

Digital Polis and Urban Commons: Justice Beyond the Gated Community



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1 Introduction

Digital polis, unlike conventional cities, is an urban space and community that operates through digital media, and simultaneously acts as a digital medium, thereby becoming a digital medium (Kim 2021). The digital polis is characterized by urban digitalization, which refers to ‘a change in the technological foundation of a city through artificial intelligence (AI), Internet of Things (IoTs), digital technology, network technology, social media technology’ (Kim 2020b).

The digitalization of cities emerges as ‘platform urbanism’ that recognizes and solves problems related to life and experiences in the city on a digital platform. Urban digitization based on platform urbanism implies a transformation of a city into a type of operating system, which operates based on AI technology, digital network, and IoTs technology, while building the city as a medium. This city occasionally appears as a type of solution machine equipped with hardware or software, which resolves problems by interlocking with various applications. Urban digitization, beyond technical issues, is complexly intertwined with various issues, such as infrastructure, governance, citizen participation, mobility, environment, and quality of life (Kim 2020b). A city is transformed into a giant medium through urban digital transformation, and digital polis is predominantly characterized by the city as a medium. In this respect, urban digitization is to regard the city as a huge medium (Kim 2020b).

The digital polis as a medium inputs and outputs digital and biotechnology information on the body of city dwellers in an existential dimension. In this respect, the

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body is a technological object as a media device, as well as a technological environment that creates the space of a digital polis. The characteristics of the city as a medium of the digital polis are inseparable in the sense that the technologically mediated body becomes a place that creates a digital media space (Kim 2020a). Although this body may be a device in the individual dimension, the body itself is a complex network of society, culture, and environment, coupled with various devices, rather than a single entity (Peters 2015).

The creation and change of space in the digital polis correspond to the degree of vitality according to the connection to the body, and their effects are realized in the environment. If this space is displayed on a digital map, it appears as data containing the topological relationships of the spatial structure and the locations that make up that structure not only as information representation (Kim 2020b).¹ The digital polis appears as a non-Euclidean network of relationships arising from the effect of arrangement, in which urban elements interact regardless of their physical distances.

However, the digital polis as a medium can be alternatively regarded as the future of an automated smart city, which maximizes efficiency with a transhumanist worldview that assures progress and development or the optimism of technocraticism. This construct is a mere repetition of the modern worldview prioritizing growth, also showcasing a strong character of a gated community, which prioritizes safety through ubiquitous governance, as shown in major criticisms of smart cities.

(1) The characteristics of gated community in the digital polis limit the people, who could benefit from the digitalization of the city, and reflects the inequality resulting from dependence on technology.² (2) Smart city presupposes an automated system for optimizing scarce resources. Identification of smart city with digital polis shifts the operation of automated city based on software algorithm codes into an urban application of a safety-oriented demographic governance model under the pretext of controlling urban disasters and risks of that city, raising the possibility of a gated community (Dho 2017). Code governance can lay the foundation for a surveillance society, which utilizes the collection, accumulation, and analysis of data through automation and device platform network, suggesting the possibility of comprehensive monitoring through the smart home type following automated algorithms. (3) As indicated by Marc Andrejevic, the digital polis, as an automated medium, operates in the environment of individual actors to direct the direction of desire as a 'intervening preemption'. The method of preempting the direction of desire can be applied by encouraging the citizens of the digital polis to become an agent, who clicks 'Like' on an opinion-oriented according to an algorithm, rather than an independent being who contemplates.³ Digital polis as a medium converts urban space into a platform, where a place of data extraction prevails over the spatiality and publicness of the city containing differences and diversity. Because a city is necessarily a public place, it becomes a place of social interaction and exchange, a place rich in interactively generated data (Andrejevic 2019). Digital polis can deteriorate into a space to extract and monetize data because it becomes a productive repository of information. In this respect, the futuristic city is occasionally criticized for machine of data collection (Andrejevic 2019).

This study, reexamines the criticism that the digital polis as a medium can become a gated community, and it operates as a place of population-based biopolitical governance, raising the question of ‘how does a city last?’ The purpose of this approach is to seek justice for the digital polis by problem understanding the digital polis as a medium as an environment, and raising it as a commons.

