International Journal of Communication 6 (2012), 2117–2130 1932–8036/20120005

Capturing the Information City: The Liberation of Spatial Technology in Taiwan, 1994–2008

KUAN-CHI WANG[1]
University of Hawaii at Manoa

Since the 1990s, building the "information city" has emerged as an important issue in urban development. This phenomenon began in the United States and Europe, and since then such development has been pursued in countries in the Asia-Pacific region. To examine the idea of the emerging information city in Taiwan, this study examines the decentralization of territory and information technology in this nation from 1994 to 2008. The spatiality of techno-infrastructure in Taiwan has long been controlled by the central government, yet this spatial structure encountered a transformation in the mid-1990s. The most significant changes have included the rising influence of urbanization and Internet-related infrastructures. Also important are the political strategies of the Taiwan government in terms of neoliberalization in the telecommunications industry and the reconfiguration of Taiwan's political economy in the past two decades.

Taipei and Kaohsiung, the two biggest cities in Taiwan, began implementing information and digitization policies in 1998. Beginning in 1998, Taipei began to introduce "information city" initiatives, while the Global Information City Plan of Kaohsiung was initiated in 1999 with the slogan "E-Kaohsiung." In 2001, Kaohsiung published "Information Policy Whitepaper: Blueprint for IT Policies" as an overview of its information policies. Currently, both Taipei and Kaohsiung are proactively deploying wireless broadband networks.

Information technology has been a focal point for policy makers in Taiwan since 1979, when the Kuomintang (KMT) government started to combine its efforts with U.S.-educated technocrats to develop high-tech industries. With the coordination of the central government, the intermediation of quasi-government agencies, the return of students from studies overseas, and cooperation with industries, Taiwan has forged a developmental state with a fledgling model of "technology governance" (Greene,

[1] This work has resulted from the inspiring *Information Age* trilogy and its author, Manuel Castells. The very helpful comments of the referees are also acknowledged. I sincerely appreciate the insightful advice of David Harvey and Vincent Mosco on the preliminary ideas for this study. I also thank Hagen Koo, Chih-Hung Wang, and Sue-Ching Jou for their comments during the article's early stages. Thanks are also due to Larry Gross and Arlene Luck at *IJoC* for their encouragement and advice in revising this article. Finally, thanks must also be given to Chih-Yuan Chen for his cartographic assistance. (I am responsible for any errors or mistakes.)

Kuan-Chi Wang: kcwang@hawaii.edu
Date submitted: 2010–08–31

2008). Metropolitan and local governments are playing increasingly important roles in this development. This study will explore the conditions that trigger such changes, which impact decentralized space and technology in Taiwan, and identify the institutional historical geography (Cox, 2010) of the emerging information city.

Research Approach

Taiwan is adept at leveraging science and technology (S&T) policy engines for economic development. The resulting achievements are considered important advantages for Taiwan as it integrates into a developmental state model (Evans, 1995; Greene, 2008; Wade, 2007). However, in the late 1990s, the Asian financial crisis cast doubt upon the economic growth of developmental states (Woo-Cumings, 1999), and in the 2000s, the KMT's loss of power in Taiwan resulted in the loss of highly educated bureaucrats and policymaking networks required for S&T development (Greene, 2008).[2] This study adheres to the idea that Taiwan's S&T development faces an emergency and examines the technology infrastructure and the roles of metropolitan as well as local governments in its development.

Since capitalism must rescale space to create new safety valves (such as large-scale infrastructure used to alleviate periodic risks resulting from overaccumulation), "geographical displacement" of capital investment is the necessary process relied on by experimental strategies of spatial creation and construction. Thus, improvements and investments in transportation and communication initiated by the state play a significant role. Such initiation is always infused with investment to speed up turnover time to improve economic performance (Brenner, 2004; Harvey, 1989). In this context, building the information city, which underlies trends of urbanization and digitization, has been an important strategy for metropolises as they integrate into capitalism's reconfiguration in the neoliberal era (Harvey, 2001b; Mosco, 2009).

Nevertheless, the experiment to build the information city in Taiwan can be seen in light of the aftermath of the developmental state model as it has failed to institute strategies of liberating and decentralizing information policy. Here, the concept *developmental state* is still worthy of study because developmental states "are likely to persist as a consequence of path dependency, institutional 'stickiness,' and the interlocking patterns of political and economic power that are such a ubiquitous and distinctive part of development in East Asia" (Beeson, 2009, p. 9).

