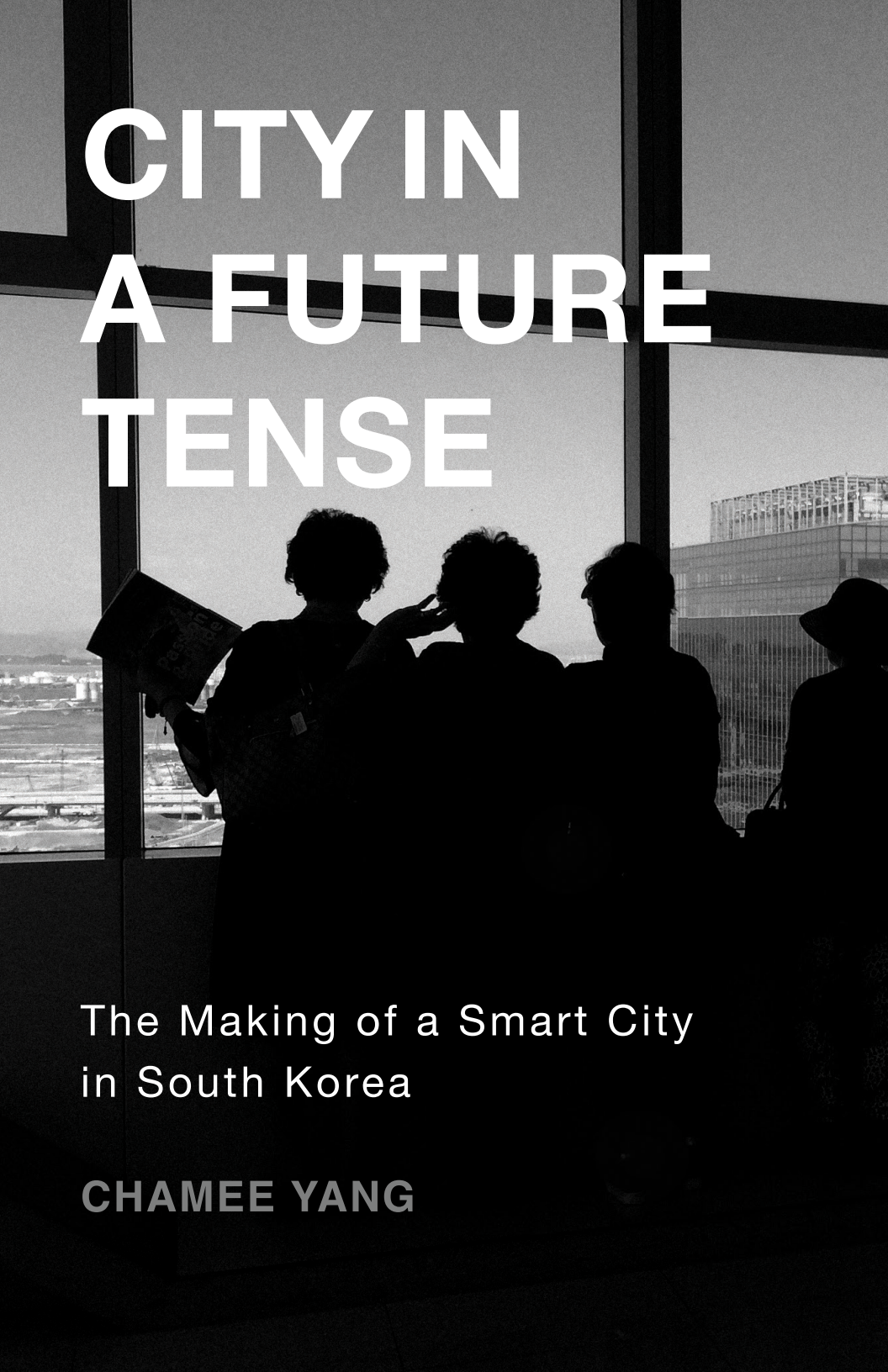


A black and white photograph showing the silhouettes of four people standing in front of a large window, looking out at a city skyline. The person on the far left is holding a book or a tablet. The person next to them is pointing towards the window. The person on the far right is wearing a hat. The city skyline visible through the window includes a prominent building with a grid-like facade. The title 'CITY IN A FUTURE TENSE' is overlaid in large, white, sans-serif capital letters.

CITY IN A FUTURE TENSE

The Making of a Smart City
in South Korea

CHAMEE YANG

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City in a Future Tense

*The Making of a Smart City in
South Korea*

Chamee Yang



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CONTENTS

Illustrations vii

Acknowledgments xi

Introduction

1

1. Networks, Hubs, and Zones: Infrastructural
Development in New Songdo City, 1986–2009

43

2. Smart Green City: Developmentality
and Environment as Ecosystem

96

3. The City Must Be Defended Digitally: Surveillance,
Security, and Everyday Environments of Control

137

4. Cultural Economies of Creativity and “New
Intelligence”: K-Culture and Songdo

173

Conclusion

209

Notes 225

Bibliography 247

Index 259

ILLUSTRATIONS

FIGURES

1. A poster for Incheon Global Fair and Festival in 2009 6
2. View of New Songdo City 31
3. Visitors looking out over the city from the observation deck of Songdo's G-Tower 44
4. A sketch of the Songdo Oversea New Town Development Plan, produced in 1986 50
5. Illustration of the "port of the future," or teleport, envisioned as a city dense with information and communication technologies 54–55
6. A still image from "KBS Special Report: Third Wave," aired December 28, 1985 64
7. International air passengers by year, 1970–2020 73
8. Office for Metropolitan Architecture (OMA). *New Seoul International Airport* (1995) 81

9. Office for the Metropolitan Architecture (OMA), *Inchon Songdo New Town* (1998) 81
10. President Kim Dae-Jung listens to a progress report on the Songdo Intelligent City Project, November 29, 2001 86
11. Land reclamation work for the development of Songdo, showing early stages of shoreline infill 97
12. CleanNet waste disposal bin in Songdo 99
13. Construction of apartment complexes in Songdo 110
14. Green Smart City exhibit at Songdo's G-Tower 119
15. Smart Operation Center of the Incheon Free Economic Zone (IFEZ) 143
16. "When the era of home automation begins, all home appliances can be controlled with a single remote controller outside the house" 156
17. "The era of home automation is beginning" 157
18. "Yeonsu police will not sleep until crime disappears—ranked number one in crime safety in early 2016" 163
19. Memorandum of Understanding (MOU) for the IFEZ-K-Pop Future Entertainment City in Songdo, signed between IFEZA, SM, JYP, and FNC Entertainment Group in Songdo in 2021 185
20. Screenshot from "KBS Special Report: What is the New Intellectual?" aired April 2, 1999 196
21. President Kim Dae-Jung meets Dr. Alvin Toffler, April 7, 1998 198
22. President Kim Dae-jung attending the "United Minds Advancing the Nation's Knowledge and Information Power" Conference, commending the awardees, 2001 199
23. View of Songdo 210

M A P S

1. Map of Songdo 28
2. Triport Concept Map, 1996 74

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All translations from Korean sources are mine unless otherwise noted. Korean names and terms are romanized using the Revised Romanization system. Korean names follow Korean convention, with the family name preceding the given name, unless the author has established their name in English-language publications.

Introduction

As cities around the world look to technology to make themselves “smarter” many are watching Songdo. Built with smart technologies very much a part of its DNA, it sits adjacent to Seoul, already regarded as one of the hi-tech capitals of the world. So has the experimental city, dubbed by some as a “city-in-a-box” because of its reliance on technology, been a success?

—Lucy Williamson, “Tomorrow’s Cities: Just How Smart Is Songdo?,” *BBC News*, September 2, 2013

Songdo has become a popular Korean city—more popular as a residential area than a business one. It’s not yet the futuristic international business hub that planners imagined. The city is still unfinished, and it feels a bit like a theme park. It doesn’t feel all that futuristic. There’s a high-tech underground trash disposal system. Buildings are environmentally friendly. Everybody’s television set is connected to a system that streams personalized language or exercise classes. But *Star Trek* this is not. And to some of the residents, Songdo feels hollow. . . . In other words, when it comes to cities—or anything else—it is hard to predict the future.

—Ari Shapiro, “A South Korean City Designed for the Future Takes on a Life of Its Own,” *NPR All Things Considered*, October 1, 2015

The year was 2009, and various media outlets in Incheon and beyond were abuzz with representations of a futuristic “city of tomorrow” called Songdo. Echoing the optimism and anxieties that hailed the arrival of the new millennium, the narrative produced around Songdo urged audiences to envisage the idea of a “future city” that represented a radical departure precisely because of its “smartness” and technological innovation. By the end of the first decade of the 2000s, a diverse array of sociotechnical, spatial, and narrative strategies had been set in motion to assert Songdo’s futuristic identity, which included initiatives like the Incheon Global City Fair and Festival (IGF; Incheon segyedosi chukjeon), which took place on the then barely reclaimed land of Songdo. Jin Dae-je, former CEO of Samsung Electronics, who had been appointed chair of the organizing committee for the IGF, described the notion of a future city as not just an idea, but a call to action to empower citizens to actively and willingly contribute to the city’s ongoing growth and innovation.¹

The decision to appoint Jin as the committee’s chair was a strategic move by the Incheon government to renew the city’s image by associating plans for the city’s future with leaders from the country’s technology industry. Known widely for pioneering ubiquitous computing in Korea and for being a pivotal figure in Samsung’s and Korea’s ascendance to global high-tech powerhouse—a narrative often celebrated as the “mythology of the semiconductor [*bandoche sinhwa*]” in the Korean press—Jin served as a significant symbolic presence. Incheon, much like other cities that had moved past their industrial heyday in the 1980s, had been struggling to integrate itself in the network of global, creative, and knowledge-based cities. Jin’s nomination to the committee’s leadership thus mirrored the city’s hope of echoing Samsung’s triumphant journey from being an underdog to becoming a leader

in the global semiconductor industry, reinvigorating the city's image and renewing its economic vitality and restoring optimism among its citizens. Jin voiced his assurance that he could deliver on this promise, stating, "I am confident that the success of the Incheon Global Fair and Festival will play a crucial role in boosting both local and international interest and investment in Incheon. Our aim is to create a festival that gives hope to the people during these challenging times."

On August 7, 2009, the Global City Fair and Festival was opened to the public. The fair covered approximately 270,000 square meters (around 66.7 acres) of Songdo, an artificial island reclaimed from the sea over the course of three decades. The venue was divided into multiple zones, Robot Science Pavilion, Green Growth Pavilion, World City Pavilion, Digital Art Pavilion, and High-Tech Plaza, each dedicated to the themes of technology, urban development, green industry, culture, and tourism. The fair's blueprint was designed as a miniature city and a laboratory to display Songdo's ambition to become a future-oriented city, with a focus on ecologically conscious and culturally rich economic growth. With arcades filled with interactive screens, dioramas, a robot museum, laser shows, and simulation theaters, the fair aimed to position Songdo as the "next growth engine of the nation," and its exhibitions promoted city models designed by major Korean conglomerates such as Hyundai, Daewoo, and Posco that incorporated elements such as electric vehicles, solar panels, radiofrequency identification (RFID) technology, and energy-efficient building designs.² Spanning eighty days, the fair hosted a series of activities and exhibitions that envisioned the future: from conferences discussing green growth, water conservation, digital arts, and creative city development to a multimedia water fountain show, a global culinary fair, and K-Pop concerts featuring the top idol

groups of the time, including Girls' Generation, Brown Eyed Girls, SHINee, and Four-Minute. The opening event set the overall tone: a screening of a fifteen-minute 3D animated science-fiction film, *City Paradiso* (2009), directed by Park Young-min. The film presented a utopian vision of a future city where power and resources were distributed equally and fairly, integrating services from emergency and disaster response to childcare.³

Amid the IGF's bricolage of futuristic visions, a highlight was the Asia Pacific Cities Summit 2009, to which Richard Florida was invited as a keynote speaker.⁴ It was no small coincidence that Florida, whose famous mantra about the "new geography of creativity" had piqued the interest of city officials around the world, was chosen. He delivered precisely the message that the city officials wanted to convey to the fair's audience, comprising investors, developers, and city officials, as well as the general population of Incheon and Korea: the next objective for cities in the twenty-first century would be to develop information technology and attract people with the creative talent to fully grasp and maximize the potential of this technology. The success of future cities depends, as was stressed throughout the fair, on both the development of technology and, critically, the willingness and open-mindedness of the Korean citizenry to engage with the technology. Only together would they be able to create the necessary vibrancy to lay the groundwork for the city's future economic prosperity.

The idea that technology would both deliver the promise of the future and salvage the city's economy in crisis was perhaps the most ambitious goal set for Songdo. In this way, the plans for the development of Songdo took on the character of what critical communications scholar Vincent Mosco has called the "digital sublime," which he developed based on Leo Marx's notion

of “technological sublime.”⁵ The idea of the digital sublime encapsulates how closely science and technology have become intertwined with an almost religious reverence for the future, fueled by people’s aspirations to achieve the promises of freedom, connectivity, and development that are imagined through technological innovation. As a captivating fiction, this narrative presents a promised land of the future where the problems and struggles of the present have been efficiently transcended and concealed by technology. Significantly, it often presupposes the willing participation of citizens as a crucial component.

The yearnings for the digital sublime exhibited at Songdo’s IGF suggested that technology was not just a tool but also a celebrated metaphor for an improved way of life, bridging economic and geographic gaps and even providing a fulfilling sense of freedom, independence, and control for citizens. However, these imperatives for the future that glorified technology’s potential were shaped long before Songdo’s emergence, demonstrated in the outlook of government officials, planners, engineers, and corporations during the period of rapid urbanization and industrialization in South Korea since the 1960s. From large-scale infrastructural projects like national radio and broadband networks to the invention of personal computers and home automation (HA), technology has been a tangible symbol of progress, development, and a connected way of life in cities. These myths of digital futures, building on the narratives associated with earlier innovations like highways, dams, and telephones, have continued to shape and influence popular understandings about the future as envisioned through technology. Korea’s contemporary smart city developments, therefore, represent a continuity of the ideas about technology that were the driving force behind the rapid transformation of the socio-material landscape of South Korea in the twentieth century.



Figure 1. Poster for the Incheon Global Fair and Festival in 2009. Courtesy of Incheon Metropolitan City.

To be sure, as with any myth, there is ample skepticism about these ideas. As for the IGF, there were citizens and critics who questioned and debunked the hyperbolic vision of technology presented at the fair. While the organizers claimed to have drawn over six million attendees during the event, some people

have raised questions about the validity of the numbers. More importantly, the over-the-top propagandistic positivity that was typical of these events did not necessarily reflect the prevailing sentiments of the residents who were struggling with the effects of the global financial crisis at that time. The Incheon Citizens' Coalition for Economic Justice, a prominent local advocacy group, for instance, insisted that the IGF was a failed enterprise that lacked transparency and communication. It was said that the extravagant expenses, along with the superficial theme of the event, did not resonate well with the residents.⁶ Pejorative terms like “display politics [*jeonsi haengjeong*]” and “event politics” were directed at the event organizers and the city officials who endorsed the event, whose disorganized management led to an enormous financial burden on the city.⁷

The tensions surrounding the Incheon Global Fair and Festival reflected broader patterns of public discussions surrounding Songdo that would continue to shape debates in the following years. Through the event, organizers showcased Songdo as “smart,” global, safe, sustainable, and futuristic, aspirations that continue to fuel the expansion and normalization of intelligent urban infrastructures in cities across the world. At the time of writing in 2024, the hype and mythology surrounding Songdo's novelty have become diluted. But as Mosco would argue, the social impact of technologies is greatest when they become banal, after they pass the wondrous mythical stage and become an integral force in organizing societies. This prompts me to reflect on a fundamental aspect of the smartness that Songdo represents: its conceptual and structural flexibility.

This book takes Songdo, a “smart” city built on reclaimed land along the waterfront on the west coast of metropolitan Incheon, as its central case. Although the term “smart city” gained traction

in the 2010s, typically defined as an urban system whose operations rely on the generation and integration of data into services and infrastructure such as transportation, security, and energy management, the idea itself was preceded by imaginaries of the networked city, the information city, and even the cyber city dating to the 1980s. The development plan for Songdo was first proposed in 1986. As of 2023, Songdo's population had grown to more than 200,000. Land reclamation is still under way to extend the city's boundaries to accommodate the ever-increasing demand for real estate development and expanded facilities for bio, energy, and information technology businesses, in line with the initial vision presented at the IGF. As Orit Halpern and colleagues note about the notion of "smartness," much like the aspirational and ambiguous concept of the future itself, a smart city can be seen as the horizon of possibilities and a provisional "test-bed," which "has no perfect whole and thus is both literally and conceptually incomplete."⁸ The smart city holds the promise of optimization and constant updates as a goal, an aspiration, a perpetually receding horizon that expands and renews what constitutes it—a promise that now encompasses elements such as connectivity, urban platforms, civic participation, innovation hubs, and living labs. Importantly, the conceptual flexibility of the smart city offers strategic vagueness for the developers, city managers, and corporate vendors to sidestep difficult questions arising from the present while enabling the concept to be rescaled and replicated in other contexts.

From a critical standpoint, however, it is insufficient to simply dismiss these mythical narratives and promises for not accurately representing reality or failing to achieve their intended goals. It is essential to comprehend the underlying mechanisms that made their appeal and acceptance possible in the first place,

because, despite consistent criticisms and challenges, these myths continue to survive and serve as an enabling context for the smart city's continued popularity and integration into urban infrastructures around the world. While transitory and exaggerated, there is something compelling and powerful about these visions that resonate with people's long-term aspirations, hopes, and anxieties about the economy, development, safety, and life in the city itself. Instead of taking a condescending view, it is worth exploring how these visions and aspirations matter, in part because sometimes they inspire people to take a leap of faith, even if they might defy reason.

To truly understand the smart city, we must trace the deep cultural starting points of its historical present, through which society has imagined, facilitated, negotiated, and debated its trajectory from past to present and into the future. Songdo, one of the first prototypes of a smart city built from the ground up, is a good place to think about the performativity of the future as a driver of smart urbanism. This book's account of Songdo—spanning a longer historical arc than most studies of smart cities—reveals how the cultural work of will formation continually reimagines the future as both promise and threat to the city. As I show in chapters 1 and 2, many people in Incheon during the 1980s believed that the city's industrial economy no longer held a viable promise of the future. Beyond economic decline, residents increasingly resented Incheon's "gray" image—the darker side of unrestrained urban expansion marked by pollution, crime, and a pervasive decline in quality of life—that was expected to be remedied by the smart city's supposedly clean and high-tech image. This collective sense of being "deprived of a future," of feeling that everything had been sent to Seoul except for factories and pollution, became a crucial pretext for mobilizing the will to reinscribe a future. It generated

efforts to envision a new future, one that was imagined as more open, connected, clean, and secure. At the heart of this vision, according to city officials, planners, and academics alike, was information technology as the solution to the city's looming crisis.

To demystify this futurist optimism that has since proliferated across countless digital innovations in Korea and elsewhere, we need to examine its demand side and ask what has fueled its appeal: what social needs it speaks to and what “problems” it claims to solve. This book, therefore, charts the historical contours of the problems to which the smart city was imagined as an answer, including economic development, the environment, public security and safety, and culture, and in so doing, it situates the technological promise of the smart city within the historical relationships between technology, politics, and cities in Korea.

In their exploration of the mythical expressions surrounding ubiquitous computing, Paul Dourish and Genevieve Bell argue that the practice of conjuring transcendental technological futures is like envisioning a “proximate future.”⁹ As an ever-elusive promise, the concept of a proximate future evokes an imminent vision of a world free from conflict and brimming with prosperity—a vision that, somehow, never materializes. Critical communication scholar Sun-ha Hong deploys the metaphor of a waiting room to capture the ontological dilemma of a proximate future, whose fantastical register keeps us stuck in a state of stasis while asking us to “build our beliefs and lives in anticipation of what lies on the ‘other side,’ where the promised innovations have really arrived.”¹⁰ This unattainable quality of the proximate future is precisely what pervades and propels our technological fantasies and motivates research and development in technologies like ubiquitous computing. For scholars of culture and technology, these projects offer a lens through

which to examine what is said about the future and what such visions can tell us about the present conditions that create them and even the past aspirations that they build on. As Dourish and Bell write, “What this opens up as a topic of inquiry, then, is how new futures get to be imagined and incorporated into a research agenda such as ubicomp, and what kind of work has to be done to mark out past triumphs, current problems, and future opportunities.”¹¹ Their point underscores the need for scholarly work that identifies where the impetus for these visions is generated and becomes influential by tapping into the collective memory of past glory and the anxiety over immanent crises threatening our existence and, as a consequence, frames present problems in such a manner that positions technological development as a, if not the only, solution.

The same is true of understanding the remarkable persistence of the technological visions and affective attachment to those visions that motivate the development of the smart city. That is, while there is little doubt about the motivational power of these futuristic narratives, a closer examination of how they gather momentum and become pervasive in public discourse reveals that there is something more to be said about these myths than merely reducing them to corporate hype or an expression of government’s utopian ideology. The emergence of any smart city, contrary to what we might assume, involves a more complex explanation than the one typically involving the surveillance state or digital capitalism, which ignores the directive role of culture, with its capacity to mobilize anxiety and optimism and lay down an imaginative path toward a potential future. As my study of the development of Songdo demonstrates, the smart city is not a direct extension of a government or corporate scheme into reality but rather a complex blending of governmental rationality with citizens’ long-term

aspirations for prosperity, freedom, mobility, security, and a better life. A more effective strategy to combat the seemingly invincible power and cultural significance of smart cities, then, would be to unsettle their stability by opening a different line of questioning about their internal drives, anxieties, and aspirations on which they are premised, even if they remain unfulfilled. By denaturalizing the promise of technology for a variety of actors, including governments, corporations, and citizens, this book argues that we can see the smart city as a partial outcome of many possible futures, the reality of which is still pending.

SMART CITIES AND DEVELOPMENTALITY

In this book, I approach the concept of the smart city not only as a built environment or an urban operative system, but as something that requires an underlying mental framework, which influences people's thinking as well as feelings about the future and which is consolidated through techniques and models of governing life in the city—an affective infrastructure. This exploration is vital to understanding smartness as a discourse and political project because, arguably, the smart city's control has never been absolute; it is incomplete, contingent, and immanent and is “intrinsically relat[ed] to individual experiences, motivations, and perceptions,” as well as to the variant cultural norms and expectations.¹² In other words, control in the smart city exists as a pending possibility, in the sense that it requires a cultural process of formulating a certain future-oriented mentality, or a particular mode of response and engagement among an urban citizenry to take hold in the present.

In the historical context of South Korea, the smart city emerged as an outgrowth of interaction between developmentalism and

governmentality, an intersection that I call *developmentality* in this book. As a collective project oriented to the future and grounded in an ethos of continuous progress and development, developmentality encompasses a set of technologies and techniques for formatting mentality: a practical disposition and a mode of conduct premised on perpetual movement, expansion, and accumulation and a calculative rationality that frames the world as a series of evolving challenges. This perspective also draws on Korean cultural studies scholar Myungkoo Kang's analysis of the "developmentalist mentalité," a form of "psychological infrastructure" that formed during Korea's rapid industrialization and modernization in the 1960s.¹³ Crucially, Kang sees developmentalist mentalité not as a result but as a pivotal structure of feeling that served as a driving force behind Korea's rapid modernization. This notion underscores the value of a comprehensive analysis that considers the broader emergence of a demand for technology-driven urban transformation that preceded and conditioned the smart city's emergence. This book's analysis therefore acknowledges but moves beyond macro-level political-economic accounts of the smart city to address the immanent layers of a deeply held mental map, arguing that the prevalent ethos, aspirations, anxieties, and normativities subtending urban development are equally important contributing factors in the formation of a smart city.

Critical scholarship on smart cities has been rapidly expanding across many fields, including geography, urban studies, communications and media studies, science and technology studies (STS), information science, and architecture.¹⁴ Scholars from these disciplines share an interest in understanding how digital technologies reshape urban life and governance. Together, they examine how the computational logic of smartness, enabled by

the pervasive use of data systems, sensors, and algorithms, interacts with the social and physical processes of urban development. Although this research is diverse, it tends to revolve around similar questions: How do smart cities work, both as discourse and as material reality? And what social, political, and economic effects do they have? Some scholars interpret smart cities mainly as products of digital capitalism—as projects that reinforce dominant political-economic systems of power and surveillance. Others focus on how smart cities evolve differently depending on local histories, politics, and everyday practices. This ongoing debate reflects a deeper tension within the field: Should we think of all smart cities as essentially the same, or as varied and locally specific, taking shape in different ways while still connected by the corporate logic of “smartness”? Although this book draws on insights from both perspectives, its focus lies elsewhere. Rather than centering the structural forces that homogenize urban experience or how one might actually experience such a city, it examines the cultural and historical formations that make its emergence possible in the first place. It shifts attention from the consequences of technology to the process of its becoming. In so doing, this book contributes to the critical scholarship on smart cities by foregrounding their historical present and the specific historical pressures surrounding its emergence. Simply put, it asks: When, where, and how does a smart city begin?

Although it may seem as though they are driven by a singular and coherent impulse, smart cities are the outcome of complex ranges of mediations and contingent responses to crises, which never present themselves in a singular, fixed form. While the assertions about futurity in places like Songdo were seen as exceptional in 2009, sixteen years later, smartness is viewed more as a generalized reference to computational urbanisms,

with modifiers like “sustainable,” “creative,” and “innovative” signifying its variations. For instance, as Gökçe Günel observes in the context of Abu Dhabi’s Masdar City, whose sci-fi futuristic vision is offered as a “thinly disguised version of the present,” the smart city is seen as a mode of response to planetary issues of climate change while reducing complex social, political, and ethical problems to the flat plane of technical adjustments. Yet, in its response to the problem, the smart city functions as a “capacious and heterogeneous” entity, involving actors with various contradictory agendas.¹⁵ She argues that Masdar City is thus “not one thing but rather an amalgam of widely varying ambitions and demands for the future; the believers, the utopians, the cynics who contributed to this project all acted upon this future in unique ways.”¹⁶ The approach suggests viewing the smart city as a fluid and provisional construct, exhibiting a profound conceptual and structural flexibility. It is a constantly becoming and evolving entity rather than a static one. In a similar vein, Burcu Baykurt and Christoph Raetzsch see smartness more as “practical responses to shifting structural conditions of managing cities” than as “predominantly market-driven” or “purely celebrating technologies for their own sake or solely projecting futuristic assertions.”¹⁷ Noting its “disjunct temporalities,” they emphasize how the smart city narrative strategically moves between the past, present, and the future to render itself legitimate and useful.

With a few exceptions, formal analyses of smart city development have not given enough attention to the complex role of culture, often disregarding how specific problems that each city responds to had been formulated. Focusing mostly on macro-level political-economic exchanges, they underexplore emergent or preemergent conditions of development—what this book refers to as developmentality. Rob Kitchin, one of the most prolific writers

on this topic, shares a similar diagnosis of the field, stating that the “absence of in-depth empirical case studies of specific smart city initiatives” and the “lack of detailed genealogies of the concept” are the most salient shortcomings of the current smart city scholarship.¹⁸ This book addresses this gap. It does so by exploring and articulating the specific genealogy of New Songdo City and its interplay with the history of urbanization and digitalization, distinguishing it from a history of ideas or of individual technologies and systems. This book’s narrative of Songdo examines the dispersed beginnings of a smart city by surveying the expansive technologies and techniques for governing and managing the city’s mobility, environment, security, and future, considering both their discursive and nondiscursive dimensions.

In advocating a “more than empirical” account of technological developments, Jennifer Gabrys has argued that any investigation of the digital would be incomplete if it did not account for a “more fantastic register of technologies, as well as the ways in which technology does not constitute an orderly narrative.”¹⁹ Her analysis examines a wide range of technologies and events that are brought into specific relations to shape and co-create the process of the smart city’s formation as a smart environment. It demonstrates how development trajectories often exceed assumed intentionality and progress, or even fixed subject-object relations, urging us to attend to the *processual* and *immanent* conditions that contribute to the formation of smart cities.²⁰ The concept of immanence is crucially taken up by Thomas Osborne and Nikolas Rose, who interweave the history of cities and subject formation along the lines of the long-term *dispositif* (apparatus) of the government, regarding its management of public health, crime, risk, enterprise, and even pleasure. To problematize a specific urban function is to invoke a certain normative idea of citizenship,

which forges a flexible relationship between the personal and the collective, between the citizens and the cities. This approach to the immanent layer of the city aligns with their perspective on power and governmentality: “Government is not reducible to politics, the economy, or morality; one can never just read off mentalities or strategies of government from the ‘stage of capitalism’ or the complexity of social organization.”²¹ Here power manifests not merely as the direct actions of the government but also as the capacity to problematize specific areas of the city and to make assertions about how the collectivity of subjects can partake in its effort to redeem the future. Consequently, the politics of the smart city emerge as the struggle over envisioning and prioritizing a distinct vision of the future, where constant negotiations emerge over plans, schemes, strategies, and tactics, all designed to manage, influence, and align public aspirations with particular objectives. These tactics engage not just with rational and scientific considerations but also with the more elusive and affective aspect of desires and aspirations.

The relationship between the smart city and governmentality has been explored largely in the liberal-democratic contexts of the West, where scholars across disciplines have enriched the Foucauldian analytical tool kit by proposing terms like “smartmentality” (Vanolo), “environmentality” (Gabrys), and “governmobility” (Baerenholdt), among others. These ideas shift the focus away from traditional political-economic analyses that have framed the smart city as a site of competing oppositional forces—typically presented in binary terms of structure versus agency. Unfortunately, political-economic analyses often risk portraying the effect of neoliberalism as totalizing, leaving little room to examine the specific operations or consequences of particular technologies. Technological change tends to be subsumed into

broad narratives of capitalist development or state power rather than analyzed in its own accord. Yet the smart city is not a singular technology; it is a complex ensemble of specific artifacts such as sensors, cameras, platforms, networks, and protocols, underpinned by multilayered infrastructures and institutional arrangements that together respond to contingent problems. To treat it as a unitary technological object is therefore a bit too abstract to support precise analysis. The governmentality framework, by contrast, allows more conceptual flexibility to examine how smart cities chart a shifting mode of governmental strategies in the age of computation and networks, examining assemblages through which material and social registers are intertwined. Importantly, the operative rationalities of the network do not induce a demise of sovereign power. Rather, they facilitate its reconfiguration and adaptation. To understand this reconfiguration, it is crucial to examine the contents of these diverging assumptions and expectations about the future and to comprehend how they are transposed onto information and communication technologies, thereby governing our urban life under the aegis of “smartness.”

Beyond expanding the scope of the existing literature on smart cities and governmentality, the developmentality framework offers critical analytical leverage for understanding those that emerge in societies marked by the historical legacy of the “developmental state,” particularly across East Asia. Scholars of smart cities in the Global East context have observed that much of the literature presumes that smartmentality operates according to a neoliberal, capitalist logic, with limited attention to how it takes shape within distinct cultural and historical conditions of non-Western contexts.²² In contexts such as South Korea, India, China, and Singapore, ambitious smart city initiatives

have rapidly proliferated, rendering the city an ongoing testing ground for data extraction and data-driven surveillance. These projects are often propelled by an anxious combination of comparative and competitive urbanism and techno-statist aspirations for “state-steered technological solutionism.”²³ Scholars in postcolonial studies and STS, through their efforts to counter “digital universalism,” highlight the plurality of motives and governance structures within which they are iterated, aligning with this book’s goal to chart those dynamics in the developmental context of South Korea.²⁴ Notably, in the context of “developing” countries, smart cities often exhibit techno-nationalist ambitions where cities are positioned to “strategically claim their own position within global networks, with the goal of redirecting the flows of capital and human resources through their own cities.”²⁵

As Ayona Datta astutely points out, the mission for smart cities in these contexts, instead of being solely driven by the forces of digital capitalism, weaves together a range of intersecting myths, narratives, and temporalities, giving rise to what she calls the ambivalence of postcolonial futurism.²⁶ Postcolonial futurism, which merges urbanism and nationalism with the utopian vision of speed and technological progress, materializes in the form of smart cities, where it intersects with the enduring colonial aspirations for scientific and technological progress, the imperatives to preserve the mythology of technology and the nation, and the neoliberal drive toward continual improvement and optimization of the urban infrastructures and behavioral patterns of its inhabitants. This is why Datta goes on to argue that the utopian pursuit of smartness cannot be fully grasped without examining the problem of development and modernity and the underlying sociopolitical and historical context in which they are rooted. These perspectives underscore the heterogeneity of

the motivations that undergird formulation of cities in globally peripheralized regions, as observed by postcolonial scholar and cultural theorist Cameron McCarthy and colleagues, which may be more receptive to the imperatives to “catch up” with the smartness mandate, which “operates disingenuously through tropes of ‘rejuvenation’ and ‘transformation,’ always promising a Utopia that is right beyond the horizon.”²⁷ Within this dynamic, the city becomes a key site relentlessly cast as a “cabinet of curiosities,” displaying the “representative furniture that all must want and have.”²⁸

In South Korea, normative goals of nation building and economic development have historically justified the government’s oppressive practices in urban infrastructure building projects. As STS scholar Chihyung Jeon has illustrated, Korean infrastructure has been a productive site to observe the country’s developmentalist aspirations to fast-track its path to modernization since the 1960s.²⁹ The techno-optimistic longing for a modern, advanced, and better future that surrounds these projects renders them not just a material development but also a deeply affective process, particularly in the context of developing societies.³⁰ That said, what has become newly prominent are the evolving techniques and technologies of the government that operate across multiple scales and problem domains, as well as the ways in digital technologies have become intertwined with moral imperatives surrounding personal health and safety, environmental cleanliness, and social connectivity. As I show in chapter 1, a new conception was already emerging in the 1980s that understood governance as the management of circulation—of bodies, data, and things—that was particularly manifested in design prototypes of “teleports,” “hub city,” and “airport city” that were tested in Songdo. At the same time, the remarkable persistence of the smart city

lies in its capacity to align itself with popular aspirations for a “safe city,” a “creative city,” and a “green city,” operating *through* collective desires for safety, prosperity, well-being, and improved quality of life, not *against* them. In the smart city, “the individual” is not even the principal target of governance; rather, the perpetual recalibration of the system is its permanent goal. The evolving power dynamics of the smart city require situating them in relation to a changing mode of citizenship—where citizenship itself becomes operationalized through everyday practices of vigilance, safety management, and environmental monitoring, increasingly sensed, mediated, and actuated by data. This is precisely why I am uncomfortable with the assumption that developmentalism is merely an extension of the developmental state’s legacy or that expanding citizen participation can automatically remedy the problems of the smart city. What is at stake here is not simply a shift in policy or ideology, but a transformation in the *topology* of power itself. The operation of power in the smart city, with its conceptual and structural flexibility, blurs the boundaries between state and citizen, between governance and self-regulation. Just like the idea of the future itself, it constantly renews and postpones its goals. These ambiguities mark a broader reconfiguration of sovereign power in the network age that governs less through direct command than through updates, adaptation, and feedback. As media studies scholar Tung-Hui Hu puts it almost counterintuitively, the rise of the (cloud) network “indexes a *reemergence* of sovereign power within the realm of data,” taking on mutated forms and revitalized within the data cloud.³¹ It raises critical questions about where the state ends and agency begins; to what extent the very idea of the state can be stretched across distributed networks; and whether it remains possible to distinguish between active and passive participation in spaces

such as urban “living labs” and other experimental test beds of the smart city. Approaching these questions requires a different analytical framework and strategies, one that developmentality, as proposed in this book, seeks to provide.

In conventional narratives of Korean history, the 1997 Asian financial crisis is often considered a turning point when the sovereignty of the developmental state began to be dismantled, a process shaped by a demand for neoliberal restructuring of the national economy. It is in this context that geographer Hyun Bang Shin reads the Songdo smart city project as an outgrowth of intersecting socioeconomic transformations; as the South Korean government was pressured to internalize the neoliberal logics of capital accumulation, it turned to private-public partnership initiatives and “global technological fixes to urban problems.”³² Other studies on Songdo have likewise illustrated how the city reflects the growing influence of neoliberal entrepreneurialism and its entanglements with the enduring structure of the state-led development model. This is consistent with the assessment of critical geographers like HaeRan Shin, Se Hoon Park, and Jung Won Sonn, who emphasize that “statehood is transformed into a network,” suggesting that while the state continues to play a central role, the developmentalist growth regime has increasingly taken on a “multiscalar” form.³³

Critical geographers’ assertion that Korea’s traditional power dynamics based on statist hierarchies have evolved into networks operating at multiple scales warrants a more careful exploration. Although these analyses of Songdo have tended to use the notion of a network more or less metaphorically, an in-depth look at Songdo from the 1980s on suggests that “network” was being understood simultaneously as a concrete organizational principle and a technological design scheme in the creation of the new futuristic city, reflecting the growing significance of information and

communication technologies (ICT) in cities at the time. Yet the specific techniques and technologies involved in the shifting forms of sovereign power represented in Songdo have remained under-analyzed, an oversight that may stem from a general reluctance to delve into technological investigations and a preference to treat forces of production as all-encompassing rather than examine the distinct genealogies and implications of specific technologies. Consequently, technological shifts tended to be broadly categorized within the overarching narrative of globalization, without adequately examining the specific discursive and material contexts from which they arise.

The changes brought about by emerging technologies and broad shifts occurring in the social and material forms of smart cities challenge analytic frameworks that rely solely on fixed categories of the state and the political economy. The level of structural and conceptual fluidity afforded by the smart city's digital networks calls for a comprehensive revision of the existing state-centered approach to technology and cities, extending beyond the "developmental state" concept, which has been a prominent framework in Korean and Asian studies.³⁴ The concept of developmentality, as proposed here, redirects some of the statist orientations prevalent in previous analyses and instead views development as a part of a problematization rather than as a foregone conclusion. It is a genealogical undertaking in the Foucauldian sense, in that it follows the "complex course of descent" and "passing events in their proper dispersion" rather than "pretending to go back in time to restore an unbroken continuity that operates beyond the dispersion of forgotten things."³⁵ With developmentality, the critique of smart urbanism attempted here does not trace a linear or teleological progression toward the perfection of a singular statist goal but rather attends to the contingent and dispersed processes of its

emergence, shifting in shape and form in response to the varied problems to which it seeks to respond.