2 Environment of Digital Polis as Medium and Problem of Commons

2.1 *Medium and Digital Polis as Environment*

According to John Durham Peters, one medium encompasses other media, becoming ‘environments that provide habitats for diverse form of life’ and ‘ensembles between elements of natural element and human craft’ (Peters 2015, 3). Digital media are the way data shapes our being, as well as the technology that lies at the heart of human habitation on Earth. In particular, digital devices present media as ‘environmental, as part of the habitat’ (Peters 2015, 4).

Yuk Hui, referring to ‘The Things (Das Ding)’, an essay by Martin Heidegger in 1950 on this environment, describes the environment as things that ‘gathers the fourfolds’ and ‘networks’ as ‘site’, as in the way Heidegger described ‘things as fourfolds (das Geviert)’ (Hui 2016). The environment, as a network, passes through digital technology to create data, which is a digital object that constitutes a new form of givenness. The data are not given as natural and objective facts that preexist, exhibiting situational, partial, and constructive characteristics. In this regard, the digital object of data, the plural form of the Latin word *datum*, meaning given, allow us to inquire about what data conveys, and examine how the new form of the givenness is constituted (Hui 2016).

According to the same study, the digital polis as a medium is an environment that generates data, as well as a digital ‘object’ as the reality of the ‘material relations to technical systems’ (Hui 2016). Digital technology in digital polis, converts everything in the city into data. Because the activities in the city are the source of data, actors create the data surrounding themselves and the data generated during their activities in the environment of the digital polis, in addition to providing data regarding themselves. Actors consume, distribute, and produce data, which are the technological, social, institutional, physical, and symbolic infrastructure of the city. The data collected by the digital polis, in addition to the given, include the acts of human actors and non-human actors, such as fine dusts, climate, weather, air, and water quality, which are registered on the platform under interaction with digital technology.

The environment of digital polis as a medium interlocks with the creation and operation of data, which are digital objects. This raises the following question over the setting of the boundaries in the digital polis. This is an inquiry on the configuration

and setting of the boundary of the infrastructure that operates the digital polis, and an urge that the boundaries of the digital polis should not be set for reproducing the administrative territory alone.

The environment of the digital polis as a medium is a relational reality, which is not based on realism, demanding justice of a digital polis, which moves beyond justice for discussing the problems of resources within the community under the condition of the boundaries of modern territoriality. This demand raises a question over the justice of a digital polis in terms of commons. Then, what is the reason for raising the issue of justice as a commons?

The connection and creation of relationships are important in that the digital polis, as an environment, is a relational reality, in which human and non-human actors and digital technologies interplay. Because the continuation of the digital polis originates from the public spatiality, which induces interaction and interconnection, there is a need for contemplating the commonalities of digital polis through the commons, and examining the meaning of community. In this regard, we put forward the discussion through the example of S-MAP, which can be presented as a commons of the digital polis.

2.2 Limits of Cognition in S-MAP and Digital Commons

S-map, ‘one of the cognition in S-MAP and Digital Commonsonment, Seoul Metropolitan Government, is a three-dimensional map built by replicating the entire 605.23 km² of Seoul, and incorporating it into cyberspace’ (Choi 2021). S-Map compresses a large amount of data into one map, and uploads the model on the site of the same 3D virtual space as the real world for ‘replicating the physical environment’ (Choi 2021), enabling a quantitative analysis on various issues, such as right to a view, solar radiation, wind roads, and skyline. The goal of S-MAP is to reproduce the city of Seoul as it is in a virtual space.

S-MAP is a digital twin of Seoul. In particular, the reproduction of the inner city area implemented by S-MAP shows a high similarity to the physical space of Seoul. In contrast, for the boundaries of administrative districts in Seoul, ‘the visualization of S-Map is achieved by blurring the outmost boundaries of Seoul (2020 data), or darkening them (2019 data) as blind spots’ (Lee 2021). S-MAP presumes a world, in which all the mechanisms of city operation can be supported inside the city without having to establish a relationship with others worlds than Seoul. A digitally ‘reproduced’ Seoul faithfully follows the logic that this city should be one for both ‘Seoulites’ and taxpayers.

However, the infrastructure for Seoul to function as a city is inseparable from its relationship with other regions. Furthermore, the history of administrative boundaries shows that most of the boundaries that make up Seoul have been created by incorporating other places than Seoul. The operation of virtual Seoul pursued by S-MAP cannot be analyzed apart from its relationship with surrounding cities.