Although the combinations of domestic capacity and favorable external circumstances benefit the rise of developmental states, developmental states are, to a certain extent, constrained by those conditions (Koo, 1987). Crony capitalism is one of the negative consequences of the active orientation of developmental states and can contribute to economic deterioration as developmental policies are directed by global and competitive forces. Likewise, state capitalism in South Korea as reconfigured by the Organization for Economic Cooperation and Development, the World Bank, and the International Monetary Fund is an economic structure that only benefits certain industries and groups.

[2] The KMT has regained power since 2008.

Accordingly, this study presupposes that over the last several decades, Taiwan's more advanced economy has moved from an industrial to a postindustrial base, through which the telecommunication industry in Taiwan has faced challenges. Although the central government has come up with ways to address this trend, since the 1990s Taiwan's telecommunication industry has been heavily dependent on a narrow free-market approach, contradicting its long-term goals in developing information infrastructure and services. In addition to what Peter Evans (1995) famously described as the "embedded autonomy" of the developmental state, the transition to developmental paths has been more or less close to interest groups in implementing policy. The result has frequently been that such actors blur the line separating private and public interest, becoming "captured" such that they become servants of particularistic interests (Beeson, 2009). As a result, both the financial and information infrastructure crises have combined and interact with the crisis of legitimacy of the state regime.

Further, economists generally consider the telecommunications industry to be a natural monopoly. As a result, the economic logic of the telecommunications industry is destined to "seek rent," drawing from the financial, spatial, and technological barriers created by the state. With sovereignty and the potential for violence, the state can easily redefine the rule of rent seeking (North, 1990). Here the concept of *rent* is not necessarily synonymous with negative political and economic conceptions, such as inefficiency, exploitation, and free rider. Conversely, through a well-designed regulatory framework, rent can be organized as an incentive to innovation (Khan, 2000).

However, in the neoliberal era, the right of rent extraction has shifted from the state to the market and from public to private sectors, through which the state endows its sovereignty to the governance structure to protect the private actor and the free market—in a sphere free for rent seekers, free from public regulation, and even free from public infrastructure investment. The "art of rent," as posited by Harvey, might be the best term to describe how state and city governments are involved with hybrid and scalar rent-seeking activities during neoliberalization (Harvey, 2001a). Nevertheless, to a certain extent, Harvey overgeneralizes the role of the state and urban regimes.

The purpose of this study corresponds to *Locating Neoliberalism in East Asia: Neoliberalized Spaces in Asian Developmental States* (Park, Hill & Saito, 2012). Using this work, I will examine to what extent the information city locates instances of urban neoliberalization in East Asia. Additionally, I will examine the neoliberal political project in space through the state-sponsored information and communication technologies infrastructure. Third, I will examine the meaning of neoliberalism in the East Asian context of building the information city (Hill, Park, & Saito, 2012, pp. 3–4). This study will begin by analyzing the historical context and spatial logic of information policy in Taiwan in order to see how the emerging information city in Taiwan has been enabled by neoliberal market forces.

Building Internet Infrastructure in Taiwan

Internet development has been the focus of technology policies in Taiwan since the 1990s. Before 1994, the backbone was mainly TaNet, deployed by the quasi-formal Institute for Information Industry,

with locations at three levels.[3] A number of influences in terms of this accomplishment must be highlighted. First, IT industry and information policies at the national level were extended to local levels. The transmission of the Internet has to be delivered on all three levels: LAN, MAN, and WAN (local, mid, and wide area networks). Because the information development of a nation must follow this architecture, the central government is hampered in its efforts to impose across-the-board control and management. Meanwhile, metropolises are playing an increasingly pivotal role in the development of IT industries and information polices.