In her defense of the developmental state thesis, Elizabeth Thurbon calls for broadening the notion of developmentalism beyond a fixed set of state-led economic policies to include the structural, political, and institutional contexts in which they are embedded. Central to her argument is the reconceptualization of developmentalism as a “developmental mindset,” defined as “a worldview that is focused on a desire for national techno-industrial catch-up and export competitiveness via strategic interventions by the state in economic life to promote national strength in a hostile and competitive world.”³⁶ This mindset, she argues, is most discernible among policy makers, who continue to operate under the legacy of the developmental state, even in the wake of financial crises and neoliberal reforms that were once thought to have dismantled it. Rather than disappearing, the developmental state, in Thurbon’s view, persists through “the ensemble of ideas that inform the mindset . . . of the country’s political leadership.”³⁷ The “developmentally minded policy makers” at the center of her account thus embody a continuing orientation to economic nationalism and state-led competitiveness.

While this book shares Thurbon’s aim of expanding the developmental state framework to include enduring attitudes, ambitions, and worldviews, its analytical terrain is more technocultural than political-economic. I read Thurbon’s work alongside Gabrys’s to consider the spatial and material processes through which power is distributed, most visibly in the making of a smart city. I also examine the discursive processes through which desire for the “smart” is produced, often by conflating its meaning with that of the “green” and “secure.” As Julie Sze observes in her study of “eco-desire” in the development of Chongming Island, such

projects often involve “the fusion of desire, projection, profit, and fun in certain top-down versions of eco-development.”³⁸ Similarly, discourses about smart Songdo hinge on the promise of a “better future,” one in which the problems of the present are imagined to be overcome and transcended through technology. This desire is not confined to state elites alone but dispersed across the design, planning, and everyday imaginaries of urban life in Songdo.

In this sense, the mindset at stake here is not merely that of policy makers, but a broader cultural formation—a developmental mentality that has become normalized among government officials, residents, corporations, technologists, and creative practitioners alike. As I show in chapter 2, even those who did not directly participate in Songdo’s real estate speculation came to share its forward-looking ethos and welcomed the city’s green and high-tech image as a replacement for Incheon’s old industrial identity. The supposed greenness of Songdo, with its industries dedicated to biotechnology (BT) and information technology (IT), symbolized a morally superior form of development, even as the long-term process of land reclamation entailed material destruction of its coastal ecologies. The environmental activists who resisted the reclamation of Songdo’s tidal flats had to negotiate with the idea of development itself; rather than anti-development, they called for pathways of development that would minimize the environmental impact. In response, the concept “ecosystem” gained a new prominence in the smart city, integrating the environment as an objective of systematic governance and redefining the problem of environment in datafied terms. In chapter 3, this ethos reappears in the residents’ growing demands for safety and surveillance. The installation of more cameras and sensors—legitimated by the fears of crime and various dangers and risks involved in living in the city—became one of the most visible

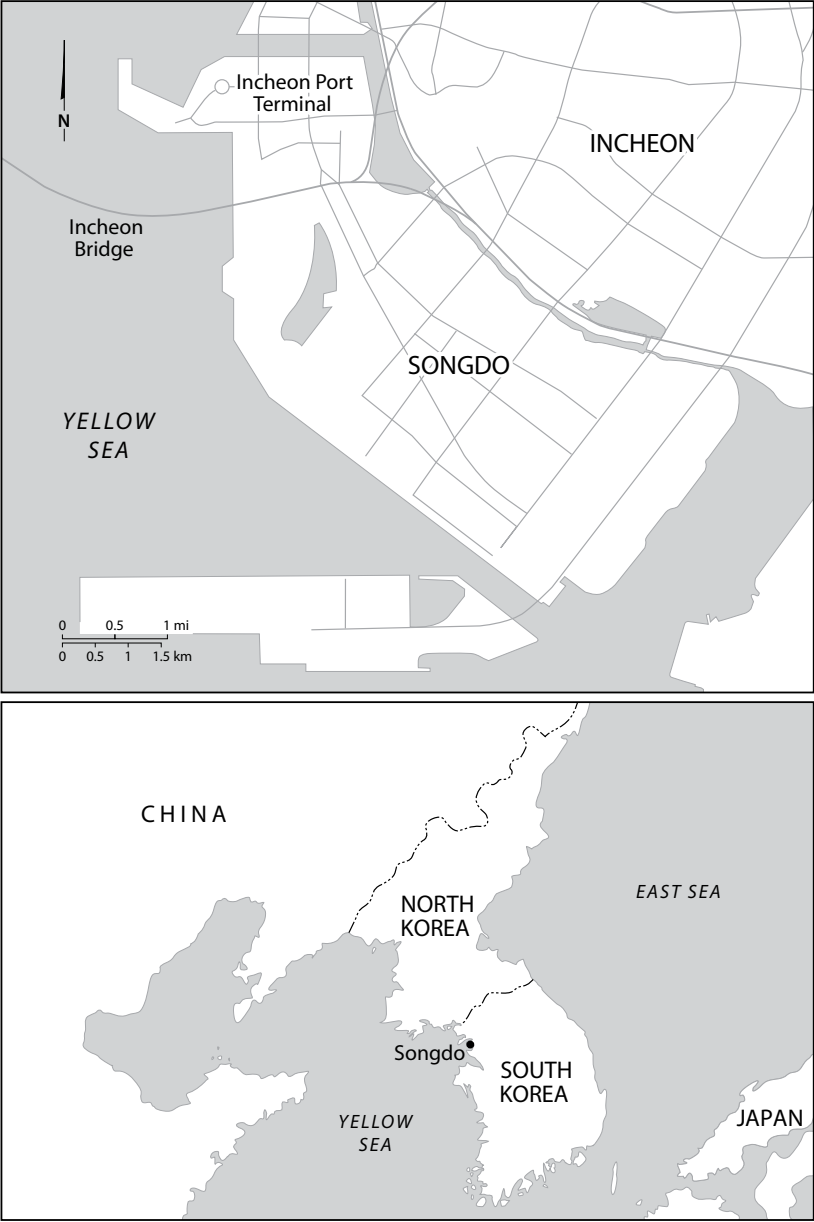
features of the city's smart infrastructure and a widely promoted factor that was believed to enhance property values and the city's desirability. Even without direct evidence linking CCTV expansion to reductions in crime, the belief that increasing surveillance keeps the city safe functions for many residents of Songdo as an *affective fact*. In chapter 4, Songdo emerges as a site that channels developmentality through a voluntary, interactive, and affective mode of citizen engagement celebrated in creative cultural industries. This tendency is most visible in cultural content produced in Songdo, such as virtual idols and K-pop music videos, which feature motifs of idealized personhood and technologies of the self that sustain a new developmental discourse of a smart city centered on high-tech and human creativity. These diverse examples reveal how the enduring developmental mindset unfolds and takes shape across the multiple problem spaces of everyday urban life, where technological development is continually presented as a, if not the only, solution.

The book takes a genealogical approach to development that illuminates the continuities and discontinuities of developmentality as a prevailing governmental rationality in the context of South Korea, where visions of technological futures are not only precipitated but also actively aspired to.³⁹ My approach is to examine the process of momentum building for a technology-driven future when it exists as "horizon of possibilities" rather than focus on the macro-economic forces or the uneven material consequences after the fact. Instead of assuming development as an uncontested goal inherent to the state, this book investigates how cities like Songdo operate as infrastructures that channel developmentality—spaces where yearnings for development are shaped and asserted, drawing on normative visions of desirable futures and reinforced by specific narratives and practices that

identify areas in need of transformation or upgrading. Crucially, what sets developmentalism apart from the political-economic approach to developmentalism (such as that of the developmental state) is that it conveys a more distributed sense of normativities, aspirations, and techniques of governing through milieu rather than a set of policies oriented to the state's developmental goal. This framework calls for a deeper exploration of which public concerns, moral imperatives, and anxieties were leveraged to legitimize regulatory decisions, what scientific knowledge and authority was employed to validate those actions, and how these processes collectively contribute to our becoming the subjects of smart cities today.

WHAT KIND OF CITY IS SONGDO?

Several commentators on Songdo have wondered why information and communication technology has come to occupy such a privileged position in Korean imaginaries about the future. One of the common narratives about Songdo that has proliferated since the early 2010s is that the city is a flat, dystopian example of a smart city. Some critics, perhaps already primed to see the dramatic techno-dystopia of the future envisioned in sci-fi films, have observed the early development of Songdo and ascribed to it an overdetermined interpretation. For instance, a journalist for the *Korean Exposé* once described Songdo's ambience as a "Chernobyl-like emptiness," where the "silent and post-apocalyptic" cityscape turned into a "human desert."⁴⁰ Even serious scholars have propagated this tendency, including British sociologist Richard Sennett, who commented on Songdo in *The Guardian*: "The massive units of housing are not conceived as structures with any individuality in themselves, nor is the ensemble of these faceless



Map 1. Songdo. Cartography by Bill Nelson.

buildings meant to create a sense of place.”⁴¹ While noting the absence of any regard for the history and specific characteristics in prevalent discourses about the smart city, Adam Greenfield’s study perpetuated the generic caricaturing of Songdo as a homogeneous landscape, which he compared to Masdar City in the UAE and the PlanIT Valley in Portugal.⁴² Notably, he identifies Songdo as one of the places “where the ideology of the smart city finds its purest expression.”

When I started the research for this book about ten years ago, the story of Songdo was just beginning to gain traction in the global tech community. Since then, the city’s population has grown steadily, from 86,002 in 2014 to 139,580 in 2018 to 194,704 in 2022 to 226,316 by 2025.⁴³ Compared to other parts of Incheon such as Dongchun-dong and Okryun-dong, Songdo has a distinctly younger demographic profile. The age cohorts 11–20 and 41–50 particularly stand out, while the proportion of older residents ages 61–70 and 71–80 remain relatively small.⁴⁴ The concentration of young adults in their 30s and 40s is especially notable. As J, one of my interlocutors, explained, this demographic pattern is shaped by two main factors: first, Songdo’s appeal as a family-friendly environment for raising children; second, its growing employment opportunities. She herself moved to Songdo in 2014 for a job and decided to settle permanently. “You see the rows of charter buses shuttling people back and forth to Sinchon and Gangnam every day,” she told me, describing the rhythms of daily commuting that link Songdo to Seoul. These flows characterize the distinction in Songdo’s daytime economy when the influx of workers from outside the city swells its population. By contrast, evenings and weekends have a different vibe. This is when residents return home and visitors from outside populate the city’s spaces, jogging through Central Park or strolling with families in the outdoor shopping malls at Triple Street and the

Hyundai Premium Outlets. For J, Songdo feels “quite diverse,” in part because nearly everyone living there had arrived recently from other neighborhoods in Incheon, Seoul, and elsewhere. “There is no one originally from Songdo,” she remarked. When asked what drew people to the city, she emphasized three things: “cleanliness, convenience, and safety.”

Crossing onto the island via the Convensia Bridge, the main artery linking Songdo and Dongchun-dong, a dramatic shift in landscape becomes immediately apparent. A sudden sense of airy spaciousness unfolds, marked by clean, straight lines and buildings boasting LEED certifications and award-winning designs, such as the Convensia Convention Center and the Tri-bowl Gallery. Central Park, a frequent backdrop in vlogs and popular TV shows like *The Return of Superman*, stands in stark contrast to the dense clusters of matchbox buildings, warehouses, and apartment complexes found in neighboring districts. This contrast in landscape later manifests as a form of exclusionary sensibility felt in Songdo, as author Ahn Eunbyeol observed in 2016:

There were no small apartments under 30 pyeong (about 990 square feet) in the area; young mothers in their early 30s lived in large units, drove imported cars, hired housekeepers (called “aunties”), adorned their homes, maintained their bodies through regular care, and created an atmosphere where it felt as if one had to adopt an alien-looking coffee machine to savor artisanal coffee from various origins.⁴⁵

That Songdo’s desirability hinged on its ability to symbolize and sustain a sense of difference and exclusivity—a glimpse of a future that is just around the corner, yet carefully managed and selectively accessible—creates tension with the city’s technological promise of real-time connectivity and openness. Anthony Townsend, an urban tech consultant known primarily



Figure 2. View of New Songdo City. Photo by author.

for his book, *Smart Cities: Big Data, Civic Hackers, and the Quest for a New Utopia*, dedicated substantial space in the book to his 2009 exposé of Songdo. As he writes, “Songdo seems intent on engineering serendipity out of the urban equation.”⁴⁶ Although his remark seems to imply a morally degraded status of the city where the future was too excessively pursued, it also reveals a secret envy of technologists in the West who marveled at the scale and sheer speed of development in Songdo. Townsend’s observation draws on his earlier analysis of Korea’s rapid digitalization of cities in the 2000s, which he attributed to the Korean penchant for speed and anxiety, encapsulated in the common Korean phrase “*pali pali*” (meaning “hurry hurry”). To him, the phrase encapsulates a general ethos in Korea, which he sees as “an anxious place inhabited by driven people, where the phrase *pali pali* is a ubiquitous incantation.”⁴⁷ He continues by suggesting that while some casual

observers had “attributed too much credit to national policy as the deciding factor” in these achievements, “competing explanations based on other cultural and economic factors” would offer equally compelling explanations for the phenomena.⁴⁸ The imperative to seek “other cultural and economic factors” supports his assertion that the “U-City [Ubiquitous City] is a uniquely Korean idea,” which positions Songdo as a logical outcome of historical progress, given Korea’s historical inclination toward speedy progress in digital developments. In his conversation with *The New York Times*, he remarked, “There is an historical expectation of less privacy. Korea is willing to put off the hard questions to take the early lead and set standards.”⁴⁹

This “willingness to put off hard questions” and the inherent penchant for speed and development that Townsend identified as a crucial factor in Korea’s fast digital infrastructures, while haz- ardously bordering on cultural essentialism, nonetheless provide some entry points for us to ask new questions concerning the cul- ture of smart cities. The allure of “cleanliness, convenience, and safety” that draws newcomers to Songdo does not simply reflect urban snobbery or a status symbol. Rather, it reveals a facet of developmentality that envisions one’s well-being and security as attainable by technological means. For instance, as I demonstrate in chapter 3, many parents conflate technologies such as CCTV and smart tracking devices with an enhanced sense of control over their children and a greater feeling of safety, with an assump- tion about technology as emblems of transparency. This sense of personal enclosure is reinforced by urban security features like smart CCTV systems and RFID-based entry controls frequently visible in Songdo, alongside traditional forms of surveillance like on-site security personnel. These mechanisms physically and symbolically demarcate the boundaries between inside

and outside, constructing a material landscape of security. The pairing of technological expansion and enclosure underlies the contradictions that define the cultural landscape of a smart city such as Songdo, where different groups project different futurist visions. Residents often regard technology as a means to a freer and more secure way of life, while the government deploys it as an instrument for enhancing urban efficiency and control. In both cases, the smart city is framed as a response to future uncertainty, with its technological promise resting on its perceived ability to give tangible structure to ever-present risks, rendering them detectable, knowable, and thus more governable.

This contradictory dynamic of freedom and control surrounding information technology has deep historical roots. The period when the blueprint for New Songdo City first emerged in the Incheon city government's "Songdo New Intelligent City Plan (1986)" was marked by shifting relationships between technologies, cities, and the government. The 1980s witnessed the growing national interest in ICT as a tool for addressing social, political, and economic problems in the cities. On the one hand, the imperative to shift from centralized control over populations to embrace a more regional and global outlook was consistent with the visions of Incheon city officials who began to see the need for local government to assume responsibilities traditionally overseen by the central government. On the other hand, amid the political tumult of the 1980s, ICT emerged as a symbol of the Tofflerian "future shock" in parallel with often-conflicting plans for the nation's trajectory. While the authorities viewed ICT as a tool to perpetuate the developmental momentum, as seen in the government's decisive support of the domestic electronics manufacturing sector, the populace interpreted its rise as a promise of new communicative freedom and even a precursor to democratic liberation.

The nationwide liberal reform that introduced the *jibang jachi* (local self-governance) policy in 1994 provided a crucial institutional backdrop for citizens to elect their own representatives, such as mayors and city council members, for the first time in modern Korean history. Since then, city governments have actively engaged with the global marketplace of ideas, seeking suitable developmental models, in line with the central government's imperative to customize its general rational-planning method for specific local environments. It was around this time that ideas of new urbanism like "culture city," "technopolis," and "cyber city" gained popular traction and reshaped the relationship between the city, the central government, and ICT that the New Songdo Intelligent City project exemplifies. Yet several aspects of the Songdo project distinguished it from other new town developments orchestrated by the central government. As the project's title, "Northeast Asian International Business Hub Project," indicates, planners envisioned Songdo as fundamentally different from residential new towns. They implemented strategic policies and land use measures to develop an international business district centered on high-tech industries rather than a satellite town whose fate was dependent on Seoul. The approach thus emphasized the need to "boldly escape from the domestic framework to adopt a globalist framework."⁵⁰

This emphasis, as Park Yeon Soo—the planner who drew up the blueprint for Songdo in the early 1980s—told me, is inscribed in the very physical configuration of today's Songdo. The city is built on an artificial island tethered to the older parts of Incheon by seven bridges (Bio Industry Bridge, Songdo International Bridge, Convensia Bridge, Art Center Bridge, and A-am Bridge 1, 2, and 3). Each bridge marks not only a point of connection but also a symbolic passing from an industrial past to the future. Songdo's

spatial orientation is consistent with its temporal orientation: it is firmly directed toward the future, with subway station names like Knowledge Information Complex (*jisik saneop danji*) and Techno Park that decisively distance it from Incheon's manufacturing identity. Walking through Songdo, one encounters the physical expression of this ambition, such as the corporate headquarters of Samsung Biologics and Posco Engineering & Construction that stand alongside smaller enterprises in information technology (IT) and biotechnology (BT). International organizations such as the World Bank and the United Nations maintain offices here, as do the branch campuses of foreign universities like the University of Utah and George Mason University. Their presence lends credibility to the city's self-image as "global," "innovative," and "smart." Together, these institutions, infrastructures, and symbols convey developmentality not only as a set of government policy, but as a lived reality manifested in urban architectural form.

Although Songdo started gaining international media attention in the early 2010s—including the BBC's depiction of it as a "city-in-a-box" and NPR's observation that it "feels a bit like a theme park"—such coverage largely focused on the city's ambitious technocratic vision of building a Ubiquitous City (U-City) on a city-wide scale—echoing Cisco's vision of the "Smart+Connected Communities"—aimed at optimizing the efficiency urban infrastructure through ICT.⁵¹ Yet the project, already conceived in the 1980s, was driven by a confluence of contradictory desires for openness and exclusivity, shaped by historical tensions between freedom and control, centralization and decentralization. These competing forces rendered the city simultaneously familiar and otherworldly, proximate and distant—an immanent reality and a future perpetually postponed. As this book argues, a cultural understanding of these tensions resists straightforward

interpretation, yet reveals the ambivalence and fundamental contradiction at the heart of the smart city that Songdo so vividly embodies.

By now, smart city technologies are by no means exclusive to Songdo; they have become pervasive features in new housing and city development projects in Korea and around the world. Within the Korean context, urban development has been perceived less as a corporate-driven process and more as a governmentally regulated affair. This explains why Songdo, along with other Korean smart cities, is often positioned as a testbed city—or as many bureaucrats like to call it, a “demonstration complex [*siljeung danji*],” or a “demonstration city [*siljeung dosi*].” This status serves as a significant pretext to justify these experiments, framing them as fulfilling dual objectives: exempting the developers from the usual state-imposed regulatory framework and serving as a testing ground for the government’s experimentation with new techniques and technologies aimed at regulating people’s mobility and inducing economic growth and job creation. Furthermore, the vision to establish “the first u-Society on the best u-infrastructure,” positioned the city itself as a model that could be exported, underscored by the government’s promotion of “K-Smart City” accompanied by business strategies for the smart city’s overseas expansion. This project therefore demonstrates both the *continuity* of the intent to export Korean-made technology and construction services abroad and the *discontinuity* of the government’s previous goals that focused on the internal function and ordering of its territory, anticipating uncertainties and crisis at a global scale. Here a city like Songdo is conceptualized as a prototype and a test bed, a showcase of Korean-made technology to the world, offered as a preview of possibilities without

fully committing to them. Songdo embodies a shift in contemporary epistemology that is concerned not with “documenting facts in the world, mapping spaces, or making representative model but rather with creating models that *are* territories.”⁵² Songdo exemplifies a site where the government is not only administered but actively shaped and transformed, and these processes include the testing of various legitimation strategies, aligning people’s desire for progress and survival with the government’s moral ambition for development.

PLAN OF THE BOOK

This book offers a history of the present of a smart city to provide an expanded account of its emergence and continued development, intertwining matters of technology, power, and the cities. Tracing multiple historical trajectories is a genealogical operation in the Foucauldian sense, encompassing diverse archives, asking: What are we to possibly include in the account of “cultures of a smart city”? Instead of evaluating its success or failure, this book situates Songdo within the long-term problematics of the government to examine how a network of discursive and nondiscursive elements is brought together to address problems arising from specific historical contexts. To achieve this, I take an approach of “standing at a middle distance from it, mindful of but not wholly immersed in either its virtuality or its materiality.”⁵³ The materials and references assembled in this book draw on diverse sources relevant to the design and construction of Songdo, drawing from the history of urban infrastructure development and information and communication technologies, archives on the history of environmentalism and the “green city” movement,

the rise of so-called scientific policing and security methods in the cities, and theoretical literature on critical infrastructures, surveillance, and data studies.

I mobilize three categories of primary sources that address this larger sense of the smart city as a complex techno-cultural phenomenon: representations and anticipations of the smart city and its relation to the future, as seen in Korean popular media, administrative records, public forums, and corporate advertisements; archives of planning documents, that is, maps, blueprints, policy proposals, white papers, design sketches, project outlines, and research reports associated with making Songdo; and, finally, my own fieldwork primarily conducted between May and December 2017, with additional visits and follow-up observations conducted intermittently in the years that followed. By bringing together these different source materials, Songdo is presented as part of a set of broader infrastructural developments shaped by the shifting power dynamics brought about by multiple historical forces. I map dispersed instances wherein the traditional statist hierarchy, in the face of its structural challenges, operates against and beyond its judicial power while simultaneously devising new spatial and digital strategies to maintain its sphere of influence, including infrastructural arrangements aimed at facilitating mobility and circulation in and through Songdo, like the construction of the airport and highways, the creation of free economic zones, and the deployment of advanced information and communication technologies for monitoring urban mobility and safety.

The overall narrative of the book follows a chronological order. Chapter 1 charts the early development of Songdo, from 1986 to 2009, examining the emerging concepts and spatial framework that informed the Incheon city government's initial design of the New Songdo Intelligent City in 1986. While the rational

management of movement, speed, and flow had been a key objective in infrastructure development prior to Songdo, during this period, ideas about the city were being reshaped by the prevailing discourses about the future, globalization, and information and communications technologies. Terms like “information,” “communication,” “hub,” “control,” and “linkages” became common parlance and a central motif of Korea’s national and urban governance in the 1980s. Parallel advancements in personal computers and home automation technologies started to play a significant role in domestic spaces and were integrated into the early visions for Songdo. As cities began to be viewed as critical nodes in the global network and their vitality was seen as dependent on their capacity to facilitate movement and flow, planners aimed to develop Songdo into a hub for the international movement of information, goods, capital, and people, aligning with new logistical facilities such as the airport and seaport. As a result, transportation and communication infrastructures were increasingly connected, as they were intended to function together to encourage urban mobility.

Chapter 2 continues the narrative, tracing the development of Songdo in the 2000s and examining the incorporation of sustainability and environmental standards into a developmental blueprint. The chapter sheds light on Songdo’s physical transformation from wetlands to a smart city, paralleled by the changing public perception of Incheon. Once seen as an industrial “gray city,” it transitioned into a smart and green city. The chapter juxtaposes these contrasting urban imaginaries and examines how they intersected and were defined against each other. Songdo’s evolution underscores the adaptability of developmentality, which broadened its scope to address environmental concerns as aligned with the city’s developmental goals. The chapter also details performative indicators that measure and exhibit the

urban environment in terms of carbon calculations, green building codes, standards, energy management systems, and green certifications. These mechanisms frame the environment as an expanded milieu of government, all while preserving its core objective of development.

Chapter 3 is concerned with the problem of security and risk management in the city. It builds on the previous chapters by showing how the problem of risk and safety has been anticipated and integrated into Songdo's infrastructures. As the language of national security gradually shifted into a less overtly militant program of personal safety and self-care toward the end of the twentieth century, techniques of defining and governing risks became more personal and spatial in nature. This chapter illustrates how the smart city's security technologies draw resources from technical advancement in data collection and analysis and the government's constant work of conjuring risks in various scales. The dominant technoscientific rationality gave precedence to statistical record keeping in all aspects of life in the cities—population, housing, employment, traffic, security, environment, and natural resources. As data analysis increasingly emerged as the primary and ostensibly more “objective” basis for decision making, a rising mental disposition likewise favored statistical evidence as more trustworthy than personal accounts of events. Furthermore, what is commonly observable in Korean media as the “public good” and the public's “right to know” was increasingly prioritized over an individual's right to privacy. The same belief that control, discipline, and, increasingly, public safety take precedence over personal freedom is evident in the predominant approach to surveillance in Songdo and in South Korea.

Finally, chapter 4 shows how the problem of the future is variously expressed in diverse locations within and around Songdo.

This chapter locates the meanings of the future in the city and its representations in textual and nontextual forms, including K-pop music videos, virtual idol festivals, a development scheme for the “K-pop Content City,” and the shifting national governance agenda emphasizing intelligence and creativity as key engines of growth since the 1990s. By traversing these multiple iterations, we see how the ethos and mythologies of development traverse different domains, influencing culture’s expanded role serving as cultural content, cultural infrastructure, and cultural technology (CT). The term “cultural technology,” prevalent since the 1990s, is marked by a profoundly technologized and functionalized understanding of culture that is at once grounded in an essentialized locality and seeking to expand beyond it. Such ambivalence in the construction of Korea’s cultural technologies, situated in the long history of Korea’s technologically oriented future, has become naturalized. However, this perspective on the role of culture and creativity in society and their potential to benefit the nation and humanity is a profoundly relative one. In this way, the people of Songdo, as they partake in the visions of the “creative and innovative city,” have become implicated in the collective responsibilities of the development of the future.

Although the book focuses on Songdo, fundamental questions about culture, history, and power relations surrounding technology will, I hope, resonate with readers in other locales around the world. It is intended to serve as a guide for readers who want to initiate different versions of such a genealogy in different parts of the world. Smart city development is often seen as reflecting an ongoing technical logic or, alternatively, a government-initiated ambition to impose technical orderliness on the otherwise messy conditions of urban life. Yet it is equally important to consider the widespread, aspiration-charged quest for global validation

that defies a simple logical explanation. Attending to these alternative underlying motivations allows us to unpack and better comprehend the enduring power of such ambitions, embedded as they are in a collective mentality that perpetuates a self-imposed sense of inferiority that diminishes the present in service of the future, thereby operating as a catalyzing force to envision the future through technology.

Networks, Hubs, and Zones

Infrastructural Development in New Songdo City, 1986–2009

It is difficult to separate an analysis of infrastructures from this sedimented history and our belief that, by promoting circulation, infrastructures bring about change, and through change they enact progress, and through progress we gain freedom. Perhaps this process explains why as objects they provoke such deep affectual commitments, particularly, but not only, in developing societies.

—Brian Larkin, “The Politics and Poetics of
Infrastructure”

On the thirty-third floor of the G-Tower in Songdo, a prominent building that hosts thirteen domestic and international organizations, including the Green Climate Fund (GCF), the United Nations Office for Disaster Risk Reduction (UNDRR), and the Incheon Free Economic Zone Authority (IFEZA), is an observatory deck that offers a panoramic view of the city. After ascending to this level, visitors are greeted with a sign that proclaims this is “the place where the past, present, and the future of IFEZ exist.” Upon entry,



Figure 3. Visitors looking out over the city from the observation deck of Songdo's G-Tower. Photo by author.

visitors encounter a quote from the eighteenth-century English poet William Cowper: “God made the country, and man made the town.” It is a compelling paradox that Cowper’s words, originally celebrating rural virtues while criticizing artificial urban expansion, are repurposed here to embody the philosophy of a city as artificial as Songdo. By aligning urban development with divine creation, the quote seems to suggest that the development of Songdo was as sublime and inevitable a process as God’s creation of the world. Continuing in a reverent tone, the exhibition showcases Songdo’s historical narrative and its aspirations to build a “city of creative economy,” a globally oriented “Asian hub of international organizations,” and “a city of eco-friendly intelligence elevating the value of life.”

From the observatory’s windows, the Incheon Bridge comes into view, a structural link that connects Songdo and the Incheon

International Airport. The 12.3-kilometer bridge, spanning the Yellow Sea, is heralded as South Korea's longest cable-stayed bridge, a testament to the city's infrastructural prowess. The project, a collaborative endeavor by Arup, a London-based architectural consultancy, and Samsung Construction, was completed within a mere four and a half years, by 2009. As of 2024, the surrounding landscape of Songdo likewise was bustling with ongoing construction activities, including projects for new office buildings and apartment complexes. Dredging vessels are also visible, working on land reclamation to extend the city's boundaries into the sea.

Songdo's present is yesterday's future. Its spatial transformation has rested on its capacity to constantly renew and postpone its futurist vision. In this chapter, I examine the history of the visions and practices that together shaped Songdo's spatial transformation, in which the city was variously conceived as a network, a hub, and a zone between 1986 and 2009. I highlight the ways in which the urban planning practices began to embrace "urban intelligence"—particularly by emphasizing the role of communication networks as an integral part of regulating urban infrastructures. Long before its emergence as a "smart city," the planners of Songdo, as early as the mid-1980s, understood that the future lay in informatization (*jeongbohwa*) and globalization (*segryehwa*). They aimed to craft the cityscape as a dynamic hub within the "global network." In this chapter, the spatial concepts of networks, hubs, and zones are not intended as chronological markers in Songdo's history; rather, they serve as motifs that have been discursively and materially deployed to assert Songdo's distinctively global orientation and its aspiration to digitally expand its frontier beyond geographical borders. Infrastructural elements like the Incheon bridge and Incheon international airport,

which connect Songdo with the outside world, are therefore not mere technical structures, but crucial sociocultural markers that reflect the changing sense of the world in which values such as globality and connectivity were becoming increasingly paramount for cities. As Brian Larkin notes, the techno-politics of infrastructure “emerge out of and store within them forms of desire and fantasy and can take on fetish-like aspects that sometimes can be wholly autonomous from their technical function.”¹ I argue that the enactment of this cultural desire for, and affective commitment to, infrastructure was critical in proclaiming Songdo’s identity as a node in the vast circulatory network that channels the global flow of goods, people, and capital.

By analyzing how and to what extent the design concept of network, hub, and zone was realized in Songdo, this chapter charts a distinct shift in the style and culture of governance in this period, which increasingly adopted the language and ethos of a decentralized governing model represented by “networks” and moved away from a primarily centralized state government model. Alongside the rise of systems theory and computational thinking in the 1980s, these spatial concepts prioritized the significance of information and communication as models for thinking about the physical movement of objects and people in various spaces such as offices, homes, and public areas, as well as the need for the systematic governance of this movement. Since then, these decidedly spatial features have become increasingly prominent in socio-technical imaginations of Songdo, predicated on an intricate network of connectivity that encompasses electrical grids, roads, airports, subways, loading docks, and communication channels that facilitated and regulated movements and circulation within and around the city. This period also saw the migration of ICT from fixed locations like office spaces and private homes to sites

for managing urban logistics, including public streets, expressways, airports and train stations, and shopping centers. While the mutual dependency of communication and transportation remains a largely forgotten dimension in most narratives on cities and technology,² it is important to acknowledge that their interdependency was foregrounded in emerging urban discourses in this period. These shifts placed a renewed significance on ICT as a means of managing the complexities of Korean cities.

Network, hub, and zone served as both metaphors and material foundations that set the stage for the epistemological and infrastructural conditions underlying the smart city in its current form. During these go-go years, city planners actively appropriated the language of information, control, and communication to conceptualize and articulate their developmental practices, reflecting the specificity of the historical juncture when utilizing communication technologies became central to the management activities of the government. To paraphrase Andrew Barry's expression, it is critical to inquire into the material basis of the modern government, including technologies of communication and transport.³ This chapter begins by examining the prominence of "network" in the 1980s as a mental framework for envisioning the future of governance.

ENVISIONING NETWORKS: NEW SONGDO INTELLIGENT CITY, 1986

In 1986, Park Yeon Soo, a thirty-three-year-old city planning chief in the city of Incheon, an industrial port city on South Korea's west coast, pitched a plan titled "Northeast Asian International Business Center Project" to the mayor's office. In his memoir, *A Man Who Changed the Map of South Korea*, published in 2008, Park

describes the awkward silence after he finished his presentation, as he nervously anticipated the mayor's response. He recalled that the proposed project's sheer scope, boldness, and scale would have been highly unusual coming from a career bureaucrat who cut his teeth in public service and urban planning in Gyeongnam province for seven years before transferring to Incheon in 1985.

To describe the boldness of the proposal as merely naive and youthful enthusiasm seems like an understatement. In fact, there was almost a solemn sense of urgency and desperation surrounding Park's grand scheme, which involved several mega-scale projects, including the reclamation of the tidal flat across the city's western shoreline to expand the city's territory; the construction of new urban transportation infrastructure, including a new international airport on Yeongjong Island, bridges, and highways; a new international business district; high-tech research parks focusing on bio-tech and info-tech industry; and leisure and residential areas designed for international tourists and businesses. The plan's overarching goal was clear: the proposed material changes would help transform the declining industrial city of Incheon into a global hub of business, tourism, and logistics.

At the heart of the plan was the construction of a new city from the ground up called the New Songdo Intelligent City (NSIC; Songdo jeongbohwa sindosi), later commonly referred to as New Songdo City. The intelligent city was envisioned as an information-focused city centered on international exchange, trade, and research, based on the completion of the then-hyped high-tech infrastructures such as "teleports" and optical communication networks. The project received a green light from the Ministry of Construction in November 1990, with its official endorsement a key component in the reinvention of Incheon. This approval granted authorities the permission to initiate reclamation of 18 square kilometers (about 4,370 acres) along Incheon's

western coastline. Throughout the 1990s, the project's scope gradually expanded, culminating in 1996 with an additional 96 square kilometers (about 23,689 acres). An early estimated budget for the project was 200 billion won (about US\$249 million), which included expenses for land reclamation, construction, floodgate installation, and other basic infrastructure. The development progressed incrementally, starting with the designation of zoned areas, reclamation of a blocked zone, and construction of basic infrastructure on a reclaimed area while at the same time continuing to reclaim and develop adjacent zones.

A 1991 white paper by the Incheon Metropolitan Government, "Incheon, Challenges and Development Directions for Urban Development," lays out the initial conceptual map that would eventually become the guiding principle in the development of Songdo. The basic direction for Songdo was framed as "an information-focused city centered on international exchange, trade, and research, based on the completion of high-tech infrastructures such as teleport and optical communication networks." The specific technical components planned for the project included

- satellite communications station and parabola antennas (ground and building rooftop);
- fiber optic communication network;
- information and communication centers (control centers, telephone stations, data communication relay stations, radio, TV, CATV stations, LAN/WAN/VAN centers, various database centers, new media exhibition centers, educational training facilities, convention centers, etc.);
- regional management and operation system (cooling and heating, electricity, gas, water and sewage treatment facilities, capsule waste transport system, disaster prevention and safety management, etc.);

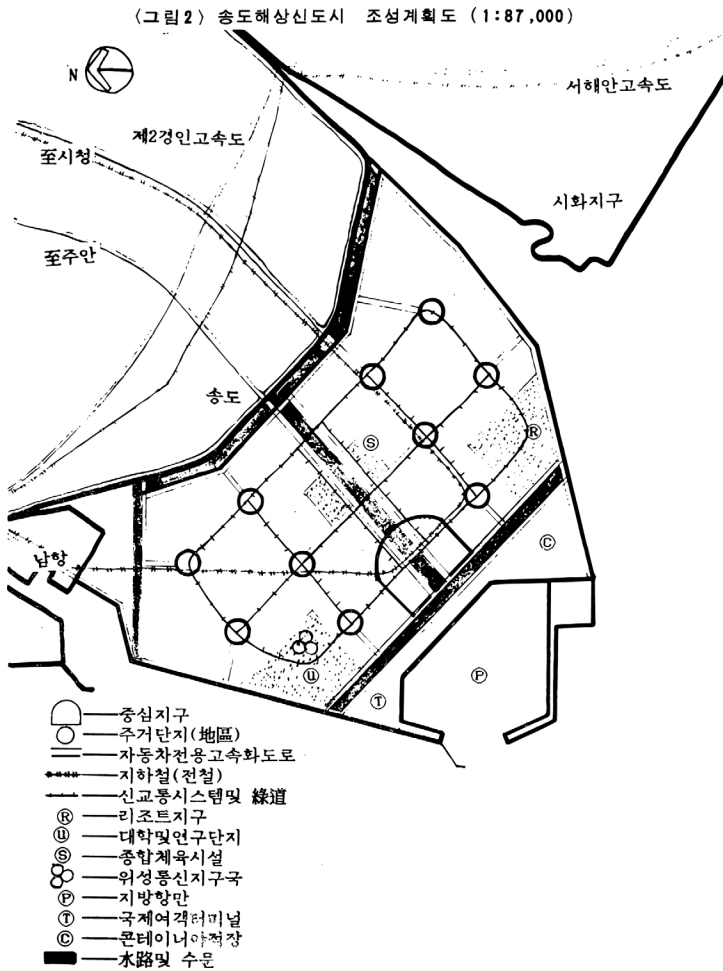


Figure 4. Sketch of the Songdo Overseas New Town Development Plan, produced in 1986. Courtesy of Park Yeon Soo.