The logic of S-MAP representing administrative boundaries is based on the fact that its construction and provision have been funded by taxes of Seoul. This assumes digital commons called S-MAP and the right to use it as shared resources within the administrative boundaries of Seoul. In this respect, the digital commons called S-MAP is understood as a common-pool resource. This recognition corresponds to Elinor Ostrom's discussion on the commons, in which darkening outside the boundaries of Seoul aims to prevent free-riding by excluding potential beneficiaries.

From this perspective, the commons is a resource that can be used by the owner, whose value decreases through use. Commons is described as resources and objects awaiting use. The commons is referred to as 'resources', which implies it is viewed as objects of use and management alone. However, the 'consumption' of commons in urban communities may be a productive act that blurs the line between use and abuse (Kornbderger and Borch 2015). The commons that makes up an urban community depend on the ability of urban actors to use them. Moreover, the commons is also a cultural achievement unlocked by sharing language, knowledge, and images. The commons is inseparable from the community. The commons can be understood as a dynamic social process and product in the historical and socio-cultural context.

The discussion on the Commons, which presumes the S-MAP as a representation of administrative boundaries, may face criticisms as 'a viewpoint that is completely merged into the discourse of "homogeneous geography" that has molded the concepts of the modern territorial state and sovereignty'. From the viewpoint of flat geography, the commons is a possession which can be occupied by anyone. The debate and conflict over the right to the commons are to understand the commons from the perspective of a modern spatial thought based on a Euclidean grid space (Ahn and Yoon 2021).

However, the space where S-MAP operates and functions is that of non-Euclidean creation where data is registered. The function of S-MAP is not limited to the reproduction of real things. As shown in the urban analysis and simulation that S-MAP intends to implement, S-MAP implies the dynamic aspect of data, in which digital technologies and digital entities interact in the digital polis as both medium and environment.

As technical objects, such as S-MAP become materialized, they spotlight some new functions, not limited to part of the design. In the material aspect, they create an environment as they and they are rewritten in the daily life of the users of this technical object, exceeding the purpose of the invention (Hui 2016). The digital polis constitutes digital environment 'together with the sociotechnological artifacts', which are conditions for enabling the digital object, which is the relationship between matter and technology (Hui 2016). Rather, S-MAP requests reconsideration of commons by revealing the limits of cognition on the commons awaiting the use of owners.

3 Rethinking the Commons: Atmosphere, Foams, and Commons

Understanding the commons as a resource is limited, which is not suitable for thinking about the commons of the digital polis. The interest of this article lies in rethinking the commons by examining the discussion of Peter Sloterdijk, who raised the issue of boundary setting and composition of the commons from the perspective of the atmosphere.

Sloterdijk analyzes the atmosphere and the city in *Foams*, the last part of a trilogy of ‘sphere’ studies regarding being and space, published from 1998 to 2004. Unlike David Harvey, who understood the atmosphere as a common resource open to all (2013), Sloterdijk describes it as a closed form acting as a technology. According to Sloterdijk, the atmosphere as an environment, works through different types of atmospheric design techniques, producing certain political effects on the occupants of the space. Sloterdijk particularly explores which atmospheric design techniques are being introduced, witnessing the impact of atmospheric architecture on community building (Kornbderger and Borch 2015).

The atmospheric design analysis was devoted mainly to the atmospheric architecture that appeared in the war. Sloterdijk analyzes the war technology that the German army built in 1915 to target the air with which the French army breathes, and the gas chambers of the camps used as a method of genocide during the Second World War (Sloterdijk 2016). In addition, Sloterdijk laid emphasis on the biopolitics that governs the population, examining the genealogy of atmospheric design to control air-breathing urban populations with atmospheric conditioning technology.

In *Security, Territory, Population* (part of a lecture series at the Collège de France 1977–78), Michel Foucault analyzes biopolitical technology which is utilized to govern the human population as a species through the action of the environment by transforming urban space to create the environment and organize the organization (Foucault 2007). Sloterdijk, in line with this discussion by Foucault, examines atmospheric design in the city, noting that technologies, such as air conditioners, thermostats, and air sterilization, which build atmospheric conditions, have evolved with the development of metropolis, and they are the technique of dividing and governing a living population (Kornbderger and Borch 2015). This atmospheric design is the way technology rearranges the atmosphere as an environment, presenting that technology and environment are aligned in an inseparable interrelationship.