The expansion of the IT infrastructure has made the rights of access to the road, pipeline, communication network, and related construction under the governance of local metropolises ever more important. The Taiwanese government experienced a shift toward democracy in the late 1980s, and in 1994, the central government enacted the Self-governance Law for Provinces and Counties and the Municipal Self-governance Law, which transformed power relationships and cooperative models between the central and local governments. These laws enabled the election of local mayors and formalized the boundary of legal power between the administrative and legislative authorities. As a result, the political dynamics in local metropolises have experienced significant changes.[4]

During the same period, overaccumulation in Taiwan in the late 1980s led to another wave of speculation in real estate, which was even more drastic than that of the middle 1980s. Local authority combined with real estate and construction industry conglomerates as they made their way into the power elite, riding the wake of the power restructuring between central and local entities. In this context, for industries related to the Internet, conglomerates that emerged in the local arena became even more influential than before. However, practically, they began to exercise their influence in the late 1990s, when the telecommunications market was being liberalized with the issue of new licenses for fixed-line

[3] The first level is the national backbone, administered by the Taiwan Academic Network Commission. Its internal function is to link with regional centers, and its external role is to connect to international networks, such as to the United States and Japan. The second level is regional networks. Regional network centers are connected with national backbones, and regional backbones are established wherever necessary. Connections to local city/county educational networks are made via local city/county educational network centers. The third level is campus networks, including single research institutes, educational and administrative organizations, and social/educational institutions (such as libraries and cultural centers). Regional networks at campuses are either with or without backbones, depending on the scale of the operating entities and budgets. Networks are gradually expanded. These networks are managed by the computer centers of schools or related authorities. This multidimensional network was completed in early 1994.

[4] Before this, metropolitan governments were merely the executing agencies of policies and orders from the central government. Meanwhile, local political factions were part of the coalition under the KMT government (still the case in certain regions). However, the authority of local political factions in Kaohsiung City (Tainan Group and Penghu Group) and Taipei City waned drastically after city mayors became elected (rather than appointed). As a result, the sway of such private powers weakened, and the political influence of the Kaohsiung and Taipei City governments rose.

operators and the sale of government-held shares in Chunghwa Telecom.

National Information Infrastructure (NII)

Starting in 1994, the KMT government began to fund technology development projects to support the Institute for Information Industry in the promotion of Internet applications in Taiwan. An assessment found that Internet environments at academic institutions already had a good foundation; however, much development was needed in government agencies and enterprises, both public and private. Therefore, the government intended to expand the information infrastructure outside TaNet to serve a wider population of users.

Accordingly, the KMT government in August 1994 established the National Information and Communication Initiative (NICI) to drive such efforts. It was not until December 1997 that the Executive Yuan approved the NICI as the policy foundation for NII as well as the legal source of the policy. As in previous information technology policies mapped out by the KMT government, NII is a cross-administered organization covering industries, academies, and government agencies. The relevant planning is an ongoing process. The spirit of NII has extended from the KMT government to the Democratic Progressive Party (DPP) government (2000–2008); from the Asia-Pacific Regional Operations Center (APROC) to the Global Operations Center; from NII to NICI;[5] and to the 2008 National Development Plan, including E-Taiwan. However, NII policies did not significantly focus on the development of local infrastructure.

From the late 1980s through the early 1990s, Taiwan experienced a series of changes in international trade and economics under the leadership of Lee Tung-hui, who is known for having a strong indigenous consciousness. Nevertheless, this did not restrict domestic capital from flowing to mainland China. Therefore, the KMT government planned a series of cumulative strategies to function according to investment interests. This strategy was first manifested in Lee's attempt to guide the direction of capital outflow with the Toward-South Policy and the Asia-Pacific Regional Operations Center. It was hoped that Taiwan would be gradually incorporated into the regional economic blocs emerging after the 1990s and possibly replace Hong Kong as the Asia-Pacific hub of finance, business, manufacturing, media, and marine and air transportation. The state machine established cross-administered institutions to implement relevant planning and lobbied multinational corporations to establish their Asia-Pacific headquarters in Taiwan.

[5] Due to similar initiatives and overlapping operations, on April 4, 2001, the Taiwanese government combined the NII, the Information and Communications Initiative Committee, and the Industrial Automation and Electronic Business Program into the National Information and Communications Initiative Committee. The committee is administered by the Science and Technology Advisory Group of the Executive Yuan to coordinate related organizations and to centralize matters associated with the development of information and communication infrastructure at the national level.

To date, however, the Toward-South Policy[6] and APROC have not achieved most of their goals, although APROC has partially attained its goal of fulfilling the proposed schedule of the Taiwan government to liberalize the telecommunications industry.