- government offices, educational institutions, research institutes, regional information centers, etc.; and
- public facilities (road, subway, communal area, port, heliport, waterways and floodgates, culture, sports, and disaster prevention facilities, community center, etc.).

The plan suggested that structural-level changes to the city were not only inevitable, but imminent—a belief reinforced by the perception that the world economy was already reconfiguring around the new paradigm of an information society (*jeongbo sahoe*). In parallel with the early development of the internet in the late 1970s, the plan for Songdo was positioned within Korea's broader efforts to network the nation with the outside world: computer network research and collaboration initiatives at the Korea Advanced Institute of Science and Technology (KAIST), Seoul National University (SNU), and the Electronics and Telecommunications Research Institute (ETRI); the hosting of the Pacific Computer Communications Symposium (PCCS) in Seoul (1985); and the assignment of a specific Korean IP address (128.134.0.0) by the Internet Assigned Numbers Authority (IANA) in 1986, among others.⁴

Such ambitions, however, still had to contend with the remnants of the nationalist fetish for mega-scale infrastructure projects like highways, industrial complexes, and multipurpose dams—a narrative strategy of nationalist campaigns that became most salient during Park Chung-hee's military dictatorship in the 1960s and 1970s.⁵ Mega-infrastructure projects have always been a state-centered affair. This was especially true for a rapidly developing country like Korea, where the management of such projects was hierarchical and centralized. City officials were required to seek approval and secure funding from national-level institutions, including the Ministry of Construction, the National Assembly, and the President's Office. In this context, planners in Incheon had to align and adjust their ambitions with national policy priorities. This meant that a municipal-level endeavor like New Songdo City still had to be consistently molded within the framework of state-steered developmentalism, justifying its rationale in terms of the broader benefits it would bring for the nation as a whole.

These competing interests created dual pressure for Songdo—a dynamic that has never been resolved—that prompted the planners to seek new strategies and frameworks to resolve and reconcile the dilemma. From the standpoint of a city official like Park, the biggest challenge boiled down to mediating the tension between the bureaucratic machinery of the national government and the new pressure of informatization and globalization that loomed over the city's future. This tension is evident in the positioning of Songdo as if it were a form of national infrastructure, capable of elevating the nation's self-image while simultaneously attracting foreign investment and tourism, all while potentially remedying the declining economic status of Incheon. Furthermore, the geopolitical tensions surrounding the Korean Peninsula in the late twentieth century presented the national government with various issues, such as economic development, national security, and population management, which were arguably too complex to be managed by the centralized government alone. In this context, the new high-tech image of the Songdo's intelligent infrastructure and its connectivity became a powerful metaphor to characterize the city's operation as a network, with its ability to expand and distribute the government's influence over an extended territory, even across national borders. This explains why, in the late 1980s, the planners of Songdo constantly reminded their primary audience, the national government, of the city's utility in demonstrating an intelligent model of governance. By leveraging information technology to enhance the government's capacity to address these dual challenges, they presented Songdo as exemplary technology that used a streamlined, systematic approach to orchestrate the functioning of each subsection of the territory—a stepping-stone for more efficient industrial production and economic development.

As stated earlier, a crucial historical thread in understanding Songdo's early developmental trajectory is the growing significance of information and computing technologies in Korea in the 1980s—a trend perceived with utmost urgency, particularly by economists, corporate leaders, lawmakers, government officials, and the scientific and academic communities. These groups regularly met to discuss the nation's future in events frequently hosted by the Federation of Korean Industries (FDI), an economic organization representing the interests of South Korean conglomerates.⁶ It is plausible to assume that the intelligence-based design concept for Songdo emerged alongside the ongoing discussions on a knowledge-based economy and information society, particularly as these discussions took place among those elite groups, who, as early as the 1980s, took great interest in the concept of a teleport, which was idealized as a “port of the future.” Besides, the need for technical components was actively promoted by industry stakeholders who saw the teleport's construction as an opportunity to advance the emerging computing industry and expand telecommunications equipment sales.

The establishment of the World Teleport Association (WTA) in 1985 in New York, along with the news of conferences held that same year in Tokyo, New York, San Francisco, London, and Amsterdam, was received with great interest—and a hint of envy—by numerous Korean mainstream newspapers.⁷ Korean journalists and academics quickly took the lead in promoting the concept. For instance, Jung-heum Kim, a professor of physics at Korea University and a prominent science communicator who regularly appeared on broadcast programs and at other public venues throughout the 1960s and 1970s, wrote in *Donga Ilbo* in 1985:

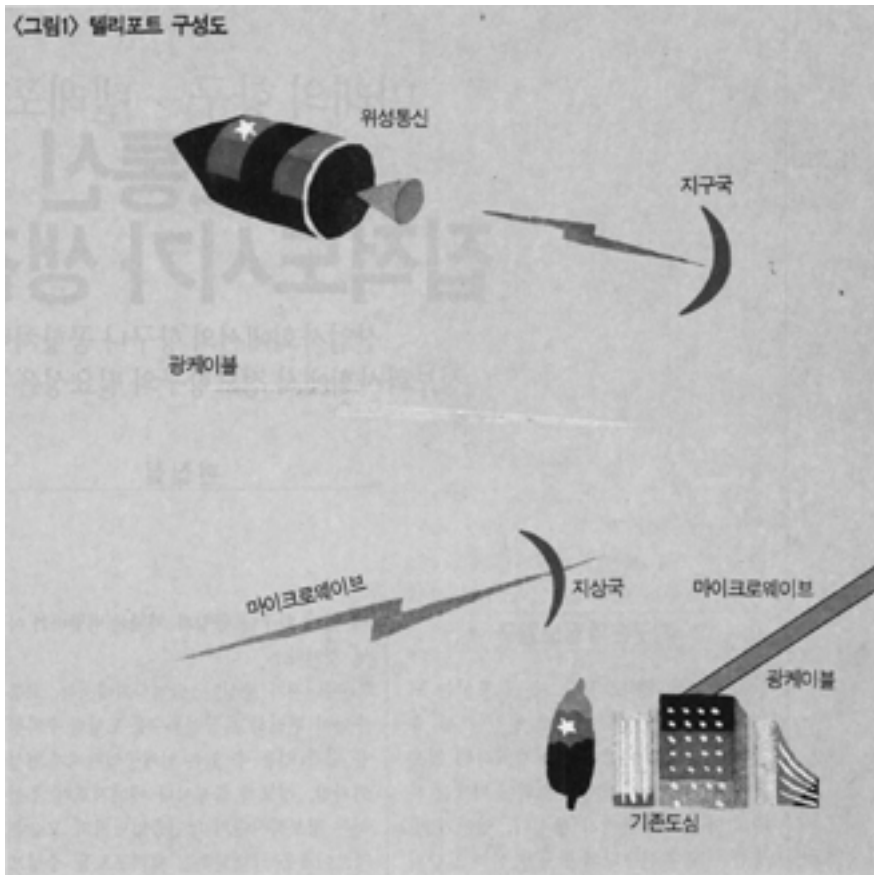
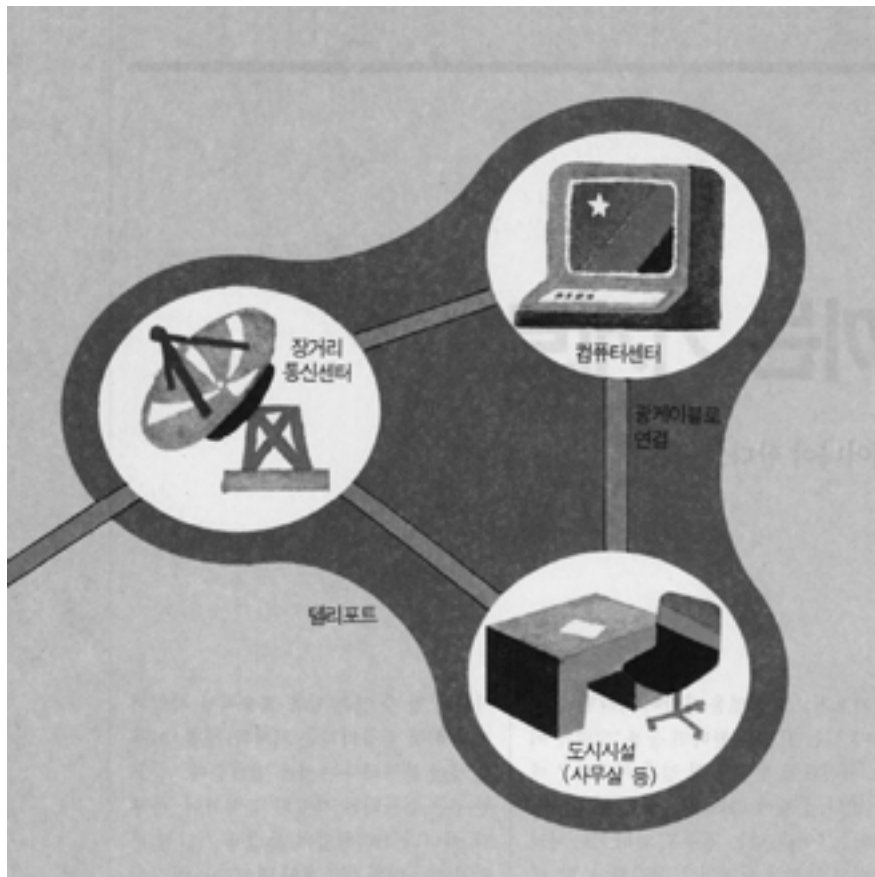


Figure 5. Illustration of the “port of the future,” or teleport, envisioned as a city dense with information and communication technologies. From *Gwahak Donga*, no. 4 (April 1986). Courtesy of Donga Science.

This teleport initiative was led by the United States, with the first World Teleport Conference held in New York in February last year and the second in Tokyo in April 1985, creating a huge boom. As a result, 22 cities across the United States, Britain, West Germany, France, the Netherlands, and Japan have already announced their teleport plans. In East Asia, Singapore and Hong Kong, in addition to Japan, are showing significant interest. Before it's too late, I believe we must quickly align with this global trend.⁸



While proclamations like this mirrored the familiar mentality of catching up with other nations and an anxiety surrounding new technologies, the teleport concept was featured with similar enthusiasm but with more substance in the inaugural issue of *Donga Science* (*Gwahak Donga*), Korea's first monthly popular science magazine. Launched by the Donga news company (which also owns *Donga Ilbo*) in 1986, the magazine offers a glimpse into the growing public demand for information related to science

and high-tech, as well as the cybernetic analogies between mind and machine that the readership would have encountered via the publication. This editorial introduced the notion of intelligent building (referred to by the authors as “brain building,” or *dunoe bilding*), defined as “a cluster of enterprises that prioritize information as their highest value,” where “companies either provide advanced information and communication services, such as data banks, newspapers and broadcasting stations, or develop information and communication network systems.”⁹ The integration of these components—designed to facilitate the movement, exchange, and processing of information via teleports—is compared to the spatial movement of goods and people facilitated by seaports and airports.

In industrial societies, ports were crucial for serving both the local community and the national economy, functioning as gateways for transporting goods and facilitating people’s movement. Similarly, airports, the equivalent of ports in the sky, offer employment opportunities in the travel and air freight industries by performing similar functions. Just as ports were essential in the maritime era and airports in the aviation era, the emergence of a “teleport,” or an information port, is becoming increasingly vital in the information society. As we transition into this information era, the movement, exchange, and processing of information take on a significance akin to the transportation of goods and the movement of people in earlier times.¹⁰

Just like the contemporary commercial hype surrounding big data, encapsulated by the familiar slogan “data is the new oil,” employing an industrial-era analogy to underscore the significance of the new, proponents of teleports strategically conjured a historical continuity between information infrastructure and industrial-era logistics infrastructure. Though the article

was one of many articulating an emerging paradigm of systematic governance and the priority of information and communication for that governance, it revealed the general tendency in cross-sector discussions among academics, industry stakeholders, city planners, and the government to associate the economic future of the city and the nation with the availability of advanced communication networks and the movement of information facilitated by them.¹¹

The vision of an information-driven future, viewed with both awe and anxiety by Korean academics, policy makers, and government officials, became the preface for nationwide informatization efforts in the 1980s, including the Songdo project. It was during this time that the Korean government increased its support for innovations in science and technology, particularly in the field of ICT. Following governmental programs and subcommittee initiatives, such as the “Long-Term Plan for Science and Technology Development to the Year 2000 (1987–2000),” a planning document proposed by the then–Ministry of Science and Technology, Chun Doo-hwan’s military regime mobilized its resources to build the foundation for the nation’s impending digital economy. For instance, the Korean government approved the National Project on Computer Research and Development (R&D) in 1981 and again in 1987 declared the “Year of Information and Communication.”¹² In 1981, the Korean government revised its Electronics Promotion Law and designated electronics a strategic industry, culminating in the announcement of the “Electronics Industry Fostering Plan.” This plan prioritized the development of high-value technologies such as semiconductors, computers, communication devices, and other electronic goods. In particular, the communication devices sector aimed to boost the local production of digital switching systems. As critical cultural studies scholar Jungmo

Youn put it, “Clearly, Chun’s regime bet life and death on the development of the electronics industry as his predecessor, Park, did on heavy industry.”¹³

Top-down efforts to computerize the nation underscored the government’s dual aim behind these projects: to streamline the process of public administration and to foster innovation in the ICT industry. The latter objective was evident in the government’s efforts to localize PC (personal computer) production, which emphasized the development of information technology as a national and indigenous innovation. As such, the 1980s witnessed several Korean companies venturing into the domestic PC market, both hardware and software. The major actors included industry giants such as Goldstar (now LG), Daewoo, Samsung, and Hyundai, as well as emerging start-up companies like Sambo Computer. Importantly, these macro-level efforts to promote the nation’s IT sector and its future economy coincided with a range of cultural initiatives aimed at embedding developmentality in the minds of the populace. These included the introduction of computer literacy into the school curriculum as early as 1983 and the national campaigns in the 1990s to instill a culture of “new intelligence” among citizens.¹⁴

Given this backdrop, it seems clear that the development of Songdo, centered as it was on a telecommunication network, aligned with the Korean government’s vision to computerize the nation’s infrastructure and streamline its governance during that decade. Beginning in 1984, the Ministry of Construction (currently Ministry of Land, Infrastructure, and Transport) initiated plans for national computerization to collect and systematically manage information for national and regional developmental planning. These plans prioritized the systematic collection, management, and provision of data as essential to ensuring optimal

land use and complementing the country's scarce material and financial resources. The push for a more streamlined administration extended to various government sectors, promoting the digitization of their operations, including local entities like city halls and post offices. The most decisive drive to enhance the nation's information and communication infrastructure, including the teleport construction plan, was led by the Ministry of Communication (*chesinbu*) beginning in the 1980s. In 1986, Vice Minister of Communication Oh Myeong (who became minister of communication in 1987) emphasized the importance of digitizing public administration. Oh, who had been trained in electrical engineering at Seoul National University during the early 1960s, stated in an interview with a reporter from *Gwanak Donga*:

Simply put, the purpose of the administrative computer network is to enhance administrative efficiency and foster the growth of the information industry. Through this network, the government aims to streamline its operations, offering faster and more convenient services to its citizens. Additionally, from an industry perspective, it aims to encourage broader adoption of computer-based thinking and stimulate market expansion.¹⁵

These statements underscore the government's prevailing views on information and communication technology as primarily a tool for efficient control—"the mechanism through which the operations of an organization are coordinated to achieve desired results."¹⁶ This perspective grew increasingly significant throughout the 1980s and 1990s, positioning communication as a central factor in reshaping the form and function of government.

Korea's discourses on an information society and communication, as charted thus far, provide a crucial context for understanding Songdo, which exemplified an infrastructure designed to showcase and test the government's capacity to extend its

techniques of control through communication. Importantly, it was through these iterations that the mechanisms and the very concept of government were not only administered but also significantly transformed into a dynamic that historian Patrick Joyce has described as “the rule of freedom,” a mode of governance that balances the pressure of contradicting historical forces: centralization and decentralization or control and freedom.¹⁷ That is, beyond rhetorical strategies emphasizing moral imperatives for development, the period witnessed a shift toward reinventing and flexibilizing governance to optimize developmental goals by disseminating the means of control locally, thereby inducing the transformation of developmentalism into developmentality—which I explain in more detail in the next section.

It must be underscored that this shift was co-produced by technological advancements and the contested political dynamics of the 1980s, which together necessitated a restructuring of existing governmental relations that were rigidly focused on economic development and national security steered by the central government alone.¹⁸ An emblematic event that would later reflect this public yearning for decentralization was the introduction of the “local self-governance” (*jibang jachi*) policy in 1994, a response to the oppressive realities of the preceding decades under the authoritarian military regimes of Park Chung-hee (1960–79) and Chun Doo-hwan (1980–88).¹⁹ This structural shift in governance, based on the democratic constitutional reforms of 1987, marked a transition from a centrally controlled administrative framework, in which central authorities appointed representatives for each city and region, to a system in which citizens elected their local representatives themselves. For some political analysts, the advent of the local self-governance system symbolized a shift toward a more democratic and open society. As a columnist for

the newspaper *Hankyoreh* wrote, it was expected to “revolutionize public administration,” so that the “government will be faithful to the will of the people.”²⁰ It was this historical yearning for decentralization and local autonomy, underpinned by technological optimism during the politically oppressed 1980s, that the technological imperatives rested on. These networked technologies were envisioned as a vehicle for transforming governance into a decentralized structure, tailoring its functions to the specific needs of sectors such as the economy, population management, public health, and urban planning.

The need to exert systematic control over dispersed operations, which emerged in response to growing societal complexities and rising public demands for democratic, locally autonomous governance and greater freedom, became an increasingly pressing factor that development strategists in Incheon had to actively confront and adapt to in the following decades. Responding to these dual challenges, the networked infrastructure of Songdo came to serve as a vehicle of developmentality.

FROM DEVELOPMENTALISM TO DEVELOPMENTALITY

The futurist rhetoric of the early plans for Songdo—centered on the idea of control through communication at the scale of the city—emphasized the circulation of information and enhanced connectivity as fundamental to the cities of the future. In light of the proposed technological changes and the government’s underlying motives, it is important to examine the broader socio-technical shifts that this plan embodied from a cultural register, particularly the confluence of the developmental mandate with liberalist moral imperatives that gave rise to an apparent shift in public discourse about the *qualitative* aspects of development.

Indeed, infrastructure networks have traditionally been central to the normative aspirations of planners in their effort to define their notions of a “good” and desirable urban order.²¹ It is here that the modern infrastructural ideals of speed, efficiency, and progress begin to morph into a more flexible framework, accommodating liberal virtues such as global connectivity, personal freedom, quality of life, sustainability, and human creativity. As such, the vision for Songdo was significant for both its exclusivity and its exemplarity in articulating intersecting discourses on technology, the future, and Korea’s shifting socio-political dynamics—each of which pertains to the historical formation of developmentality.

As both a mode of engagement with the future and a development-oriented mindset focusing on the sheer practicalities of the present, developmentality influenced not only how the idea of information-centered urban design was shaped but also how it was justified and sustained over time. In order for such a grand-scale vision to gain traction in the public’s mind, multiscalar strategies of power had to be enacted to evoke a sense of urgency for change and address practical concerns of how and what would change rather than simply stressing the imperatives of development. This shift in focus, from emphasizing goals to implementing methodologies, implied that the development-first goal (developmentalism), prevalent in the 1960s and 1970s, was no longer a matter of debate. Instead, it became a taken-for-granted rationality and an underlying mental framework (developmentality) influencing multiple and specific techniques and discourses about the future and planning practices around Songdo.

First, as a mode of engagement with the future, developmentality was articulated as a discursive strategy of scaling back and forth between different temporalities—between conjuring

a distant future and a short-term future. Or, as communication scholar James Carey would put it, the will to develop was mobilized between the prophesied future, where a particular ideology or an idealism has been fulfilled, and the participatory sense of the future that accords agentic power to technology.²² These temporalities were characterized by a profoundly deterministic undertone: sweeping, epochalist claims about the arrival of the Information Age instilled a sense that our society was undergoing a macro-level shift—a qualitative transition and a distinct departure from the present. This view was most relentlessly conveyed by futurists like Alvin Toffler, whose books *Future Shock* and *The Third Wave* were regularly cited on Korean news channels and television programs throughout the 1980s and the 1990s.²³ This prophesied future positioned technological progress as a moral imperative, portraying it as the primary—if not the only—way out of the present’s antagonisms, ultimately redeeming the city’s uncertain future. Through technology, the future is no longer just a distant mirage but an active agent reaching back into the present, guiding how to move forward, in a form of a technological ritual that people in the present are invited to participate in.

For the planners of Songdo, the goal was to avert Incheon’s economic decline and perceived “absence of a future.” As Park described the public sentiment in the 1980s, frustration had been brewing among Incheonians, who complained about the city’s marginalized status as a “transit city,” where roads and railways were merely built to transport resources and goods to Seoul, with no wealth accumulating in Incheon. Incheon’s heavy reliance on the chemical and manufacturing industries became a liability, as the sector was already nearing the end of its industrial cycle, with declining social overhead capital (SOC)—a term often used as Korean bureaucratic shorthand for infrastructure

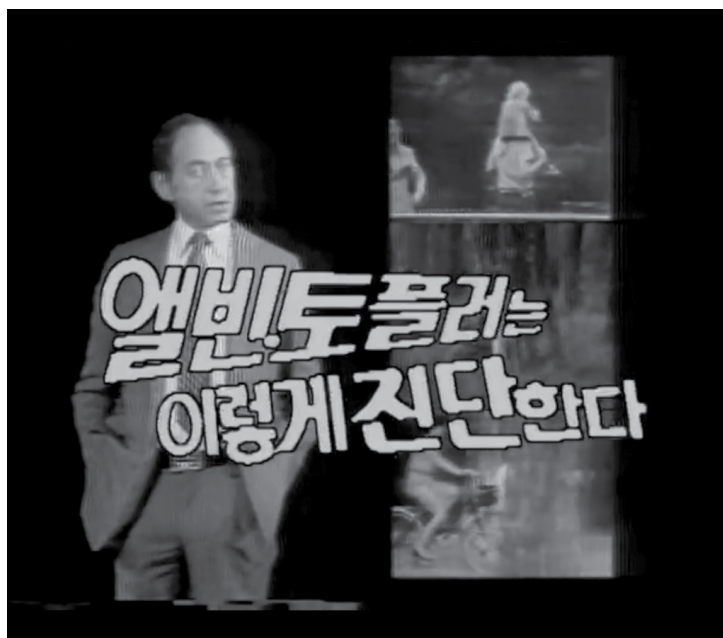


Figure 6. Still image from “KBS Special Report: Third Wave,” aired December 28, 1985. The program featured Alvin Toffler as a main host and the overlaid Korean title reads, “Alvin Toffler Diagnoses It This Way.” Reprinted with permission from KBS Media.

investment—and the relocation of factories and businesses to China in pursuit of cheaper labor. Moreover, as the government’s role in industrial development shifted, the long-standing focus on heavy and chemical industries gave way to a broader range of initiatives in electronics, information, and communication technologies, alongside the cultivation of a class of information professionals adept in these domains.²⁴ As Park recalls, Incheon was utterly “shut out from its future,” as “everything went away to Seoul, except for factories, pollution, and regulations.”²⁵ This sense of being deprived of a future became a crucial pretext for mobilizing willingness to reinscribe one. In other words, this prophetic,

long-term vision for the future was paired with a shorter term, participatory vision that focuses on the question of what can be done in the present. This approach anchors the abstract, distant future goal (e.g., progress, economic growth) as a pretext for smaller, discrete steps and a series of choices targeting that goal. In terms of the distant future, technology has come to assume a salient position that offers a tangible if not empowering means to focus on the present and determine what can be done immediately, such as building roads, bridges, fiber optic cables, and satellite stations.

The particular privilege accorded to technology as a driving force toward the future was evident not only in its status as a sublime object but also in the way it analogized reconfigurations in socio-political and spatial relationships during this period. Like its counterparts in the United States and Japan, Korean discourse on the information society was characterized by overt optimism, associating information technology with liberal reforms in the political and economic domains. Whereas earlier mass media technologies such as radio and television were treated as discrete devices that unilaterally disseminated national ideology, network infrastructures, as envisioned in Songdo, suggested a model in which these discrete components were multilaterally interconnected, managed, and controlled based on local needs and preferences, implying the potential for a democratic political system, as well as an autonomous and egalitarian way of life. This linking of liberal virtues with the idea of the network was already pervasive in the popular imaginaries of home automation (HA) and office automation (OA) in the 1980s, which promised office workers and home owners greater control over their everyday spaces (a dynamic discussed in chapter 3). The managerial ethos that characterized Songdo's preliminary plan likewise

drew from the concurrent advancements in these domains, where the imperatives for automation and intelligence were becoming increasingly significant—although the distinctiveness of Songdo lay in its application of these principles on a city scale. Notably, the promotion of a networked living environment paralleled the emerging discourses of advanced liberalism emphasizing the virtue of individual choice, aspiration, and self-governance. This shift implicated a move away from national unification and independence, the primary goals of development (as exemplified in developmentalism), toward local autonomy and the individual's pursuit of dignity and a higher quality of life (as modeled by developmentality). In Songdo, this notion of networked spatial and social relations extended beyond HA and OA by scaling up to the level of city itself, carrying the promise of freedom and independence enabled by technology. In this way, the technological imperatives of information-centered urbanism came to embody a morally progressive image of decentralized social relations, which implied aspirations and hopes for a democratic and egalitarian society.

It wasn't until the mid-1980s that more decisive languages of globalization began to appear in these proposals. However, the proliferating concept of the network and control-oriented language in both policy documents and the news media throughout the 1980s suggests that such systemic thinking had already permeated dominant discursive practices shaping visions of the nation. The dream of a decentralized political future envisioned through the promise of network technology, however, remained entangled with institutional inertia; the national government continued its central regulatory role in developing and managing network infrastructure, presenting an apparent paradox of freedom and control: a centralized and standardized structure was *necessarily implicated* in facilitating and operating decentralized

network control. This contradictory dynamic was justified for several reasons. First, the financial burden associated with such expansive infrastructure projects, including purchasing workstations, software, and communication equipment, made a centralized funding scheme a necessity. Second, the varying levels of competencies among different institutional branches in system design capabilities required a centralized approach to coordinate these differences and maintain coherence across the nation.

What, then, did the contradictory dynamic inherent in networks imply for developing a city built on this very concept—and its developmentality? Operating a networked infrastructure required, among other things, mediating the relationships between two competing communication flows: forces that sought to oversee, standardize, regulate, and disseminate rules, protocols, and instructions (downward flows) and those that aimed to deregulate, automate, and delegate control to local and global proxies (lateral and upward flows). It was through the interplay of these divergent yet interdependent flows that developmentalism was transformed into developmentality—through the downward imposition of developmentalist goals and their lateral proliferation across interconnected nodes spanning local, national, and global scales, and their embodiment in practices undertaken in response to a networked environment. Together, these flows enacted a governing mentality oriented to perpetual development (understood as a systematic matter of enabling continuous flows), embedding developmentalist imperatives in multiple levels of governance, and gradually normalizing them in the public psyche.

Over time, this dispersed and networked process signaled a shift from a rigid, command-and-control model of development to a more flexible, adaptive, and particularized one—one that allowed a degree of autonomy while still operating within

a broader developmentalist logic. In other words, it marked an effort to diversify and particularize the previously generalist bottom-line imperatives for efficiency and rationalization. Subsequent policy proposals for Songdo, including visions of a hub city, a Tri-port strategy, and the establishment of Incheon Free Economic Zones, emphasized the new infrastructure's ability to facilitate the movement, exchange, and processing of information and continued to reinscribe and amplify this mindset, further entrenching developmentality as a key governing rationality within the networked city. Therefore, it would be inaccurate to simply state that centralized planning was yielding to distributed control in the age of networks. Rather, it is more appropriate to understand this as a transformation of government strategy—one that blended both centralized and decentralized approaches while leveraging the idea of a network not only as a governing tool but also as a key guiding principle in arranging and mediating multiple flows.

Another key aspect of developmentality manifested in the plan for Songdo was its expansionist aspiration, which anticipated a developmental trajectory aligned with what was then perceived as a global trend of informatization. In response to geopolitical shifts in the 1980s, planners actively tailored their visions in relation to their counterparts beyond the Korean Peninsula. This was evident in how Songdo's goals were articulated—not only in terms of coordinating domestic complexities, but in paving the way for strategic alliances and competing on par with key nodes in global networks such as Tokyo, New York, Hong Kong, and Singapore, portraying the transition as the norm rather than an exception. These aspirations frequently were manifested in the language of comparative and competitive urbanism. For instance, as was emphasized throughout the proposal, the plan for Songdo

was referred to as Incheon's "Post-Hong Kong strategy," positioning the development as an effort to emulate the successful models of rising cities in the so-called Asian Tiger economies, such as Hong Kong, Taiwan, and Singapore. The plan was also influenced by Japanese discourses on the information society and economic innovation, notably including Imai Kenichi's *Information Network Society*.²⁶ Imai, one of the most outspoken and well-known futurologists in Japan during the 1970s and 1980s and a professor at Hitotsubashi University, held techno-optimistic views on an information network society, anticipating the growing importance of interorganizational links over the industrial era's economies of scale. Central to this vision were advances in network infrastructure, such as developments in microelectronics, computer and communications technology, and biotechnology.²⁷

Considering these contexts, the 1986 New Songdo Intelligent City Plan was significant not only for its physical and technical features but also for what it broadly represented politically, socially, and culturally. More than simply promoting information and communication technologies as prerequisites for a networked city, the vision underlying the plan helped fertilize a discursive ground for cultivating a particular kind of citizenry, with the idealized resident portrayed as one who embodied the ethos of "new intelligence"—a topic I explore in more detail in chapter 4. As Gabrys has suggested, emergent shifts in subjectivity and citizenship were "less about a fixed human subject and a more about an operationalization of citizenship that relies on digital techniques to become animate."²⁸ In other words, the transformation of cities into futuristic and networked entities necessitated, and was predicated on, parallel transformations in civic attitudes, imagined as equally intelligent, forward-looking, and network oriented. This perspective is evident in the types of

urban amenities highlighted in the proposal, which catered to the tastes and aspirations of this target demographic: waterfront leisure parks and golf courses, facilities for artistic and cultural activities, a city university specializing in IT- and ICT-related industries, a high-quality municipal secondary school, and a local port dedicated solely to international passengers and cargo, among others.

Continuing this historical trajectory, Songdo's development in the next decade saw a restructuring and redefining of its function as a hub in the global network of cities. The following section focuses on Songdo's development as a hub city to enhance the linkage between communication and transportation infrastructure. As we will see, this development was a response to the government's growing recognition of globalization as a pressing issue. The same design concept that perceives the city as a medium for efficient flow and distribution of information would remain central to its transformation into a hub city.

HUB CITY: LINKING TRANSPORTATION AND COMMUNICATION

The concepts "intelligence" and "connectivity" were central to discourses surrounding Songdo in the 1990s and became integral in assertions of the city's global orientation. While the initial plan for Songdo in the 1980s was legitimated by its purported role in reconfiguring and flexibilizing existing techniques of government, policy language in the 1990s adopted a more enterprising, outward-looking perspective. In this context, the term "hub city"—a derivative of the network concept—was often deployed to characterize Songdo and its material transformation into an international city, reflecting planners' ambition to integrate Incheon more fully as a node within global networks. As defined

by *Merriam-Webster's Dictionary*, a hub denotes at once the central part of a circular object (such as a wheel or propeller); a center of activity or focal point; an airport or city through which an airline routes most of its traffic; and a central device that connects multiple computers on a single network.²⁹ The semantic layering of “hub” thus brings together the physical infrastructure of transportation and the logic of networked control, making it a particularly apt descriptor for a city like Songdo. Already in the 1980s, global aspirations were at the heart of Songdo’s teleport design, which was articulated alongside the plan to build the Incheon International Airport as a hub airport (*heobeu gonghang*) during the same period. This global outlook envisioned the integration of the city’s function with the airport, highways, and bridges—an infrastructural ensemble intended to connect Songdo with other cities and countries, positioning it as a hub within transnational networks.

The popularity of the “city as a hub” concept in East Asia during the 1990s was not incidental. According to political scientist Meredith Woo-Cumings, this concept embodied at least three distinct techno-futurist visions, each related to the mobility of global finance, transportation, and logistics.³⁰ In the Korean case, the initial focus was on logistics rather than finance, although it was evident that the “hub” concept was becoming a general organizing principle for transitioning manufacturing-oriented economies to service-oriented ones. Many Asian countries competed to establish hub economies in their respective territories, thereby serving as a kind of gateway to various parts of the Asia-Pacific, particularly by building airports and creating special economic zones.³¹ Just as the construction of teleports was expected to facilitate the flow of information and communication, logistics infrastructures like cargo, seaports, airports, and bridges were designed to enable the material flows of people, goods, and capital. Together, communication and transportation technologies were

envisioned as operating in tandem, creating an integrated system of what Graham and Marvin termed “economies of conjunction,” traversed by information, communication, and logistics.³²

Notably, the 1980s saw the growing popularity of air travel in South Korea, which was increasingly viewed as a marker of cultural prestige, progress, and personal freedom. Until the mid-1980s, the Korean government had imposed strict restrictions on international travel, making recreational air travel a highly complicated pursuit for most Koreans. For instance, the administrative requirements for obtaining a passport and visa were quite stringent: to qualify for a single trip, an individual had to be at least fifty years old, provide an invitation letter from a family member abroad, submit a financial affidavit, deposit one million Korean won (roughly equivalent to US\$3,000 today), and pledge to return to Korea within three months.³³ Practically, air travel for leisure purposes was not permitted for the general public in South Korea until the mid-1980s. The government justified these strict regulations by stating that it was morally objectionable for citizens of a developing country with significant foreign debt to frivolously spend foreign currency on leisure activities.³⁴

The government gradually relaxed these restrictions, with the “liberalization of overseas travel” (*haeoyeohaeng jayuhwa*) initiative starting in 1981. The following years saw a boom in overseas tourism, especially among families and college students going on backpacking trips.³⁵ Air travel experienced an annual growth of 16.7 percent in the 1980s and 8.6 percent in the 1990s. The number of passengers using air transport, both domestically and internationally, increased nearly fivefold, rising from 3,566,600 in 1980 to 15,684,500 in 1990.³⁶

Rising local interest in air travel, along with the aspiration and prestige associated with airspace and airports, fostered cultural

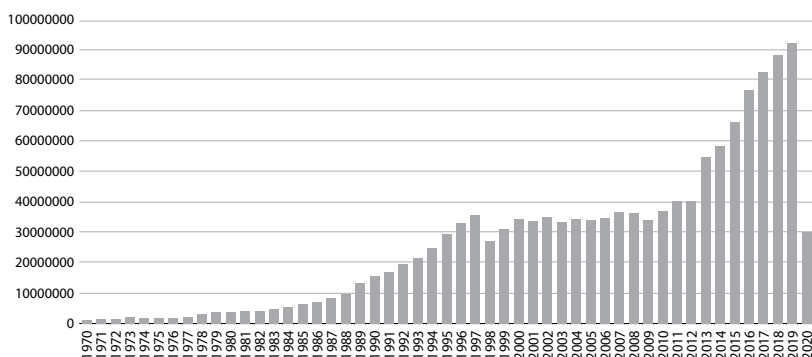
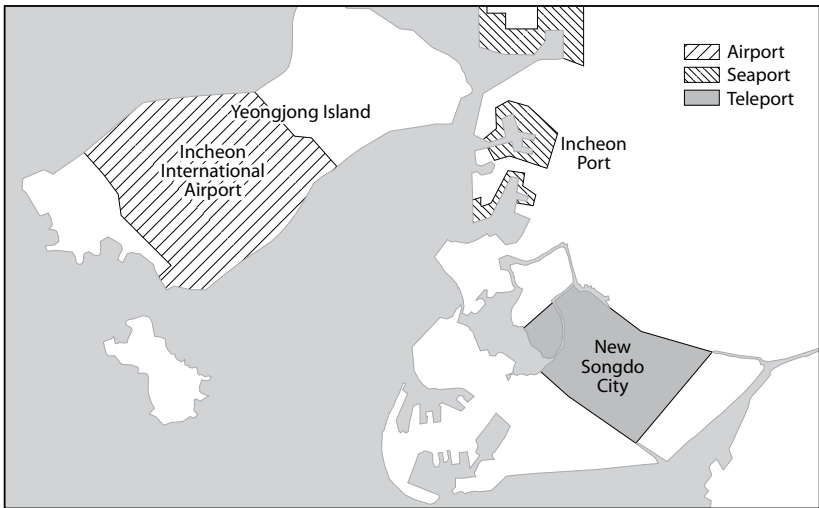


Figure 7. International air passengers by year, 1970–2020. Source: Aviation Statistics, Ministry of Land, Infrastructure, and Transportation. Chart created by Bill Nelson.

receptivity to the idea of Songdo as a hub city—an idea imbued with optimistic sentiments of freedom and openness. Furthermore, addressing the challenge of governing and managing the complexity brought about by the increased volume, variety, and scale of movement required more than simply enhancing technical connectivity across dispersed locations. A systematic approach and a wholesale reconfiguration of the material infrastructure were deemed necessary, including the construction of a nexus system that integrated multiple types of networks, not only of transportation, but also their linkages with telecommunications and logistics. This concept gained increasing traction throughout the 1990s, culminating in the introduction of Incheon government’s Tri-port strategy in 1996. This strategy aimed to link the city’s seaports, airports, and teleports, hence the name “tri-ports,” and replicate popular global urban templates like “techno-parks” and “media valleys,” a trend aligned with the proliferation of “logistics enclaves” in developing countries.³⁷

As stated earlier, Korea had introduced the local self-governance (*jibang jachi*) system in 1994, which granted citizens the right to elect their local representatives, including mayors, as opposed



Map 2. Tri-port Concept Map, 1996. Cartography by Bill Nelson.

to having them appointed by the central government. Within this new governance framework, politicians actively tapped into local appetites for infrastructure development as a popular campaign strategy, promising to mobilize the SOC. Choi Ki-sun, in 1995 Incheon's first directly elected mayor, was a case in point. His election pledge chiefly consisted of promoting infrastructure development projects, with an aim to generate surplus for reinvestment in Incheon. And as noted by Shin, "he remained committed to this pledge" throughout his term.³⁸

In promoting the Tri-port plan, Incheon city officials deployed the rhetoric underscoring the city's long-standing identity as a hub and gateway to rationalize the project. As Mayor Choi remarked, "Incheon has played an important role in national development as a *gateway to enlightenment* that opened Korea's modernization in the past, a bridgehead for the allied forces that defeated the Korean War, and as a backbone of industrialization that led to economic construction."³⁹ This historical nar-

rative mobilized Incheon's colonial and postcolonial past as a "usable past,"⁴⁰ framing the proposed change as a continuation of the city's legacy of mobility. Incheon was thus portrayed as a logistical hub that had consistently served as such throughout Korea's modern history, dating at least to the Japanese colonial period (1910–1945), when it functioned as a colonial corridor for extracting people and resources from the Korean Peninsula. With the shifting geopolitical dynamics in East Asia in the 1990s, however, this hub identity was reenvisioned as a strategic asset through which the government sought to reinforce Incheon's integration into global economic circuits, a vision that was clearly articulated in the Tri-port plan. In a 1999 article published in the Korean Planning Association's monthly journal, *Urban Information Service*, in 1999, scholars and planners—the key architects of the Tri-port plan—wrote:

Following the restoration of diplomatic relations between Korea and China in 1992, concerted efforts have been made to develop Korea's west coast region. . . . Incheon is expected to become the cornerstone of this development, enhancing its logistics system through the opening of Incheon International Airport and its transformation into an international city. . . . The city is within a three-hour flight radius of 43 major cities in Northeast Asia. With its intermodal logistical system, Incheon is emerging as a key transportation hub connecting North Korea, Japan, Russia, and Southeast Asia, as well as China's Yellow Sea coastal cities, which have significant purchasing power.⁴¹

It is notable that the project's significance is underscored in terms of Incheon's proximity to other cities in the world. The shift in perspective clearly indicated a geometric way of viewing the city as constitutive of multiple and interconnected local centers, distinct from the rigid constraints of a state-centered hierarchy. As a precursor to global urban development formulas like "free economic zones" and "research parks," the template of "airport

cities” that streamline movement was heralded as the new spatial strategy to jump-start and revitalize the local economy—the kind of hype frequently produced by corporate consultants. For instance, to John Kasarda, a business professor from the University of North Carolina, Chapel Hill, the issue for urban developers in the twenty-first century would be to enhance global connectivity through the physical alteration of landscapes and infrastructure. His term “aerotropolis” would gain traction in the corporate and urban planning spheres in the 2000s, particularly his assertion that “airports will shape business location and urban development in the 21st century as much as highways did in the 20th century, railroads in the 19th and seaports in the 18th.”⁴² As Kasarda and Greg Lindsay put it in their book titled *Aerotropolis*:

The aerotropolis is the urban incarnation of this physical Internet; the primacy of air transport makes airports and their hinterlands the places to see how it functions—and to observe the consequences. The three rules of real estate have changed from location, location, location, to *accessibility, accessibility, accessibility*. There’s a new metric. It’s no longer space; it’s time and cost. And if you look closely at the aerotropolis, what appears to be sprawl is slowly evolving into a system reducing both. It’s here where we can see how globalization will reshape our cities, lives, and culture.⁴³

Not incidentally, Kasarda had been a consultant for the development of the Incheon International Airport and Songdo since 2000. He is known to have introduced the concept of aerotropolis to Stan Gale, CEO of Gale International, a real estate company involved in the Songdo development project from 2001 to 2018. The idea’s influence is evident throughout the company’s Songdo marketing strategy, including its prominent talking points: “Move here, then you’re only two-hour flight away from Shanghai and Beijing”; “Songdo is located in an optimal location in Northeast Asia, within a 3.5-hour flight to 1/3 of the world’s population.”⁴⁴

Moreover, it is crucial to recognize the importance of Songdo's role as a hub in terms of the broader shift in power dynamics that accompanied the dominant discourse of globalization, technology, and cities. The shift has been analyzed by numerous urban sociologists and geographers, most prominently by Saskia Sassen, who had observed the emergence of "global cities" since the early 1990s.⁴⁵ The period saw the formation of "transnational urban systems," where cities competed against each other, in contrast to the traditional interstate model. This historical shift, in tandem with the ongoing advancements in telecommunications infrastructure since the 1980s, underscored the cities' newly assumed responsibilities in catalyzing logistics, foreign investments, and IT research and development, all of which were efforts geared to anchoring the nomadic forces of global capital in bounded locations.

