

5 Deepening the City-Region Gap in 21st Century Japan

Smart Cities as a Tool to Achieve Administrative Neoliberalisation

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1. Introduction

In 21st-century Japan, a renewed emphasis is put on the need to develop the digital and infrastructure sectors as the country grapples with a demographic crisis and regional competition. In 2022, the Liberal Democratic Party (LDP)-led Cabinet under Prime Minister Fumio Kishida, for instance, launched a Digital Garden City Nation (DGCN) plan aiming to spur “bottom-up growth” through massive public and private investments in the modernisation of both urban and rural areas through the creation of a plethora of smart cities (Kishida, 2022). Tokyo officially defines a smart city as “a sustainable city or region”¹ where information and communication technologies (ICT) implementation allows the upgrade of local management, the resolution of local issues, and the continuous generation of new values, and hence, “a place for the prompt materialisation of the Society 5.0” (Cabinet Secretariat, 2023, p. 10).² This was to set forth on and reinforce his predecessors’ path. Particularly, during the late period of his long term as Japan’s Prime Minister (2012–2020), Shinzō Abe made great efforts to promote the idea of “Society 5.0”, or a “society based on future technologies”,³ where ICT and artificial intelligence (AI)-based solutions (drones, robots, etc.) are implemented in various sectors such as agriculture, manufacturing, service, and logistics, to foster rural revitalisation and contribute to the locales’ own self-reliance in region-wide “Circulating and Ecological” economies (Sokołowski, 2021b; Tokunaga and Shimobe, 2021). The post-Abe Suga administration added decarbonisation as a discursive layer. DGCN promises that its successful implementation would eventually lead Japan to meet its ambitious decarbonisation targets – 46% reduction of greenhouse gas (GHG) emissions from the 2013 levels and complete carbon neutrality by 2050 – and improve the nation’s quality of life (QOL).

Hence, there is an insistence on smart cities, particularly in the energy and mobility sectors, as a key component of the Society 5.0 strategy. If, on the one hand, the central government sets the agenda at the national level, then on the other, local governments⁴ are responsible for drafting proposals, gathering finances, and implementing specific projects addressing major issues at the

local level (e.g. energy production, supply, efficiency, depopulation). In this context, we intend to address the following research questions: why has an increasing number of local administrations throughout Japan resorted to the smart city concept, broadly defined, to promote environmental sustainability, energy efficiency, and urban renovation, and to attract investments and visitors thus enhancing place branding?

Taking a multi-level perspective, in this chapter we aim at clarifying the role of multiple actors involved in a complex “sociotechnical network” underlying the current emphasis on smart cities as a policy idea in Japan. Our main hypothesis is that the structural reforms of the 1990s and 2000s have succeeded in encouraging communities to support themselves, reducing their dependence on the central government’s financial transfers. To support our argument, we proceeded with a careful mapping of the smart city initiatives and frameworks in Japan in the last decade by adopting the Urban Employment Area (UEA) framework developed by Kanemoto and Tokuoka (2002). Our results show that several localities have increased their influence and power vis-à-vis Tokyo and prefectural governments. In fact, we argue that in this wave of neoliberalisation of local governance, only where a certain degree of resources already existed (mainly in urban areas), have local administrations maintained and expanded their power vis-à-vis the central government. By contrast, particularly in non-urban areas, *jichitai* are struggling to stay afloat, even though they resort to smart city policies. In the following sections, we will proceed first to illustrate our theoretical and analytical framework.

2. Theoretical and Analytical Framework

The dominant narrative on smart cities as a place where citizens can achieve happiness and well-being in so far as they have access to a wide array of ICT-based services or automation of urban processes has so far proven far-fetched and at times misleading (Greenfield, 2017; Gonella, 2019). Adopting a sociological view on technology, it is clear that “technology has no power of itself (. . .) but “[o]nly in association with human agency, social structures and organisations, fulfil its functions” (Geels, 2002). In other words, technologies become embedded in routines, patterns of behaviour, regulations, and so on, becoming themselves actors (though non-human) in a wide network of interactions (Latour, 1990).

To borrow again from Geels (2002), smart cities, interpreted as ICT-based residential communities, are not just an assemblage of innovation applied to urban life. Rather, they are at the centre of specific “sociotechnical configuration(s)”, institutionalised in a locally specific manner. In fact, the strive for city liveability and resilience calls into question several intertwined issues that need to be addressed systematically and from a multi-level perspective. In their seminal edited book, Sokołowski and Visvizi (2023) offer an in-depth discussion of the challenges and opportunities surrounding energy