Telecom Liberalization and Urbanization in Taiwan

The liberalization of state-run telecom companies is rarely about investments in innovation and research and development.[7] The regulating power of the KMT government in the telecom industry is primarily represented in the form of organizational changes and privatization. The causes contributing to the KMT government's regulation of the telecom industry include the combination of production methods of 1980s capitalism with computer and information technologies, which resulted in faster-paced capital flow and transcended the boundaries defined by the state and government. This is evidenced by the dominance of neoliberal policies in telecommunications industries in the 1980s in both the United Kingdom and the United States. As far as the experience across the Atlantic Ocean, the so-called neoliberalization of telecommunications is in fact closely tied with private capital. In Taiwan, telecommunication liberalization is often seen in the sale of state-owned stakes to specific private parties. The transfer of ownership virtually equates telecommunication liberalization with privatization.

To create an open and fair competitive environment for the telecommunications market, the government established a telecom foundation. In January 1996, the Legislative Yuan passed three major telecommunications laws. In the following years, the Director General of Telecommunication and Chunghwa Telecom separated. As a result, Chunghwa Telecom became the largest telecom company in Taiwan. The most critical element of telecommunication liberalization is in business and operation, which experienced rapid development in the 1990s. At that time, to comply with the bilateral negotiations between China and the United States and between Taiwan and the United States for the admission to the World Trade Organization as well as the requirements of regional trade blocs such as Asia-Pacific Economic Cooperation, Taiwan gradually began to open its markets in mobile communication, satellite communication, fixed lines, and simple resale of voice business. In 2005, the Ministry of Transportation and Communications reduced its stake in Chunghwa Telecom to 48%, with plans to reduce by an additional 7.4% in June 2006. The National Communications Commission announced in 2006 that subscriber loops were to be incorporated into the bottleneck measures and planned to fully enact this

[6] This ambitious plan has been criticized for several years as a "sub-empire strategy" (Chen, 2010; Chen & Wang, 2000). It also exemplifies the process of "spatial fix" that depends on territorial transformation to extract cheaper labor, compensation from governments, and cheaper land to reduce production costs (Harvey, 2005).

[7] The KMT government only started to initiate the National Telecommunications Program after the separation of Chunghwa Telecom and the Directorate General of Telecommunications in 1997, when Chunghwa Telecom became a state-owned business. The National Telecommunication Program was centered on the innovations of the Information and Communications Research Laboratories and the Industrial Technology Research Institute in collaboration with the efforts of the Ministry of Economic Affairs to promote the communications industry.

throughout Taiwan by the end of 2008.[8] This move has been a milestone in the completion of telecommunication liberalization in Taiwan.

As the neoliberalization of the telecommunications market in Taiwan was driven forward by tremendous pressure from global trade, the attitude of the government became rather intriguing. During the process, Taiwan changed its leading political party for the first time (in 2000, with the election of the Democratic Progressive Party's Chen Shui-bian to the presidency). However, this did not affect policies of liberalization of the telecommunication market, and two important decisions were made. The first was the release of new licenses for the fixed-line market. The second was the continuous sale of government-owned shares of Chunghwa Telecom from 2000 to 2006, after the DPP assumed power.

Clearly, the DPP accelerated the pace of liberalization and extended the privatization of state enterprises. In the telecommunications industry, profit is mostly derived by charging fees for the right to access telecom infrastructure. Due to the KMT government's provision of telecommunication access as a public service for most of the 20 years prior to 2000, breaking with convention through privatization has been somewhat controversial.

The Ministry of Transportation and Communications issued permits to Taiwan Fixed Network (based on Pacific Electric Wire and Cable, later acquired by Fubon), Eastern Broadband (Asia Pacific Telecom, a consortium consisting of Rebar Group and KMT-owned enterprises), and New Century InfoComm Tech (Far Eastern Textile and Asia Cement are major shareholders) in the 2000s and was scheduled to release construction permits for their networks. When opening the fixed-line markets, the Directorate General of Telecommunication set the high requirements of US$1.5 billion in capitalization, a permit for the establishment of infrastructure to cover 150,000 subscribers, a deposit of US$1.5 billion, and the stipulation to complete broadband infrastructure for 1 million subscribers within six years. The goal was to encourage privately owned fixed-line operators to expand information technology infrastructure to benefit consumers and promote market competition. However, after consuming a total of US$6 billion, these private fixed-line operators did not embark on the network deployment as agreed.