The broad shifts in the global economy that occasioned the rise of the "city as a hub" as a key developmental strategy render it more than a just technical phenomenon. In other words, the physical alterations in the material landscape, such as the building of bridges and telecommunications infrastructure, implied that there were new political roles to be played by the cities, as they were made responsible for their own growth and survival. Ideally, these material changes would dovetail with a holistic restructuring of the city's governance and function, as well as fundamental changes in its governance style and perspective, to become more outward-looking, innovative, and entrepreneurial.

The socio-technical implications involved in developing Songdo as a hub city therefore can be articulated in several concrete ways. First, the concept of a hub conjured Songdo's position in global terms and strived to align its activities with those of its international counterparts rather than the cities in its geographic proximity. For example, in implementing the Tri-port

plan, planners made careful efforts to emphasize the export possibilities and global orientation of the city and researched various global hub city models to inform their design practices. The Incheon Metropolitan Government's white paper published in July 2000, "New Songdo City Commercialization Plan" (*Songdosindosi saeopwa gyehoek*), presented case studies of global urban development models that they considered comparable to Songdo. In this case study, one begins to see a distinctive identification strategy that positions Songdo as an autonomous city with its own merits rather than just being part of Incheon, affirming its connections beyond the borders of South Korea. These projects included Tokyo Teleport (Japan), Yokohama Minato Mirai (Japan), Multimedia Super Corridor (Malaysia), Milton Keynes (UK), Sophia Antipolis (France), the San Francisco Bay Area Teleport (US), New Jersey Teleport (US) and North Carolina Research Triangle Park (US).⁴⁶ As "premium network spaces which seamlessly interconnect virtual and physical systems of movement, allowing the precise and agile coordination of all forms of flow and transaction at the same time and space,"⁴⁷ these examples exemplified the desired features of Songdo: the integration of high-tech information technology, a multipurpose city, an ecological consciousness, and locations on coasts or reclaimed land. The case studies led to several key conclusions: partnerships between the private and public sectors were crucial, with clearly defined roles and a long-term strategy for overseeing development, implementation, and management. The report also recommended providing incentives to attract foreign businesses, such as deregulation and tax exemption, advocating special provisions to support research development in global and IT businesses.

Second, in relation to the dynamics described above, the hub's efforts to prioritize relationships with new local and global actors

involved a deliberate distancing from its immediate surroundings. In 1998, the IMG invited three international architectural firms to create a master plan for Songdo. Its final choice was the design submitted by the Office for Metropolitan Architecture (OMA), a Dutch firm led by Rem Koolhaas. Yoon Sug-yoon, a member of the IMG's selection committee, remarked, "There was something groundbreaking about the OMA design, giving more of a feel like a new city. Their plan was shaped like an A, so if you put it on a flat plane, Songdo's pattern is arranged diagonally. If you go to Barcelona, there is a road called Diagonal. In a way, it's like their symbol. The concepts like node and patio were quite unfamiliar to us, but still there was something appealing about that."⁴⁸

The resulting plan laid out the philosophy for Songdo, which posited that "the coastline will embody the notions of freedom and frontier."⁴⁹ In OMA's diagram of the airport city, the airport serves as a central node within a network, a fundamental characteristic of a hub in the context of global and urban connectivity. Flows of people, goods, and information converge and diverge through this hub, using various transportation routes. The city's waterfront location is also considered important for this vision, as it functions as both a threshold and a portal, a characteristic reinforced by OMA's design idea of an "edge city." OMA's design for Songdo further solidifies this notion of a hub, envisioned as a medium of multimodal flows while at the same time holding out the utopian promise of an autonomous and self-contained entity separate from its surrounding area.

Early critiques of Songdo's smart city initiatives, such as those by Adam Greenfield, called out the sense of ahistoricism inherent in them and criticized the neutralizing sense of geography that favored a generic and friction-less "any-space-whatever" over local history and human context.⁵⁰ Indeed, OMA design is a

quintessential manifestation of Koolhaas's famous notion of the "generic city," which he defines as "nothing but a reflection of present need and present ability," going so far as to suggest that the presence of history, identity, and context is what hinders a city's performance.⁵¹ Likewise, the concept of the hub city envisions a space defined solely by transactions, devoid of historical markers, which "makes it the ideal staging ground for experiments in the optimal management of civic behavior, the formulation of governance-as-a-service and ultimately, the development of business models for the fully privatized city."⁵² The making of Songdo into a hub city, then, while building on the network city's systematic approach to urban infrastructural governance, involved adding a strategic focus on forging new relationships with global and private actors. At the same time, it also entailed weakening or obscuring ties with its older neighbor, Incheon, to allow for the enhancement of its identity as a global hub.

Moreover, the plan's primary emphasis on nurturing a central business district (CBD), in conjunction with the development of the Techno Park and Media Valley in Songdo, reflected a proliferating trend in urban planning to make cities readily available for instant global mobility and high-tech innovation. This trend would receive significant institutional support with Songdo's designation as a Free Economic Zone. Incheon's traditional labor force was largely manufacturing based, which conflicted with the imagined demographic shift toward a high-tech workforce, tourism, and international business. This disparity necessitated an emphasis on the educational capacity of the city and its knowledge-building programs to cultivate new talent and an environment that would appeal to nomadic workforces from other regions. This, once again, reveals that the cultivation of a particular kind of citizenry has been integral to the operation

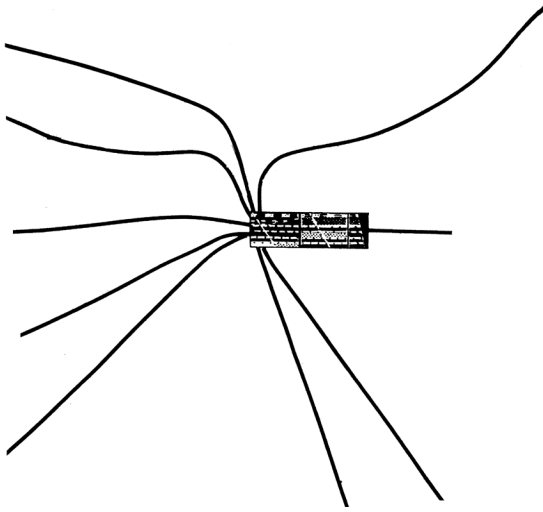


Figure 8. Office for Metropolitan Architecture (OMA), *New Seoul International Airport* (1995). Conceptual sketch from the Songdo master plan, produced as part of a commissioned study by the Hwan Kyung Group and Daewoo Corporation. Reprinted with permission from OMA.

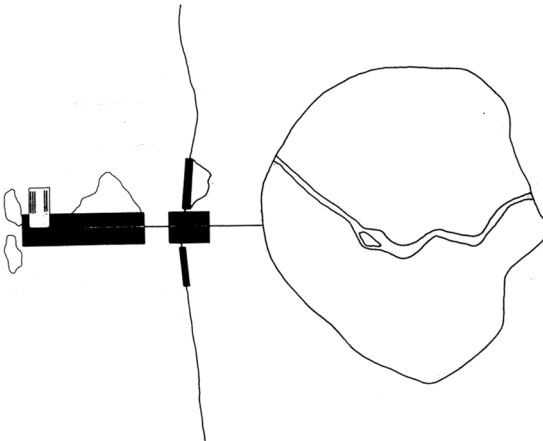


Figure 9. Office for Metropolitan Architecture (OMA), *Incheon Songdo New Town* (1998). Reprinted with permission from OMA.

of developmentality. The strategy envisioned a self-sustaining ecology of innovation, based on the city's proximity to transportation hubs like airports and seaports, which were expected to bring in new businesses and tourists, generate job opportunities, and attract high-tech professionals and corporate leaders with a cutting-edge living environment, all of which would contribute to enhancing long-term land value. Perhaps not surprisingly, many academics became particularly enchanted with this vision, and became strong advocates of the proposal. For instance, Choi Gyu-hyun, a female physics professor at Incheon University, stressed the importance of Techno Park as a mediator between technology research, corporations, and capital, touting the city as "an incubator of technoscientific innovation and a hub of ventures in high-tech fields such as artificial intelligence and info-and biotechnology."⁵³

Third, envisioning the city as a hub precipitated significant shifts in both the style and the culture of city government. Reflecting on a desired shift in mindset projected in the Tri-port strategy, Mayor Choi remarked, "The situation in which the central government is in charge of the airport, the Ministry of Maritime Affairs the seaport, and the city of Incheon overseeing New Songdo City, has not helped at all."⁵⁴ With this statement, he expressed his dissatisfaction with the existing bureaucratic structure, typically siloed in divisions and departments. This recognition led him to explore more flexible organizational models including "ad-hoc committees," "task forces," "partnerships," and "judicial foundations," and encouraged the officials to actively engage with external consultants and experts, such as scientists, engineers, and academics. In this way, technical concept of network city which was envisioned as a flexible governing strategy in the 1980s began to take more concrete forms.

Moreover, in planning initiatives like the Techno Park and Media Valley in Songdo, city officials drew extensively from the global marketplace of ideas around IT-driven urban development, referencing cases such as the UK Science Park, the US Stanford Research Park (Silicon Valley), India's Software Complex in Bangalore, France's Sophia Antipolis, Israel's Tel Aviv Science Park, and Japan's Technopolis in Tsukuba. Despite this global orientation, the dual pressure surrounding Songdo remained consistent, with the state retaining its central overseeing role. Through this process, however, Songdo's developmental orientation began to evolve—shifting from a focus on maximizing top-down communicative efficiency to cultivating ongoing relationships with a range of “partners” and “stakeholders” in the private sector. This shift, as we will see, laid the steppingstone for more structural reforms that would eventually culminate in Songdo's reinvention into a Free Economic Zone in the 2000s.

Throughout the mid-1990s to early 2000s, a significant emphasis was placed on incorporating the dynamism of youth and cultivating an entrepreneurial spirit within the organization. A testament to this was his establishment of the Incheon Comprehensive Development Unit (ICDU; *Incheon jonghap gaebal-dan*), which would be merged with the Incheon Free Economic Zone Authority (IFEZA) in 2003. This much-touted young, innovative aspect of Songdo was often encapsulated in the sentiment that it was “a young city envisioned by those in their thirties and brought to life by those in their forties.” Mayor Choi, who was in his forties when he took office as Incheon's mayor in 1995 and who had roots in the democratic student movement, had a preference for youthful energy and showed an aversion to any lingering authoritarianism in his organization. As he recalled, “In earlier governance structure controlled by the central government, when higher-level officials were appointed,

it was customary for lower-level officials to pivot toward the new directives by the new senior members.”⁵⁵ Such archaic practices, according to Choi, “represented a residue of a bygone authoritarian era” and thus needed a complete overhaul.

The city’s emphasis on the values of youth and antiauthoritarianism was performatively exhibited in cultural initiatives like Incheon’s annual “Tri-port Rock Festival.” The three-day outdoor music festival, which began in 1999, was modeled after the iconic Woodstock Festival of the 1960s. For the Korean audience in 1999, such an event was a groundbreaking one, which garnered significant attention from music fans, critics, and college students. Its debut year boasted international headliners such as Deep Purple, Rage Against the Machine, and Dream Theater while also featuring Korean Indie rock bands like Novasonic, Crying Nuts, and Kim Kyung-ho. As of 2023, the festival continues, albeit under the rebranded name “Pentaport Rock Festival” since 2006. The word “Penta-port” denotes an expansion of the Tri-port concept (airport, seaport, and teleport) to include both business port and leisure port.

The sociotechnical arrangements around Songdo intersected with multiple historical trajectories in the 1990s—intensifying interurban competition to anchor the flow of global capital and tech businesses, the growing role of information and communication technologies in urban management, and the imperatives to change the structure and culture of governance to accommodate these shifts. Articulating these connections is important because the strategies and frameworks employed and tested by the government during the 1980s and 1990s would continue to evolve, shaping the landscape of logistics, information networks, and the “smartness” of Songdo into the 2000s. As we will see in the next section, IMG’s Tri-port strategy from the mid-1990s, a precursor to

the IFEZ strategy in 2003, will continue to serve as the infrastructural and cultural precondition enabling this vision to materialize, thus reinforcing Songdo's position as a closely controlled hub of global logistical flows and entrepreneurial activities.

ZONING: THE INCHEON FREE ECONOMIC
ZONE AND THE "CITY AS A SERVICE"

The vision of Songdo as a hub for material and immaterial flows that operates as a key node in a network that promotes interaction and movement among global urban centers continued to shape its subsequent development, particularly in the framing of the "city as a service" for global capital. The spirit of freedom articulated in OMA's original design and the Incheon government's Tri-port plan remained throughout the 2000s, even as the primary actors behind the project shifted. For instance, the Incheon government's "General Plan for New Songdo City" (*Songdo sindosi gibongye-hoek*) published in 2000, aimed to preserve key elements of OMA's original proposal while introducing modifications to enhance domestic compatibility and business feasibility. The plan delineated a general land-use plan that distinguished "network"-based nonresidential spaces, residential "patio" structures, and various nodes with mixed-use functions to disperse the population and minimize commuting distances. It also incorporated provisions for public amenities such as green spaces, community areas, museums, a performing arts center, and educational institutions.

Perhaps the most visible institutional shift that occurred in Songdo in this phase was the change in the city's leadership from Mayor Choi Gisun to Mayor Ahn Sang-soo in 2002, as well as the creation of the IFEZ in 2003, which helped position the city on the global map of businesses and investments. In December 2002,



Figure 10. President Kim Dae-jung listens to a progress report on the Songdo Intelligent City Project, November 29, 2001. Courtesy of the National Archives of Korea.

Korea's national assembly passed a law designating three areas in Incheon—Songdo, Yeongjong, and Cheong-ra—as parts of the Incheon Free Economic Zone. The law aimed foremostly to streamline regulations for foreign investments and established the IFEZA in 2003 as a central office in charge of its operation. This framework enabled the role of new hybrid actors like the New Songdo International City Development Limited Liability Company (NSIC LLC)—a partnership between Gale International and Korea's Pohang Iron and Steel Company (POSCO)—to become more prominent in the city's governance, which had considerable influence on the project's trajectory. According to Haeran Shin, Se Hoon Park, and Jung Won Sonn, NSIC and IFEZ were the two main drivers behind Songdo's growth regime in the 2000s, which marked a shift from Korea's traditional growth model based in government master planning to a short-term, project-based coalition. As a provisional test bed, they grew “based on the need to combine resources

for the power to accomplish tasks beyond a symbolic cooperation.”⁵⁶ As the researchers reiterated, the involvement of hybrid entities like IFEZ and NSIC was the most notable characteristic of Songdo’s shifting development strategy during this period. In this approach, governmental actors focused on a role of “inducing,” instead of “commanding,” and maintained its authority to give approvals but stepped back from executing the plans.⁵⁷

To grapple with the underlying motives and long-term implications of Songdo’s reconfiguration into the IFEZ, it is important to consider the historical context. In Korea, this shift was catalyzed by the 1997 Asian financial crisis, commonly referred to as the “IMF crisis” by many Koreans. This crisis, which many Koreans perceived as the failure of state-driven developmentalism, caused widespread business closures and layoffs and pushed both national and local finances to the verge of bankruptcy.⁵⁸ In exchange for bailout funds from the International Monetary Fund, the Korean government agreed to the IMF’s terms for structural reform, which entailed expediting neoliberal reforms and significantly deregulating the Korean economy. This included opening the Korean domestic market to foreign investors, sanctioning the establishment of schools and hospitals with foreign capital, and overhauling labor laws. In line with these reforms, in February 1998, newly elected President Kim Dae-jung promised to approve a foreign-investment-friendly special zone around Incheon International Airport, the area that encompassed Songdo, Yeong-jong, and Chung-ra.⁵⁹

The IMF crisis had a direct impact on the Songdo project, exacerbating Incheon’s existing financial burden from large-scale land reclamation and pushing the city into a fiscal crisis of its own. As a result, in early 2001, the Incheon City Council passed a resolution to sell reclaimed land at 70 percent of its original cost, opening the

door for private-sector involvement. It was at this critical juncture that the domestic firm POSCO joined the project, followed shortly thereafter, in March 2002, by the formation of the joint venture NSIC with the American company Gale International.⁶⁰ As Hun-chang Shim of Gale International later remarked, “OMA’s proposal was merely a conceptual design, lacking in business feasibility and practical viability. Based on that framework, we developed it further with a future-oriented perspective.”⁶¹ This “future-oriented perspective,” as Shim implied, entailed withdrawal of the central role previously played by the government, making room for private-sector initiatives. As he noted pointedly, “The FEZ is a form of luxury marketing,” whose success, in his view, “hinges on whether the government allows capitalism to function properly.” Critical of the existing regulatory framework, he maintained, “There is a fundamental contradiction in claiming to open the gates to the world while restricting apartment purchases only to those registered in the domestic housing subscription system. . . . It is also ironic that while developers are encouraged to build top-tier buildings, the government simultaneously imposes price ceilings through pre-sale price regulations.”⁶²

Together with the IMF crisis, the establishment of the IFEZ catalyzed a shift from developmentalism to developmentality—a turning point in the transformation of both the form and the function of local and national government, as a network, hub, and zone, which became aligned in their vision of configuring Songdo to serve the flows of global capitalism. A 2003 report by the Ministry of Finance and Economy titled “Free Economic Zones in Korea: The Future of Northeast Asia” offers a glimpse of the extent to which anxieties about meeting the global norms had been internalized by government officials, not only at the local level, but also in the central government. The report underscores

the government's firm commitment to reforming labor policies, streamlining public-sector management, and enhancing IT and communication infrastructures to make Korea's "highly educated workforce" and "sophisticated manufacturing technology" key assets for attracting international investment. This same rationale was echoed by politicians in Incheon, including Mayor Ahn Sang-Soo (2002–10), who framed the IFEZ as a strategic response to global economic pressures.

I want to create a high-class city where everybody wants to come to live. In order for Incheon to become one of the top ten major cities in the world, we have to provide a certain quality of space and the infrastructure. While preserving our cultural heritage, we must publicize such cultural values to the outer world. . . . Incheonians should not refrain from opening themselves up to the world and from directly competing with foreign countries. It requires our citizens' willingness and active attitude.⁶³

Ahn's emphasis on fostering a self-enterprising and self-optimizing spirit among Incheon's citizens, encouraging their willingness and proactive stance to "open themselves up to the world" and compete directly with their foreign counterparts, epitomized the aspirational ethos of developmentality for Songdo. To use a computing analogy, such a shift in mindset was the software necessary to operate Songdo's infrastructural hardware. As these impassioned enunciations made clear, there was a compelling historical shift that necessitated fundamental changes to the city's business as usual, not only in terms of its material design, but in its citizens' mindset.

In this context, the spatial strategy of the FEZ served as a strategic instrument for governments to shape urban landscapes in a way that catered to the flow of global capital. These zones, through their interplay with previous spatial strategies involving

networks and hubs, further integrated cities like Songdo more closely into what Stephen J. Collier and Aihwa Ong have termed the “global assemblage”—an intersection of neoliberal templates and locally situated elements.⁶⁴ In this regard, it is critical to understand that neoliberalization is not a unilateral process where global markets overwhelm local economies; rather, it represents an ongoing operation of governmental rationality that calculates and reconfigures itself based on specific contingencies of local conditions, leading Ong to later describe neoliberalism as a “mobile technology” of the government.⁶⁵ This perspective is consistent with her earlier arguments on zoning as part of an adaptable and interactive process of neoliberalization that, particularly in the Asian context, had to contend with the enduring influence of the developmental state.⁶⁶ In her discussions on FEZs in Chinese coastal cities, Ong articulates that these zones have created an emergent milieu where the state’s experimentation with economic freedom is opportunistically combined with its developmental aspirations, resulting in a “split sovereignty” whereby neoliberalism is applied as an exception to the state’s otherwise stringent rules and regulations.⁶⁷ The mobile and contingent characteristics of neoliberalization, identified most prominently by Ong, were vividly represented in Songdo’s IFEZ. For the Korean government, the IFEZ was a strategic response to navigate both international and domestic pressures. Korean geographer Bae-gyoon Park clearly articulates this dynamic, noting that despite the push for neoliberal reform after the IMF crisis, the government largely operated within the residual structures of the state-centered hierarchy. The combined outcome of these pressures was a strategy of “spatially selective liberalization,” which permitted localized experimentation with liberalization policy rather than implementation of sweeping nationwide reforms,

thus mitigating the immediate pushback from the populace.⁶⁸ The goal of this experimentation was certainly to elevate Songdo's global profile while distinguishing it from other domestic development projects.

Implementing a selectively liberal development strategy led to an inherently uneven geography, with development specifically targeting specialized audiences like high-tech professionals and the global business community. The design brief by Kohn Pedersen Fox (KPF) Associates, a New York-based global architecture firm hired by NSIC, corroborates this focus. For KPF, whose planning portfolio includes projects in New York's Hudson Yard, London's Covent Garden, and Boston's Seaport Square Innovation District, as well as projects in Shenzhen, Shanghai, and Guangzhou, Songdo was its first city-scale Korean project. The brief includes elements like Chadwick International School, Canal Walk, Songdo Central Park, the First World Towers, the International Business District (IBD), and the ConvensiA Convention Center—all of which recast iconic architectural symbols and styles from Anglo-European contexts, thereby exhibiting the global aspirations of Songdo. For example, Songdo Central Park, ostensibly modeled after New York's Central Park, was initially scheduled for later development stages of the project after the population had settled in. However, the plan was revised to construct it up front, to showcase it as a major selling point to prospective foreign investors.⁶⁹

Gale International also adopted this rationale in its public relations campaign for Songdo, drawing parallels with iconic structures around the globe. As Jonathan Thorpe, CIO of Gale International, mentioned in a BBC interview:

We have a performing art center that's situated on the water, out on the point, just like Sydney's Opera House. The idea was to have

something iconic like that. We have a central park, with high-rise buildings surrounding the central park. Just like New York's Central Park. And lastly, we have a grand canal within the central park that is so much similar to Venice's canal. Even with the water taxi, so that you can take a boat right on down through our canal.⁷⁰

In addition to its node- and grid-based landscape design, Songdo's distinct appearance is distinguished by features such as the Jack Nicklaus Golf Course, high-rise condominiums, outdoor shopping malls, and avant-garde museum structures, setting it apart from its surrounding regions and other cities in Korea. Yale Professor of Architecture Keller Easterling identified the combination of these architectural elements as "repeatable formulas" of zones that make them easy to propagate and repeat across scales.⁷¹ The fact that these elements often reflect the influences of global cities, particularly those in the West, also demonstrates the socio-political character of these design choices, specifically aimed to resonate with a selective, homogeneous, and often nomadic global audience. The disposition inherent in Songdo's architecture and infrastructure, therefore, exemplifies what Eugene McCann identified as an "extrospective" vision of the city, which, unlike a self-reflexive introspective vision, measures one's success based on external validation.⁷²

However, in elaborating the rationale for its design, KPF tried to stave off the accusation that their design creates a sense of sameness, which they see as a typical outcome of overly planned developments like Levittown, New York. Instead, the juxtaposition of these generic forms is said to follow what they describe as a patchwork design methodology, which, unlike the conventional master plan method, "derives pieces from cities which we know to have provided successful living environments."⁷³ When combined, these elements are expected to create a "planned heterogeneity,"

a deliberately curated mix of contingencies, consisting of “intentional changes of scale, interruptions of geometry, and varieties of open space character.”⁷⁴

Yet, beyond the use of the oxymoronic term “planned heterogeneity,” a more critical limitation of such assertions about Songdo’s progressive character lies in its indifference to the social, political, and economic dimension of its material design. Despite its often-promoted promises of freedom and decentralized governance, zones like Songdo have given rise to hyper-controlled and techno-optimized closed loops that reinforce existing power dynamics, carving out these spaces to serve the prevailing political and economic agenda. This critique extends to the broader phenomenon of zone building, which, according to Easterling, gains momentum not from a rational economic justification but rather from cultural anxieties and a compulsion to emulate a global standard: “Perhaps its popularity stems less from economic principles, and more from irrational social and cultural desires to conform to a global norm.”⁷⁵

The suggestion to look at the “irrational social and cultural desires” as a driving force behind the proliferation of urban zones merits careful consideration, as it invites us to ponder what might have been the enabling conditions for such desires in Songdo. As this chapter has highlighted thus far, the significance of key infrastructural metaphors and material designs in Songdo, including zones, hubs, and networks, represent more than mere physical spaces: they represent the intersection of discourse and materiality, bringing together a complex interplay of diverse interests and affective commitments. In the context of developing societies like Korea, these zones reflect a mix of sentiments, including an internalized sense of inferiority, a pervasive and anxious need for external validation, a techno-optimistic longing

for development and progress, a desperate eagerness to partake in what it means to be modern, even if it means doing away with history, identity, and local context. In the late twentieth century and in the first decade of the twenty first, these spaces were where envisioning and materializing the enlightened future seemed possible.

This argument is not intended to downplay the profound influence of the macroeconomic dynamics of globalization on the cities. Neither does it assume a straightforward progression of the shifting of the power structure from centralization to decentralization. Instead, an in-depth look at Songdo's development presents us with a narrative interwoven with both the continuities and discontinuities of history. It shows how the government recognized the imminent challenges of globalization and digitalization and adapted to those challenges by integrating networks, hubs, and zones as pragmatic frameworks of governance. Examining the infrastructural history of Songdo offers a nuanced account of history beyond macro-level accounts of globalization, which often portray a dichotomous dynamic between its instigator and its victims. Given the specificity of the Korean context, it seems more plausible to underscore a narrative of coexistence wherein the past and present forms of governance exist in a "both/and," rather than an "either/or," relationship.⁷⁶ Songdo stands as a site of hybridity encompassing such diverse transitions in the government and its development strategies.

Moreover, it is crucial to remember that this transition was not purely technical or political-economic in nature but also deeply discursive. As Songdo evolved into a more interconnected network, the government not only recalibrated its institutional mechanisms but also contributed to the transformation of developmentalism into more cultural and diffused forms of

developmentality. This reimagining foregrounded a new objective for the city that sought to proclaim its transformed identity as an open-minded, globally attuned, and enterprising entity. Importantly, this transformation in governmentality also carried a normative demand for the citizenry: the culture of governance was expected to become more open, participatory, and responsive, with information and communication technologies symbolically positioned as tools to express this openness. At the same time, the moral imperatives of development and progress were disseminated and reinforced through cultural initiatives aimed at instilling a particular kind of mindset and desired qualities of newly configured citizenship: flexibility, openness, global orientation, and the embodiment of “new intelligence.”

The infrastructural formation of Songdo in this period would pave the way for its later development into a “ubiquitous city,” a “smart city,” and a “sustainable city,” as the idea of the city as a medium of circulation and mobility continued to be reinforced, both virtually and materially. These elements served as the psychological infrastructure supporting the developments that would follow, as plans for the city expanded to encompass other normative concerns regarding sustainability, public security and safety, and culture and creativity. Subsequent chapters explore how each of these problem areas of the city, intertwined with the long-term ethical demands made on the city, such as its responsibility to promote sustainable development, to manage and visualize risks, and to nurture citizens’ creative and cultural activities, influenced the material landscape of Songdo from the 2000s on.

CHAPTER TWO

Smart Green City

Developmentality and Environment as Ecosystem

In 1996, four giant ships from the Hyundai corporation were anchored offshore at the Bay of Incheon. The vessels were mounted with a dredger, an excavation tool used for scooping rocks, shells, sea sand, and soil materials from the seabed. The dredging operation was part of a mega-scale geoengineering project to “reclaim” the Songdo wetland area—a three-decade ordeal undertaken by the government of Incheon. Started in 1991, the project was to use high-quality soil material excavated from the sea to solidify the wet ground to build the foundation for New Songdo City. For months the dredged spoil materials were hydraulically pumped into wide tube tunnels stretched along the Incheon Bay and subsequently discharged and dumped into vast landfill sites. The wetland reclamation project—together with other large construction projects like the Incheon Bridge project that connected the Incheon International Airport to Songdo, the Seoul-Incheon highway expansion, and the development of harbor and port facilities—was part of the city’s long-term mission to



Figure 11. Land reclamation work for the development of Songdo, showing early stages of shoreline infill. Courtesy of Incheon Metropolitan City.

transform the intangible idea of a futuristic, globally connected, and ICT-driven city into a tangible, material urban reality.

At the same time, the extensive land reclamation that enabled Songdo's development led to environmental degradation, including water and air pollution, destruction of wetlands, and disruption of the livelihoods of local farmers and fishers. Thousands were displaced from their homes, often with little to no compensation, to make way for the new city.¹ Despite collective resistance from concerned residents and environmental activists since the 1990s, the legacy of developmentalism has persisted in Songdo, with priority given to cultivating green industries, including bio- and info-tech clusters, the future economic engines of the city. Building these clusters, along with the broader smart city infrastructure, has continued to require more land and vast amounts of energy and water. However, this environmental aspect of

Songdo remains largely overlooked, exemplifying what critical AI researcher Kate Crawford describes as “the strategic amnesia that accompanies stories of technological progress.”² As a result, few people outside Songdo realize that the land beneath the city was entirely built from scratch, which involved extensive alterations of the natural landscape, including leveling mountains, dredging the seabed, and filling in wetlands.

Fast forward to the present, and the strategic amnesia that shaped the discourse of Green Growth and Songdo’s reputation as a smart green city has been further amplified by what sociologist Yolande Strengers characterized as “technoenvironmental solutionism.” This refers to a technocentric model of energy saving consumerism that reductively frames wide-ranging sustainability concerns primarily in terms of carbon calculations.³ Such a framing is particularly evident in several of the green initiatives discussed in this chapter, which focus mainly (if not only) on streamlining the energy metabolism of the city and reducing the complexity of environmental issues to technocratic questions of carbon management. One of the most contested examples is Songdo’s waste disposal system, known as CleanNet, which has been in operation since 2006. Designed to move garbage trucks out of public sight, the system utilizes RFID-enabled collection boxes, functioning much like vacuum cleaners that transport waste directly through an extensive network of underground pipelines.

A much-touted green urban amenity in Songdo that initially contributed to the imaginary of Songdo as a clean, efficient, and environmentally advanced smart city, CleanNet was once praised by BBC reporter Lucy Williamson as “clever rubbish.”⁴ However, this image of effortless environmental innovation failed to acknowledge the substantial infrastructure and ongoing



Figure 12. CleanNet waste disposal bin in Songdo. Photo by author.

maintenance costs required to operate the system: underground pipelines spanning 53.6 kilometers and the consumption of 1.5 billion won (equivalent to US\$1 million) of electricity, contributing to a total operational cost of 3.4 billion won (\$2.25 million) paid by the city each year.⁵ Moreover, the hazards of the system became tragically visible in 2018, when a thirty-eight-year-old maintenance worker in Namyangju City died after being sucked into CleanNet's underground pipe; his body was found 100 meters from the collection box.⁶ The case of CleanNet illustrates how Songdo's clean, green image was made possible by displacing and obscuring the material, environmental, and human costs underpinning it. Within the prevalent short-term, techno-solutionist thinking, the potentially hazardous impact of green technologies was selectively omitted to sustain the fantasy of immaterial and seamless progression toward a sustainable future.

In this chapter, I examine how the vision of an information-centered, future-oriented city discussed in chapter 1 entailed widespread environmental transformation both in a material and conceptual sense. Within the discursive space of the “smart green city,” much like that of “sustainable development,” the developmentalist objective did not recede; instead, it adapted to the rising global pressure for sustainability. Crucially, an informational understanding of the environment—and of managing it—became prevalent in this process. Environmental goals were gradually conflated with the technological capacity to monitor, measure, and optimize, normalizing a data-centric view of the smart environment. Having sensors track a building’s energy use, for instance, was automatically assumed to make the city more sustainable. In this way, the rhetoric of smartness blurred and redefined what counted as green, which became less about ecological preservation than about managing circulation and efficiency of energy and resources. Gabrys’s distinction between environmentalism and environmentality is useful to think with the chapter’s discussion. On the one hand, the term “environment” refers to the natural environment, as invoked in discourses of environmental conservation and environmentalism, often positioned in opposition to development. On the other hand, “environmentality” encapsulates a broader mode of “governing through milieu,” where power is exerted by shaping the material conditions of environments themselves. It indicates a mechanism of governance that distributes its power across multiple scales and locations in ways that sustain and expand its operations.⁷ Much like my discussion of the relationship between developmentalism and developmentality in the previous chapter, Gabrys’s concept of environmentality denotes a distributed sense of urban governance and citizenship, which isn’t necessarily equivalent to

the conventional understanding of environmentalist objectives. This environmental form of governance entails operationalizing infrastructure and data flows that render the environment not only legible but also programmable—as something that can be regulated, optimized, and modified.⁸ Paraphrasing Gabrys, it can be argued that the green promise of the smart city should be seen not just as a promotional tactic for selling digital technologies, but as a reflection of a shifting strategy of power that seeks to reconfigure how control is exercised and spatially distributed in urban environments.

Following the linkages among disparate points—the historical process of land reclamation, the rhetoric and techniques of distancing Songdo from Incheon’s notorious image as an industrial “gray city,” and the emergence of the “ecosystem” as a conceptual framework for envisioning the operation of a smart green city—this chapter shows how Songdo’s emergence as a smart green city was made possible through a dynamic interplay between environmentalism and environmentality. Importantly, the series of efforts to claim Songdo’s distinctively green character demonstrates the conceptual flexibility of developmentality: a mode of governance that not only absorbed criticisms of the industrial mode of development but also embraced the moral imperatives of sustainability to reconfigure the course of development into a high-tech, “green growth” strategy. In this process, Songdo became a laboratory for showcasing the specific techniques and technologies of green growth, through a spatially distributed mechanism that operated through energy efficiency standards, green certification systems, network infrastructures, and sensor technologies.