communities, i.e. cooperative and citizen-centred forms of energy production and distribution expedited by advanced technology, are increasingly playing in the definition of smart cities around the globe. In fact, the development of energy communities is a key element of a “socio-environmental transition” towards more democratic and citizen-centred urban models, or towards an “extension of the ‘autonomy’ of urban agents in a system of organised complexity” (De Franco *et al.*, 2023, p. 20). Nonetheless, particularly in the Japanese context, smart city planning, in spite of its energy focus, has emerged since the mid-2000 as an item in the administrative and regulatory strategies of both central and local governments that have ended up suffocating more radical self-governance and autonomy drives while supporting the neoliberal turn of local governance since the mid-1990s and early 2000s. Following Morozov and Bria (2018), we define neoliberalisation as a tendency towards “decentralised governance” enabled through specific mechanisms and technologies, such as the adoption of rankings measuring city competitiveness or indebtedness based on which investors decide whether to invest in one place or not; the integration of audit mechanisms into local governance and the increasing importance of data collecting, analysing and processing; the emergence of a speculative logic underpinning infrastructure construction and maintenance (Morozov and Bria, 2018, pp. 8–12).

In this light, smart cities are construed as places where the use of ICT makes urban activities more efficient and sustainable economically, socially, and environmentally; this has gradually emerged as a leading policy idea embodying a technology-based one-fit-all solution to urban problems in advanced economies (Gonella, 2019). In the sociotechnical configuration framework, when a smart city is materialised, technical upgrades of city management are accompanied by social innovations. Here, social innovation is understood as the alteration of practices, which occurs due to newly generated values via access to new information, technologies, ideas, and services (Baron *et al.*, 2018). This points to institutional changes centred on the redefinition of historically constituted, locally specific structures of moral responsibilities, through which agents regulate and enact practical judgements.

Accordingly, the materialisation of smart innovation is understood in three stages. First, it can occur in terms of the introduction of technological solutions to increase the efficiency and productivity of public management. It can be adopted within a limited timeframe for the purpose of technical experiments and/or for a longer term as a part of the governance process. This stage can involve the digital upgrade of existing operations. In fact, most urban infrastructural projects do *smartify* the existing operation but do not necessarily accompany changes in terms of socio-political configuration as well as the citizens’ livelihood.

Second, through access to new technology, a redefinition of the roles held by public authorities, private businesses, and the civil society in local

governance may occur. In the process of smart city building, public bodies must rely more or less on private partnerships to compensate for the lack of expertise in implementing technological- and digital-infrastructure and data-oriented solutions (Voorwinden, 2021). The new configuration of stakeholders may trigger a redefinition of moral boundaries of democratic governing responsibilities, which is reflected in and represented by the innovativeness of local smart city planning.

Third, the new digitally informed advanced technologies can reshape the existing workings of public management (e.g. waste, mobility, administrative management) as a whole. This leads to the establishment of a new way of regulating and monitoring practices. Indeed, this stage exerts concrete impacts on citizens by altering daily operations in a smarter way. Existing studies on Japanese smart cities take into consideration smart city prototypes widely publicised by Japanese authorities, such as Aizuwakamatsu and Kitakyūshū (DeWit, 2014; Trencher, 2019; Sakuma *et al.*, 2021). In this sense, it is possible to identify technocratic tendencies when it comes to smart city planning and development (Zappa, 2020). From the standpoint of the three stages of smart innovation materialisation elucidated above, these cases are however exemplary of the first stage only (see Table 5.1).

Through our study, we demonstrate that, by contrast, less publicised cases, particularly from remote areas, some of which have been visited by one of the authors of this chapter, vividly show the accomplishment of the second stage of smart innovation in terms of structural administrative change towards the materialisation of “Society 5.0” proposed by the Government of Japan. In the following sections, we discuss how structural reforms since the early 2000s have changed (or at least attempted to do so) local governance and how the smart city policy idea comes into play in this context promoting the neoliberalisation of local governance.

Table 5.1 The stages of smart innovation materialisation

Stage	Policy	Aim	Duration
First	State-led technological infrastructure upgrade	Operation optimisation	Short term; experimental
Second	Subcontracting use of infrastructure, public-private partnerships (PPPs)	Compensation for lack of expertise	Mid- to long term; may lead to redefinition of roles within governance
Third	Extension of technological application to various public services	Comprehensive public sector reform	Long term; modifications to citizen's daily lives

3. A Managerial Approach to Local Governance: Decentralisation and the Role of *Jichitai*

In this section, we focus on the Government of Japan's and local governments' initiatives between the 2010s and 2020s. Particularly, Tokyo's reform initiatives towards administrative decentralisation and the role of local governments will be discussed.

Following Hajer's analytical framework (Hajer, 2005), it is possible to historically situate the emergence of a "discourse coalition", that is a group of actors sharing a common definition for what was, and still is, a rather broad and opaque phenomenon. Several factors, both contingent and structural, might be pointed out as contributing to the historical emergence of said discourse coalition in Japan's political realm.