Why did the plan to open fixed-line licenses and develop information infrastructure fail to promote market competition and generate consumer benefits? The main argument points to complexities involved in the infrastructure related to subscriber loops. These obstacles stalled infrastructure development. The existing infrastructure of subscriber loops is still controlled by Chunghwa Telecom. Therefore, private fixed-line operators insisted that the government should open Chunghwa Telecom's subscriber loops, and such demands have garnered a response from the National Communications Commission.

However, this decision ignored many other issues worthy of consideration. The most critical issue is that the DPP became a partner of the capitalists and turned a blind eye to the fact that it was losing legitimacy. First of all, the DPP government set a high entry barrier for fixed-line licenses by requiring high

[8] The incorporation of subscriber loops into bottleneck measures signifies that Chunghwa Telecom has to open subscriber loops to other operators at the cost price (including reasonable profits).

payments—in other words, releasing most permits to large, wealthy conglomerates. As a result, the review of telecommunications licenses has become a mechanism for distributing huge benefits to such parties under the arbitration of the state. Those who acquire licenses receive the power to define their own territories and seek rents, again with the intermediation of the state. In turn, the DPP government reinforced its power circle through these licenses. The capitalists best connected with Chen Shui-bian at that time all made it to the winner's circle, including Shinkong Group, Fubon Group, CEC Group, Cathay Group, and Eastern Broadband.[9]

Meanwhile, to obtain the fixed-line licenses, private operators were required to make a deposit of US$1.5 billion and commit to the establishment of a broadband network with subscriber loops to cover 1 million users. If they could not fulfill the obligation, the deposit would be rescinded. While these operators have yet to deliver on their promises, the DPP government did not confiscate their deposits or cancel their licenses. Instead, the government returned half of the deposits, despite the original requirement of the completion of 25% of the infrastructure.

In the process of telecommunications liberalization, the DPP government seemed to be ignorant about asking private fixed-line operators to establish their own infrastructure. By 2003, the density of the telecommunication infrastructure in Taiwan was 58.2% (the highest in Asia). Before 1996, the compound annual growth rate was 5.7% but showed a gradual downward trend after 1996. The combined power of private fixed-line operators in 2002 contributed to only 1.9% of the growth. Since the entire infrastructure networks support data services at the same time, they will have a profound impact on the future development of the Internet.

The telecommunication infrastructure was originally overseen by Chunghwa Telecom. Even if it was difficult to recover the investment in such a short time, Chunghwa could afford the cost, because it was the only major incumbent, and it was owned by the state. In other words, Chunghwa was capable of assuming the responsibility of providing telecommunication services to nationals. After Chunghwa's privatization, the company was held responsible only for Universal Service Funds from 2002. As growth in the telecommunications infrastructure has faltered, the efficacy of Universal Service Funds seems questionable. On the other hand, private fixed-network companies other than Chunghwa Telecom also lack incentive to build infrastructures.

For urban areas that have faster investment returns, Chunghwa Telecom has already completed infrastructure construction (e.g., in Kaohsiung City, aside from the Nantze District, which has 95% availability; other districts have over 99.5% availability). Thus, requesting that Chunghwa open up access to these infrastructures is more economical than investing in building infrastructures that will not have a good return on investment within a short period of time. Moreover, the infrastructure of subscriber lines

[9] The analysis from this angle tends to fall into the trap of guesswork and gossip-mongering. However, some scholars believe that, to a certain degree, liberalization or privatization portends the attempts of national leaders to insinuate themselves into the "cream of the society" by "establishing their own little circles" (Castells, 2000).

was already sold to Chunghwa, when it separated from the Directorate General of Telecommunications in 1996. However, the government announced plans to include the subscriber line in the bottleneck measures and open the market to other private fixed-network companies so that concentrated areas of subscriber lines—namely metropolises—would become the venues for the rent seeking.

M-Taiwan Project and the Rise of the Information City

In confronting the gap left behind by the private fixed-line operators, fixing the gap become the priority of the DPP government[10] with the Challenge 2008: National Development Plan (2002–2007), and the identification of wireless communications as a key industry. The Industrial Technology Research Institute of Taiwan and the Department of Industrial Technology, Ministry of Economics, executed the Five Year Plan of Developing Wireless Communication Technology in the National Telecommunications Project Two to integrate three wireless telecommunication technologies: wireless LAN, GPRS, and 3G. The plan was carried out to solve the infrastructure problem of insufficient bandwidth and to open up the domestic market of related equipment.