Songdo is a particularly effective site to understand the implications of making the environment a central objective for urban

development and governance. Rather than simply dismiss these attempts as an act of greenwashing, I highlight how the symbolic embrace of green ideals was not only consistent with but also useful for the government's long-term goal to expand its mode of systematic governance across the city space. In the case of Songdo, the emergence of green growth and smart green urbanism captures the enduring flexibility of developmentalism and its transformations into developmentality, which demonstrates its capacity to absorb and deploy the language of environmental stewardship in its continuing pursuit of technological progress. Before examining the roots of such systemic thinking in smart cities' environmental governance, this chapter begins by revisiting the material transformation that enabled Songdo's emergence from the wetlands of Incheon's west coast.

RECLAIMING SONGDO: DEVELOPMENT AND ITS DISCONTENTS

As Anthony Townsend remarked, the greatest irony for Songdo as “a project whose marketers tout as ‘one of the world’s greenest cities’” was that its 1,500 acres were, in fact, manufactured by “a massive landfill operation that destroyed ecologically critical coastal wetlands to pave way for new office spaces.”⁹ As of 2023, the size of Songdo has expanded to 53,360,000 square kilometers, or 13,185 acres. But the story of coastal reclamation, which provided the material basis for Songdo's economy and urban infrastructure, including facilities like seaports and airports, research parks, office buildings, and golf courses, is seldom included in the narratives of networks, hubs, and special economic zones commonly associated with Songdo.

It is no small coincidence that many teleports—which prefigured smart cities conceptually and materially—were built in coastal port cities. As discussed in chapter 1, these locations were often favored for the construction of network infrastructures due to their ready access to transportation, energy, and water, as well as minimal physical interference with information signals, including airwaves and soundwaves. With information and communication technologies positioned as the core of this new urban design, the foundational layout of the networked city—and in Songdo’s case, a city built entirely from ground up—was engineered to facilitate efficient information exchange. For instance, a 1991 white paper, “Incheon, Challenges and Development Directions for Urban Development,” from the Incheon Metropolitan Government notes that the design and placement of buildings should account for the physical pathways of information signals while incorporating landscape features, such as trees and walls, to buffer residential areas from noise generated by communication facilities. As such, the physical conditions of these sites were seen as essential to ensuring smooth and uninterrupted movement of information, avoiding potential obstacles such as mountains or tall buildings that could interfere with signal transmission.

The prominent local newspaper of Incheon, *Gyeongin Ilbo*, ran a series of weekly articles titled, “Let’s Save Wetland [*Gaetbeoreul sallija*],” from October 1996 to February 1997. Throughout the 1990s, *Gyeongin Ilbo* published articles that criticized the environmental damage caused by the extensive landfill projects initiated in the early 1990s. The special reports featured the views of environmental activists, scientists, and concerned citizens of Incheon, including the Incheon Federation for Environmental Movement (IFEM), who warned of the ominous consequences of reclaiming Songdo. The

most severe impact of reclamation, they pointed out, was the obliteration of the wetland's fertile natural habitats, which had once nourished a diverse array of species—fish, shellfish, clams, and mud octopus—on which many human livelihoods also depended. The destruction affected multiple endangered migratory bird species, like the black-faced spoonbill, as well as twenty-eight other threatened and endangered species that migrate from Australia, Russia, and Alaska to East Asia. However, such large-scale destruction was largely perceived by the government as mere collateral, if not inevitable, in its pursuit of development and its mission to create land to accommodate new towns (*sindosi*) and a futurist global business hub like Songdo. After years of scattered processes, in 1994, the Incheon Development Committee (IDC) signed contracts with the Hyundai and Hanjin Construction Companies to take the lead in Songdo's land reclamation project.¹⁰

Land reclamation is known to be one of the most labor-intensive and resource-extractive geo-engineering techniques. The process has been used to transform ocean seabeds into artificial built environments, as seen in cities like Boston, Hong Kong, Tokyo, San Francisco, and Amsterdam. In Korea, land reclamation techniques were first introduced in the early twentieth century during the Japanese colonial period, initially to create settlement zones for Japanese settlers and other foreigners from China, Britain, Germany, and the United States.¹¹ Under the directive of colonial Japan's engineers, large infrastructure building projects undertaken in Korea since the 1920s, such as ports, dams, and hydropower stations, have followed what was called a "comprehensive development framework." This framework sought to transform the environment into "an efficient, optimal system whereby each part contributes to other parts of the whole in mutually reinforcing ways."¹²

As historian of science and technology Aaron S. Moore has observed, the Japanese colonial government's approach to infrastructure development and its goal of engineering Asia continued to shape the ideology of developmentalism in its former colonies in Asia, including Korea, during the postwar period. This influence was most evident in the key pillars of developmentalism—speed, efficiency, and economy—that underpinned the rapid industrialization and urbanization in the 1960s and 1970s. Numerous land reclamation projects were carried out along Korea's western coast to expand national territory and accommodate the ever-increasing demands for land and production facilities. Indeed, since the 1960s, the Korean government has recognized land development and the construction business as a core asset to propel its growth, even spurring growth in other economic sectors. The Korean construction industry continued to grow and expand its business, thanks to a series of state-driven, mega-scale infrastructure projects like highways, dams, bridges, power plants, and high-rise apartment buildings. The government anticipated that improved transportation efficiency and the electricity generated from power plants would further accelerate industrial production in the future. At the same time, Korean construction engineers were able to gain the experience and confidence to successfully execute these projects on their own. Building on this experience, Korean construction firms strived to join the international construction boom across the Middle East and Asia, establishing themselves as an international export industry and securing lucrative contracts from these regions.

For instance, in 1965, Hyundai Construction Company was awarded a \$5.2 million contract for highway construction in Thailand. This was the first time a Korean construction firm had ever won a contract in a foreign country. Ever since, Korea has

exported its civil engineering and infrastructural expertise and its construction laborers to countries in Southeast Asia and the Middle East. In 1981, at the peak of Korean construction exports, companies received orders of \$13,681 million from foreign countries, over 92 percent of which were from the Middle East.¹³ Exporting construction labor was perceived as the fastest way of earning foreign exchange money and making up for Korea's looming trade deficit; the construction workers sent overseas remitted most of their salaries to their families in Korea. Foreign remittance was a key factor in the Korean economy in the 1980s.¹⁴

Amid the rapid development boom, Incheon and other port cities like Busan, Ulsan, and Pohang emerged as strategic nodes in the state's comprehensive development plan focused on an export-oriented industrialization strategy. Inheriting the legacy infrastructures of colonial port cities, these cities developed into industrial port cities centered on seaport facilities surrounded by manufacturing sites, transportation, and communication infrastructure and broader regions designated as export processing zones. As discussed in chapter 1, the role of these port cities has continued to evolve from colonial gateways to nodes for the global flow of capital, commodities, information, technology, and people, facilitated by the proliferation of hubs and free economic zones. This transition was largely reflective of a macroeconomic shift from a manufacturing-based economy to an information- and logistics-based economy where maintaining global connectivity and economic flows became essential for cities' survival. Moreover, this shift was propelled by a coalition of developers and growth advocates, who, driven by a desire for prosperity, modern ways of life, and high economic returns, promoted the territorial expansion of coastal cities and speculated on speedy profit turnover through generation of tradeable land assets. The anticipated

value to be gained from reclaiming the land further accelerated the rapid execution of the project.¹⁵

Throughout the rapid construction boom, the appearance of Korean coastal industrial cities like Incheon, Busan, Yeosu, Ulsan, and Pohang transformed dramatically and with breakneck speed that many described as a “typhoon of change.” Such drastic changes in the physical appearance of the environment were perceived to be an assuring, telltale sign of national progress and modernization, tenacious willpower reminiscent of the developmental drive that accomplished the “miracle on the Han River.”¹⁶ For example, *Chosun Ilbo*, a major Korean news publication, ran a weekly series in 1983 titled, “On-the-Spot Reporting: Changes in National Territory” [*hyeonjangbodo guktoui byeonhwa*], from June to December. An August 10 article described the acute sense of loss felt by many Koreans.

The word “change” is not enough. If you think about how many days since people wearing helmets with long sticks came and went, and the next thing is you realize one mountain has disappeared and the sea was filled. . . . The port that used to wait for men who went out fishing became a port where a large tanker the size of a school playground could dock, and the tidal flats where they were digging for clams and oysters became land.¹⁷

By 1999, over 20 percent of Incheon was sitting on reclaimed land (approximately 26,388 acres), used as sites for apartment complexes and other urban infrastructures (27.8%), landfills (20%), industrial land like warehouses and factories (17.5%), and port facilities (13%).¹⁸ By 2008, it was already estimated that over 90 percent of Incheon’s coastline was artificial. Incheon’s size increased fivefold, from 201 square kilometers in 1981 to 1,065 square kilometers in 2020, and its population steadily grew from 1,315,000 in 1981 to 2,551,000 in 2001, surpassing 3 million in

2020.¹⁹ As noted earlier, that expansion was largely achieved by land reclamation, as well as by incorporating nearby islands and municipalities, making it the largest metropolis in Korea. The city's map has changed drastically since 1980, as irregular shorelines were transformed into clean and straight lines. In its place, money, factories, jobs, and people flooded in. But the more industry grew, the more land was needed to house the industrial workers in the shipbuilding, manufacturing, and chemical industries.

These material, infrastructural, and demographic transformations in Incheon unfolded alongside enduring aspirations for economic and environmental development—aspirations on which Songdo was heavily reliant, yet from which it sought to symbolically distance itself. This distancing, embodied in the city's current branding as a clean and green city, was aided by largely taken-for-granted assumptions about information and communication technologies as alternative, environmentally sustainable models of development. What is conspicuously absent from this convenient assumption, however, is acknowledgment of the environmental degradation and energy use that made Songdo's very existence possible. Moreover, the impact of these changes was not limited to mere alterations in the landscape but the near-extinction of natural resources and habitats for endangered species such as wetlands, mountains, trees, rocks, and soil—since land reclamation projects typically require a tremendous amount of labor, as well as rock and soil fill materials, to construct seawalls and stabilize the ground. While dredging the seabed was one of the primary ways to obtain the soil fill materials, the developers also gathered broken bedrock and debris from nearby construction sites and dumped them into Incheon Bay.²⁰ When an economic downturn slowed the pace of several construction projects, they bulldozed and mined nearby mountains and hills to meet the ever-increasing demand for landfill.

Where, then, did the ever-increasing demand for Incheon's material and environmental development originate? On the one hand, this relentless expansion was deemed necessary to meet the insatiable demand for urbanization and housing and to satisfy the government's desire for territorial growth. From the government's perspective, it appeared that "Incheon had no choice but to reclaim land from the sea if it were to continue to develop into the future."²¹ At the same time, the push for Songdo mirrored a growing consumerist desire to pursue a more modern and urban lifestyle, one that distanced itself from the downside of industrialization and the working-class image historically associated with Incheon. As Park Haecheon notes in the preface to the edited volume, *Expanding City Incheon (Hwakjang dosi incheon)*, Songdo's development was largely understood by Incheon residents as part of a broader trend of new town development projects that had proliferated since the 1980s. These projects were rapidly pursued to accommodate the soaring demand for apartment complexes (*apateu*), which had by then become the quintessential housing model for Korea's emerging middle class. As residents settled into these new towns in the 1990s and 2000s, they developed distinct patterns of everyday life and consumerist taste cultures shaped around the towns' spatial design.²²

In Songdo's case, these developmentalist aspirations were even more pronounced, turning into collective yearning for development itself. As Ahn writes in the same volume, "Songdo New Town made privileges of the past century hyper-visible within Incheon, evoking a sense of defeat among residents of other neighborhoods—as if Songdo had become a kind of ark for a newly emerging upper class."²³ Over time, even for those not directly involved in the land and housing development business, apartment ownership came to be viewed as a pathway to enhancing one's well-being and elevating social status. This affective desire



Figure 13. Construction of apartment complexes in Songdo. Photo by Kyungsub Shin.

for development, or developmentality, demonstrates the internalized mechanism through which development operates not only as state policy but as a shared cultural orientation as well.

That Songdo was shaped by a desire to sever ties with Incheon's industrial past—while simultaneously relying on the same developmental strategies and frameworks that had driven industrialization—warrants closer examination. It is hardly surprising that such large-scale transformations of both artificial and natural environments have had substantial consequences for the image and experience of the city. During the rapid industrialization of the 1960s and 1970s, a series of back-to-back projects reengineered Incheon's waterfront: wetlands, fishing villages, and salt farms along the coast were converted into industrial production facilities. Reclaimed land was also often used as the dumping ground for waste transported from Seoul, processing almost 50 percent of the total waste produced by the larger Seoul

metropolitan area. By 1991, the Incheon city government estimated that about eight hundred thousand tons of unfiltered toxic wastewater from factories and households flowed into rivers and oceans daily.

The Korea Land & Housing Corporation, a government-owned corporation commonly known to many Koreans as LH Corporation, created the Namdong Industrial Complex (NIC) on the southwest coast of Incheon in 1980. Spanning about 2,400 acres adjacent to what is now Songdo, the industrial zone was completed in 1990 with an official name, Namdong *gukga saneop danji* or, as the residents simply called it, Namdong gong-dan. From here on Incheon came to be known as the industrial complex city, or *gongdan dosi*. Like many other state-crafted environments, NIC has served the national government's goal of facilitating highly centralized industrialization and, even to this day, remains the largest industrial zone in Incheon Metropolitan City, accommodating over 80 percent of the manufacturing workforce in the region. Not long after the NIC opened, thousands of small factories and industrial workers migrated and settled in the coastal area, leading Incheon to become known—and often resented—as an inhospitable gray city akin to those depicted in Dickensian novels. The term “gray city” invoked images of dirty industries, stench, smokestacks, fine dust, and pollution that left both the environment and the factory workers vulnerable. A 1991 newspaper article described it this way:

Sunday afternoon on the 30th. The sky above the Rose Apartment in Hakik-dong, Incheon, was gray with soot and dust emitted from the chimneys of large factories such as HC Industries and D Chemicals located 100 to 200 meters from the apartment complex. In the sweltering heat and the muggy weather of rainy season, the disgusting smell of carbon rubbed the tip of the nose, and the noise of factories

hit the ear, causing irritation and discomfort. “Even in the sweltering heat, I can’t leave the door open because of the disgusting chemical smell. I can’t even hang laundry on the veranda because of the dust that blows in day and night.” Residents of 650 households in 19 Rose Apartment buildings, suffering from pollution after moving in in 1985, are clamoring, “*I really can’t live.*” War on the pollution. This is the most serious problem facing the city of Incheon, which is now in its tenth year in the direct government.²⁴

The material reality of land reclamation was where the dream of modern, urban life was most vividly contested. The above report in the *Joongang Daily* was one of many that illustrated the grim aspect of life in the gray city. To the residents of Namdong gong-dan, the gray city was not just a metaphor, but a full sensory description of their everyday life: unsightly stacks of garbage and the stench from the stagnant water, contaminated with industrial waste containing nickel, chromium, sodium hydroxide, and sulfuric acid. Largely due to the artificial changes in the wetland, the flow of tidal currents lost its self-purifying function, exposing the residents to toxic air and water.²⁵

The “war on the pollution” was characterized by the Incheon residents’ long-term struggle to preserve the wetland beginning in the 1990s and continuing in the present. The most immediate resistance came from the farmers, fishers, and clam collectors who had harvested from the wetland for generations. Some of them were given a modest relocation fee to move out and make space for new facilities. Others dug in their heels and resisted the forced removal. In no time, however, the felt environmental impacts forced them out of their businesses and homes. The resistance of the fishers was easily dismissed by coalitions of developers and city officials speculating on tremendous economic gains through harbor development.

The Incheon Federation of Environmental Movements (IFEM) has led a more organized form of resistance since its founding in 1994, actively campaigning against air and water pollution in Incheon. The group has advocated research on coastal preservation and biodiversity and promoted recycling, among its many initiatives. IFEM has insisted on mandatory and rigorous environmental impact assessments for all existing facilities and upcoming projects, attributing the substantial declines of fish and shellfish and the widespread deaths of migratory birds to the excessive land reclamation projects near Songdo. Nongovernmental organizations (NGOs) like Birds Korea have consistently fought for the preservation of the wetlands of Incheon as it is a crucial habitat for threatened waterbirds, such as the black-faced spoon-bill (*Platalea minor*), Far Eastern curlew (*Numenius madagascariensis*), great knot (*Calidris tenuirostris*), and Saunders's gull (*Saundersilarus saundersi*). Birds Korea, established in 2002, has mobilized international solidarity efforts against reclamation, invoking South Korea's agreement to the Ramsar Convention on Wetlands in July 1997.²⁶ The organization pointed out that despite the Korean government's joining of the Convention and the official designation of Songdo's tidal flat as a Ramsar site in 2014, reclamation projects have continued.

The anti-reclamation sentiment of activists and organizers resonated with many Incheon residents, especially those who believed that the historic concentration of hazardous chemical industries in the area reflected the marginalized status of Incheon. The region was seen as a repository of all the things abhorred and unwelcomed in Seoul, such as factories and waste processing facilities, to the detriment of their health. The growing resentment of pollution and polluters posed a direct challenge to the future

and promise of prosperity envisioned for Songdo as a global business hub. While the IFEM members conceded that their opposition was to reclamation rather than the economic objectives of development per se, the government came to recognize the significance of considering alternative development strategies. Importantly, these pressures came to serve as an inflection point in the transformation of developmentalism into developmentality—a shift from the direct command of industrial expansion to more discursive and technical mode of legitimation. The emphasis on “green” and “sustainable” development, which emerged partly as an attempt to absorb and neutralize these frustrations, reframed environmental concern not as an anti-reclamation and anti-development stance but as very much part of the developmental mindset. For instance, a glimpse of change appeared when President Kim Dae-jung, during his visit to Incheon in 1999, remarked on the destruction of wetlands, “It is regrettable that this precious treasure has been damaged so far and should not be damaged anymore.” He added, “We will scientifically investigate the wetlands over the next five years to designate areas with high conservation value as national parks.”²⁷ This remark reflected a subtle shift in the governmental discourse on development that became more noticeable in the 2000s. Arguably, this shift signaled a growing imperative for the state to recognize and incorporate environmental concerns as a central objective of governance, prompting efforts to revise and recalibrate its earlier development goals. The ensuing strategy included the adoption of green building codes and certifications, the creation of public parks, and the promotion of bio- and info-tech industries. During this period, the Incheon Metropolitan Government (IMG) and the Incheon Free Economic Zone Authority (IFEZA) actively promoted the city’s sustainability efforts and presented Songdo as a model green city.

However, a closer examination of this transition is necessary to fully address the actual implications of Songdo's green promises because, despite an abundance of well-meaning efforts, their impact materialized quite thinly on the ground. As Nial Moores, a conservation specialist and activist from Birds Korea, underscores, "A genuine eco city would not be built on tidal flats." He further adds that it is "extremely difficult for those of us in Birds Korea and other conservation specialists to understand why reclamation still continues at Songdo, and why some people continue to promote Songdo New City as a model of sustainability."²⁸ This brings us to the question of how it was that Songdo, a city that has emerged via the extractive process of land reclamation, was able to promote itself as a green city? To understand this contradiction, it is important to consider how the transition strategically distanced Songdo from ongoing reclamation and further environmental degradation in public discourse while promoting a specific framing of environmental problems as compatible with the government's developmental goals. It was on this discursive shift, where the urban imaginaries of the industrial gray city and the postindustrial green city crisscrossed and defined themselves against each other, that Songdo now rests. The competing imaginaries of a gray city and a green city were mobilized to distinguish Songdo from the more industrial parts of Incheon, reflecting the city's changing economic base and the way Incheonians have come to terms, albeit uneasily, with their industrial past.

FROM GRAY CITY TO GREEN CITY

"I really can't live," residents clamored in response to the corrosive living environment that threatened their livelihoods and

health; Incheonians grew to resent the concurrent developments that had shaped a tough, working-class image of the city. Reflecting this sentiment, the industrial part of Incheon has often been portrayed as a site of violence, poverty, and organized crime in popular cinematic imaginaries such as *Take Care of My Cat* (dir. Jeong Jae-eun, 2001), *New World* (dir. Park Hoon-jung, 2013), and *Coin Locker Girl* (Korean title *Chinatown*, dir. Han Jun-hee, 2015). The city is similarly depicted in the popular comic book series *Jjang* (1996–2014), which features a dangerous and threatening image of the city with street fights, violence, and crime syndicates. Since the 2010s, the self-deprecating nickname, “evildom Incheon” (*magye incheon*), has gained wide traction in social media, implying criticism of the soulless and narrow commercialism that drove Incheon’s development in the previous era. These texts convey an implied contempt for the working-class neighborhoods of Incheon and contribute to a broader discursive context that conveys a dangerous and morally declining image of the gray city, aggrieved by its lost glory and its marginalized status overshadowed by Seoul.

While these fictional narratives reflected a bittersweet sense of peripheral identity derided by both Incheon’s residents and the broader Korean populace, the dirty and degrading image of the city came to matter differently to the city government. This was not only because it could threaten land values but also because it highlighted urgent problem areas that required government oversight and direct intervention. In other words, the image of the gray city morally justified and even necessitated the allocation of resources to rescue the city from further environmental, and moral, decline. Thus, the promotion of Songdo as an emblem of green development, explicitly contrasted with the gray city image of Incheon, became strategically useful for the

government. It served to demonstrate the government's virtuous intention to the public, framing the next phase of development as not merely different and cleaner, but morally superior to the trajectory of the previous era.

Since the 2000s, a variety of symbolic and technical devices have been employed to characterize Songdo as a green city, distinguishing it from the preceding urban development models that only prioritized profit, speed, and development. This shift was most prominently reflected in IFEZ's marketing campaigns that presented Songdo as a sustainable and eco-friendly city.²⁹ For instance, in 2013, Songdo's I-Tower was renamed G-Tower to reflect its transition from an international business hub to a comprehensive technological zone that upholds the values of green innovation, global connectivity, and growth. The relocation of the UN's Green Climate Fund's headquarters to Songdo was a highly publicized media event, with city officials like Han Tae-il, Director General of the Environment and Forestry Bureau of Incheon Metropolitan City, claiming it would "greatly boost the international profile of the city as well as of Korea in the global environmental field."³⁰ Real estate developers, including Gale International, have also emphasized the green aspect of Songdo, including a certification it earned from the LEED (Leadership in Energy and Environmental Design) program, which they regarded as "a testament to the commitment the developer, architecture firm, City of Incheon and IFEZ have to foster environmental awareness" and "a real sense of eco-responsibility within the larger Songdo IBD community."³¹

Songdo's sudden emergence as a green city also incorporated architectural changes that followed a highly curated and globally recognized formula: allocating land for green spaces, creating bike-friendly paths, collecting recyclables, and monitoring

building energy consumption levels. Importantly, these technical changes have been accompanied by narratives that imbued them with significance beyond their mere technical functions, positioning them as evidence of the city's compliance with global standards and showcasing the eco-responsibility of the broader Songdo community. One of the crucial instruments that enabled such an association was the adoption of standardized rating systems like the LEED. Songdo's development is notable in this respect because, from its early design stage, it has strived to showcase itself as a sustainable city in accordance with such international standards. In 2010, Songdo's ConvensiA Convention Center, designed by Kohn Pedersen Fox, earned the first LEED certified rating in Asia.³²

And in 2017, the entire city of Songdo earned the distinction of being the first city in Asia to be certified under the LEED for Cities program.³³ The LEED program was a flagship initiative of the US Green Building Council (USGBC), a nonprofit organization founded in 1992 and based in Washington, DC. The program was a set of proliferating tools that saturated the global discourse of urban sustainability. Initially, LEED was devised to rate the environmental performance of individual building design, construction, and operation by measuring factors such as indoor air quality, energy and water consumption, and the use of material resources. It was later expanded to include a similar assessment at the scale of the city, the LEED for Cities program launched in 2016. Standardized forms like the LEED—designed to allow for local customization and scaling and comparison across different regions—are in principle supposed to be adopted voluntarily by each building or each city, implying the moral responsibility of the city, as well as citizens, to comply with such global standards. Its seemingly scientific approach to environmental performance



Figure 14. Green Smart City exhibit at Songdo's G-Tower. Photo by author.

was highly favored by the government and corporations alike, as the ostensibly objective and voluntary quality of these standards afforded the city officials of Songdo legitimacy to frame the material transformations as a self-directed choice instead of an externally imposed mandate.

That said, it is crucial to consider the performativity and politics of these standards. In the case of Songdo, they have proven to be a highly effective and powerful means of promoting its urban environmental agenda while avoiding the pressure of mandated compliance. Alongside much-celebrated initiatives—such as the smart energy grid, solar panels, the “smart” waste processing system, bike lanes, and bio- and info-tech research clusters—these standards helped bolster the city’s green credentials. Furthermore, the ostensibly voluntary nature of Songdo’s green accreditation created distance from Incheon’s reputation as a gray city,

confined to the memory of the industrial era, but also enabled the city to actively cultivate alliances with corporate actors in the global green industry, who shared an interest in upholding and advancing these environmental standards.

By 2009, Songdo's reclaimed land had emerged as a popular testbed and experimental zone for public and private partnership initiatives focused on green growth, in which global actors like Cisco Systems Inc., a Silicon Valley-based network equipment maker, claimed a visible presence. As discussed in chapter 1, the involvement of global actors was largely facilitated by Songdo's designation in 2003 as the Incheon Free Economic Zone, which provided international corporations with certain exemptions from Korean regulations on labor, taxes, and property ownership. At the time, as journalist Greg Lindsay has noted, Cisco was actively expanding its business in Europe and Asia, promoting the concept of smart cities through its "Smart + Connected Communities" business, which they saw as a potential \$30 billion industry. This profoundly techno-solutionist vision, supposedly driven by an overarching sustainability agenda, displayed the intersection of globalist ambition with a capitalist impulse for territorial expansion and growth; Cisco transitioned from selling stand-alone products like routers and switches to offering comprehensive technology solutions at a much larger scale, that is, by building a "city run on information."³⁴ According to Cisco's chief globalization officer (CGO), Wim Elfrink, the strategy was likened to opening up a next chapter in the history of the internet, embedding network routers in physical infrastructure to create a city infused with data connectivity, where "everything can be connected, and everything can be green."³⁵ Notably, Cisco's hyperbolic claim of rendering a smart city as a green city rested mainly on the application of their technologies

to manage buildings' lighting, heating, and cooling, thereby purportedly streamlining the city's energy operations. The proposed green objectives were often left unsubstantiated, defined vaguely as "green in terms of environmental benefits and green in terms of economic results."³⁶

The smart city model advocated by the likes of Cisco, alongside IBM's "Smarter Planet" initiative, was big tech's response to the challenges of urbanization and climate change. In the corporate narratives promoting smart cities, phrases like, "By 2050, over two-thirds of the planet's population will live in cities," were frequently repeated talking points highlighting the need for their technological solutions. However, it was not simple naïveté that shaped such a narrow definition of a green city based on a strategically curated relationship between sustainability and smart cities. The strategy of positioning the high-tech industry as part of a green city development vision depended on an unstable proposition: streamlining operations would help organizations cut costs and, as a result, reduce the carbon footprint of buildings.³⁷ In this green city scheme, fostering the city's technical capacity to visualize and monitor the environmental activities became paramount. The idea was further reinforced by green accreditation systems like LEED, which was based on measurements of energy use in buildings, and positioned carbon calculations as the primary if not the only way of assessing green performance of buildings and cities. The association of greenness with smart cities, notwithstanding the growing amount of resources and electricity required to operate those infrastructures, became normalized. This assumption transformed the problem of the environment from one concerned with conservation and the dangers of extraction into one concerned primarily with matters of efficiency, optimization, and data.

Alongside the hyperbolic, tech-driven global discourse on greenness and sustainability—where connectivity, streamlining, and optimization were the common watchwords—the South Korean government undertook an explicit effort to establish sustainability as a national agenda. Central to this effort was President Lee Myung Bak’s economic strategy, known as “Green Growth [*Noksaek seongjang*],” or the Green New Deal policy, which placed special emphasis on innovation in “Green IT” as a key growth sector in Korea. Green IT was defined as a technology that had the potential to promote environmental sustainability while also assuring economic growth, including in sectors such as renewable energy, electric vehicles, and smart city technologies like smart mobility and smart energy grids.³⁸ Promoting the agenda drew in part on Lee’s earlier reputation for promoting green development during his tenure as mayor of Seoul. A *Time* magazine profile in 2007 featured him alongside figures like Al Gore and James Lovelock, naming him one of the year’s “heroes of the environment” and praising his achievements in revamping the public transit system and redeveloping the Chunggyecheon stream in the heart of Seoul.³⁹

Notably, in 2009, Cisco’s president, John Chambers, met with President Lee and committed to investing over \$200 million in the technology and telecom sectors, beginning with the establishment of Cisco’s global research center in Songdo. During their conversation, Chambers cited South Korea’s well-established IT infrastructure, its skilled human resources, the pro-business environment fostered by the IFEZ, and the Korean government’s endorsement of an IT-based green growth model as the reasons for Cisco’s investment in Songdo.⁴⁰

According to political scientists Sung-young Kim and Elizabeth Thurbon, the Korean government’s green growth strategy during

this period stood out for “its ambition, its investment scale, its speed of deployment, and its systematic design and execution—embodying the spirit of ‘race to the swift’ that has defined Korea’s approach to techno-industrial transformation since the 1960s.”⁴¹ With a budget of \$97 billion, equivalent to approximately 2 percent of Korea’s national GDP, the plan aimed to usher in “Korea’s second golden age of IT [*jeiui aiti jeonseongsidae*]” over five years, expecting to also drive developments across other parts of the economy, including employment, housing and land development, exports, and logistics in order to sustain the momentum of economic growth. Furthermore, the proclaimed vision of green growth was followed by standardized guidelines detailing the specifics of its implementation. This included the “Korean Green Growth Indicators” (2013), which consisted of twenty-eight statistical indexes, including water and energy consumption, recycling rate, and green R&D investments, designed to evaluate the overall environmental performance of local municipalities.⁴² Similar to the LEED standard, these indexes were used as a tool for policy makers, serving as their proxy, to distribute the regulatory mechanism of green growth *and* operate within Korea’s highly centralized governance system.

These governmental and corporate efforts to fuse green ideals with development, according to Kim and Thurbon, are indicative of a distinct political ideology they term “developmental environmentalism,” which denotes a hybridized relationship forged between the enduring logic of developmentalism and the moral imperatives of environmentalism.⁴³ A facade of green capitalism involved collaborations and public-private partnership deals among the real estate sector (Gale International, Posco), tech companies (Cisco, IBM), government actors (IFEZ, Incheon city government, Korean government), and strategic consulting groups

(UN Green Climate Fund, US Green Building Council). These collaborators carefully curated Songdo's public image as a green city "as a means of legitimizing their actions to attract investors, employers, residents, and visitors," adapting to the shifting economic, political, and social conditions.⁴⁴ Demonstrating the pragmatism and remarkable flexibility of developmentalism, developmental environmentalism explains how the government was able to rapidly embrace environmental objectives without sacrificing its long-standing economic goals. Yet, from a developmentality perspective, it is important to remember that the conditions that made the appeal acceptable was not due to government policy alone, but to how the very meaning of "development" and "environment" were understood in general: the conceptual expansion of the environment was no longer antithetical to but very much part of the developmental objective. Under these conditions, the underlying imperatives for growth and development were never seriously called into question, despite the internal critique denouncing previous modes of development that had prompted the search for alternatives in the first place.

Certainly, going green was good for business. Throughout the 2010s, Songdo's real estate development market calibrated its focus toward domestic consumers, for whom the city's pristine, clean, and family-friendly environment was highly desirable. This shift in marketing strategy became even more pressing as the city's the initial vision of building a global business hub faded, due in part to the global economic downturn of 2008 and the subsequent withdrawal of foreign investment. As a result, Songdo pivoted toward shorter-term development projects focused on residential and commercial spaces, such as office buildings and apartment complexes.⁴⁵ By a crude measure, Songdo's population growth rate far exceeded that of other IFEZ areas, such as Yeongjong and Chungra,

with the population rising sharply from 41,425 in 2010 to 207,447 in 2023. The number of houses in Songdo grew from 5,747 in 2003 to 71,278 in 2023.⁴⁶ To reiterate, these objectives involved the strategic remaking of developmental momentum in ostensibly eco-friendly terms, without abandoning its persistent commitments to speed, progress, and efficiency. The spirit of developmental environmentalism has been apparent in the practices and processes of making Songdo into a green city, in line with the national economic agenda for green growth. Green city elements were visible in parts of Songdo: open green spaces, bike lanes, public transit, vegetated roofs, energy-efficient heating and cooling systems, and wastewater and garbage recycling systems.

However, Songdo's smart green initiatives should be understood as more than just a successful marketing and city-branding strategy. As mentioned at the beginning of this chapter, the incorporation of the environment as a central concern for Songdo's development marks a significant shift in the mode of governance that became increasingly environmental, predicated on a perspective that reductively framed environmental problems as a series of techno-managerial matter related to energy efficiency and carbon calculation. In this formulation, the environment is not merely rhetoric but becomes the very infrastructure through which governance is enacted. As such, the implementation of the smart green city project in Songdo positioned the material environment of urban space as a site requiring continuous monitoring and intervention—a mechanism through which state and corporate surveillance activities were justified and normalized. In this process, the problematization of the environment served as a strategic opening for governmental and corporate actors to perform their moral responsibility by developing and testing new sustainability techniques and initiatives.

In the next section, I examine more closely how the environment is mobilized as both a medium and a mechanism of governance in Songdo. In doing so, it becomes clear how Songdo's operation as a smart green city revives and reinforces a cybernetic imaginary of the city that conceives urban space as an interconnected, self-regulating system that can be managed through flows of data—an ecosystem.

ENVIRONMENT AS ECOSYSTEM

So far in this chapter, I have charted the extensive material and environmental transformations of Songdo that were prompted by the city's developmental blueprint that envisioned the city as a network, hub, and zone. Amid the challenges it faced both internally and externally, the unrelenting developmental drive that underpinned Songdo's material foundation underwent a decisive shift in its strategy, reframing the relationship between development and the environment. The shift was mirrored in popular discourse and the Korean policy framework of green growth in the 2000s, which began to see their relationship as compatible primarily by articulating the problem of the environment in developmentalist terms, distinguishing itself from the previous dichotomous approach—one in which development and environmental preservation were seen as inherently at odds. I now attend more closely to a specific influence this shift has entailed in urban environmental governance, focusing on an emergent perspective that saw the environment as an integral part of a highly technologized and managerial system. This perspective, coinciding with the conceptualization of the city as a nexus for informational and financial flows, as well as a site for experimenting with techniques and technologies of smartness, viewed the

city's environment as something to be sustained and revitalized through systematic and data-driven management of its metabolism. From this standpoint, the environment was no longer a mere background of urban operation but increasingly a crucial part of the city's systematic management of its growing complexities. This established a crucial epistemic condition in which an apparatus of the smart green city could take hold.

Notably, this configuration of governance was influenced by a cybernetic framework of viewing and managing the environment as an "ecosystem," which implied the complex linkages among all human and nonhuman things, as well as multiple constituents that maintain the balance of the system. In this framework, environment was understood as a self-contained mechanism that channels flows of information, matter, and energy. The perspective that began to appear in government reports in the 1980s paralleled the development of scientific tools to quantify, survey, and manage environmental data, including the annual survey of fauna and flora and water quality and pollution levels in select rivers and coastal areas across the nation.⁴⁷ The government tended to prioritize evidence-based approaches to environmental policy making, and systematic data collection and analytics emerged as the primary tool.⁴⁸ In seeing the environment in scientific and enumerated terms, its governance came to be understood as similar to the governance of population and territory. Importantly, the ecosystem view continues to inform the governance of the so-called smart green cities, including data on individual buildings' energy consumption levels, circulation of waste, traffic volumes, and air pollution levels, giving rise to a holistic framework for viewing the city as an interconnected system.

For instance, in a study commissioned by the Incheon Institute (a public research institute based in the Incheon Metropolitan

Government) in 2019, “Policy Research for the Development of a Climate Smart City in the Songdo District of IFEZ,” climate change and smart cities are posited as being inherently related in a “means to an end” relationship, suggesting that the smart city was conceived as a response to the problem of climate change. The authors argue that this is particularly the case for Songdo’s smart city, which was designed with sustainability as its main goal.⁴⁹ To validate this claim, they catalog several ongoing smart green city projects in Songdo, including the installation of solar panels, construction of green homes and green infrastructure, traffic flow sensor analysis, drone and sensor-based air quality and flood monitoring systems, license plate recognition CCTV, emergency and disaster alert systems, and bus information systems. Holding together this loose array of initiatives is the framework of “urban metabolism,” a term the authors of the report use to describe the flow of energy, resources, and water in cities from a systematic perspective.

Urban metabolism theory, widely used in sustainability research since its formulation by Abel Wolman in 1965, advocates a systematic approach to managing energy and resource flows within cities.⁵⁰ Within this framework, cities are likened to closed ecological loops, composed of intricate flows of material elements like water, waste, and electricity. It implies that the role of city administrators is to efficiently manage these complex interconnections. Also evident in the diagram is how local-level decisions, like land use policies regulating urban density, land use mixtures, and transportation options, are inextricably linked with effects on a global scale, including greenhouse gas (GHG) emissions and climate change. Overall, the metabolic perspective integrates the organic and inorganic flows of the city on a local and global scale within a flat, totalizing plane, where material

flows of energy, water, and air are seamlessly linked to the health, economic, and ecological outcomes of the city. Their circulation is vitally connected to economic growth and improvements in living standards, while the visible complexity gives the illusion of having an all-encompassing view of urban metabolic activities. The metabolic approach to the urban environment had its precedent in the cybernetics term “ecosystem” (*saengtaegye*). Initially used in the science community since the 1960s, which had its intellectual roots in Norbert Wiener’s cybernetics theory in the 1950s, the term “ecosystem” started to gain popular traction in Korea in the 1990s. The significance of environmental problems was explained in terms of the disruption and sustainability of the system’s orderliness, a conceptual shift that occurred in parallel with the increasing influence of general systems theory in the late twentieth century.