Atmosphere passing through atmospheric design techniques is not a single holistic one. Regarding this matter, Sloterdijk utilizes the concept of foams to describe atmospheres spatialized with various foams from micro to macro scales.⁴ According to Sloterdijk, “‘life’ has a boundlessly manifold space-forming effect’ (Sloterdijk 2016). He defines life as foam ‘non-metaphysically and non-holistically’ (Sloterdijk 2016). Life is foam. A foam is a type of monad, and all beings that exist within foams hold an impenetrable space. As a location of spatial composition, the individual foam builds the individual environment, and concurrently, it exists surrounded by other foams. Individual foams are intertwined with different types of foams within

their environment.⁵ A foam is always adjacent to another foam while being cut off from the outside by a barrier. Barriers for foams range from symbols of language, culture, and customs through architectural features, such as walls, gates, roads, and fences, to digital technology media. The barrier of foams demarcates the boundaries of existence, serving as an interface in terms of a boundary shared with other adjacent foams (Sloterdijk 2016). Although foams, due to their characteristics, are present with the surrounding foams, foams hold fragile vulnerability along with a respective paradoxical interior that is interconnected in an impenetrable state. Each foam is a plurality of spaces that cannot be integrated or separated, and the process of building these foams is unstable, flowing, and fluctuating. The union of these foams constitutes a network of interactions based on the principle of common segregation holding spatial pluralities and power pluralities (Sloterdijk 2016).⁶

Sloterdijk describes the various atmospheres through foams, and presents the city as a 'foam city', a network of foams. He proposes that a city is a spatial complex constructed depending on the relationship and density of foams. Sloterdijk, referring to the history of urban architecture in the twentieth century, describes that the importance of breathing in urban spaces had been spotlighted and the atmospheric and climate issues had emerged in Europe in the 1990s, and accordingly, atmospheric design and climate technology have been gaining momentum. Atmospheric design is also the architecture of a foam city coupled with technology. In this respect, a city is a 'polyatmospheric' city to Sloterdijk.

In the foam city, monistic and real boundaries of the city, which unite the multiple atmospheres, and homogeneous atmospheric commons cannot be established (Sloterdijk 2016). The amenity of contemporary urban space is decorated with planterior, and this space provides no feeling or sensation about any change in the air by installing air conditioning and heating equipment, and controlling temperature and humidity to eliminate the outside weather. However, the atmosphere, in which this facility is in operation, functions with the outdoor unit of the air conditioner. The atmosphere in the moving helmet, which connects cities disconnected by the pandemic, is different from that in the kitchen where the catering workers work without the ventilation system. This demonstrates that the atmospheres of cities are diverse and microscopic, varying in size and composition, beyond the fact that not all atmospheres are equal.

In the city of many atmospherics and foams, atmospheric commons are created through communing, rather than preexisting. In the communing of atmospheric commons, atmospheric design is a technique that intervenes in the creation of foams, which are both interfaces and barriers, as well as an actor involved in communing. This can be understood in the context of Bruno Latour's actor-network theory, which defines technology itself as an actor in society. According to Latour, technologies, like humans, are non-human actants that bring about changes in society (Latour 2005). Technology creates relationships characterized by the fluidity of expansion and change, and no effect, usage, and meaning of technologies are predetermined. Communing, which creates and demarcates commons, follows an actor-network in association with human actors, as well as technologies as non-human actors. Communing is 'the connections' of 'human, unhuman, nonhuman, inhuman' actors

(Latour 1996). Both different human beings and non-humans coexist in a heterogeneous network implementing communing, further accompanied by the process of redefining their own characteristics (Latour 1996). The actors, who implement communing, are not limited to the existing commons; commoners are also formed during the creation of commons, which includes actors other than human beings (Kornbderger and Borch 2015).

Sloterdijk's discussion on foam city and atmospheric design presents the aspect of commons as a meta-collector, as well as its composition of commons in a multi-species microscopic foam coalition with urban actors (Kornbderger and Borch 2015). This has the implications of proposing an urban space, in which various actors are deeply intertwined, as a place for commoning as well as a zone for creating commoners as a collective actor-network constituting the boundaries of the commons.

4 Conclusion: Justice of Digital Polis Beyond Gated Community

In the digital polis, which is a relational reality, the creation and operation of data, which are digital objects, and the complex connection of networks interworking with them is essential for the continuation of the digital polis. However, the gated community by setting closed boundaries weakens the power of relational reality as a connection, and the influence of interaction. As the values of diversity and tolerance in the digital city fall due to digital enclosures and digital divides, the capacity for difference, retained by the city, the source of data creation, decreases, and the commons of the digital polis emerges as a resource, which emphasizes ownership and profitability. In this respect, commons appears in a form of 'gated' information commons that appropriates the meaning of accessibility to information through commercialization and patent rights, or in the form of commons that manufactures products (Federici et al. 2020).