The wireless network technology policy has allowed urban areas to break away from the traditional role of being the policy executors of the central government. For Kaohsiung City, the entire project, from planning to execution, was managed by the Kaohsiung City Government Transportation Bureau. The project was undertaken by an international firm through open tendering. The Taipei City government commissioned Q-Ware Systems and Services, a major shareholder of New Century InfoComm Tech, to execute a build-operate-own plan. Accordingly, the operation of an information city in Taiwan is

[10] The range of the gap was in positive correlation with the domestic market of computers under the supervision of the Institute for Information Institute. At that time, more than half of metropolitan households had computers, and content became more reliant on broadband transmissions and the convergence of digital TV. Therefore, this problem was nearing the tipping point. The countermeasures devised by the central government were a series of state-devised policies, including E-Taiwan under the Challenge 2008: National Development Plan, which covered 6 million users with broadband, reached 91% coverage of FTTC by the end of 2005, and connected 4.6 million users with broadband. This initiative was also intended to be placed under the control of private sectors (including Chunghwa Telecom) from 2002 to 2007 by investing US$10 billion. A year later (in 2003), due to insufficient budget from the central government for the Challenge 2008: National Development Plan, the Executive Yuan proposed "The New Ten Major Construction Projects," with public spending of US$17 billion for infrastructure over five years. M-Taiwan, a module to establish mobile information networks, had been allocated a budget of US$1 billion from 2004 to 2006 under the leadership of the Ministry of the Interior and private investment of US$3.5 billion. A total of US$1 billion was budgeted to establish a common duct of 6,000 kilometers throughout Taiwan. The completed network will be owned by local governments but leased to private fixed-line operators as an alternative network to Chunghwa Telecom's subscriber loops. The other US$2.5 billion will integrate WLAN and mobile networks to form a seamless communication network with the common duct to cover mobile cities. It is also hoped to achieve the target of covering 6 million subscribers with broadband from 2003 to 2008.

inclined to perform as city and urban entrepreneurism, similar to the experience of Europe and the United States (Harvey 2001b; Mosco 2009).

However, a wireless network is not truly wireless; it still relies on wired infrastructure. Although Chunghwa Telecom, the owner of the infrastructure (most subscriber lines and existing cables), is not one of the actors of the wireless network sharing platform, the central government still plays an important role. In the M-Taiwan project of the Ten New Major Construction Projects, the central government first subsidized Taipei City, Taichung City, and Kaohsiung City with US$1 billion to construct the shared bandwidth channels based on Chunghwa Telecom's infrastructure. In other words, the wireless network sharing platform is a project involving an alliance of central and local governments, which face the infrastructure crisis brought about by the liberalization of telecommunications.

The Information City: The Complex of Technology Infrastructures

Based on the above premise, the problem faced by broadband construction in Taiwan is largely related to technology infrastructure, especially in the construction of cables. Take, for example, the two largest cities in Taiwan, Kaohsiung City and Taipei City. Since both areas use rainwater drains as the main channels for the cables, the various pipes in those channels have had to reduce their flood-prevention function. Therefore, the two cities have actively searched for alternative solutions, including a common conduit system that serves both functions. This could prevent repetitive digging of roads, allow easy maintenance of the pipelines, avoid compromising aesthetics, and provide earthquake-safety functions. Since 2000, a series of laws and regulations have been established. In 2003, the Common Conduit Design Standards were passed, thus becoming a key point of the digital urban infrastructure of Taipei and Kaohsiung.

Taipei City has already completed construction of a common conduit system, primarily using the metro subway channels. The planning and construction of Kaohsiung City has been different than that of Taipei City. This was mainly because the population in Kaohsiung is not as dense nor integrated as in Taipei. Therefore, a common conduit system was constructed in Kaohsiung—which was mostly subsidized by the M-Taiwan project of the national government—along with the development of broadband channels.

Attaching fiber optic cables in the sewer system is another innovation of Kaohsiung, through which it could not only facilitate the popularization of the fiber optic broadband but also expedite construction of the domestic sewer system. However, although Kaohsiung is the second largest city in Taiwan, its political and economic power is not comparable with Taipei; hence the uneven development of the city and region are staggering. One significant example is that the city debt of Kaohsiung is about US$7 billion, and half of the debt has increased in the past six years during the development of large-scale urban development projects such as the city central library, a marine technology exhibition center, and a light rail transit system in the Kaohsiung bay area.[11] Accordingly, the Kaohsiung city government

[11] Please see http://finance2.kcg.gov.tw/statistics.htm and http://www.kcg.gov.tw/EN/Index.aspx. Since 2006, Kaohsiung City has initiated several "big" projects for urban development. These projects, however, aggregately locate at central and southern Kaohsiung metropolitan where wealthy classes prefer to live

distributes limit infrastructures and public services to other marginal regions, and these infrastructures include the common conduit system and the information infrastructure.