First, the smart city concept drew nationwide attention in the aftermath of the 11 March 2011 triple disaster of Northeastern Japan (3/11) which forced the Government of Japan to adopt specific policies aimed at enhancing the resilience of both urban and rural communities particularly in terms of energy generation and distribution (Sokołowski, 2022, p. 197). Damages and disruptions caused by the 3/11, in fact, highlighted the vulnerability of Japan's regionalised energy generation and supply infrastructure and pushed policymakers to find new solutions to decade-long problems (Zappa, 2020, pp. 198–199).

On top of disaster resilience, energy conservation and self-sufficiency has been a long-term target of the Government of Japan since the oil crises in the mid- and late 1970s. In light of these external shocks, Tokyo launched two national programmes (the Sunshine Program and the Moonlight Program) aimed at fostering public–private cooperation in the energy sector to find feasible alternatives to oil, stressing the importance of the development of new technologies that allow better energy efficiency and conservation (Kimura, 2009). Japanese authorities also drafted specific legislation, namely the 1979 Act on Rationalisation of Energy Use⁵ which required 90% of business operators at that time to reduce their use of fossil-derived fuels (mainly oil, gas and coal) by 1% and, more significantly, introduced minimum energy performance standards for vehicles, appliances, and buildings (Sokołowski, 2022, pp. 189–190). Building on this foundation, amidst growing concern surrounding the effects on Japan's ecosystems and populace of climate change and global warming, post-bubble Heisei Era cabinets in the 1990s and early 2000s took steps to further promote cuts to GHG emissions and environmental energy efficiency standards. In 2005, Tokyo adopted a Kyoto Protocol Target Achievement Plan to achieve a 6% reduction of GHG emissions as agreed during the 1997 COP3 in Kyoto (Deguchi, 2020). It is noteworthy that Aichi Expo in the same year centred around the relation between humans and nature, and served both as a display of and catalyst to Japanese innovations in domains such as energy and mobility through the use of renewable energy sources, such as solar, biogas, and hydrogen (Zappa, 2020, p. 201).

Lastly, the realisation of smart city initiatives is integral to the process of *administrative decentralisation* begun in the early 2000s with the structural reforms promoted by the then Prime Minister Junichirō Koizumi. Centred on the so-called trinity,⁶ Koizumi's plan envisaged a reduction of and, where possible, a complete halt to central government subsidies to local governments, the promotion of tax income transfer, and a sweeping revision of the taxes allocated to local governments.

Despite the reforms being generally considered to have fallen short of their targets (Niimura, 2018, p. 101), several administrative procedures, such as central government approval in the relevant area of city planning, have been curtailed resulting in the transfer of more responsibilities to local assemblies. At the same time, these initiatives have not properly made up for the growing demand of financial resources caused by a partial devolution of powers, spurring, if anything, a drive towards inter-prefectural competition for resource attraction.

From a neoliberal perspective, the obvious long-term aim of these reforms was to disenfranchise local administrations from their dependence on financial transfers from the central government through a broader engagement with the private sector and external funding entities. Concomitantly, through audit and evaluation mechanisms, it created a classification and reward system for virtuous local governments adhering to the Government of Japan's guidelines in any relevant policy sector.

The Constitution of Japan in Articles 92–94 recognise the principle of local autonomy, the right for citizens to elect their prefecture governor democratically, and give the local governments the power to manage properties, affairs, and administration and to enact their own regulation within the law. With the enactment of the structural reforms, in addition to the above, local governments were entrusted with the capacity to write and submit funding proposals to the central government within a certain funding framework. To guarantee the success of the application, project proposals need to be carved along standards that are defined by the central government, and particularly by the Cabinet Secretariat, which oversees and monitors the government's initiatives in the area of regional revitalisation.

This model of decentralised governance has become embedded in the subsequent subsidy schemes devised by the Government of Japan to push ahead its local revitalisation plans before and after 3/11. In 2008, for instance, the Fukuda's administration launched its Environmental Model City Plan encouraging local administrations to take concrete actions locally to cut carbon emissions in exchange for the government's designation as "environmental model cities"⁷ and material and financial support to the technological transition for GHG emission reduction (Sugiyama and Takeuchi, 2008, pp. 428–429; Zappa, 2020, p. 201).

Since 2014, with the entering into force of the City, People, Job Creation Law (Government of Japan, 2014),⁸ the Government of Japan has stepped up its efforts to promote local economic development and revitalisation

drafting successive medium-term comprehensive strategies⁹ that it expects to be reflected in single local authorities' growth plans.¹⁰ At the core of these instructions was the urge to spur "local Abenomics",¹¹ to promote innovation, place branding, and the productivity of local services through a mix of financial, educational, and informational support, with the ambitious aim to "create a new inflow of people in the regions" (Jichitai Tsūshin Online, 2020).¹²

Once submitted, plans and strategies of *jichitai* are assessed and monitored by ad hoc expert committees (Morita *et al.*, 2020). To facilitate the evaluation and monitoring procedure, standard managerial tools and concepts such as the plan-do-check-act (PDCA) cycle are adopted to stress the individual project's strengths and weaknesses and are used to promote continuous improvement¹³ of the performance at the local level. This, in turn, is the subject of a series of key performance indicators representing the specificities of individual projects or local contingencies (Jichitai Tsūshin Online, 2020).