However, the ostensibly transparent system obscures more than it reveals, leaving little room for raising concerns about the rationale behind the development itself or the uneven impacts of these flows. Instead, the problem of the environment is interpreted as one of resource distribution and enhancing efficiency through systematic management rather than as the consequence of past and ongoing development projects. Pollution is something to be mitigated or simply offset by other energy saving efforts. Despite its inadequacies, the metabolic view of the environment as an integrated system, or ecosystem, provided fertile ground for an order of smartness to prevail. The report argued that managing such a complex urban metabolism, encompassing diverse and interconnected material and immaterial components, necessitated a multipronged and advanced strategy better suited to tackle problems of such scale. The supposed necessity served the authors’ argument that advancements in big data analysis

would enable them to actualize what was previously envisioned in theory only, that is, comprehensive management of complex urban metabolism.

The assertion that data provided them with empirically verifiable means to implement and assess the effectiveness of their policies aligned well with the data positivistic and techno-solutionist impulse of both the government and corporations to justify increased deployment of digital technologies in the city. As environmental anthropologist Timothy Choy observes, the necessity of evidence for establishing any policy directive led to the integration of scientific knowledge production into the politics of the environment.⁵¹ Moreover, unlike the previous top-down approach to sustainability governance, which primarily focused on building basic infrastructural hardware and disseminating climate-related information to citizens, the distinctiveness of “smart” sustainability governance was said to lie in its ability to facilitate streamlined management of energy-related activities in cities, not just in its ability to reduce carbon production. This included a diverse array of urban functions, ranging from heating, cooling, lighting, and ventilating individual buildings to managing large-scale infrastructure like transportation and waste processing facilities. The model they proposed for Songdo, called the “climate smart city,” envisioned different parts of the city harmoniously working toward the same goal, accompanied by the promise of greater resilience, responsivity, and adaptability, that could be tangibly felt by citizens.

In this context, Songdo functioned as a living laboratory showcasing sustainable technologies geared to optimizing the city’s energy management. For instance, Hillstate Lake Songdo, an apartment complex constructed by Hyundai Engineering in 2019, embedded features like the Internet of Things (IoT) and Smart

Building Energy Management Systems (BEMS)—a centralized control system that monitors and automatically controls energy consumption by installing sensors and measuring devices in the building's energy-consuming equipment (cooling, lighting, ventilation, etc.)—across the complex's 8,935 square meters. Unlike the previous building management models that limited the role of digital sensors to passive observers, the engineers at Hillstate Lake Songdo emphasized their system's smart capabilities, as the sensors were configured to take a more active role in automating energy-saving activities by communicating information to an array of other smart objects and environments. Embracing the ethos of smartness and total connectivity, the BEMS was designed to operate as a nexus system, or an assemblage of multiple technologies including dashboards, sensors, cameras, communication protocols, network routers, and centralized control architecture, all working in tandem. It also worked in concert with a smart grid system, which could be tailored to each household's energy consumption patterns, thereby minimizing energy loss during transmission. Overall, the proactive role of the sensors in the smart BEMS in streamlining and regulating the flow of energy was deemed advantageous to building managers, who were afforded greater legibility and control over the building operation. Besides, it was speculated that the data generated by the micro-sensors would serve as the basis for developing platformized services for private companies such as predictive maintenance and energy use analytics down the line.

Beyond the management of individual buildings, the influence of ecosystemic thinking on governance has also manifested at the urban and national levels. Due to the purported role of BEMS in economizing energy use, the Korean government extensively promoted its integration in new development projects under the

Green Building Act of 2013. However, its initial uptake by local governments and construction companies was slow, largely due to the high upfront cost and expensive maintenance. The Ministry of Land, Infrastructure, and Transport (MOLIT) and the Ministry of Trade, Industry, and Energy (MOTIE) even offered subsidies and low-interest loans to builders who were willing to go green, gradually nudging their transition to smart buildings, starting with the mandate imposed on large public buildings (over 10,000 square meters) like universities, libraries, government offices, and cultural institutions and incrementally expanding it to include smaller buildings. Furthermore, the data generated by BEMS have been assembled and visualized in a central dashboard called the Korea Building Management System.

On both the urban and national levels, BEMS functioned as a mediator between the dimensions of environmentalism and environmentality by translating the metabolic activities of buildings and cities into datafied terms, thereby facilitating instrumentalization of digital technologies. This contributed to a shifting mode of governance wherein data and systematic analysis occupied an increasingly privileged position, which, for the most part, was driven by moral imperatives to optimize the present for a low-carbon future. At a deeper level, it reinforced the government's desire to acquire detailed and systematic knowledge about the energy activities of buildings and cities, with the aim of regulating and regularizing these activities based on that knowledge. The shift not only implied that the mechanism of power had become environmental, effecting changes in the ways in which control is exerted in the urban environment, but also indicated an emerging notion of the city as a vast ecosystem of metabolic processes.

The implication of ecosystemic thinking in urban environmental governance can be understood in several ways. First, as

discussed earlier in this chapter, the increasing prominence of standards and green growth metrics that reductively framed environmental problems in technologized terms coincided with the global ascendance of techno-environmental solutionism. On the one hand, this development represented a historical continuity of systems thinking that shaped the government's environmental responses by offering a predetermined menu of technological options as ready-made solutions. While the proliferation of smart green technologies conveniently transferred accountability to algorithmic mechanisms and industrial standards—and continued extractive processes over environmental and human resources—the deeper costs of these measures were often disregarded. For populations suffering from the consequences of these transformations, such as the loss of land, habitats, and livelihoods, the promises of green innovation often rang hollow if not shallow extravagance.

This is why scholars like Yolande Strengers and Jenny Kennedy have questioned the easy association of “smart” and “green,” challenging whose needs and visions are actually prioritized in such systems.⁵² As Kate Crawford has noted, the clean and green public image of computational infrastructures is a highly curated one, making their substantial carbon footprints less visible than the smokestacks of chemical factories or coal-fired power plants. AI systems, including smart city infrastructures, are highly resource-intensive and energy-hungry machines, an aspect that is often rendered invisible in dominant smart green urbanism narratives. As many others have pointed out, the material and environmental consequences of digital innovation undermine the promises of a green future, given the excessive energy demands of control towers, smart buildings, and their interconnected infrastructures.⁵³

Second, the strategic shift to integrating the environment as part of the urban operating system reflected a changing power dynamic in which the socioeconomic priorities of development were reconfigured in response to the material concerns of the environment.⁵⁴ In the case of Songdo, the emergence of “green growth” and “smart green urbanism” captures the enduring flexibility of developmentalism (and its transformations into developmentality) and demonstrates its capacity to absorb and deploy the language of environmental stewardship in its continuing pursuit of economic expansion. What this also suggests is that the environment was increasingly understood as a domain—or *milieu*—of governmental activities. This understanding of the environment closely aligns with what Yuriko Furuhashi identified in the context of 1960s Japan: the emerging notion of “environmental development” and “environmental planning,” wherein the environment itself became an object of architectural and spatial design.⁵⁵ As Furuhashi observes, this understanding of the environment was contemporaneous with an expanded way of thinking about media, art, technology, and design, signaling the growing significance of the environment as an objective as well as an ongoing site of human intervention. The dominant discourse and material practices surrounding Songdo’s development from the 1990s on reflect this conceptual shift and the growing pressure to incorporate environmental concerns in ongoing development projects. Through large-scale, long-term investment and material transformation of the environment, Songdo’s planners enacted a framework that treated the environment not as a passive backdrop but as an ongoing site of metabolic management. Crucial to this process, technologies like BEMS facilitated the government’s capacity to govern from a distance, by enabling the monitoring and management of multiple buildings and cities systematically

and remotely through an integrated control interface. This has normalized the government's expanding influence over organic elements like water, energy, and air that were previously understood as an integral part of nature and separate from society. In turn, this has allowed for the political matters of the government to be dissolved and disintegrated into environmentally distributed techniques of standardized measurement, calculation, and circulation. In other words, by assimilating the environment as the central objective of the government and by framing it in scientific and quantitative terms, the previously separate domains of nature and society have come to be perceived as a seamlessly interconnected process of flow, subject to a scientific and data-driven management approach.

That said, it would be too simplistic to think that the environmental mode of governance is achieved solely by putting in place the computational methods to manage the environment. The operationalization of the smart city is more than a technical formation; it is a techno-social, political, and discursive formation. According to critical geographer Bruce Braun, the shift to smart green urbanism is occasioned by the anticipation of crisis, indicative of emerging modes of governance that increasingly take on an "ad hoc, . . . ex post facto nature" disassembled into "a set of diverse and loosely connected efforts to introduce economy into existing relations in response to a perceived crisis."⁵⁶ That is, the shifting mechanism of governance seen in Songdo could not function without the cultural work of envisioning certain crises—and simultaneously articulating a desirable way of life secured within a clean, green, and safe environment. In this regard, it is important to recognize that the evolving power dynamics of the smart city—with its centralizing and decentralizing capabilities—became increasingly synonymous with the

promise of safety and security, a topic that is taken up in the next chapter. Much like the way green standards and building management systems were framed as a voluntary process, the participatory and willing engagement of citizens—through their provision of information and feedback—was emphasized as a necessary element of the smart city. This indicates that the operationalization of smart urbanism necessitated forging a specific ethical relationship between the collective personhood of smart citizens and the smart city, conceived as a “network of living practices of well-being.”⁵⁷ In this formulation, cities serve as important discursive sites through which “smart,” “green,” and “good” citizenry practices are envisioned, performed, and regulated. Furthermore, the smart city even “recasts who or what counts as a ‘citizen,’” in that citizenship is increasingly “articulated environmentally through the distribution and feedback of monitoring and urban data practices, rather than through governable subjects or populations.”⁵⁸ Therefore, the evolving power dynamics of the smart city requires situating them in relation to a changing mode of citizenship—where citizenship itself becomes operationalized through everyday practices of vigilance, safety management, and environmental monitoring, increasingly sensed, mediated, and actuated through data.

CHAPTER THREE

The City Must Be Defended Digitally

Surveillance, Security, and Everyday Environments of Control

The contemporary city is thus visualized as a distribution of risks.

—Thomas Osborne and Nikolas Rose, “Governing Cities”

In January 2015, a brief fifteen-second clip from closed-circuit television (CCTV) footage rapidly circulated across South Korean media platforms, including the national broadcast news channels, online websites, and various social media networks. A wave of public anger flooded comment sections and online forums, all directed at a childcare center in Songdo.¹ The troubling video captured a scene in which a teacher struck a four-year-old child who ended up sprawled on the ground. Other children in the facility witnessed the disturbing incident in fearful silence, adding to the general anger and frustration. The teacher, subsequently convicted of assault and sentenced to two years in prison, defended

her action by claiming that she was disciplining the child for not finishing her kimchi at lunch.

The infamous Songdo Childcare Center Assault Incident unleashed a wave of public outrage and initiated widespread debates about child safety. The Songdo International City Mom Café, the largest online forum on Songdo, with over eighty thousand members and hosted by the Korean site Naver, saw a surge of comments expressing parental anger and concerns about child safety, followed by arguments for the need to expand CCTV installations in all caregiving facilities. Amid rising public apprehension, a very specific narrative took hold: without the CCTV footage, the pattern of abuse would have continued indefinitely, given the children's vulnerability and inability to verbalize their experiences. The sentiment escalated when it was later revealed that the video had surfaced only because the child's parents, concerned about a change in her behavior, had insisted on viewing it. In the following weeks, various actions unfolded, including a series of off-line "one-person demonstrations" (*irin siwi*) organized by the members of the Mom Café, which put pressure on the city's legislators to mandate the installation of CCTV in all childcare facilities.² Many people even advocated installation of "networked" cameras, which, unlike the traditional closed-circuit cameras, would allow parents to have real-time access to security feeds via their smartphones. In making the case, one user pleaded, "Reflect on what's paramount to you. It might be the quality of English education, fees, amenities, or other factors. In my personal checklist, I have the instructor, and then CCTV."³ Parents, activists, and concerned citizens called for more robust safety measures in all childcare centers, not least of which was the universal mandate for CCTV.

Issues of public safety and surveillance continue to be some of the most challenging dilemmas for scholars and critics of

smart cities. Public discourses on security and safety have often assumed that technology has a social role as a neutral observer and deterrent of criminal activities, underpinning the rapid proliferation of smart surveillance technologies worldwide, including in Songdo. Technology, arguably, has even been conflated with a perceived ability to enhance people's sense of control and their general feelings of safety. Contributing to this trend are visceral images of crime and violence that portray the city as a landscape rife with risks and threats, which, in turn, prompts emotionally charged responses and imperatives to embed constant vigilance in the urban environment. This chapter explores the relationship between security, surveillance, and developmentality, examining how everyday concerns for one's own safety and well-being are operationalized as mechanisms for expanding smart city infrastructure through routinized practices of vigilance, safety management, and environmental monitoring. Moving beyond the binary framework of control versus freedom and privacy that often characterizes the critique of surveillance, I show that it is more productive to understand these developments as part of changing conceptions of risk, safety, and mode of citizenship—or an evolving operation of developmentality—rather than through a single-axis critique of surveillance.

While previous chapters have discussed the historical and material transformation of Songdo, focusing on macro-level shifts in the government's plans, this chapter zeroes in on the discursive formation of security and safety as key urban priorities and their ongoing association with surveillance technologies in Songdo, including CCTV. Since becoming a testing ground for Korea's first "real-time" surveillance system in 2009, Songdo has followed a consistent trajectory in its infrastructural development that has conjured a wide range of risks, including natural disasters,

public health crises, drunk driving, illegal parking, and street violence like theft and robbery. This development, manifested in both the government's deployment of surveillance technologies in streets and parks and the citizens' use of CCTV and other self-monitoring systems in their homes and automobiles, has led the city to embody a certain defensive mentality. The demand for universal CCTV in childcare centers is just one such manifestation of a defensive attitude among citizens who see themselves as potential victims of ambient risks and threats, requiring a continuous state of alertness facilitated by technology. It is through such morally saturated discursive formations, which produce and are produced by this mentality, that technologies like CCTV cameras, sensors, and analytical algorithms have become integrated into the urban fabric of Songdo, as well as throughout South Korea during the 2010s—a trend accelerated by the COVID-19 pandemic.

It is crucial to acknowledge the complex factors that shape public safety as both a discourse and a material reality, moving beyond a narrow presentist and single-axis critique of surveillance focused on a flat and abstract definition of privacy. Addressing how and why specific technologies like CCTV have largely gone unquestioned as emblems of transparency and safety requires a historically informed cultural inquiry, which involves interpreting the set of assumptions made about the problem of risk and safety, as well as technological solutions that promise to solve them. These assumptions inform the specific ways in which security and safety are problematized and acted on in cities like Songdo. Therefore, this chapter's exploration of security and safety in terms of material reality, discourse, and affective fact underscores the multiple historical trajectories that have served as a crucial precondition for the emergence of the desire for smartness in Songdo, shaping its current landscape of surveillance.⁴

In navigating this complex terrain, three interlocking historical developments are unpacked in this chapter. First, there has been a tendency to equate the controllability of living spaces with safety. This notion was prefigured by the development of home automation technologies, which have been widely installed in Korean homes since the 1980s. In this scheme, security was understood as the technical regulation and regularization of everyday activities, enforced through networked systems, which were seen as an infinitely expandable way of managing and ordering spaces. Second, this defensive and security-conscious mentality has been fostered by the constant anticipation of risks and threats that do not constitute a coherent other but exist as an omnipresent reality. A pervasive cynicism about the world as a series of ongoing deceptions and omnipresent risks reinforced the appeal of a naive positivism that placed far more faith in data than in human accounts of events.⁵ The growing perception of risk as omnipresent and unpredictable—seemingly beyond the managerial capacity of centralized governance—has conditioned the rise of data-driven vigilance as a moral imperative, as evidenced by public demands for a CCTV mandate in Songdo. At the same time, this disciplinary mechanism of surveillance is consistent with a broader logic of security in the smart city, one that reflects a shift away from the individual as the focal point of power toward the environmental contexts in which behaviors are shaped. Consistent with chapter 2's discussion of environmentality, this mechanism of security represents a changing mode of governance that treats the environment itself as a medium of governance.⁶ This observation underscores that the changing forms of risk in cities correspond with the adaptability and perpetual alertness that smartness represents.

Before charting this history, it is essential to map out Songdo's current surveillance landscape. More specifically, the context

that assigned a distinct social meaning to surveillance tools like CCTV, commonly identified as a “public good,” needs to be addressed. This will explain in part how cultural receptivity to CCTV has been shaped and constructed by an ethical model of citizenship that portrays individuals as equally responsible for their own safety and the safety of others.

“THERE IS NO ALTERNATIVE TO CCTV”

The fact that many of Songdo’s residents are young families with children is often cited as a reason for prioritizing safety in its design. Many private housing projects in Songdo advertise built-in security measures like CCTV, RFID, and Crime Prevention Through Environmental Design (CPTED) as key marketing points. The presence of these technologies is said to enhance residents’ sense of security, with many families installing even more CCTVs in their homes themselves. Indeed, when one walks around Songdo on any given day, it is common to notice that nearly all official and residential structures have gated entrances, accessible via keypads or RFID cards and monitored by CCTV. In 2024, it was officially estimated that a total of 2,704 CCTV cameras were installed within the IFEZ, counting only those managed by the city.⁷

On September 13, 2017, a press conference hosted by the IFEZ’s Smart City Operation Center introduced its latest smart city services in Songdo. After the opening remarks, the attendees were led to a glass wall overlooking an expansive control room, which looked like a vigilant overseer of the city fortress. Stretching as high as a three-story building, the opposite wall of the room was a tapestry of screens displaying live streams of video feeds, maps, and data charts, overseeing the space where “Songdo’s



Figure 15. Smart Operation Center of the Incheon Free Economic Zone (IFEZ).
Photo by author.

intelligence was deliberately tucked behind the scenes.”⁸ Beneath these screens were rows of computers where employees sat quietly monitoring the screens. Contrary to the room’s high-tech aura, the workers seemed more like diligent bureaucrats absorbed in routine tasks.

Kim Myung Sung, Smart City Department manager of the IFEZ, introduced the new service. Highlighting that security and safety are the foremost concerns for Songdo, he explained how the service integrated live feeds from parks, roads, and bridges, as well as traffic data and license plate numbers captured from across the IFEZ (Songdo, Chung-ra, and Yeongjong), which the department planned to share with local law enforcement and fire departments. To illustrate how it worked, he performed two brief demonstrations for the audience. The first involved a CCTV camera capturing a scripted scene in which a man hits

a woman in the street. On detecting the “anomaly,” the operation manager promptly alerted the police about the situation. As the manager explained, the department was planning on further streamlining process through developments in smart CCTV, which would consider multiple situational factors in assessing a threat, with sound sensors—purportedly able to distinguish specific sounds, such as screams or breaking glass, from ordinary background noise of the city—combined with data analytics of statistically accumulated patterns of aggression. The system, he said, was working to refine its ability to respond to ongoing threats, which, unlike the traditional, siloed central planning model, would be more effective, adaptable, and pairable with other urban services in the future.

The second demonstration depicted an individual alerting the authorities about a possible DUI incident by pressing an emergency button. When the actor pressed the emergency button, located under a streetlight pole, it enacted multiple cameras in the surrounding area to locate and track the person seeking assistance. The button also triggered a speaker and microphone so that the person could speak directly to a human operator stationed in the control room. The dramatized event showed how quickly the police could be dispatched to the scene and arrange a chauffeur service for the driver, thereby preemptively intervening in a potential DUI incident. The manager emphasized that the smart city system demonstrated the city’s round-the-clock commitment to enhancing residents’ quality of life and delivering the best possible public service, with public safety as the utmost priority. In addition, he noted that the software platform was developed in-house by the IFEZ’s Smart City Department—a way of avoiding the criticism often associated with the expenses of utilizing corporate software.

Throughout the tour of the facility, assumptions about technology and safety were evident. The first was that the primary goal guiding the development of the smart city was to deliver a public good by providing a safe and clean environment, as demanded by the citizens. The second was the technical focus on security, perceived as the overriding goal of the government. The demonstration also conflated the speedy detection of an anomaly with the actual state of safety, assuming that the mere presence of CCTV deters criminal behaviors. These assumptions attributed moral significance to technology as part of the government's responsibility to keep the city safe, which was regarded as an unquestionable social good.

For instance, the intense public reaction to the Songdo Child-care Center Assault Incident was quickly taken up by the courts and led to amendments in Korea's Child Care Act in May 2015 that were implemented in September of that year. Based on these legal grounds, the Ministry of Health and Welfare (MOHW) announced its new funding plan to facilitate the installation of CCTV cameras in all childcare facilities, setting a three-month deadline from the law's implementation.⁹ In response to the CCTV mandate, a coalition of educators and caregivers launched strong opposition, taking their objections to the Constitutional Court of Korea. They defended their "occupational freedom, right to privacy, and dignity," arguing that CCTV cameras would not address the root cause of the problem but would only perpetuate parental suspicion of caregivers, treating them as potential child abuse suspects. Despite these concerns, the Constitutional Court of Korea, the highest judicial body in the country, rejected the appeal in December 2017. The court reasoned that the broader "public good" of safeguarding children outweighed the cost of individual privacy. While acknowledging the potential infringement of

privacy rights and freedom of both caregivers and children, the court held that the overarching goal of public safety, child safety in particular, justified the decision and highlighted the difficulties of finding an alternative to CCTV to prevent child abuse in caregiving facilities.

The sentiment that there is no alternative to CCTV implies that CCTV is understood as the default solution to the problem of public safety. For instance, data from the Korean Institute of Criminology and Justice in 2019 reveals that 88.9 percent of Korean adults believe that CCTV helps prevent as well as reduce the number of crimes, with 65 percent favoring further expansion of CCTV in public spaces, residential areas, schools, and childcare facilities.¹⁰ Mirroring this belief, the number of CCTV cameras in Korean public places has grown exponentially since 2008, with an average annual increase of about 15 percent, from 157,200 units in 2008 to 1,767,890 units in 2023.¹¹ By May 2016, 91.2 percent of childcare centers had CCTV, a stark increase from just 31.6 percent in 2015.¹² The amended Child Care Act of 2015 prohibited the use of networked cameras, which would have allowed parents' real-time access to the video footage. However, recent discussions are pivoting back to promoting more and more "smart" and networked cameras in the streets, public spaces, and private properties. As far as the members of Songdo Mom Café are concerned, it appears that the exponential increase in the number of cameras in the past decade has had little to no impact in attenuating their anxieties about child safety. The demand for more CCTV coverage remains persistent, and many parents have turned to smartwatches to enable real-time location tracking and audio surveillance of their children.

Another group that quickly responded to the rising demand for technological security was a coalition of private corporations,

including many construction and tech companies. Since the late 2000s, advertising materials for new housing developments in Songdo have emphasized high-tech safety features, positioning security and safety as the first order of business. As an official from the NSIC (the joint venture between Gale International and POSCO E&C) stated in 2009, “As we strive to make Songdo International City the premier U-City in Korea, we are committed to securing residents’ safety through appropriate security measures.”¹³ These features were described as highly sought-after, value-adding amenities in new residential developments, indicative of how the city’s ongoing developmental aspirations were finding new expressions in the domain of security and safety. Therefore, the adoption of advanced surveillance systems to secure buildings and public spaces in Songdo was aligned with broader efforts to enhance the exclusivity of the city. For instance, in 2011, Korea Telecom (KT) and Cisco launched a joint venture called KC Smart Service (KCSS) to promote “Smart and Connected Communities (S+CC)” across the Asia-Pacific region, proposing Songdo as their inaugural testbed. Their vision, anchored in global expansion, saw Songdo as an exemplary model to showcase their products and services that facilitated streamlined management and regulation of various urban services. These services included management of transportation, public facilities, the urban environment, and safety, all of which were poised to be enhanced by integrating information technology. Hong-jin Kim, vice president of KT, stated, “In a smart space, you raise the value of the city by adding IT. The value of a city rises by 30 percent when equipped with good IT infrastructure.”¹⁴ Tapping into widespread security anxieties, promotional tactics like these reinforced the technological promise of security in the smart city and prioritized security as the central concern of urban life.

In 2009, the Sharp First World, a private high-rise complex built in Songdo for residential use, rolled out a smart surveillance system that was the first of its kind in Korea. This system consisted of 622 CCTV cameras monitored on six 70-inch screens. It was “smart” in the sense that its in-house control center had the capability to focus on specific zones using navigation controls, offering zoom-in and zoom-out functions with clearer image quality compared to conventional CCTV systems. While the traditional role of CCTV is limited to mere evidence collection, the new system aimed at “real-time” monitoring to actively deter criminal activity. The reorientation elevated the system’s role from after-the-fact identification to proactive crime prevention. A similar system was built into the Lotte Castle & Haemoro apartment complex in Songdo. According to the promotional literature, the complex

offers a comprehensive security system that safeguards not just the residents’ families but also individual privacy. Round-the-clock security is ensured through an automated entry door designed to restrict access to nonresidents. An emergency call feature is integrated into the intercom system, allowing for instant assistance in critical situations. Additionally, digital CCTV cameras are planned to be installed in areas like children’s playgrounds and underground parking lots, serving as a reliable guardian for residents.¹⁵

This promotional strategy exemplified a broader trend in housing developments during this period wherein high-tech security amenities were marketed as both a major selling point and a significant addition to the property’s value. It also mirrored prevalent spatial perceptions that portrayed specific areas like children’s playgrounds and underground parking lots as zones of inherent vulnerability, echoing the anxieties commonly voiced by young married couples and parents with children. Throughout corporate

narratives, technology was identified as an essential element in the landscape of security, serving not only as an assistant but also as an active agent, exemplified by anthropomorphic phrases like digital CCTVs “serving as a reliable guardian for residents.”

For many residents in Songdo, the desire for exclusivity and distinction has been the primary motivation for choosing to live there. Arguably, this place-based separatist attitude has been reinforced by representations of Incheon’s older city center as a dangerous and threatening space. The image of the gray city has evoked an aversion to the working-class, industrial part of Incheon. A sense of enclosure is maintained by digital security measures such as smart CCTV systems and RFID-based entry control, as well as traditional methods like security personnel. These mechanisms physically and symbolically demarcate inside from outside, constructing a landscape of security. This exclusive spatial logic, similar to gated communities or walled enclaves, reflects a broader defensive mentality that communicates hostility toward the other. Thus, the seemingly benign integration of security mechanisms into everyday settings is intertwined with aspirations for exclusivity and separation from areas considered less desirable. Reflecting this sentiment, since 2011, some residents of Songdo have even called for fiscal secession from the broader Incheon area, advocating that Songdo’s Special Autonomous District formally sever its relationship with the rest of the city.¹⁶

From the mid-2010s, the profit-seeking motive underlying these developments was diluted and began to be framed in terms of “public interest.” This shift became most visible with the departure of KT and Cisco from Songdo in 2015, which resulted in the full transfer of smart city management to Incheon U-City Ltd, renamed Incheon Smart City Ltd in 2017. Its initial capital, about US\$3 million, was purchased by the Incheon Free Economic Zone

Authority (IFEZA), after which the Incheon U-City was restructured as a “public corporation” under direct supervision of the IFEZA.¹⁷ The significance of this restructuring can be understood in at least two interrelated aspects. On the one hand, under the IFEZ’s stewardship, there has been a deliberate effort to foster Songdo’s smart city development as a locally tailored and publicly oriented enterprise, placing “the public interest” as its top priority.¹⁸ Although KT and Cisco’s prior involvement as major stakeholders in Incheon U-City was symbolically significant, it did not yield the tangible economic outcomes, such as increased capital investment, job creation, and taxable incomes, that city officials had hoped for. This shortfall was due in part to KT and Cisco’s status as a large corporation, which constrained Incheon U-City’s eligibility to attain state-commissioned projects and trusteeship roles—owing to existing antitrust regulations in Korea—a major point of frustration for both the city and corporations.

Incheon U-City’s restructuring into Incheon Smart City, a public corporation, did not mean that it had abandoned its developmentalist motives. While reporting directly to the IFEZ and Incheon Metropolitan City, Incheon Smart City still operates as both a shareholding company and a city-funded institution subject to public oversight. This dual structure has continued to create internal tension within the organization, a fact highlighted by its CEO, Sung Gi-wook, during his presentation to the Industrial Economy Committee of the Incheon City Council in 2022. He stated, “There are so many things to do in the city,” by which he meant several “public interest” projects the company was involved with, such as the redevelopment of manufacturing complexes outside of Songdo, including Namdong Industrial Complex, and the integration of the older parts of the city with the smart city platform in an attempt to address the gap between IFEZ and

the older areas of Incheon. These public-facing initiatives and oversight, however, impeded Incheon Smart City's active pursuit of profit-seeking endeavors. This became a point of contention among its employees and even some of the city council members. In response, Sung added, "Yet, as a corporation, we need to create a new profit model and develop businesses that can continuously serve as a cash cow, not just one-time ventures."¹⁹

The dual structure of Incheon Smart City, as both a commercial and a public entity, aligns with how the smart city technologies in Songdo are marketed simultaneously as amenities that enhance exclusivity and property values and as a "public service" by virtue of providing a sense of connectivity and safety to citizens. The frequent emphasis on optimization and efficiency also implied that these technological interventions were perceived as solutions to Korea's complex and bloated bureaucratic structure and hierarchy. The implication was that if the government could reduce its expenses through enhanced efficiency, it would be tantamount to delivering substantial public benefit. Consequently, the proponents of the city increasingly emphasized the public benefit of its monitoring systems and presented them as enhancing broader public interest, largely justified by invoking the demands voiced by citizens.

Yet it would be limiting to attribute the proliferation of smart surveillance technologies in Songdo solely to corporate profit seeking or the government's pursuit of administrative efficiency. How surveillance becomes normalized—or how certain surveillance-related practices become embedded in specific social contexts—is a culturally nuanced and historically contingent process that cannot be fully explained through a binary framework of control versus freedom. Scholars such as David Lyon, who emphasize the cultural dimensions of surveillance, argue that

surveillance is rather mundanely experienced: individuals comply with, negotiate with, initiate, and even desire it in everyday life rather than being simply being passive subjects of external imposition.²⁰ Although it may appear on the surface to reflect a coherent expression of a singular structural impulse (e.g., surveillance capitalism), the landscape of surveillance is an outcome of deeper historical and cultural formations. These include prevailing imaginaries of the city as a space where various forms of potential future threats, such as theft, street violence, missing persons, and traffic accidents, are anticipated and managed, as well as socio-technical practices aimed at visualizing and eventually “designing out” those threats through information systems and spatial planning.

The surveillance practices initiated by residents of Songdo, and their demands to further increase the number of CCTVs, complicate the critique of surveillance solely based on political economy. As an example, in June 2017, the annual New Cities Summit was held in Songdo, organized by the New Cities Foundation, a Canada-based nonprofit organization dedicated to urban innovation. Under the theme, “Thriving Cities: The Building Blocks of Urban Well-Being,” the summit drew hundreds of urban planners and technologists from across the globe, many of whom were visiting Songdo for the first time. During the event, several attendees expressed skepticism about the public value of smart city development, questioning the consequences of Songdo’s widespread surveillance network. Questions were raised about potential invasion of privacy, asking whether there was any resistance from the citizens. One participant asked more pointedly, “If people are caught protesting against the government, will one of the workers here contact the police and turn them in?” Deflecting the question, an IFEZ official referred to an inci-

dent that had occurred “three years ago, a child was abducted in Songdo, and the only available evidence was from a CCTV.” “After that,” he said, “it was the citizens themselves who wanted more CCTVs.”

The claim that citizens themselves want more CCTVs installed not only deflects criticism but also conveniently serves the political rationale that operationalizes citizens’ need for safety as a mechanism for expanding smart surveillance infrastructure—a pattern echoed in many other cities across Korea. This framing has allowed the government to present surveillance as a response to public demand, thereby diffusing its role in initiating it. This process has been further reinforced by two other supplementary premises: the widespread belief that public safety is an indisputable social good and the sole legitimate end goal of governance, one that justifies the use of any available methods and resources; and the persistent perception of the city as inherently fraught with risks and threats, which fuels a desire for safety and control that is presumed to be achievable by surveillance technologies—a sentiment that resonated with members of Songdo Mom Café and that was demonstrated in the 2017 Constitutional Court ruling that declared there was no alternative to CCTV. Together, these elements have infused surveillance with moral imperatives tied to public safety, enrolling both the government and citizens in the process of embedding vigilance in urban infrastructures.

Still, understanding why surveillance works so well—and with seemingly little resistance—in places like Songdo requires careful consideration. This is precisely the kind of question that is often overlooked in many discussions about the ethics of surveillance, as well as in early depictions of Songdo as a technological dystopia, discussed earlier in this book. Such accounts tend to assume that surveillance persists either because people are

unaware of the extent to which they are being watched or because they are simply complacent or disempowered by dominant structures. However, these explanations fail to adequately grapple with the changing strategy of power that operates through people's insecurity and desire for control that underlie smart city's current surveillance landscape. At the heart of this landscape lies an overriding imperative of control: a drive to manage the potentialities of the future while at the same time ensuring that the future remains answerable to the contingencies of the present—even as it intensifies existing social and spatial relations.²¹ Arguably, the landscape of surveillance requires a constant renewal of insecurity, continuously anticipating risks as a permanent condition of life, even as their shapes and forms become more fluid, invisible, and omnipresent in character.

NETWORKED AND SECURE: HOME AUTOMATION AND EVERYDAY CONTROLLABILITY

In June 2009, a pilot program using facial recognition technology developed by IBM Korea was tested in the streets of Songdo. A report by the Korean Broadcasting System (KBS) titled “Watch Inside the Criminal, Smart CCTV” demonstrated how the program worked: if a pedestrian walking in the street abruptly pauses, an alarm is triggered at the monitoring station. Eun-joo Kim, in charge of CCTV monitoring at the Yeonsu District Office in Incheon, explained, “The system is designed to sound an alarm when there's suspicious loitering or when a vehicle stops without a clear reason.”²² Setting aside the actual effectiveness of the system, or the problematic labeling of what counts as “suspicious behavior” or the rate of “false positives,” what stands out in the early iteration of Songdo's smart security system, as demonstrated

in the IFEZ Smart City Operation Center, is how it introduced a statistical definition of security. Security, in this context, is not achieved by the absence of threats but by the continual anticipation of risk, which exists as a permanent and imminent possibility. The security system thus functions by identifying anomalies and deviance based on pervasive monitoring and spatial control, defaulting defensiveness as the primary affective register of encountering the city.

A precursor to this understanding of safety, and the imperatives for control, emerged from the domestic sphere in Korea. Automation technologies started to become features of Korean homes in the 1980s, notably through models for computerized homes and home automation (HA). For developers, automation was considered a “comprehensive art of engineering” that required “systemic coordination of numerous stages, from planning, design, manufacturing, and application.”²³ These systems, primarily advertised for their security capabilities such as activating theft and fire alarms and incorporating video screens that allowed home owners to interact with visitors, were developed and introduced by Samsung and Goldstar (now LG), prominent electronics corporations in Korea since the 1980s. In these systems, when a button is pressed, a control signal is transmitted to households via the phone line and a switchboard. This signal is translated into a format the computer can recognize, resulting in the desired action. The computer then instructs the home appliances, such as refrigerators, rice cookers, and air-conditioners, and obtains a status update. The outcome, converted to speech using a voice synthesis chip, is conveyed back to the caller over the telephone line. By enabling a sense of control over domestic space both remotely and continuously, conducted via a telephone call, the HA system helped shape a mental framework for

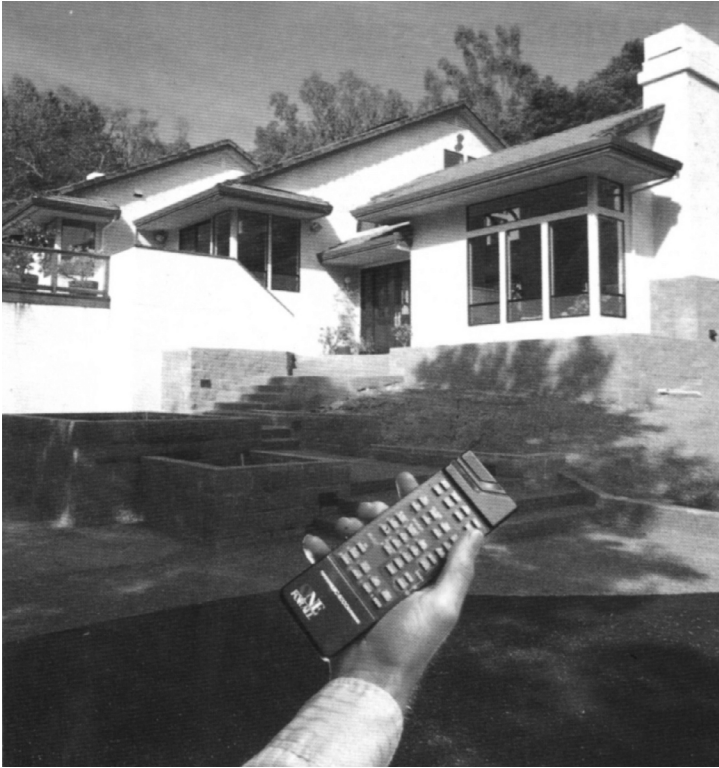


Figure 16. “When the era of home automation begins, all home appliances can be controlled with a single remote controller outside the house,” *Gwahak Donga*, no. 9 (September 1990). Courtesy of Donga Science.

envisioning everyday living space as circuits of communication and control mediated by information technologies.