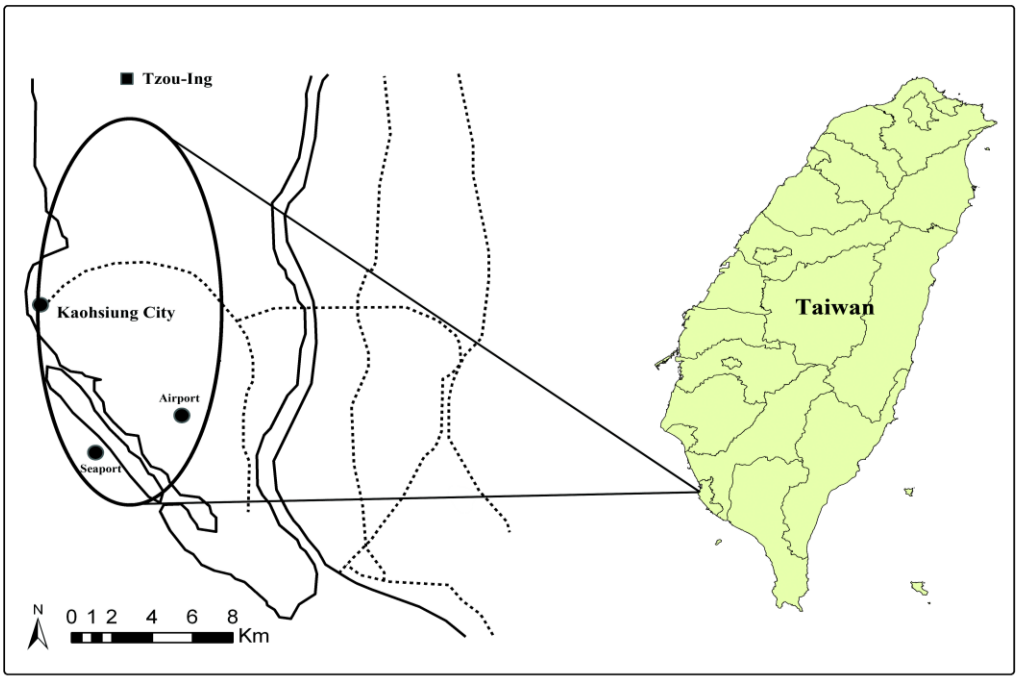

Figure 1. Asian New Bay Area in Kaohsiung.

Conclusion

This article has presented neoliberal East Asian developmental states, with a focus on Taiwan's experience in the liberalization of telecommunications industries, which was captured by cronies with the coherence of a regime grounded in the hegemony of particular groups (Jessop, 1990). As Chunghwa Telecom, the state-owned telecommunications company, became the biggest private telecommunications company in Taiwan, the DPP government took on substantial authority within the corporation and claimed the ownership of integrated infrastructures in major metropolises. Here, the ownership of the infrastructure, deriving from political-historical conditions, is the source of power.

The rent-seeking activities are thereby internalized into the practices of state entrepreneurialism. Privatization of Chunghwa Telecom relieved public concerns about the state-owned telecommunications company but neglected the mission to expand the information infrastructure and provide public

---

within. On the other hand, the financial crisis of Kaohsiung City government is getting worse as these projects are implementing.

information services to citizens. On the other hand, through privatization, the DPP government invited large, wealthy conglomerates to participate in the telecommunications industry in Taiwan and tolerated violations of their responsibility to build and expand information infrastructures under special licenses.