Considering the above, the Cabinet Secretariat provides guidelines and manuals through its website, thus providing support and counselling to local administrators throughout the submission process. For instance, local governments are encouraged to create their own networks across sectors of society and beyond prefectural and regional boundaries. In one of such guides compiled by the Cabinet Secretariat City, People, and Job Creation Bureau, local administrators are urged to engage with external experts and young people in the deliberative phase and to benchmark with other local administrations (Cabinet Secretariat *et al.*, 2021).

In this context, we cannot avoid submitting the hypothesis that urban areas, having access to a broader pool of resources (particularly in terms of financial reserves, possibility to attract private capitals and highly skilled labour) have benefitted the most, attracting new flows of people and capital from both Japan and abroad (Nakazawa, 2014). In the attempt to reduce the urban-rural divide, the Government of Japan has increasingly resorted to promoting ICT utilisation for the improvement of the QOL launching subsidy schemes and public awareness initiatives revolving around the concept of the smart city. Against the backdrop of a sluggish pace of installation of optical fibre and 5G in remote areas, the cabinets of both Suga and Kishida have stepped up their efforts in promoting digitalisation and infrastructure modernisation.

Excluding a few notable exceptions,¹⁴ Japanese smart cities have emerged as *brownfield* projects; that is, they are village or neighbourhood community-wide model areas within larger regions or urban areas usually functioning as a showcase for technological advance in a wide array of sectors (housing, mobility, energy, agriculture, etc.) vis-à-vis domestic or international visitors. In other words, Japanese smart cities are mostly experimental in nature, though comprehensive platforms built to respond to a wide array of issues, ranging from energy to demographic decline, have emerged (Barrett *et al.*, 2021).

Certainly, until 3/11 environmental and energy issues have served as the dominant framework within which policy could be articulated. However,

the importance of other issues, such as disaster preparedness, traffic reduction, and waste management, shall not be overlooked. Under the second Abe administration (2012–2020), for instance, such efforts have been expanded under the banner of the “Society 5.0”. Since the mid-2010s, “microgrids”, i.e. local self-sufficient electric power networks supported by small-scale power generators (usually photovoltaic), storage units, and ICT-based energy management systems (smart metres, home energy management systems [HEMS], etc.) allowing for energy efficiency and CO₂ reduction have emerged as the dominant form of smart city in Japan. Their success can be described as follows: on the one hand, they are central to the promotion of local innovation and disaster preparedness,¹⁵ while on the other hand, they could fit into the Government of Japan’s regional revitalisation targets.

Large companies such as Panasonic and Toyota have been directly engaged in the establishment of the so-called smart communities based on the aforementioned microgrids. The Fujisawa Sustainable and Smart Town (Kanagawa Prefecture) is a notable example. With a cluster of two- to three-story “smart” housing units with photovoltaic panels installed on the roof, surplus energy storage facilities (usually solid oxide fuel cell batteries), electric vehicles’ charging facilities, HEMS, and energy data management system connected to the Internet, built on a former Panasonic plant, it is almost entirely powered by renewable energy sources (70% of the total energy demand) and has reduced CO₂ emissions, ensuring energy reserves in case of power outages.

More recently, community-led smart communities have emerged (Sokołowski and Visvizi, 2023). Flagged as a successful revitalisation project by the Ministry of Economy, Trade and Industry (METI), that of Naraha, a small town affected by restrictions on residency after the 2011 Fukushima Dai-ichi nuclear accident, is an elucidatory case. The smart community management features a community energy management system enabling the mutual supply of surplus energy between commercial and disaster public housing facilities built after the 2015 lift of the residency ban and its management is entrusted to a local incorporated association,¹⁶ Naraha Mirai, on behalf of the city government (Naraha Mirai, n.d.). At present, 40% of the total energy supply is locally generated by solar panels installed on buildings and its goal to become energy self-sufficient and carbon neutral by 2030. Similar projects have been initiated in nearby communities, such as Soma and Namie (Shigen enerugī shō, 2022).

To generalise, from the *jichitai* perspective, establishing a smart city model area proves one local administration’s commitment to a certain set of values and ideas reflected in the central government’s guidelines. At the local level, it serves as a locus where a common international framework is articulated locally, thus offering a cohesive leverage for local governments facing issues such as depopulation and slow economic growth, to increase their image and attract new residents.