As aforementioned, Sloterdijk's discussion on atmospheric design and 'many atmosphere' city, describes digital technology as the commoner, which is an actor that constitutes the boundaries of the commons, and the digital polis as the media environment as a place implementing commoning. Furthermore, the commons of the digital polis can be understood as a union of microscopic commons, as well as a macroscopic form with a single boundary. The emphasis regarding the meaning of the commons through this discussion should be placed on the implementation of commoning, which corresponds to 'togetherness' allocating and creating collective actors.

Then, where does the commoning in the digital polis take place? The places for creating microscopic commons, witnessed by this study, are the border zone essential for the operation of the digital polis, and the network connected with the infrastructure outside the physical boundary. In the border zone, there are networks,

such as water supply and sewage networks, electricity networks, gas networks, cable networks, military networks, and subways, which connect the separated administrative boundaries, and operate the digital polis. As shown in the case of the Gimpo Goldline, the subway between Gimpo and Seoul is a transportation network that compresses the time and space of cities, as well as the environment of the digital polis, which is an unmanned network device, equipped with a train control and monitoring system, transmitting and receiving train information data to and from the control center using data communication technology. Although industrial zones, in addition to border zone, that collect carbon and release it into the atmosphere are infrastructures outside the boundaries, which are physically distant from the digital polis, they are essential for the maintenance and continuation of the digital polis. This is not only because this infrastructure is the energy source that enables the digital polis to operate, but also because the use and emissions of carbon are provided in the data format, and carbon credits are traded as products in the online market through the emission trading system.

The transition of the digital polis into the gated community presents the commons with the purpose of generating profits by developing resources from the boundary zones while removing the conditions of the digital polis that is interlocked through a network connection in the border zone or outside the boundaries. Moreover, according to the empowerment justice proposed by Iris Marion Young, which includes actions and decision-making, as well as the provision of means to develop and exercise capacity (Young 2011), the transition into the gated community is close to injustice, which undermines the capacity of members in the community by preventing the relationship, openness, and accessibility of the digital polis.

In the digital polis primarily creates space in a manner that is independent of physical distance or Euclidean space. A digital polis that implements the commoning that increases the capacity of relational reality, cannot exist separately from outside the city boundaries, and it can be maintained through connection transcending the boundaries, such as myself and others, inside and outside, culture and nature, and metropolis and local areas. This respect the meaning of digital polis as a relational reality can be found in coexistence and symbiosis, rather than exploitation or utilization. Furthermore, the justice of a digital polis could be founded in its sustainability. Sustainability is secured through the proliferation of relationship connected to otherness, lying in promoted connections and created differences, as well as responsibilities connected to the future.⁷ The commons in the digital polis that seeks this sustainability as justice, expands the concept of commons proposed by Anna Tsing, leading to the creation of communing capacity for 'latent commons' (Tsing 2015), which is a reciprocal and non-hostile 'entanglement'. In this respect, the boundaries of the commons should be derived to contemplate the entanglement with technology, which is an 'artificial device generating meanings' through a commoner (Haraway 2004).

Notes

1. The space of the digital polis functions as an interface dimension, contactable for interfaces between objects and objects or between humans and objects.
2. The discussion about the gated community is based mainly on Mike Davis, *City of quartz: Excavating the future in Los Angeles*, Verso, 1990, and Edward Soja, *Postmetropolis 2: Six Discourses on Postmetropolis* (translated by Hyun-jae Lee et al.), Seoul: Raum, 2019.
3. Data can be utilized to create a profile after extracting the patterns of individuals. The personal information extracted in this manner can be used to predict their behaviors or desires.
4. Sloterdijk's works were influenced by Martin Heidegger's philosophy of existence, time, and technology.
5. This was Influenced by Heidegger's concept of *Dasein*.
6. Sloterdijk also understands society under the concept of foams, describing it as an 'asymmetrical union of foams' and a 'fluid and hybrid', rather than conceiving of it as an organic whole with homogeneous continuity. (Sloterdijk 54).
7. The discussion on the ethics of sustainability was written in reference to Braidotti (2006, 206–209).

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