It is in this context that liberal market forces driven by the government of Taiwan created the information city as the strategy to fix the infrastructure crisis as well as the legitimacy of the DPP government. As opposed to what Richard Walker (2004) states about the reasons for spatial and technological fixes to the circulation of capital, the economic crisis is not such a priority in this wave of liberalization in Taiwan. Rather, the institutional fix argued by Kevin Cox (2010) is a more comprehensive and feasible concept to describe this political-strategic process. Nevertheless, the information city is still the frontier of capitalism as explored by state-city entrepreneurialism. The spatiality of the information city is selectively and gradually distributed in areas with integrated infrastructures and/or in crucial locations that facilitate the function of the capital. The uneven distribution of wireless Internet services in Kaohsiung City, which occurred after 2009, could be another case verifying what Castells (2000) calls the "space of flow" or what Graham and Marvin (2001) call the "splintering cyberspace," both of which are enabled by the uneven historical-material conditions of state capitalism in East Asia.

References

Beeson, M. (2009). Developmental states in East Asia: A comparison of the Japanese and Chinese experience. *Asian Perspective*, *33*(2), 5–39.

Brenner, N. (2004). *New state spaces: Urban governance and the rescaling of statehood.* Oxford, UK: Oxford University Press.

Castells, M. (2000). *The rise of the network society*. Oxford, UK: Blackwell.

Chen, K. H. (2010). *Asia as method: Toward deimperialization*. Durham, NC: Duke University Press.

Chen, K. H., & Wang, I. (2000). The imperialist eye: The cultural imaginary of a sub-empire and a nation-state. *East Asia Cultural Critiques, 8*, 9–76.

Cox, K. (2010). Institutional geographies and local economic development: Policies and politics. In A. Pike, A. Rodríguez-Pose, & J. Tomaney (Eds.), *A handbook of local and regional development* (pp. 272-282. London, UK: Routledge.

Evans, P. (1995). *Embedded autonomy: States and industrial transformation.* Princeton, NJ: Princeton University Press.

Graham, S., & Marvin, S. (2001). *Splintering urbanism: Networked infrastructures, technological mobilities and the urban condition.* London, UK: Routledge.

Greene, J. M. (2008). *The origins of the developmental state in Taiwan.* Oxford, UK: Oxford University Press.

Harvey, D. (1989). *The condition of postmodernity.* Oxford, UK: Blackwell.

Harvey D. (2001a). The art of rent: Globalization and the commodification of culture. In D. Harvey, *Spaces of capital: Toward a critical geography* (pp. 394–411). New York, NY: Routledge.

Harvey, D. (2001b). From managerialism to entreprenurialism: The transformation in urban governance in late capitalism. In D. Harvey, *Spaces of capital: Toward a critical geography* (pp. 145–169). New York, NY: Routledge.

Harvey, D. (2005). *The new imperialism.* Oxford, UK: Oxford University Press.

Hill, R. C., Park, B. G., & Saito, A. (2012). Introduction: Locating neoliberialism in East Asia. In B. G. Park, R. C. Hill, & A. Saito (Eds.), *Locating neoliberalism in East Asia: Neoliberalized spaces in Asian developmental states* (pp. 1–26). Oxford, UK: Blackwell.

Jessop, B. (1990). *State theory: Putting the capitalist state in its place*. Cambridge, UK: Polity Press.

Khan, M. H. (2000). Rents, efficiency and growth. In M. H. Khan & K. S. Jomo (Eds.), *Rents, rent-seeking and economic development: Theory and evidence in Asia* (pp. 21–69). Cambridge, UK: Cambridge University Press.

Koo, H. (1987). The interplay of state, social class and world system in East Asian development: The cases of South Korea and Taiwan. In D. Frederic (Ed.), *The political economy of new Asian industrialism* (pp. 165–181). Ithaca, NY: Cornell University Press.

Mosco, V. (2009). *The political economy of communication* (2nd rev. ed.). London, UK: SAGE Publications.

North, D. (1990). *Institutions, institutional change and economic performance.* Cambridge, UK: Cambridge University Press.

Park, B. G., Hill, R. C., & Saito, A. (Eds.). (2012). *Locating neoliberalism in East Asia: Neoliberalized spaces in Asian developmental states*. Oxford, UK: Blackwell.

Wade, R. (2007). *Governing the market: Economic theory and the role of government in East Asia industrialization*. Princeton, NJ: Princeton University Press.

Walker, R. (2004). The spectre of Marxism: The return of *The Limits to Capital*. *Antipode, 36*(3), 434–443.

Woo–Cumings, M. (1999). Introduction: Chalmers Johnson and the politics of nationalism and development. In W. C. Meredith (Ed.), *The developmental state* (pp. 1–32). Ithaca, NY: Cornell University Press.