Besides the energy domain, there are more than a hundred smart city projects broadly categorised as eco-cities,¹⁷ transit-oriented development

areas,¹⁸ and resilient cities.¹⁹ By enhancing ICT, particularly the Internet of Things, big data, vehicle automation, car sharing service (mobility as a service, MaaS), and biometrics-based services (such as automatic remote bus-fare payments), each smart city project aims at the resolution of a specific issue. In addition, the Government of Japan has identified 30 “super cities” where intersecting issues are addressed in a more comprehensive manner, primarily through efficient data management (Prime Minister’s Office of Japan, 2020).

On top of these initiatives, in the last decade, the Sustainable Development Goals (SDGs) framework has been actively promoted and widely adopted as a way to implement policy innovation and place identity and accountability on the part of the local governments. Thus, the Japanese government has designated more than 200 administrations as SDGs Model Cities²⁰ and Local Governments’ SDGs Model Projects²¹ (Cabinet Secretariat, Regional Revitalisation Bureau, 2020).

In light of the decentralisation trends described above, Tokyo’s recent push on building a “Society 5.0”, or a “society based on future technologies”, where ICT and AI-based solutions (drones, robots, etc.) are implemented in various sectors such as agriculture, manufacturing, service and logistics to foster rural revitalisation (Tokunaga and Shimobe, 2021) or enhance local energy transition (Sokołowski, 2021a, 2021b) can be considered, in fact, as a part of the long-term plan to materialise decentralisation.

4. Mapping Japanese Smart Cities: Neoliberal Decentralisation at Work and the Unsolved Urban-Rural Divide

In order to examine the above-mentioned phenomena, we set out to compile a smart city project dataset based on available data highlighting the scale of individual projects. For the purpose of analysis, data from 468 projects, which were financed with national subsidies to achieve Society 5.0 between FY2017 and FY2023, were collected. As indicated above, the Government of Japan officially describes a smart city as a sort of experimental site for the materialisation of Society 5.0. In this sense, the listed projects can be considered Japanese smart city projects. The list and the number of projects are provided in Table 5.2.

Before proceeding to the analysis, we will briefly clarify the sampling method. First, the timeframe was set between fiscal years 2017 and 2023.²² Fiscal year 2017 marked the first year that the idea of Society 5.0 started to be mentioned in the policy sphere of regional revitalisation, while the latter is the year for which the most recent data is available. Second, this list only includes the smart city projects that proceed by taking advantage of municipalities’ legal responsibility for city planning. Although they are in the minority, some well-known Japanese smart city projects that are exclusively led by stakeholders from the private sector, such as Toyota’s Woven City, have been omitted from the data for our analytical purposes.

Table 5.2 Smart city projects in Japan (2017–2023)

Ministry in charge	Schemes	Sub schemes	Budget 2023 (2022)	2017	2018	2019	2020	2021	2022	Total number of projects
CAO	Digital Garden City Nation subsidy	Regional vitalisation society 5.0	120,000 (100,000) million				13	6	8	27
	Implementation of future technology		93 (77) million	14	8	12	9	9	9	52
	National Strategic Zone	Super city	361 (301) million/legal and taxation measure					2	2	2
		Digital health	361 (301) million/legal and taxation measure					3	3	3
MIC	Municipality SDGs* Smart city to solve local issues		704 (425) million 460 (460) million	6	10	10	10	10	10	50
MLIT	Japanese MaaS promotion project		244 (142) million			20	35	11	6	72
	Smart city model project/smart city implementation project		370 (150) million			20	6	5	11	42
METI	Local MaaS promotion project		7400 (5850) million			13	16	14	11	54
MoEN	Local decarbonisation and new energy promotion subsidy		40,000 (20,000) million					25	20	45
GOJ	Japanese smart city projects			6	27	76	99	89	93	390

Note: * Among SDG Future City, only Municipality SDGs Model Projects are counted due to its financial support

In addition, due to its public nature, the data was publicly available from the official website of the cabinet and other relevant central ministries. All the subsidies listed on the Government of Japan's Smart City Public-Private Partnership Platform (PPPP) have been counted. These subsidies were launched under the late Prime Minister Abe's second tenure (2012–2020) within the policy framework of regional revitalisation. In addition to the projects listed on the PPPP, the list above also includes Municipality SDG Model Projects, which are flagship projects selected from the SDG Future City Scheme. These projects are important to consider because it contributed significantly to broadening the Japanese idea of smart cities from experimental projects of digitally informed advanced technologies to city planning with the ideas of sustainable development. Following this policy path, the Local Decarbonisation and New Energy Promotion Scheme subsidy was launched under the Suga cabinet (2020–2021), and more recently, Prime Minister Kishida (2021–2024) launched the DGCN Subsidy and National Strategic Zone. The amount of the Government of Japan's investment into smart cities has increased significantly over the years. While this pattern was certainly interrupted due to the global COVID-19 pandemic, it already shows signs of recovery.

