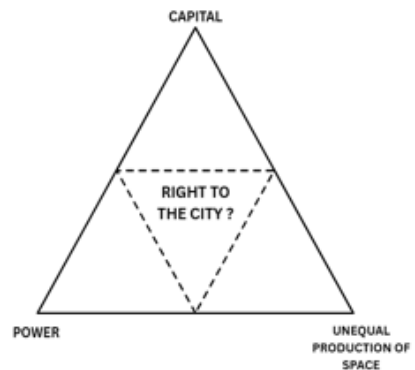
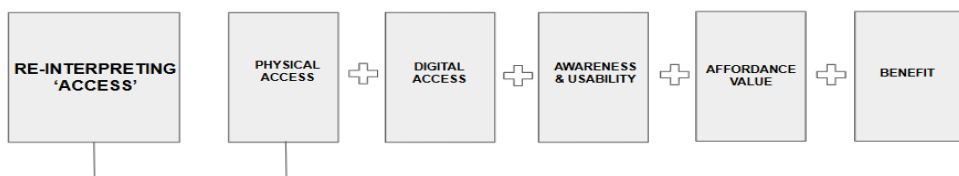


Fig 9: The interrelationship of access & power, Source: Author's analysis and data

8.3. Reconsidering Urban Accessibility: Implications for Urban Planning

Fig 10: Illustration reframing 'access' in the algorithmic city



Source: Author's analysis and data

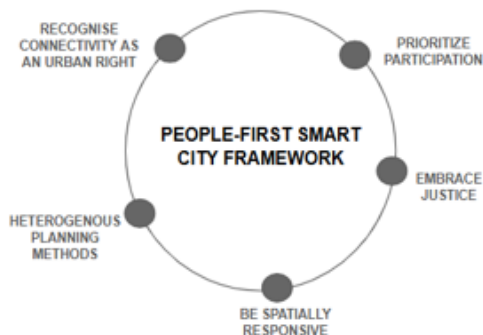
The above discussions demonstrate that access no longer means physical proximity, availability of transportation networks or infrastructure, spatial connectivity, instead it seeks for a broader understanding and definition of access within the context of contemporary urban planning. Accessibility therefore, becomes a cumulative experiential condition that extends beyond physical access to digital access, its awareness, its usability, its affordance value and its benefit. Consequently, the planning paradigm needs to shift from discussing just about the quality of digital infrastructure to the availability and outreach of the digital infrastructure at large.

This calls for new considerations to be made for planning including digital infrastructure accessibility, universal and multi-lingual interfaces, data transparency, algorithmic accountability, equitable geographical coverage etc. In addition, new physical infrastructures such as data centers, logistic facilities, mobility hubs and digitally mediated commercial spaces create new opportunities for architectural intervention. In this venture, the planner not just engages with the physical environments of a city, but also needs to critically analyze the digital environments that give access to it. Technology no longer stays as an independent tool for efficiency, rather would act as an integral component of planning smart cities.

9. TOWARDS AN EQUITABLE URBAN DIGITAL FRAMEWORK

Integral planning of digital infrastructure needs to be reimagined through the lens of equitable digital frameworks. Firstly, it needs to recognize connectivity as a basic urban right, calling for digital access to be universal in nature. However, connectivity goes hand in hand with digital literacy to allow for effective use by the citizens. Secondly, it needs to prioritize participation, the emphasis should be to involve communities in the conceptual, visualization and evaluation of digital frameworks. The systems need to also adopt principles of inclusive design, responding to age differences, language barriers, physical abilities, education level and other levels of technological familiarity. Thirdly, it needs to embrace justice, ensuring transparency, consent and community sovereignty over the data to be collected with strong mechanisms of algorithmic accountability. Lastly, it needs to be spatially responsive, directing innovations equally spread across the entire urban-scape. However, non-digital alternatives should continue to remain available, thereby controlling complete reliance only on the digital system.

Fig 11: Proposed Attributes for the Refined equitable framework for Smart Cities



Source: Author's analysis and data

Rather than assuming the citizens to be digitally fluent, urban planners ought to design for heterogeneity considering varying levels of access, awareness and ability. The objective therefore shifts from tech-based Smart City approach to a people-first Smart City approach, that reconfigures the entire system to serve the needs of many versus a few; where advancement is evaluated purely through its social, and thereby spatial outcomes.

10. DISCUSSIONS: EVALUATING ALGORITHM

IC INCLUSIVITY

The paper brings together critical questions of not just the working of an algorithm, but for whom it works, where it works and under what conditions it works. Algorithmic inclusivity henceforth therefore, needs to be understood by asking the following important questions:

- 1) Who is represented? Who remains invisible?
- 2) Who controls this representation?
- 3) How is it controlled and governed?
- 4) Who benefits from it?
- 5) What outcomes does it produce?

11. CONCLUSION

The study of 'Platform urbanism' in this paper calls for a shift in the way we look at the future of planning digital cities, through the lens of a resilient framework. This does not only mean enhancing capacity to withstand urban disruptions or technical failures but also means the capacity of urban systems to recognize difference, absorb exclusion, correct inequalities in the system and adapt to changing patterns of access. The future of planning smart cities is to not just design spaces but instead to re-examine

and design the systems through which these spaces are accessed, represented and governed - thereby questioning ownership and assumptions of data, distribution of infrastructure and the spatial concentration of benefits.

Ultimately, the future city should not aspire to be just smart with its sophisticated algorithms, but should work towards creating systems that are capable of responding universally and equitably through its ability to preserve choice, access, participation and dignity.

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