The idea exemplified in HA systems reflected a broader public fascination with information and communications technology, fueled by aspirations for modern lifestyles and consumerist values that surrounded the development of new towns and apartment complexes during the same period. In 1988, it was estimated that 25,000 new households adopted this technology for the first time.²⁴ Depending on the vendor, these systems were priced



Figure 17. “The era of home automation is beginning,” *Gwahak Donga*, no. 9 (September 1990). Courtesy of Donga Science.

between 500,000 and 1,000, 000 Korean won; when adjusted for inflation based on the consumer price index, this would equate to between 1,491,000 and 2,982,000 Korean won in 2020, or approximately US\$1,289 and \$2,579. Despite the relatively steep price point, the popularity of HA systems continued to grow, partly due to the rise of smaller families and dual-income households, which often left apartments empty for longer periods and heightened concerns about home security. The HA system was thus marketed as a way to “bring back life to an empty house,” offering remote

control capabilities that “allows you to cook rice, adjust heat, turn on and off electric lights, draw curtains, prepare a hot bath, and run the washing machine.”²⁵ Positioned alongside other consumer electronics such as washing machines, refrigerators, rice cookers, air-conditioners, and home computers—technologies that were becoming increasingly popular among the growing number of middle-class households—the HA system promised greater control over one’s domestic life and thus even greater freedom for those households that were able to afford it.

In early discussions about automated homes, the technical ability to control disparate objects and spaces was closely intertwined with the psychosocial desire for security and safety. It is perhaps unsurprising that the home—as a space of gendered routine and lived arrangements where a moral economy is mundanely enacted in daily conduct—was where the desire for technologically enhanced control first emerged.²⁶ In this context, it was no coincidence that advertisements for HA systems often featured women as the primary users. Their presence, traditionally confined to the domestic sphere, was shaped by fears and anxieties associated with the unknowability of the outside world. The integration of HA systems in Korean homes during this period, in a sense, served to domesticate the technology itself. Similarly, media theorist Fiona Allon notes that “home is a space where technology becomes *encultured* and *made safe*.”²⁷ Commonly perceived as a socially neutral, private, and static place—an extension of the self—the home is imagined as a space where technology is “added on without any disturbance to the fundamental social relations contained and expressed within.”²⁸ The process of “enculturing” technologies thus involves presenting them as supportive of, rather than disruptive to, the routines of domestic life, even as control is increasingly automated and

dispersed to “smart” objects and environments. Simultaneously, the system is seen as a means of anticipating future risks and contingencies, normalizing control as an ongoing, ubiquitous feature of everyday life rather than a response to singular events.²⁹ In this way, control becomes a continuously active condition of life even as it fades into the background of one’s consciousness.

Over time, the mechanism of control through communication came to be understood not merely as a technical feature of controllable interior, but as a generalized method of governance and a way of conceptualizing the outside environment—one that could regulate and coordinate a wider range of elements across diverse spatial contexts. This logic of control gradually expanded beyond the domestic sphere into other domains, particularly office spaces and industrial sites, aligning with new ideas for automated environments such as factory automation (FA) and office automation (OA). The spread of automated control in everyday settings—the home, factory, and office—reflected a growing view of such spaces as interconnected and communicative environments, sites through which anomalies, inefficiencies, or deviance could be continuously monitored, identified, and potentially acted upon.

The emerging notion of control through communication technologies, along with the mental framework that normalized the view of everyday living spaces as an ongoing field of monitoring and control, continues to compose the broader mechanism of security and surveillance, including “smart homes” and their broader scaling into “smart cities.” As the technological impulse for control and security has intensified historically, so too has the level of security-related anxiety rather than diminishing over time. Consider, for example, the Songdo Childcare Center Incident, in which women, predominantly portrayed as housewives and mothers, expressed a heightened sense of vulnerability and anxiety, which

led to their moral responsibility to protect their families. Their calls for increased CCTV coverage in public facilities illustrate how these security concerns have become central to everyday urban life. These anxieties, rooted in a fear-driven sensibility that imagines the city as a site of omnipresent and unpredictable risk, inform not only the amount of technological surveillance in the smart city but also the intensity and modes with which security is problematized and acted upon in cities like Songdo. Moreover, an emerging approach to security shifts attention to how urban and architectural design itself might preemptively respond to potential threats. It is in this context that we turn to the environmental design strategies underpinning the effort to “design out” crimes in Songdo.

DESIGNING OUT CRIME:

CPTED AND THE SPATIAL POLITICS OF PREVENTION

As a precondition for the ethical-material arrangement of security, which sees surveillance as a public good, the desire for continuous control has been normalized through the embedding of sensors and cameras in everyday settings. A heightened risk-oriented mindset clearly underpins Songdo’s smart surveillance infrastructure, which has been designed to anticipate a wide spectrum of risks, ranging from micro-scale threats such as thefts, illegal parking, and DUIs to more serious street crimes like robbery and kidnapping, as well as large-scale crises involving nonhuman factors such as fine dust pollution, fire, flooding, and viral outbreaks. These risks, while not necessarily materialized, are treated as ever-present possibilities and serve as the basis for prioritizing the integration of security technologies in the urban environment. To paraphrase Orit Halpern, disaster

and catastrophe operate as the key premise and impetus of smart infrastructure, as these systems are embodying a scientific rationality that converts and calculates these threats into probabilities of risks.³⁰

Chuck Robbins, CEO of Cisco since 2015, spoke at Cisco's IoT World Forum in London in 2017 about the "landscape of threat" that his company was working against. In describing this "landscape," he mainly referred to the security vulnerabilities of IoT systems to cyberattacks: "The threat landscape is getting so much bigger. . . . The risk is going to increase exponentially, and we have to have a robust end-to-end architecture to actually solve this."³¹ While his remarks underscored the inherent vulnerabilities in smart systems, instead of scaling back their use, he proposed their further expansion, presenting them as a justified response to the potential threat of a widespread and unpredictable enemy that could materialize at any time and place. This demonstrates a typical rhetorical strategy of shifting the responsibility onto the social dynamic outside of the technical system, which, by the same token, presents the smart city as a response to the crisis of security, not as its cause.

Likewise, Songdo's smart surveillance infrastructure has drawn on a multitude of fears, both real and imagined. During the 2017 press conference at the IFEZ Smart City Operation Center, officials emphasized that smart city development was not just about demonstrating the city's technological prowess; it was also a practical endeavor for labor efficiency and systemic rearrangement of governance. The argument was that, compared to costly human operators, computer systems have greater attention spans and are less prone to errors. Their remarks implied that human involvement would eventually be relegated to supervisory roles, authorized to intervene only after the system had assessed the

level of risk. This prudent-sounding stance, however, mirrored a general skepticism about the human capacity to manage increasingly complex risks and a deeper anxiety about the human condition itself, prone to error, deceit, and inconsistency and therefore a risk factor in its own right.

A similar rationale was evident in the public demand for CCTV surveillance. While on the surface, this system was focused on identifying criminals, a more widely accepted social function was the production of objective, verifiable evidence—a perspective echoed in the Constitutional Court’s ruling that upheld the universal mandate for CCTV in childcare facilities. In this context, surveillance was framed not simply as a deterrent against criminal behaviors, but as a mechanism for generating alibis and documentation to protect the innocent. The system, in other words, was legitimated as a foundation for adjudication through the supposedly neutral arbitration of data. Crucially, this represents a significant shift in the legal and moral imagination from the principle of “innocent until proven guilty” to that of a “guilty until proven innocent.” In this logic, suspicion becomes the default presumption, and the proof of innocence, not guilt, must be actively demonstrated by individuals. The popular refrain, “If you have nothing to hide, there is nothing to fear,” serves to normalize this stance. Underlying this shift is a pervasive cynicism and fear of human fallibility, a belief that anyone can lie, and thus that the data traces produced by surveillance technologies are more trustworthy than human accounts of events. In this way, smart surveillance infrastructure becomes not only a technical solution to crime prevention, but an apparatus that sustains and amplifies a broader cultural mistrust of the human as a potential risk.

The neutral facade of data-driven security, while masking a growing suspicion of human intelligence, has dovetailed with



Figure 18. “Yeosu police will not sleep until crime disappears—ranked number one in crime safety in early 2016.” Photo by author.

shifting conceptions of what it means to keep the city safe. If threats are now understood as randomly distributed and continuously emerging probabilities no longer confined to specific locations, then the strategies for urban security must evolve accordingly. This shift relies in part on deemphasizing traditional methods such as police patrols and human operators in relation to more real-time and even preemptive forms of security management. Mark Andrejevic describes this transition as a shift from a disciplinary mode of surveillance to an automated one: while the disciplinary system is subject centered and relies on the internalization of norms established by the surveillance apparatus, automated surveillance focuses on the context in which subjects act rather than acting directly on subjects.³² In this automated mode of security, the target of surveillance does not even constitute an “individual” but rather exists as fragmented series of

“dividuated” elements such as the amount of ambient lighting, the rate of seat belt usage, the frequency of illegal parking, or the patterns of traffic movement. This deconstructed approach integrates security more deeply and more granularly into the urban environment, underpinned by a spatial logic that perceives the city not as a stable territory but as an interface composed of a series of risks.³³

In this spatial framework, characterized by Andrejevic as a “framelessness” represented by the view from nowhere and/or everywhere, the question of *where* instead of *who* becomes more central to the governance of security. This spatial orientation suggests that there is a shift toward risk and security management becoming “environmental,” capable of continuously and responsively adapting to an ever-changing context. Since there can be no singular and centralized structure to rely on for safety, the promise of security is perpetually postponed. This renders the challenge of governing risk like chasing a constantly moving target, as “there can only be an interminable series of experiments and demos that enable perpetual adaptation and short-term security for the city.”³⁴

One tangible manifestation of this holistic and perpetual approach to security has been the application of environmental criminology and the urban and architectural design program, Crime Prevention Through Environmental Design. Since the early 2010s, CPTED has served as a guiding principle for many housing projects in Songdo, in parallel with the discourse of “scientific security [*gwahak chi-an*]” that gained traction during the same period in Korea. CPTED, based on architect Oscar Newman’s 1973 book, *Defensible Space: Crime Prevention Through Urban Design*, has been highly influential in the United States since the early 1970s. It has produced concrete design guidelines aiming to

mitigate urban crime through strategies of surveillance, access control, and support for legitimate activities.³⁵ Adopted by various government agencies in the United States, including the Department of Transportation, the Department of Education, and the Center for Disease Control and Prevention, among others, it is also endorsed by the United Nations and numerous governments around the world. The underlying premise of CPTED is that human behavior is easily influenced by the environment. There are certain environments that can be conducive to criminal activity, and it is possible to preemptively intervene in activities by designing environments that discourage illegal behavior and encourage law-abiding behavior, thereby enhancing overall feelings of safety.

The CPTED principle was introduced in Korea in the mid-2000s, and the Korean CPTED Association (KCA) was established in 2010. By 2014, the Ministry of Land, Infrastructure and Transport had revised its existing building codes to incorporate this principle through the new article 53–2, titled “Crime Prevention of Buildings,” with compliance requiring adherence to specific mechanical standards, such as lighting conditions, access control, building appearance, windows, street width, and number of CCTVs.³⁶ Apart from CPTED’s formalization, Korean urban planners, architects, criminologists, and law enforcement officials, who had been meeting to discuss its application in Korean cities, strengthened their alliance through events like the KCA annual conference, on-site training sessions at schools and local government offices, and collaborative R&D projects. Given their prediction that the Korean government’s annual budget slated for security R&D will grow rapidly, security was considered an industry with great development potential. These engagements, constitutive of the broader discourse of scientific security, advocated incorporating science

and technology into policing activities, in line with developments in fingerprint and DNA analysis, and automated license plate recognition (ALPR), as well as face and gait recognition, which were collectively aimed at fostering a futuristic and high-tech image of the police.³⁷

In the context of Songdo, many housing developments that embodied CPTED principles leveraged its safe image. These developments featured security features like motion-activated cameras that send pictures of visitors directly to residents' smartphones. Beyond individual buildings, Songdo's urban infrastructure, including streets and parks, has also incorporated CPTED design principles. This includes LED-powered streetlights that enhance the brightness of streets at night, emergency bells and speakers, and smart CCTV systems capable of license plate recognition. For example, the design of Chadwick International School in Songdo, a private school that accommodates students from pre-kindergarten through grade 12 and opened in 2010, emphasizes safe school design, maximizing the visual field throughout the interior, with classroom, library, and laboratory layouts promoting "positive support and clear communication" via an open floor plan and glass walls.³⁸ The school, which has its main campus in Palos Verdes in California, was designed by Kohn Pedersen Fox (KPF). The entrances are RFID-card key access only, and it is reported that there are as many as six hundred CCTVs installed on the Chadwick campus that are equipped with zoom and pan functions, enabling twenty-four-hour surveillance and a totalizing vision of pedagogical regulation.

Notably, these designs emphasize their ability to locate and visualize detailed conditions surrounding a criminal "event," rather than the individual's criminal "intent," indicating a shift in conceptualization from "a matter of personal and social

pathologies in need of correction” toward “situational terms of space and time” where risks are “predictable and manageable in aggregate terms.”³⁹ That is, a security design technique like CPTED, as it is applied in Songdo, views the city as an arena for risk management and operations, based on a dispersed notion of risk that emanates more from specific environmental situations than from the people who ought to be excluded and controlled. As observed by sociologist Pat O’Malley, the changing strategies of power, in the form of situational crime control methods and environmental manipulation strategies, have become the fastest growing crime control model worldwide. These strategies facilitate effective operation of power that is arguably more subtle, thus requiring fewer political resources and less direct coercion, which might engender resistance.

Within this emerging field of security and risk management, security techniques are designed be “more incorporative rather than exclusionary, meliorative rather than coercive, statistical and technical rather than moral and individualized, tolerant of variation rather than rigidly normalizing, covert rather than overt and so on.”⁴⁰ This shift in the concept of risk and risk management of course involved changes in the role and concept of government and citizens’ role in relation to it. After all, the development of technical systems alone would only be partly effective without the cooperative and safety-centered behavior and mindset of citizens, as well as an institutional arrangement to properly manage them.

DIGITAL DEFENSE OF THE CITY

To be sure, the existence and effectiveness of these technologies alone do not account for their continued use. It must be catalyzed

by the moral imperatives inducting individuals into the collective practice of risk management, distributing the responsibility for safety to individual citizens. The greater their drive and enterprising capacity, the better the security environment they can co-construct. As sociologists Thomas Osborne and Nikolas Rose argue, “Risk reduction is to form part of the moral responsibility of urban citizens themselves.”⁴¹ The moral responsibility for risk reduction that is embedded in smart city infrastructure such as cameras and networked sensors is to be enacted by encouraging individuals to “voluntarily” enroll themselves in the broader political program of security. This includes adopting safety measures enabled by technology—ranging from personal CCTVs, in-car dashcams (commonly referred to as “black box cameras” in Korea), safety codes, and safety training and community defense programs like neighborhood watch groups. In online forums like “Songdo Mom’s Café” and “All That Songdo,” members frequently share safety-related topics, ranging from potholes, food hygiene, and traffic safety to public health hazards posed by infrastructure such as freight parking lots, waste processing facilities, and LNG pumps. In so doing, individuals take it as their moral responsibility to provide information about these issues, alerting their neighbors to be on guard and thus to be on defense as a collective body. Furthermore, these discussions established an ethical relationship between technology and responsible parenthood, a stance certainly embraced by the members of Songdo Mom’s Café, who considered their self-protective efforts through these technologies as morally righteous.

When technological measures of safety collude with the internalized need for safety, it becomes difficult to distinguish individual self-protection efforts—which purportedly “empower” them by distributing the means of control—from

the mechanism of urban security management that increasingly extends influence into nongovernmental realms. Even the rhetoric surrounding CPTED, in response to earlier criticism of its narrow focus on technicalities, has adapted and evolved by incorporating the language of “community building” and “participatory policing,” involving horizontal mechanisms of self-defense and self-policing to complement the limits of mechanical surveillance.⁴² It is within the gray zone between the individual and the government that the new security techniques of the smart city actualize their full potential. Importantly, this process of moral responsabilization, which prompts individuals to become willing agents of smart city infrastructure, is conditioned by the sense of impending threats and crisis, as well as by the prevailing belief that in the absence of a fully reliable system that guarantees one’s safety, a certain degree of vigilance must be fostered within individuals themselves.

This self-defense mentality seems to have accelerated during periods of uncertainty and crises, such as during the COVID-19 pandemic, when there was a surge in public demand for increased transparency, with many Koreans asking for more comprehensive data and more CCTV coverage in their neighborhoods. The digital contact tracing program, for instance, implemented by the Korean Disease Control and Prevention Agency (KDCA), relied on integrating diverse databases, including the location data collected from mobile devices, personal identification information, medical records, immigration records, card transaction data, transit pass records, and CCTV footage. Individuals, who saw themselves as part of the collective defensive body in the city, actively sought as much information as possible about the virus, “voraciously consuming and demanding their entitled right to know more and more COVID-19 related information.”⁴³ Their

defensive practices were driven by an intense desire to make the uncertainty legible and knowable, which “gave rise to a strong moral imperative to participate in the investigation process and demand utmost transparency downstream.”⁴⁴ Journalist Max Kim, in an article in the *New Yorker*, captures this sentiment with the term “virtuous surveillance,” which he defines as a “radically transparent version of people-tracking that is subject to public scrutiny and paired with stringent legal safeguards against abuse.”⁴⁵ To be sure, the prevalence of virtuous surveillance discourse did not simply indicate that Koreans disregarded the risk of invasion of their privacy; rather it indicated that the context of public discussions surrounding surveillance and safety was grounded in a highly pragmatic logic, which weighed the costs and benefits of surveillance, and considered that foregoing some personal privacy might be a justified trade-off to avoid greater future risks, such as more deaths or an economic downturn.

This calculating rationality, intertwined with the moral justification of surveillance as a public good, resonated with another public health and safety incident. In the summer of 2017, the Korean media extensively covered the residue of toxic chemicals in eggs due to poor hygiene practices at several food processing facilities. Chemicals like fipronil and bifenthrin, typically used to treat lice, fleas, and ticks in animals, were detected in eggs already available to consumers. Over time, it was said, even a small amount might cause liver and kidneys problems in humans. Disturbed consumers stopped consuming eggs altogether, with some even avoiding chicken and bread, and demanded immediate government intervention. Interestingly, the public reaction to this perceived threat mirrored the response seen in other public health and safety incidents in that the public’s right to know

the specifics prevailed. They demanded as much transparency as possible regarding the conditions under which the chickens were raised and clamored for more comprehensive government oversight of egg production and distribution. In response, the Ministry of Food and Drug Safety revamped the digitized egg tracking system in 2017, assigning a unique ten-digit tracking number to each egg. This updated system mandated farms to provide detailed information about the egg's production, such as laying date and time, farm location, and breeding method. Soon after, mobile apps were developed to allow consumers to trace the history of their purchased eggs.⁴⁶

While different events mobilize different fears and anxieties in daily life, ranging from social disorder, disaster, and child abuse to food safety, it is notable that the prevailing responses often lean heavily on uniform and standardized approaches centered on expansive data and surveillance technologies, whether the city's smart operation center, centralized public health tracking, or egg tracking systems. Underpinning this process is the belief that the knowledge generated by data allows one to exert some control over uncertainties, at least partially, as people navigate their daily life actively trying to avoid risks as much as possible. Thus, it seems that, faced with the sheer unpredictability of risks, there was an increased collective demand for the adoption of more data-driven governance, based on the technological promise of providing a tangible structure to ever-present threats, rendering them detectable, knowable, and thereby more governable. At the same time, many individuals turned to technological solutions to safety, by downloading crime hotspot maps and smart safety apps, installing smart home systems, and demanding more public CCTV and emergency bells in the streets. This

shift underscored that the security responsibility was not a prerogative of the government or the police only but of all the people in the city. This accounts for why, in cities like Songdo, individual responsibility for managing risk and security seems to expand endlessly through voluntary practices of self-protection.

Cultural Economies of Creativity and “New Intelligence”

K-Culture and Songdo

In September 2023, the inaugural metaverse K-pop festival, the Isegye Festival, was held at Songdo’s Moonlight Festival Park. Cosponsored by the Incheon Free Economic Zone Authority (IFEZA), LG Electronics, and the Korea Creative Content Agency (KOCCA), the event drew up to twenty thousand fans and showcased popular Korean hip-hop artists like Loco, Big Naughty, and Prowdmon. The grand finale and centerpiece of the show was a virtual K-pop idol group, Isegye Idol (also known as Isedol), which debuted in 2021. As the figures of six Isedol members, each appearing as young female animated characters, came into view on the large screen, the crowd erupted, chanting their names and singing along to their hit song, “Kidding,” which had garnered over thirteen million views on YouTube. In contrast to the other artists in the show, however, Isedol’s performance was entirely virtual, with no physical human performers in sight; the group exists only as virtual avatars in the metaverse.¹

While these “virtual idols” and their fans have been part of the Korean subculture since the 2010s, it was not until the early 2020s that mainstream media began to take notice of their potential as the future of Korean cultural entertainment. The rise of virtual idols in the K-pop scene, it was said, mirrored the innovation and creativity of the Korean populace, fueled by their willingness to adopt cutting-edge digital technology. Isedol’s performances had been crafted using sophisticated multimedia technologies that capture and replicate the movements and voices of human performers, who are often former K-pop trainees. Their vocals and dance routines were synthesized with AI-generated facial images to produce animated 3D content, distributed via platforms like YouTube or VR Chat.

The architect behind the Isedol enterprise was Woowakgood, a pseudonym for an individual known to be a long-term resident of Songdo. Since launching his career as an online game streamer and content creator in 2008, Woowakgood has cultivated his own fan base and a substantial following on numerous social media channels, garnering over 1.6 million subscribers in 2024. Following the serendipitous success of Isedol in 2021, he went on to establish Wak Entertainment, a management agency, and designated Songdo as its virtual and physical headquarters.

The emblem of Woowakgood’s online persona is a horse-like character wearing headphones. His enterprise revolves around a “worldview [*seggyegwan*],” understood as the uniquely constructed spatio-temporal universe through which an individual perceives and organizes experience. For Woowakgood, the physical and virtual realms exist on a continuous plane, and the virtual world is considered one among multiple coexisting universes within a multiverse. This perspective is echoed in Isedol’s signature phrase, “transcending dimension [*chawon-eul numeo*],”

which implies that the physical world is not inherently superior to the virtual. This view has resonated especially with the fans of virtual idols and many young people, whose primary gateway to fandom no longer begins in physical spaces. For these audiences, engagement often starts online and subsequently extends into offline activities such as fan gatherings and concerts.

The story of Isedol and Woowakgood has emerged as one of the most successful recent examples of the creative economy in Korea. With the ongoing hype around the metaverse and AI, examples like Isedol are cited as reasons to remain optimistic about the future of the Korean cultural industry. The sentiment is reflected in a white paper published by the Korea Creative Contents Agency—a research institute governed by the Ministry of Culture, Sports, and Tourism (MCST)—which suggests that the future of the industry increasingly depends on its ability to integrate the potential of virtual platforms and AI technology.² Indeed, many start-ups, along with established entertainment conglomerates like SM and Kakao Entertainment, have been exploring the virtual idol business since 2021. The economic appeal of AI characters over real-life personalities has been clear: their adaptability, predictability, and relatively lower maintenance costs, in addition to their capacity for real-time interaction with fans, are considered to offer significant growth potential for these companies in the next wave of Korea's cultural industry.³

At the same time, residents of Songdo and IFEZA officials have actively embraced their association with Isedol and Woowakgood, supporting initiatives aimed at fostering innovation and the creative economy in the region. They have promoted and strategically leveraged national tax reduction programs for start-up small and medium enterprises (SMEs), which provide corporate tax benefits to newly established firms when the representative of the

company is between the ages of fifteen and thirty-four. Because these programs offer a 100 percent corporate tax reduction for five years in areas outside the Seoul Metropolitan Overpopulation Control Zone, many young start-up entrepreneurs, including YouTube streamers, choose locations such as Songdo for their business operations, as it is not classified as an overpopulation control zone despite its proximity to Seoul. Further, in 2023, IFEZA proposed the development of “K-pop Contents City” in Songdo, a new arena (with a capacity of up to 20,000 seats) to host K-pop concerts and enhance the city’s hip image.⁴ Arguably, the efforts to forge links between Korean popular culture and Songdo, most explicitly seen in IFEZ’s pursuit of building a K-pop Contents City, reflect a desire not only to elevate Songdo’s cultural profile externally but also to *aestheticize* the city’s development process. Within this scheme, culture (or more precisely, popular cultural content) has been deployed strategically as a politically safe armature through which the government legitimizes urban change.

Moreover, the adaptability and predictability of virtual idols—programmable characters that simulate human connection while avoiding the risk associated with unpredictable human fallibility—as well as the creative talent and entrepreneurial ambition of figures like Woowakgood, embody the ideal traits promoted within the new economic framework that has taken a “creative” turn in Korea since the 2010s. This shift, which is most visibly exemplified by the Korean government’s official adoption of the Creative Economy (*changjo gyeongje*) as a national economic agenda from 2013 to 2017, rearticulated earlier visions of the “culture city [*munhwa dosi*]” and the discourses on “homo knowledgians,” or “new intellectuals [*sin jisigin*],” both of which were hailed as emblems of national reform in the 1990s. The shift also drew on urban discourses that gained global traction in the

same period, including those put forth by figures like Charles Landry (UK) and Richard Florida (US), who valorized creativity, flexibility, and self-driven ambition as desirable attributes, alongside the egalitarian promise that technology could empower anyone to achieve success. A hallmark of their thinking was the belief that the convergence of culture and technology would generate innovative synergies, not only by producing highly profitable copyright content, but also by fostering growth in related sectors such as services, real estate, fashion, design, and tourism. Combined with the growing conviction that the future of cities would increasingly rely on such creative and intelligent human resources, these ideas gave rise to a new urban mandate: cities must actively cultivate such human traits by providing the appropriate environments and infrastructure where these personalities can thrive.⁵

In this context, the imperative to foster human creativity and to merge cultural “software” with technological “hardware” innovation in Songdo has gained increasing momentum. Some residents who actively welcomed and advocated construction of the K-pop Contents City viewed the project alongside their demands for initiatives that emphasized the qualitative dimensions of urban life over the growth-first mindset that focuses on mechanical expansion. The push for such cultural infrastructure was also spurred by a sense of urgency and competition, as neighboring cities such as Ilsan, Yeongjong, and Hanam were already investing in similar K-pop arena projects. Within this landscape, the aspiration to instrumentalize culture became more than just a city branding strategy; it has operated as a productive strategy of power that channeled developmentality into the governance of mental and behavioral attributes of citizens and their everyday conduct. Here culture is both subordinated to instrumental goals

of urban growth as a utility that creates wealth itself and mobilized as a medium through which individuals are encouraged to internalize and perform the values of innovation, creativity, and flexibility. In this way, developmentality enlists culture not only as a means to enhance the city's symbolic brand but also as a soft technology of governance, shaping aspirations and conduct in alignment with the imperatives of the global economy based on intelligence and creativity.

While these initiatives suggest a softening of the city's developmental trajectory—toward nurturing a culturally enriched living environment and, by extension, a more culturally elevated mode of citizenry—what exactly is meant by “culture” in this context has largely been taken for granted. On one level, developers speculated on the economic advantages of integrating culture, understood in the traditional sense as cultural content, which could be used as a public relations strategy to boost inward tourism. City officials emphasized the public benefits of such efforts, framing them as investments in cultural infrastructure, such as performance venues, training centers, galleries, and museums, which they hoped would enhance residents' creativity, regional pride, and quality of life. For many residents of Songdo, the importance of culture itself was seldom questioned; instead, residents gauged the cost and benefit of the project's undertaking, largely welcoming the enhanced cultural image of the city. In any case, regardless of whether these expectations were grounded in a concrete basis, a critical question arises from the discourse surrounding culture, urban development, and technology: the presupposition of a mutually reinforcing relationship between culture and the city and the belief that this relationship can, and should, be optimized through the application of cutting-edge technologies.

Such thinking is exemplified in the concept “culture technology” (CT; *munhwagisul*), a term widely used since 2001 by academics, cultural industry practitioners, business consultants, and government officials in South Korea. Institutionalized through policies, educational programs, and economic planning, the CT paradigm has normalized the assumption that culture functions as a productive tool for cultivating creative human capital, thus facilitating economic development and technological innovation. Probing this discursive formation, this chapter examines how the instrumentalization of culture has shaped Songdo’s transformation into a “creative” and “innovative” city and how, in the process, the citizenry’s conduct and mental disposition have come to operate as vehicles for channeling developmentality. In so doing, this chapter’s analysis of the cultural dimension of developmentality engages with the concept of culture in two interrelated senses: in the narrow sense, as cultural content, and in a broader sense, as a set of practices, techniques, and methods that frame mentalities and shape everyday practices. Cultural theorists Paul du Gay and Michael Pryke’s distinction between the “economies of culture” and the “culture of economy” is useful in this context.⁶ While epochal claims about the economies of culture have often framed culture as a newly “discovered” economic resource uniquely relevant to the present, du Gay and Pryke remind us that economic activities have always been informed and constituted by culture. The analytical shift they suggest emphasizes the culture of economy, which charts the representational and technological practices through which economic spaces and actions are formatted and made intelligible. As they put it, “Economic discourse here is not simply matter of beliefs, values and symbols but rather a form of representational and technological (i.e. ‘cultural’) practice that

constitutes the spaces within which economic action is formatted and framed.”⁷

In the context of an aspiring smart city like Songdo, the culture of economy consists of a diverse array of representational and technological practices that are employed to refine citizens’ developmentally oriented interior disposition and their conduct toward the technologically advanced and innovation-driven future. Oscillating between these two dimensions of culture—economy of culture and culture of economy—in Songdo, this chapter demonstrates that Songdo’s developmental project has been sustained by enacting a moral imperative for smart citizens, equipped with a creative and intelligent mindset and using their entrepreneurial disposition and “mindpower” as a driving force in the city’s development.

The attempts to integrate K-pop into Songdo cannot be dismissed simply as a city branding strategy, although it certainly has promotional aspects. More crucially, the endeavor to transform Songdo into a cultural and creative city signifies a more substantive change that has forged a new alliance between city, culture, and technology. This approach, on the one hand, promises a supposedly more humane and even empowering way of life—one that is liberated from fixed 9–5 work hours, bureaucratic machinery, and hierarchy and instead driven by individual artistic passion, creativity, and free choice. This image of a spacious and encultured life had already appeared in the early 1991 blueprint for Songdo, “Incheon, Challenges and Development Directions for Urban Development,” introduced in chapter 1 of this book. In advocating the construction of Songdo, the plan portrayed the idealized resident as someone embodying the ethos of new intelligence: an entrepreneur adept at using information and communication technologies, with the time and resources

to make use of the city's amenities and travel globally for business. This vision was confirmed by the types of urban amenities emphasized in the proposal: waterfront leisure parks and golf courses, a performing arts center, a city university specializing in information and information industry fields, a high-quality municipal secondary school, and a local port dedicated solely to international passengers and cargo, among others.

On the other hand, the shift is accompanied by an assertion that Songdo lacks unique cultural appeal and that this could be remedied by incorporating elements such as K-content facilities, cultural institutions, and financial incentives to nurture and inspire the next wave of creative talent. Cultivating a particular kind of citizenry does not just materialize according to a five-year plan or through architecting photogenic landmarks; yet there is an enduring belief that Korea's accumulated cultural capital, including K-pop artists and their global fan base and a host of aspiring content creators, represents an untapped resource to enhance the city's entrepreneurial capacity and growth. As part of cultural initiatives aimed at embedding developmentality in the minds of the populace, in October 2020, a conference titled "IFEZ's Branding Strategy using Cultural Contents," organized by the IFEZ, Incheon University, and Incheon Research Institute, was held at Songdo's G-Tower.⁸ As then-director of the IFEZA, Lee Won Jae, remarked in his opening speech, "Cultural content is such a rapidly growing field, and it is expected to affect not only the industry but also various fields of society." Referring to the K-pop band BTS's global success and "the various economic and cultural effects that these K-pop idol groups have brought back to our country," he went on to suggest that "the use of cultural content as part of the city branding strategy will be a very important task in the future." Weighing in on this position, other invited speakers

at the conference praised culture's capacity to mobilize the people's brainpower and their ability to ask different types of questions, thus driving innovation in the twenty-first century. Among the lineup of speakers was the director of a tech start-up accelerator program launched by the Hyundai group. The speech began with the mantra of business thinker Peter Drucker: "The enterprise that does not innovate inevitably ages and declines. And in a period of rapid change such as the present, the decline will be fast." The speaker underscored the role of "creators" for these initiatives, defined as "those with the capacity to ask questions, varying previously overlooked values, creating innovative ideas. The questions they ask become clues to changing the world. These conceptual questions are answered with startup technologies that act fast and deliver clever solutions. When startup technologies meet with corporates, and everyday life, that's when change toward valued future begins."⁹

What these assertions about culture and creativity suggested was that an important shift was occurring in how culture and its role in the city were understood. This shift extended the role of culture from being just an ornament to a productive force that could transform the city's innovation ecology; an affective and psychological infrastructure that could shape and mobilize people's motivation and optimism about the future. As STS scholar Silvia Lindtner remarks about the prevalence of innovation discourse in Shenzhen, China, these assertions have functioned like "technological dreams of future-making" that celebrate citizens as self-empowered change agents and produce "yearnings that feed the machineries of finance speculation and the displacement of technological promise."¹⁰ Enchanted by a similar futurist optimism, participants at the conference viewed Songdo as an ideal laboratory for nurturing and incubating this creative

mindset through initiatives that support start-ups in biotech and infotech, as well as creator-driven enterprises. It was part of a broader strategic push at the institutional level to cultivate an environment conducive to the development of what the IFEZ officials have called the “6Ts”—information technology (IT), biotechnology (BT), nanotechnology (NT), environmental technology (ET), space technology (ST), and cultural technology (CT)—in its innovation centers like the Incheon Techno Park.¹¹

It is crucial to contextualize this conceptual shift within a historical framework, as this evolution reflects significant transformations in government approaches and tactics related to culture. The use and commodification of images and symbols to promote a city or nation is not a novel cultural strategy. In the Korean context, scholars have traced the complex relationship between culture and government since the 1960s, beginning with the military regime’s campaign to cultivate a distinct national identity and nationalism in its populace. During this period, traditional arts and heritage were harnessed to craft a unique national identity of Korea.¹² Since then, the arts and culture sector and the government have maintained a complex relationship, at times colliding and at times colluding. The interventionist role of the national government is crucial in directly and indirectly shaping cultural activities in Korea. During the 2010s, the historical relationship between culture and the government evolved into a new coalition between K-culture and cities, primarily driven by local municipalities that actively sought to sponsor the logistics of these cultural productions as part of their place-promotion strategies.¹³ As geographer Youjeong Oh has noted, 2011 marked a turning point in the history of Korean popular culture as it started to garner visible success beyond Asia. The alliance between the Korean Wave and the cities has been perceived as mutually beneficial,

particularly for cities aiming to construct and sell a cool and marketable image of themselves. Oh notes that K-prefixed products and services are tangible matters associated with specific places, giving rise to what she calls “K-places.”¹⁴ In return for their sponsorship, these K-places have gained cultural currency by association with K-dramas and K-pop—through the process known as city placement strategy—inserting themselves into the carefully curated and commodified spectacles in a manner similar to product placement advertising.

Given this history, it is not surprising that Songdo was eager to harness the global appeal of K-pop to advance its development goals, as it has become one of the most visible and commercially successful forms of Korean cultural product in recent years. Since the early 2010s, a notable alliance has emerged between K-pop and Songdo. Songdo has been featured as a backdrop in numerous K-pop music videos—Psy’s *Right Now* (2010), *Gangnam Style* (2012), BoA’s *Hurricane Venus* (2010), F(x)’s *Hot Summer* (2011), Exo’s *MaMa* (2012), Big Bang’s *Beautiful Hangover* (2010), Beast’s *Fiction* (2011), and Rain’s *Love Song* (2010), to name just a few. These highly popular videos, all produced by mainstream entertainment companies like SM and YG and their star training systems, have been viewed more than ten million times on YouTube. Songdo’s iconic landmarks, such as the Tribowl Gallery, Sondo ConvensiA, and Tomorrow City Plaza appear as towering backdrops. And several scenes from Psy’s *Gangnam Style* music video, which became an instant hit globally in 2012, was shot in Songdo’s Central Park parking lot and subway station, further amplifying the cultural profile of the city.

Following this, Songdo’s strategy took a step beyond merely featuring the city in media representations, offering the city more fully in service of cultural production, aspiring to become a



Figure 19. Memorandum of Understanding for the IFEZ-K-Pop Future Entertainment City in Songdo, signed by IFEZA, SM, JYP, and FNC Entertainment Group in Songdo in 2021. Courtesy of Incheon Free Economic Zone Authority (IFEZA).

hub of global cultural flows. For instance, in 2021, the “K-pop Future Entertainment City” Memorandum of Understanding (MOU) was signed between the IFEZA and prominent entertainment companies in Korea, including SM, JYP, and FNC Entertainment.¹⁵

These companies, looking to extend their business operation into real estate, agreed to support and create content for the project. The initiative designated the 8th district of Songdo, an area of over 210,000 square meters, as the project site. Kim Jin Yong, head of the IFEZA from 2022 to 2023, was a fervent advocate of the project and announced the project’s objectives to construct a new arena dedicated to music concerts and K-pop artist training facilities with an estimated budget of over US\$5.1 billion (equivalent to about 6.8 trillion Korean won). “We need to continuously devise items that will draw people’s attention and bring them to Songdo,” he stated, adding, “Songdo’s development hinges on the ability to attract related companies, such as those in music and dance sectors.” Kim also remarked, “Should the GTX Line be constructed, Songdo will be the nearest international city to Gangnam, Seoul, making the K-pop arena an ideal location to attract tourists.”¹⁶ This vision of Songdo as a hub of global cultural exchange aligned with its ambition to become a

forward-looking, enterprise-friendly city, reflecting its goal to serve as an ongoing hub of creativity and innovation across various sectors, and reflected the more recent initiative in 2023 to establish an “e-sports cluster” within the IFEZ dedicated to video game development.