The focus of our analysis is placed on the geographical scale categories of the municipalities that receive one or more of the above-listed subsidies. This scale is differentiated based on the *Urban Employment Area (UEA)*, a categorisation devised by economists Yoshitsugu Kanemoto and Kazuyuki Tokuoka in 2002. It captures the urban-suburban relationship by considering population concentration in terms of densely inhabited districts (DID) and individuals' commuting patterns. The UEA differentiates three scale categories based on the size of DID at its core, namely metropolitan, micropolitan, and the others. The metropolitan area includes one or more core cities with a DID population size exceeding 50,000. The micropolitan area has a DID population size less than 50,000 but more than 10,000 in its core city. Within metropolitan and micropolitan areas, there are core cities and suburbs, with the distinction identified based on individuals' commuting patterns for jobs and/or schooling. The other areas may also have DID, but their population size is limited to less than 10,000. In addition, these cities do not have any cities with inbound or outbound commuting patterns. This implies that these cities are often located in remote places, typically in mountainous areas or on islands. UEA was chosen for several advantages compared to other existing urban-suburban-rural categorisation methods. First, unlike population size, levels of depopulation, location, and/or official municipal categorisations provided by the Japanese government, UEA can dynamically identify rural and urban relationships based on people's commuting patterns. Second, even when compared to other dynamic categorisation methods, UEA can provide a more suitable economic-geographical configuration for Japan.

Kanemoto and Tokuoka (2002) explain that other existing geographical categories often employ the "one urban area and one urban core" principle, as they have been developed based on the American economic-geographical

model. However, in the case of Japan, multiple urban cores form one gigantic metropolitan area and suburbs extend concentrically. This pattern has been constructed over time to enhance productivity by tightly weaving the web of economic activities within limited geographical spaces in Japan. The list of UEA is updated every five years and published online for public use (see Table 5.3).²³

The locations of 468 smart cities have been identified and categorised into five different UEAs and an additional category labelled “Not Applicable (N/A)”. This category refers to projects in which multiple municipalities are collaborating. It is important to note that the project percentage provided refers to the number of projects; this does not necessarily reflect the amount of financial support given. In fact, unlike previously existing transfer schemes – i.e. grant,²⁴ the entity of the subsidies²⁵ allocated by the central government to *jichitai* varies from project to project. In addition, due to the nature of the subsidy scheme, the granted amount may not necessarily match the amount of subsidy which will eventually be spent. Therefore, the closing report of the financial status from each project is essential. Calculating the financial distribution pattern remains a topic for future research.

First, Japanese smart city projects are undeniably urban-oriented. About 61.5% of all the smart cities are located in metropolitan areas; 35.5% of all the smart cities are located in the urban core of metropolitan areas. When the number of municipalities is considered, the urban core cities of metropolitan areas, accounting for 5.9% of the total number of municipalities, undertake 35.5% of the smart city projects. Per capita, the distribution seems less skewed; 48.2% of Japan's total population resides in the urban core cities in metropolitan areas, sharing 35.5% of the projects. However, all the listed projects, except for the National Strategic Zone for the Digital Health

Table 5.3 Scale of Japanese smart cities based on the UEA categories

Categories	Subcategories	Number of projects	Percentage	Number of municipalities	Percentage	
Metropolitan Area	Urban core	143	36.7%	102	5.9%	
	Suburban	Suburban 1	88		639	
		Suburban 2	8		124	
		Suburban 3	3		29	
		Suburban 4	0		2	
Total	99	25.4%	794	46.2%		
Micropolitan Area	Urban core	21	5.4%	97	5.6%	
	Suburban	Suburban 1	25		204	
		Suburban 2	2		29	
		Suburban 3	2		3	
Total	29	7.4%	236	13.7%		
Other areas		61	15.6%	489	28.5%	
Cross regional		37	9%			
Total		390	100%	1718	100.0%	

Programme, have the core cities of metropolitan areas as their *de facto* main target. Indeed, all the municipalities in the urban core of the metropolitan areas receive one or more subsidies. Among the metropolitan areas, the Tokyo metropolitan area attracts the highest number of projects, with 62 projects. Of these, 38 projects are located in the core cities of the Tokyo metropolitan area, and 24 projects are located in its suburbs. The suburbs of Osaka and Nagoya follow in the rankings by attracting 21 and 20 projects, respectively. These projects similarly aim to enhance urban liveability through improved efficiency in managing energy, waste, mobility, and more, taking advantage of digitally informed advanced technologies. Local efforts often take the form of real estate development through infrastructure upgrades, legitimised within SDG 11: sustainable urban life. This result is consistent with not only what we have argued in the previous sections but also with what others have identified as a new stage of gentrification in both European and Asian contexts (Davidson and Lees, 2005; Shin and Kim, 2016). All in all, urban municipalities are more favoured to contribute to the national goal of achieving Society 5.0. It is rather ironic because the regional revitalisation policy, which is *de jure* the main politico-economic backbone of Japanese smart city projects, primarily aims at filling the existing regional gap between urban and rural areas.

Second, smaller municipalities are involved in severe competition for financial acquisition. About 12.8% of Japanese smart cities are located in micropolitan areas, which are home to 9.4% of the total population; 333 municipalities belong to micropolitan areas; however, only 60 smart city projects have taken place in this area. In addition, 15.0% of Japanese smart cities are located in the “other areas” category, which is home to 2.4% of the total national population; 70 smart city projects take place in 489 municipalities. Per capita, the micropolitan and other areas seem to be incentivised by the subsidy scheme. However, it is worth stressing that one municipality can receive multiple subsidies. This means that while some have been successful in securing state subsidies successively, the dominant majority of the municipalities in these categories have never been successful, applied, or even considered applying for the scheme. As we mentioned in the previous section, it is up to each municipality to decide whether to draft its city planning to benefit from the smart city scheme. The neoliberal aim to disentangle local administrations from their dependence on financial transfers from the central government is undoubtedly at work. All in all, urban municipalities seem to have benefited the most from the subsidy scheme for smart cities.

In order to contribute to a thicker description of the results of the above survey, we would like to briefly add an insight from field observations. One of the authors visited two municipalities of “the other” categories, which have been nominated as a model city for the municipality SDG scheme and the Local Decarbonisation and New Energy Promotion Scheme successively. Indeed, these municipalities, both from Okayama Prefecture, are rare winners of the subsidy distribution game in remote Japan. These municipalities have been critically concerned with the future of their community since the

early 1990s. For both municipalities, the Heisei municipal merger during the 2000s has put enormous financial pressure on innovating their community management. Certainly, the pathways selected by the respective municipalities are different.

However, their efforts have been continuous ever since, employing key terminologies of regional policy at the national level, be it eco-cities (Fukuda administration), regional vitalisation and sustainability (Abe administration), decarbonisation (Suga administration), and the present digital and smart technologies (Kishida administration). Their engagement seems to have been fruitful; it resulted in human capital accumulation at the locality as well as empowerment in terms of national recognition of the locality as a light tower case. Over time, several municipalities have developed a strong politico-administrative pipeline to the central government and started to consult directly with officers at the national level, bypassing the conventional prefectural channel (hearings with municipal office, November 2022 and May 2023).

In this regard, these cases show a practical change, which accompanies an alternation of political-administrative structure. They may have materialised local vitalisation via community building projects towards Society 5.0 in a decentralised manner; however, what is important to remember is that they are two rare successful cases. Too much attention to the successful cases may lead social scientists to look away from the overall political-administrative realities of decentralisation in Japan. The majority of regional revitalisation subsidies are still flowing into the municipalities of the metropolitan area, and many other municipalities remain to follow the conventional way of city governance.

5. Conclusion

It is possible to conclude that, in the Japanese context, smart city, as a policy idea, is contributing to the materialisation of the structural reforms initiated in the early 2000s. Smart cities are, in fact, the epitome of structural transformations in Japan's political economy and in the "sociotechnical network" underpinning it. Referring to the three stages of smart innovation elucidated above, it is possible to argue that a majority of Japan's smart cities are characterised by a mere infrastructural update (first stage). However, particularly after the 3/11, subsequent legislative interventions centred upon the neoliberal principles of decentralised governance have contributed, in some instances, to the rekindling of social roles within the processes of governance. This has inevitably led to a reduction of the central government's role and strengthened *jichitai* with regard to managing local affairs.

At the same time, as pointed out by Morozov and Bria (2018), the role of the private sector as a provider of financing and social infrastructure has clearly emerged. Nevertheless, in light of the above, it is clear that the smart city concept has become a way through which local governments represent

themselves vis-à-vis the central government. Thus, when *jichitai* are able to successfully push forward smart city initiatives, they establish a mutually beneficial relation with the central government in so far as the latter are able to *rebrand* themselves keeping subsidies flowing in and, in exchange for that, the former can use the latter's experience and solutions for both domestic and foreign policy purposes (Zappa, 2020). This mechanism is however based on deliberate processes of inclusion and exclusion which, as pointed out above, favours metropolitan over micropolitan areas which should be, in principle, the targets of revitalisation initiatives. In fact, using Kanemoto and Tokuoka's (2002) UEA classification, a dominant majority of the municipalities in the micropolitan and other areas have been de facto excluded, due to lack of success or voluntary nonparticipation in the Government of Japan's subsidy schemes. The dominant neoliberal discourse serves as a means and justification of selection and concentration.

In this sense, despite being presented as poles of technological and social innovation, Japanese smart cities are seldom such. Rather, to quote Moser (2015), the smart city concept is deployed as "a new bottle for an old wine", or more poignantly, "glittering utopias" reproducing decade-old power dynamics and unevenness. In fact, we might argue that the smart city concept and smart city-related policies obliterate actual innovation for the sake of the central government's masterplans in the domains of regional revitalisation and infrastructural modernisation.

Nevertheless, in some cases, municipal offices consult directly with the central government, and towards the prefectural office, they simply "inform" what they have concluded with the central government. The relative political power balance between the municipality and the prefecture seems to have been modified. In these successful cases, the political power of local governments vis-à-vis the prefectural government has increased. Certainly, local governments in Japan still rely on financial transfers from the state. However, they have implemented structural changes through innovation in public service provision. The fiscal situation of these municipalities has been improving. These cases may point to a successful pathway to decentralised Japanese administration. Considering these facts, the political-administrative structure of the relation between centre and periphery has changed. In other words, inequality between urban and rural areas between large cities and small villages remains embedded in the present structure of the administrative relations between centre and periphery and depends on the pervasiveness of neoliberalism in the administration sector.

Notes

- 1 In Japanese: 持続可能な都市や地域 [*jizokukanō na toshi ya chiiki*].
- 2 In Japanese: Society 5.0の先行的な実現の場 [*Society 5.0 no senkōteki na jitsugen no ba*].
- 3 In Japanese: 未来技術社会実装 [*mirai gijutsu shakai jissō*].
- 4 In Japanese: 地方自治体 [*chihō jichitai*], or more simply 自治体 [*jichitai*].

- 5 In Japanese: エネルギーの使用の合理化に関する法律 [*enerugi no shiyō no gōrika ni kansuru hōritsu*].
- 6 In Japanese: 三位一体 [*sanmi ittai*].
- 7 In Japanese: 環境モデル都市 [*kankyō moderu toshi*].
- 8 In Japanese: まち・ひと・しごと創生法 [*machi-hito-shigoto sōsei hō*], Law No. 136/2014 repealed by the Act on the Establishment of the Digital Agency, Law No. 36/2021.
- 9 In Japanese: 総合戦略 [*sōgō senryaku*].
- 10 In Japanese: 地方版総合戦略 [*chihō ban sōgō senryaku*].
- 11 The term “Abenomics” refers to an economic strategy launched by the second Abe cabinet in 2013 in cooperation with the Bank of Japan aimed at spurring economic growth through the so-called three arrows: monetary easing, fiscal reform, and growth promotion (Schiff, 2015; Sokołowski, 2015). Hence, the expression “Local Abenomics” in Japanese ローカルアベノミクス [*rōkaru abenomikusu*] is attributed to the LDP MP Tatsuya Itō, chairman of the Research Commission, who used it to describe the government’s initiatives to produce a “trickle-down” effect of Abenomics on regions. Here, the government should do the following: (1) support the creation of research and manufacturing clusters; (2) offer incentives to enterprises to foster ties with the local realities promoting a “virtuous cycle” benefitting the region’s economy with an eye to foreign markets; and (3) encourage local authorities and communities to actively participate in the region’s economic life (Itō, 2014).
- 12 In Japanese: 地方へ新しい人の流れを作る [*chihō e atarashii hito no nagare o tsukuru*].
- 13 In Japanese: 改善 [*kaizen*].
- 14 According to Samuels, in 2009, several SC projects were initiated under the Next Generation and Social Systems schemes launched by the Democratic Party of Japan-led government. The Yokohama Smart City project was built from scratch, while other flagship projects, such as Keihanna, Kitakyūshū, and Toyota were the continuation of previous subsidy schemes (such as the environmental model cities) (Samuels, 2013, p. 145).
- 15 In fact, smart communities may ensure reliable life continuity plans with regard to their capacity of securing energy in case of crisis (Okubo *et al.*, 2022).
- 16 In Japanese: 一般社団法人 [*ippan shadan hōjin*].
- 17 In Japanese: 環境共生都市 [*kankyō kyōsei toshi*].
- 18 In Japanese: 公共交通指向型都市 [*kōkyōkōtsū shikōgata toshi*].
- 19 In Japanese: 災害に強いまちづくり [*saigai ni tsuyoi machidzukuri*].
- 20 In Japanese: SDGs 未来都市 [*SDGs mirai toshi*].
- 21 In Japanese: 自治体SDGsモデル事業 [*jichitai SDGs moderu jigyō*].
- 22 The Japanese Fiscal Year begins on 1 April and ends on 31 March of the following solar year. Therefore, FY 2017 began 1 April 2017 and ended on 31 March 2018. FY 2023 began 1 April 2023 and ended 31 March 2024.
- 23 The data is available at: https://www.csis.u-tokyo.ac.jp/UEA/index_e.htm
- 24 In Japanese: 補助金 [*hojokin*].
- 25 In Japanese: 交付金 [*kōfukin*].

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