On initial examination, the integration of cultural content into Songdo’s development strategy may appear only peripherally related to the city’s technological function as a network, hub, or smart city. While such cultural initiatives might be dismissed as city branding efforts aimed at boosting local tourism, it is crucial to recognize how they formed part of a broader governmental strategy to render culture a productive force for shaping social relations and cultivating the mindset of a technologically attuned, open-minded, and creative citizenry—the subjective basis of a smart city. That is, the IFEZ’s deliberate inclusion of culture as an integral part of its development vision, which embraced music, dance, gaming, and other creative sectors, signaled a shift in how culture’s utility was conceived by the city. Rather than treat culture as an object of symbolic embellishment, these initiatives helped position it as an integral mechanism to promote a particular culture of economy (in duGay and Pryke’s sense) and the mental dispositions necessary to install, sustain, and legitimize the smart city.

One way this strategy was actualized was by motivating individuals to evolve from passive spectators to active participants—as contributors, performers, and creators themselves—as in the case of influencers like Woowakgood, by fostering an environment conducive to developmentality charged with creativity and innovation. Incheon Techno Park (ITP), located across from the Incheon University campus building in Songdo called the Incheon Metaverse Support Center, offers an array of resources, including

office spaces, funding, and production facilities for metaverse and VR/AR-mediated cultural content. ITP also offers consulting services for intellectual property rights and marketing strategies for the Incheon-based cultural content start-ups. Functioning similarly as a start-up incubator program, it oversees the progression of a concept from initial idea through initiatives like hackathons and living lab sessions to the development of a business model via networking opportunities and ultimately to the scaling of the concept into marketable content, whether as sellable goods or IP-protected creations. Overall, the environment is structured around the goal to create a pipeline of human talent to facilitate the continuous development and nurturing of creative ideas, encouraging individuals to engage not merely as passive observers but as active contributors; these supports are provided on a voluntary basis through individual applications. The presence of educational institutions within this framework is also crucial, as they offer programs that cater to a range of learning levels, from introductory to advanced. For instance, Incheon University's Songdo campus has run the Incheon Science Elite Program since 1998. The program's stated aim is to cultivate "creative scientific culture" through interdisciplinary and project-based learning programs for elementary and middle school students. What these instances make clear is that culture plays not just a symbolic role, but a profoundly tangible one of configuring the series and ordering of actions to foster an impetus for innovation, thereby constituting a crucial part of Songdo's developmental vision of the city as a hub of global cultural and creative flows.

The expanded role of culture along with the expanded technological practice of subjectivation can be partly illustrated by contrasting the closed narrative structures of films and television dramas with the open narratives of music videos, live-streamed

content, and video games: music videos often engage with the audience by breaking the fourth wall by directly connecting with the audience, unlike the conventional narrative style of television dramas and films. In live-streaming and video games, interactivity is a built-in element of storytelling, as seen in the influencers' streaming content in which online personalities directly interact with viewers, all of which facilitates the integration of viewers as part of a virtual space or a highly curated metaverse. Arguably, this shift toward participatory narrative structures has been essential for Songdo's proclamation that it is a smart city. Underwriting culture's convergence with technology, these narratives serve concurrently as a mode of engagement, a willingness for participation, and a behavioral framework, all driven by the moral imperative to align oneself with society's demand for creativity and innovation. Culture plays a complex and multifaceted role in configuring Songdo residents' willingness to partake in the economic imperatives of innovation, a process that occurs sometimes quite explicitly and sometimes quite subtly: by showcasing Songdo as a hip and dynamic place in the K-pop music videos, by presenting its smartness and future-oriented disposition at virtual idol festivals, and by offering facilities and resources to train and incubate the next generation of creative talent.

It was in this sense that culture and Songdo—through both economies of culture and the culture of economy—depended on, and *could not do without*, one another. The voluntary, interactive, and passionate mode of engagement celebrated in creative cultural content has served as a central motif of idealized personhood and a technology of the self that supports the new developmental discourse of a smart city centered on high-tech and human creativity. For instance, the city officials of Songdo enthusiastically underscored and promoted the significance of K-pop

videos and other cultural productions and used it as evidence to validate Songdo's status as a future city. The visual power of the digital flow and glow modeled in these cultural products symbolizes the smartness and futurity of smart cities, which, according to geographer Gillian Rose, is one of the most significant but overlooked ways in which the materiality of smart cities gains aesthetic and affective vitality.¹⁷ The conflict-free and seductive imaginaries of the future depicted in these cultural representations, in turn, underpin and further facilitate the rapid proliferation of this creativity syndrome, which is a specific approach to creativity defined through interaction with digital and virtual technologies. The cultivation of creative human mindpower is seen as a fundamental part of the developmental pursuit of a creative economy. A recurring theme throughout these cultural performances is the definition of a new futuristic urban citizenry that constantly adapts, learns, and remains resilient to a changing environment—a new behavioral norm of smartness.

To better understand culture's expanded utility in the smart city, in the next section, I offer a more historically contextualized view of the present, focusing on the 1990s as a crucial juncture. It is not enough to say that culture has been commodified as a symbol to brand the city's smart image. The definition of smart citizenship has been made possible through myriad cultural interventions—including discourse that accords renewed significance to individual pursuit of intelligence, creativity, and information, the early marketing of computers as educational devices in the 1990s, an ongoing curriculum innovation in K-12 and universities to foster convergence education and a creative mindset in the future generation, and a prevalent "siege mentality" emphasizing the practicality of knowledge by forging closer ties between the academy and industry, among others. In all these

different ways, individuals' will for self-development has been nurtured and mobilized. Citizens have been gradually and persistently inducted as subjects who must internalize the ethical imperatives to remake themselves as active participants in the regime of smartness.

CULTIVATING THE LANDSCAPE OF NEW INTELLIGENCE

In discourse on the emerging economy in the 1990s there was an emerging imperative to integrate culture with technology, an approach that gained traction among diverse actors that included policy makers, industry stakeholders, and educators. Cultural studies scholar Myungkoo Kang observed that this period heralded the advent of a “culture war [*munhwa jeonjaeng*]” in Korea—a phenomenon in part fueled by intense media frenzy, resulting in aggressive government investments in the so-called value-added cultural industries, including film, animation, and the visual and software industry sectors.¹⁸

For example, throughout the mid- to late 1990s prominent media channels consistently generated titles such as “The Third War: Now It Is Culture,” “The Third Renaissance of Korean Culture,” “Culture Wars of Large Corporations,” and “National Wealth of the 21st Century Comes from the Cultural Industry.”¹⁹ Marveling at the economic success of Hollywood franchises like *Jurassic Park* and global media conglomerates like CNN, a documentary series broadcast on KBS, a government-funded network, titled “The Third War: Now It Is Culture,” echoed the developmental sentiment, underscoring how cultural products like films had become such a high-value-adding trade commodity. This coincided with the expansion of government-backed cultural

economic initiatives, which, alongside the push for structural reform in cultural and educational institutions, were aimed at promoting future creative talent to lead the future of the Korean economy based on knowledge and creativity. Within these concurrent shifts, a distinct social role was afforded to culture: to revitalize Korea's young and dynamic image and establish its leading position in the global cultural and digital revolution. In this discursive context, the strategy of transforming culture into culture technology was aligned with efforts to advance Korean information technology and biotechnology, emphasizing its role as a catalyst to enhance human intellectual capacity and thereby enriching the future of the national economy.

The technologized and instrumental view of culture that predominated in this period significantly increased the stakes of an already inflated notion of culture. On the one hand, this conceptual expansion reified the concept's meaning as a textual symbol; on the other, it bracketed the broader aspects of culture that were integral to the progressive political projects emerging within the cultural-intellectual field. As cultural studies scholar Keehyeung Lee notes, the field of cultural studies and cultural criticism had gained institutional visibility in Korea in the 1990s, evidenced by the proliferation of cross-disciplinary workshops, journals, and conferences organized on the theme of the politics of culture.²⁰ The growing societal interest in the significance of culture contributed to an increase in both the number of cultural critics and the public's engagement in cultural activities. However, these developments encountered significant challenges at the turn of the century, partly due to comprehensive structural reforms that impacted the grounds of critical cultural projects in the late 1990s.²¹ Consequently, despite ongoing struggles and debates over its meaning and function, culture was largely appropriated

and integrated into the capitalist machineries of power, as well into discourse surrounding economic development. In this context, resistant-critical intellectuals gradually lost their influence, while the new practicality and value-adding function of knowledge work gained more traction in academia, particularly in humanities and social sciences. Some cultural studies practitioners contemplated the necessity to establish institutional footing to sustain their projects, grappling with the tensions that arose between their critical orientations and interventionist projects in the wider social field.²²

Wohn Kwangyun, a professor of electrical engineering at the Korea Advanced Institute of Science and Technology (KAIST), is credited with originally coining the term “culture technology” in the early 1990s. As a virtual reality (VR) research scientist and an advocate of convergence education, Wohn has employed CT to underscore the importance of integrating humanistic and artistic sensibilities into science and technology development, thereby fostering technologies that aid in the production of digital content such as computer games and animation. The term was subsequently taken up in the Korean government’s policy language. Having publicized the concept in the 1990s, Wohn established a graduate program called the Graduate School of Culture Technology (GSCT) at KAIST in 2005, serving as its inaugural director. This initiative was part of a broader shift that unfolded in Korean cultural and educational landscape in the following decades, with a proliferation of undergraduate and graduate programs focused on the themes of convergence, cultural content, culture technology, and culture management among others.²³

For policy makers, strategic investments in culture were intended to remedy the perceived lack in original software and

content within Korea's technology sector, despite its accomplishments in developing hardware like high-definition screens, electronic technologies, and semiconductors. This urgency was intensified by the recognition that software and cultural content would soon become more valuable commodities than hardware. Therefore, fostering future mindpower through the promotion of information and communication technologies was seen as a vital need to enhance the country's long-term global economic stature and to support its continued technological developments. Given this problematic, the Framework Act for Informatization Promotion was enacted in 1996, which initiated public education campaigns to advance public information literacy and to spread "information culture [*jeongbo munhwa*]" across the populace, thereby instilling a creative and scientific mindset. Efforts to steer public culture included the expansion of educational initiatives, such as Science Elite Education Centers (for K-12 students), encouraging collaboration between academia and industry, and leveraging newspaper and broadcast media for public engagement. Therefore, it appears that the government recognized the significance of culture, not only as cultural content, but also as part of its strategy to engage the public with its informatization efforts; these government policies were as pivotal in expanding the information economy as the physical processes of establishing infrastructure like fiber optic cables and super-high-speed internet. That is, both were seen as mutually reinforcing the same government strategy to support future economic development. Within this scheme, the role of culture was broadened to leverage its societal and pedagogic influence to cultivate smart and scientific mindpower across the populace, repeatedly interpellated as creative and intelligent citizens.

One of the key cultural initiatives that epitomized the shift in the government's strategy was the "New Intellectual Movement [*sinjisigin undong*]" (NIM) of the late 1990s. Comprehending this history is crucial to composing a genealogy of "smartness" as it later materialized in places like Songdo, for it reflects broader transformations in the Korean sociocultural sphere that positioned knowledge, creativity, and culture as integral parts of envisioning and shaping the future workforce. As sociologist Yun Yeo-il notes, although the NIM is now largely regarded as a failed statist project, it nevertheless opened a discursive space for debating what the subject of a "knowledge-based society" should be and laid the groundwork for the subsequent public acceptance of various governmental programs.²⁴ Crucially, these developments were underpinned by a gradual restructuring of Korean intellectual sphere, which foregrounded a particular conception of "intelligence" understood not only as an economic strategy but also more holistically as a normative pursuit and a general approach to life encouraged for every individual.

Conceived as a government-directed "spiritual reform of the populace" in response to global economic changes, the NIM heralded a new ideal paradigm of personhood for the new millennium, characterized by individuals as homo knowledgians (the so-called New Intelligent), who "employ their knowledge to actively generate new values and innovate beyond conventional methods in their workplaces."²⁵ Phrases like "civic awakening [*simin gakseong*]" and "reform of consciousness [*uisik gaehyeok*]" became common parlance among NIM advocates. The Korea Information Society Development Institute (KISDI), a government-funded research institute established in 1985, was at the forefront of the NIM and oversaw efforts to develop educational programs and public enlightenment campaigns to engage Korean

people as inventive, creative, and resourceful citizens. The NIM gained significant traction during the Kim Dae-jung administration (1998–2003), which further popularized the concept of new intelligence and emphasized the need to harness people's intellectual capacity and their willingness to adapt to the shifting global economic landscape. According to President Kim, the most vocal advocate for the NIM, the concept of new intelligence transcended the simple bounds of academic credentials or specific professions. Instead, it embodied a method of approaching one's life and work that emphasized pragmatism and a problem-solving mindset, with an egalitarian message that "anyone with the right attitude can become the new intellectual." This ethos was particularly well encapsulated in his statement in 1999: "Housewives can also be new intellectuals by efficiently feeding and taking care of their families and saving money within their husbands' salary."²⁶

The NIM stirred up a sense of a radical rupture in history, particularly when likened to the "Second Nation Building Movement [*je-i geonguk undong*]." It envisioned a shift where intangible elements such as knowledge, information, and cultural creativity would supplant traditional tangible assets like natural resources and physical labor as the main drivers of a nation's competitiveness. As Kim elaborated:

Korea has started the Second Nation-Building Movement. This movement invites all citizens to become active agents of national reform, under the slogan: "Let us participate, live right, work hard again." We aim to shake off the unfavorable legacies of the twentieth century as we move forward into the twenty-first century. Every citizen should strive to be a global citizen and a "New Intellectual"—not necessarily a person of impressive academic credentials, but one who makes full creative use of his or her intellectual potential.²⁷



Figure 20. Screenshot from “KBS Special Report: What Is the New Intellectual?,” aired April 2, 1999. Reprinted with permission from KBS Media.

Notably, information and communication technology (ICT) was perceived to be the key enhancer of this pursuit of “new intelligence.” The empowering and egalitarian promise of the new economy presumed the innate intellectual potential within everyone, regardless of their position within the traditional cultural hierarchy symbolized by college degrees. The focus was instead on the willingness of individuals to make full creative use of their intellectual potential, establishing a normative expectation for the general populace to embrace the ethos of new intelligence.

In many ways, the discourse of the NIM reflected larger shifts occurring within the global economy, a trend popularly captured in Alvin Toffler’s thesis of the Third Wave. President Kim’s talking points heavily drew from Toffler’s perspective on future society, particularly his assertion that the future economy would be based

more on human creativity and mindpower than the brute forces of muscle power. The underlying normative assumption legitimating this shift was that the transition represented a culturally superior and more humanizing mode of development compared to the previous industrial development model, which regarded the populace as an undifferentiated, generic mass. Within the new economic paradigm, there was greater emphasis on flexibility and customizability of production, which acknowledged individuals' unique differences and was tailored to the diverse array of preferences and tastes. Toffler's 2001 report, titled "Beyond the Crisis: Korea in the 21st Century," was submitted after his meeting with President Kim in the Blue House in 1998.²⁸ The vision for Korea's future laid out in the report was consistent with Kim's outlook; information technology, knowledge, and culture would prevail as the most significant goals for the nation, requiring the systemic restructuring and reform of the Korean economy in alignment with the global trend of the Third Wave economy.

The concept of new intelligence, central to the new economic framework based on knowledge, culture, and creativity, was operationalized in a series of concrete programs that aimed to educate the public about its significance and provide step-by-step guidance to cultivate this intellectual capacity. The National Archives of Korea records show that from 1999 to 2007, the government celebrated the "New Intellectuals of the Year" annual award ceremony, which involved diverse national and local government entities such as the Ministry of Education and Human Resources Development, the Ministry of Information and Communication, the Ministry of Government Administration and Home Affairs, and the Small and Medium Business Administration, among others. The honorable title was conferred on individuals from diverse professions, ranging from housewives, educators, small



Figure 21. President Kim Dae-jung meets Alvin Toffler, April 7, 1998. Courtesy of the National Archives of Korea.

business owners, and workers in the manufacturing and service sectors to farmers, scientists, engineers, athletes, and artists.

Notably, the government's inaugural choice of the New Intellectual was a former comedian and filmmaker, Shim Hyung-rae. His works, including *Tyranno's Claw* (1994) and *Yonggari* (1999), were praised for their tenacious effort to revitalize the virtually nonexistent history of science fiction films in Korean cinema. In honoring Shim, the government lauded his creativity and determination to overcome the challenges associated with producing genre films in a market completely dominated by Hollywood franchises. His determination to create Korean-made science fiction films, thereby challenging Hollywood's global hegemony, was deemed inspirational and in line with the virtuous qualities idealized in the figure of the new intellectual. This was especially considered to be the case given the widespread skepticism and discouragement throughout his career. Moreover, the decision



Figure 22. President Kim Dae-jung attending the “United Minds Advancing the Nation’s Knowledge and Information Power” Conference, commending the awardees, 2001. Courtesy of the National Archives of Korea.

to designate Shim as the first New Intellectual of the twenty-first century came as a pleasant surprise to many who knew him from his highly successful comedic acting career, characterized by roles that often portrayed him as ludicrous and idiotic.

In a 1999 public advertising campaign initiated by the Government Information Agency (a now-defunct agency absorbed by the Ministry of Culture, Tourism, and Sport), Shim was presented as the exemplar of the NIM. His declaration in the advertisement, “Everyone scoffed at the idea of making a Korean science fiction film, asking why not leave it to Hollywood,” showcased his confidence, patriotism, and can-do attitude that challenged prevailing norms. As he famously declared, “Never say never if you have new ideas. It’s not that I don’t do it because I can’t, it’s rather that I cannot do it because I don’t [try].” His statement underscored the importance of fostering one’s will and attitude in order to realize

one's ideas; one of the core beliefs of the NIM was that anyone with innovative ideas could attain the status of new intellectual.

Beyond these promotional campaigns to raise public awareness of the values of new intelligence, government officials distributed practical guidelines in educational videos and textbooks designed to cultivate the highly aspired-to qualities of ideal intelligent personhood envisioned for the future. The entrepreneurial ethos of new intelligence is strongly evident in this literature. A textbook published by the Second Nation-Building Pan-National Promotion Committee [Je 2-ui geonguk beonguk-min chujin wiwonhoe], *Leaders of the 21st Century, New Intellectuals*, reveals an essentialized view that intellectual potential is innate in human nature but also the proposal that it can be further developed through habitual engagement, a proactive mindset, and a penchant for problem-solving. The transformative journey of becoming a new intellectual was said to entail a series of stages: it begins with a fresh examination of one's environment, a persistent quest for areas of improvement (the problem recognition stage) and then becomes a pattern of lifelong learning that facilitates continual personal renewal (the solution seeking and perception shift stage). It is marked by one's adaptability, willingness to learn and innovate, constant questioning of the status quo, and striving for progress. Ultimately, these new insights ought to be translated into action (the application and dissemination of knowledge stage). Hence, becoming a new intellectual was a dynamic process, undertaken by one who ceaselessly improves and innovates. But there are caveats: "Even if he can be defined as a new intellectual at some point, he is no longer a new intellectual if he stops making efforts to create new knowledge. In other words, no matter how advanced he is in a specific field, he cannot be a new intellectual if he stays within the boundaries of his knowledge and stops exploring new possibilities."²⁹ The

underlying message was that the status of intelligence was never a done deal; it lies precisely in one's propensity to continuously challenge oneself and create values.

The concept of new intelligence was perceived, at once, as the core cultural component of a government-driven developmental paradigm, a future-oriented economic framework, and a strategy of shaping a subject who embodies the values of innovation, creativity, resilience, adaptability, a problem-solving approach, and sheer pragmatism. The discourse on this paradigm suggested that the traditional knowledge hierarchy, represented by college degrees, was to be challenged and restructured, eliciting push-back from the academics and critical intellectuals—or old intellectuals within the new intelligence framework—who opposed the reductionist and positivist notion of intelligence measured solely by efficiency and material value. For instance, Seoul National University's student newspaper, *Daehak Shinmun*, in the editorial section in 1999, acknowledged that the expansion of the knowledge base for the future economy is a step in the right direction while cautioning that "it would be a great illusion to believe that it could be achieved by the movement that only pursues practicality and the question of 'how.'"³⁰ The argument was that practicality and the applied nature of knowledge must be rooted in fundamental studies such as basic science and humanities, without which technological development could never evolve beyond the stage of imitation. Yet their criticism and the anxiety about an impending academic crisis largely fell on deaf ears, overshadowed by the urgent development-first mindset and the egalitarian promise of new intelligence, as these were considered key ingredients for salvaging Korea's future.

Importantly, the goal to cultivate an intelligent mindset oriented to values such as newness, openness, and creative thinking influenced a significant systemic shift in educational institutions.

Nurturing such a mindset, it was said, should begin as early as possible in childhood, requiring foremost changes in parents' mindset.

It is crucial for parents to adopt an attitude of continuous learning and practice. Relying solely on what parents learned in school to respond to the evolving circumstances of our times is insufficient. Equally important is for parents to educate themselves on how to guide their children by engaging in various parental education programs and self-directed learning. . . . Parents who resist learning, remain passive, or simply tell their children to study while watching TV would only have a negative impact. The starting point of creating an intelligent family begins with parents who are committed to learning and applying knowledge themselves.³¹

The similar imperative for new intelligence was reflected in pressures exerted on educational institutions during this period, ranging from K–12 to higher education, to adopt a customer-oriented and economically responsive stance. This shift entailed curriculum development efforts that focused on interdisciplinary creativity education, designed to cater to individual students' interests. It also introduced a diversified evaluation scheme that moved away from rigid standardized tests and promoted a transition in pedagogical approaches from result- to process-oriented methodologies. These methodologies were aimed at fostering students' holistic development by engaging them in the entire spectrum of the learning process, from problem definition to ideation, discussion, and resolution. Furthermore, it was suggested that new intelligence was likely fostered in a democratic and horizontal classroom atmosphere—organized around the presumption that associated digital technologies with values of openness and decentralized communication. This view helped facilitate the rapid integration of computers and information

technologies in classrooms and libraries, including computer software, internet search engines, and electronic encyclopedia. The educational values associated with computing technologies, according to Inkyu Kang, were an important cultural factor that explains the rapid digitalization of Korean homes in the 1990s, as many Korean parents perceived computers as “study machines” and as an “educational device rather than a business tool.”³²

In parallel, universities were encouraged to transcend their traditional roles as isolated ivory towers and to actively position themselves as “key centers for knowledge creation in the knowledge-based society of the 21st century.” This transition included offering interdisciplinary curricula bridging the humanities and STEM fields, as well as culture and technology. As such, the drive toward creativity and new intelligence, fueled by enthusiasm and discourse on “convergence education,” became particularly prominent since the early 2000s, as these institutions navigated the neoliberal imperative to forge close ties with industry partners. The results of the newly forged relationships between academic research and commercial interests manifested in academy-industrial complex models like “Techno Parks” and “Media Valleys,” which had already emerged in Songdo in the 1990s.

Overall, the diverse arrays of strategies that created a discursive landscape centered on culture, creativity, and knowledge in the late 1990s and early 2000s worked in tandem with the government’s systematic efforts to computerize the nation. As charted in chapter 1, the national government’s series of plans, including the “General Plan for Cyber Korea 21” (1999), rapidly rolled out digital infrastructure across the country and promoted computer literacy education for all Korean citizens, with the ambition to realize “the World’s Best Computer-Using Country.”³³ As a result, during this period, broadband infrastructure became an

essential amenity for new housing projects, with the wired apartments in large cities already being advertised as “smart” and “intelligent.”³⁴ The pervasiveness of wired and wireless communication in everyday spaces, particularly in major cities, in turn, would, it was believed, further fuel the drive toward development of these technologies, as these systems require constant updates and improvements—just like the ethos of new intellectuals who relentlessly challenge and strive to improve themselves.

FROM DEVELOPMENTALITY TO SMARTMENTALITY

The intersecting events in the 1990s can be traced to the present, a historical continuity of “information culture [*jeongbo munhwa*]” that shapes the contemporary landscape of developmentality in Songdo. The residual promises of new intelligence and culture technology are central to the regime of smartness articulated in the initiatives promoting “AI-driven smart cities” and business clusters around Incheon Techno Park and the Bio Information Technology (BIT) Zone. Grounded in economic pragmatism and an ambition for future growth, these iterations collectively configure the substance and structural conditions of culture that is cherished in the present, an era that technocrats like to frame as the “Fourth Industrial Revolution.” Such influence is evident across the city’s various social spheres, ranging from the reconfiguration of academic institutions and curricula that focus on convergence, creativity, and innovation to the proliferation of classes on software coding, content creation, and design thinking offered as a public service by both the government and corporations. Moreover, exhibitions and festivals celebrating virtual idols and their creators, as well as numerous smart city challenges and hackathons, enroll citizens as innovative and creative subjects configured by developmentality.

To be sure, Songdo's carefully crafted identity as a future city leaned into the aesthetic and affective power of cultural texts like K-pop and virtual festivals in its efforts to soften its cold and barren high-tech image. This suggests that there were deliberate efforts to employ cultural symbolism for economic objectives, aiming to signal its transition into a tourist-friendly city. More importantly, however, culture's utility has been leveraged in more profound ways than merely serving as a tool for place-promotion strategies. In light of this, the creation of the smart city becomes inseparable from the cultural and ethical project of formulating a model of smart citizenship that aligns individual perspectives and will with the evolving demands of the future. And because the future is an ever-elusive promise and an always receding temporal horizon that never quite materializes, the project of molding individuals as smart citizens becomes a continually renewed process that generates and updates strategies and techniques for maintenance.

In the context of Songdo and South Korea, an evolving form of developmentality closely resembles what Albert Vanolo calls *smartmentality*—a mode of governance marked by production of a proactive, solution-oriented mindset and a readiness to adapt and adjust.³⁵ It operates as a disciplinary apparatus that encourages individuals to conform to ideals of efficiency, innovation, and productivity while framing these imperatives as voluntary and self-driven. However, the cultural operation of *smartmentality*—implemented through the incentivized education programs and discursive environment designed to foster creativity and innovation—reveals an inherent contradiction: the participatory logic of the smart city, which ostensibly supports openness and imagination, is in fact constrained within a rigid moral order that prescribes a normative vision of the “good city, and, consequently, the “good citizen.” For instance, Ezra Ho

observes that Singapore's Smart Nation project, launched in 2014, has become a "crucial instrument and site of intense biopolitical regulation of the Singaporean habitus, where national ideologies of meritocracy and pragmatism are inculcated in the younger generation." Within this framework, individuals are encouraged to become ideal smart citizens by engaging with the participatory initiatives of the Smart Nation such as the "learn to code" movement, hackathons, and other public programs designed for citizens' computational capacity building. In so doing, they are shaped into subjects who are "economically productive, privileging security, stability and prosperity of the larger good, in conformity to the social and political ideologies of the ruling party."³⁶

One example that captures this contradiction is the term "*spec [seupek]*." Originally from the tech community to denote "technical specification" of software or devices, detailing functional capabilities, the term entered mainstream linguistic usage in Korea in the 2000s. In the early 2000s, "*spec*" began to refer to human capacities, including various indicators used to assess one's potential socioeconomic value. Initially popular among youth, the term quickly entered broader vernacular usage, and by 2004, the National Institute of the Korean Language recognized it as a newly coined word. Naver's online dictionary defined it as "a composite of one's academic achievements, grades, and standardized test scores, such as TOEIC, which are required to find a job." The cultural phenomenon of *spec*—or the generation of individuals anthropologist Cho Hae-joang refers to as the "*spec generation*"—reflects a broader societal reliance on standardized metrics for gauging and validating one's economic worth. It also points to the internalization of a highly structured and disciplinary regime of self-development enacted by individuals themselves.³⁷ Among young Koreans, phrases like "I am improving and accumulating

my spec” and “I need to spec up” are commonplace. These phrases refer to activities aimed at increasing their life chances, including achieving high scores on standardized tests like TOEIC and TOEFL, participating in a variety of competitions and challenges, documenting extracurricular activities such as internships and volunteer work, and obtaining certified skills related to software and data management. This model of a high-spec individual who epitomizes an exceptional work ethic and self-discipline aligns with the prescriptive standards of smartness that is *at once* individualizing and deindividualizing. This constant self-reconfiguration demands optimized and “smart” use of one’s energy and time, as individuals are pressured to take active initiatives to prioritize efficiency, competition, and innovation and to singularly focus on the goal of enhancing one’s spec.

Notably, the apparatus of smartmentality, which persistently reinscribes developmentality as a cultural norm in the smart city, extends Songdo’s distinct temporal relationship with the future. As Ahn observes, “People had, after all, grown accustomed to living in a way that mirrored the very logic through which Songdo New Town was formed—calculating the present through the lens of anticipated future gains, or borrowing present satisfaction from a not-yet-realized future.”³⁸ Inducting oneself as a resident of a futuristic city thus involves constantly recalibrating one’s relationship to the future, by seeking present satisfaction by enhancing one’s future prospects, arranging one’s project of self-formation as a series of measurable specs, and thereby configuring oneself as a building block of smart urban development. Unlike state-steered developmentalism, the distinctiveness of the process lies in the apparently self-driven mechanism of the subject’s will formation, which mobilizes individual desires and aspirations for the present and future survival, thereby augmenting

the disciplinary power of the smart city. Yet, as Korean cultural studies scholar Kim Yeran argues, in a situation in which smartness has come to stand in for ethical values such as happiness, innovation, freedom, and control over life's uncertainties, the adoption of this imperative does not appear as a matter of genuine choice.³⁹ It is precisely in this evolving operation of developmentality, which mobilizes one's will and anxiety about the future, that the effectiveness of the smartness regime lies. Individuals are governed through the encouragement to voluntarily and actively integrate smartness into their ongoing projects of self-formation. In this way, the utility of culture is fully maximized within the interior spaces of individuals, aligning their personal aspirations with the temporal, ethical, and technological imperatives of the smart city.

Conclusion

The development of smart cities is not the result of some inevitable historical progression driven by technological innovation, nor is it solely the initiative of powerful actors like governments or corporations. Instead, as the case of Songdo so aptly demonstrates, the emergence of smart cities is embedded in broad cultural and historical shifts in developmentality, involving various strategies and tactics that envision and act on the future, as well as those who adapt and negotiate those dominant futuristic visions. The prevalent process of developing smart cities implicates collectively held aspirations for development, connectivity, control, security, and prosperity that are seen as attainable through technological advancement. As I have illustrated in this book, the historical emergence of smart cities is not only a technological process, but a techno-cultural process that reflects shifting meanings and expectations that people have associated with technology, which increasingly underscored the significance of local autonomy, environmental sustainability, security, culture, and creativity, as well as the very notion of intelligence itself.



Figure 23. View of Songdo. Photo by Kyungsub Shin.

Therefore, the central question of when, where, and how a smart city begins might be reframed as a question not of origins but of iterations—ongoing expressions within the broader formation of developmentality. Such a project involves constituting cities as future-oriented and, as a result, as sites of apparent productivity. Each chapter has charted a distinct genealogy of how the culture of the smart city has been shaped and articulated through infrastructure, environment, and discursive practices in and around Songdo, focusing on regulatory mechanisms associated with information networks, environmental governance, and the technologization of safety and security and examining how they have all contributed to the expansion and entrenchment of developmentality. In chapters 1 and 2, for instance, I have shown how spatial motifs such as networks, hubs, zones, and ecosystems have served as the epistemic preconditions and central organizing principles that informed the physical design of Songdo's urban infrastructures, including its airports, bridges, teleports, free economic zones (FEZs), and Smart Building Energy Management Systems (BEMS). These material changes paralleled a rising

public fascination with global connectivity, openness, and futurist urban imaginaries like “new information cities,” “teleports,” and “airport cities,” which characterized these developments as necessary investments to uplift the city’s future and to save it from an economic downturn. In chapters 3 and 4, I have demonstrated how the drive to transform Songdo into a smart city operated in tandem with the residents’ moral imperatives, particularly their desire to protect themselves from variously perceived risks, as well as their will to enhance and nurture their intelligent and creative capabilities. In all these ways, the seductive power of the smart city was contingent on its capacity to enact and materialize developmentality: a collective endeavor for the future intertwined with the program of actions and a mindset oriented to development. This allure gained further momentum by employing strategic ambiguity that constantly postponed its moment of arrival. The pursuit of the future via Songdo’s smart city has been a continuously evolving endeavor, through which the city has served as a testing ground for different ideas of urbanism: “global city,” “ubiquitous city,” “green city,” “safe city,” and “cultural and creative city.” Yet somehow these ideas were never quite fulfilled and remained categories of aspiration.

Importantly, the practices of envisioning and materializing the future through the development of Songdo as a smart city were embedded in an institutional framework that rearticulated the strategies and moral imperatives of the developed future, which was shaped during Korea’s rapid urban and industrial growth in the twentieth century. During this period, large-scale infrastructure projects such as highways, airports, bridges, industrial zones, and broadband networks were primarily a government-driven affair, imbued with a morally saturated discourse of national economic development, security, and independence. Within this

discursive environment, science and technology were identified not only as mythological symbols of progress but also as modes of thought and means of structuring social practices, particularly evident in the government's management of its national territory. As historians of technology Kyonghee Han and Greg Downey illustrate, the extensive use of statistics and quantification has been a staple of national government planning since the 1960s, which set tangible goals such as deadlines, budgets, and growth rates.¹ The idea that efficient managerial methods are crucial for ensuring streamlined economic activities (including the smooth and speedy flow of ideas, goods, resources, and labor), and thus for national development, was reinforced by the rise of information and communication technology in the 1980s. This period witnessed the gradual transformation of governmental operations into a network that, in both a figurative and a literal sense, accommodated the desire for connectivity and openness *and* the continued need for streamlined control and oversight. On the one hand, these changes reflected growing demands for freedom and autonomy among the populace, which challenged the rigid centralized governance structure. On the other hand, a singular hierarchical structure was rendered inadequate to respond to the growing complexities of urbanizing Korean society, necessitating shifts toward decentralized modes of governance. However, it is important to recognize that despite apparent shifts in government forms from developmentalism to developmentality, involving dissemination of developmental motivations and methodologies into noneconomic domains of the environment, safety, and culture in the following decades, the relentless pursuit of economic growth remained unchallenged. As in the case of Songdo, the persistent developmentality has demonstrated remarkable flexibility to accommodate changes and tailor itself to an

increasing mandate for sustainability, creativity, and smartness, as well as to the criticisms leveled against it. Songdo's promotion of itself as a "smart eco-city," a "smart safe city," and its latest policy iteration, a "K-pop contents city" reflects an acknowledgment of the soul-less mechanical expansion that characterized its development in the preceding years, strategically differentiating the current development as a different kind of development—emphasizing more qualitative and normative aspects of development, including human creativity. The flexibility of Songdo's developmentality rests on the conceptual ambiguity afforded by the notion of smartness itself, seen as a continuous process of improvement and update, exemplified by iterations such as Smart City 2.0 and 3.0.

In so doing, ironically, the seemingly infinite flexibility of smartness was marked by its own constraints, which *required* that certain aspects of the city be reductively defined and nurtured in a manner that made them governable in technical terms. For instance, the smart ecocity's environmental governance, fixated on carbon calculations and energy metabolism, normalized a perspective that viewed the environment as a systemic entity—an ecosystem—which failed to consider the material costs of development such as the displacement of wetlands, fisheries, animal species, and the energy and labor involved in its maintenance (chapter 2). By the same token, security in the smart city was exclusively defined by measurable risks and their legibility, which justified the increases in CCTV surveillance. With data remaining oblivious to its own limitations, it has been difficult for citizens to envision alternative modes of security. Paradoxically, the pervasiveness of surveillance further fostered the fortress mentality that exacerbated people's sense of insecurity, leading to demands for even more CCTVs (chapter 3).

While these developments unfolded in the specific historical and regional context of the Korean city of Songdo, numerous parallels exist with other smart city projects globally. Notably, some differences exist between the developments in the Global North and South. While most common projects in so-called developed countries involve retrofitting and renovating existing infrastructure, larger-scale projects in developing countries, on the other hand, break the universal mold and tend to adopt what Jathan Sadowski and Roy Bendor call a “shock therapy” method of smart implementation that seeks to “realize a zone of futurity, like a living exhibition of our grand urban future.”² In the context of the Global South, the legacy of developmentalism finds new avenues of expression through smart city technologies that mobilize their legitimacy and momentum from utopian visions about the future. These visions, utilizing a high-tech fetish for control and governance and the imperatives to catch up with global trends, entail leaps of faith toward values like livability, sustainability, innovation, and citizen empowerment. However, as geographer Ayona Datta’s critique of India’s ambitious claim to create “100 new smart cities” points out, the broader context of these developments reveals a paradoxical situation in which the ostensibly anticolonial initiatives that seek to authenticate and reclaim a nation’s future frequently rely on emulating and catching up with techniques established by the West. Further reinforcing the paradoxical dynamic of postcolonial urban futurism are the mythologies of techno-nationalism—the intertwined myths of nationhood and technology—that are deeply embedded in the ethos of smart cities. As Datta asserts, critiquing smart cities in the postcolonial urban context necessitates a nuanced understanding of this ethos, an understanding of how these environments are “fraught with the ambiguities of mythical pasts and technological futures that

begin to inter-reference each other for legitimacy.”³ As a powerful cultural mechanism of smart cities, persistent developmentality gains significance by working through contemporary aspirations for development *and* an affectively and ethically charged commitment to techno-nationalist pasts and futures. Through this process, cities come to serve as a testing ground for staging and operating these techniques of government.

As demonstrated in this book, the cultural and historical specificity of a smart city defies a simplistic East-West or North-South binary, which is no longer viable in today’s complexly networked urban conditions. Instead, the emerging power dynamics mediated by information and communication technologies, as represented by the smart city, require an analysis that encompasses the frictions and contradictions occurring across multiple scales and spatial forms. Numerous peripheries exist within the geographic boundaries of the Global North, and complex power dynamics and tensions continuously arise within the Global South. For instance, the proponents of Songdo invoked its peripheral status as part of Incheon—emphasizing its history of serving as a corridor during the Japanese colonial period and its declining status as an industrial city overshadowed by the growth of Seoul, the capital—to legitimize its transformation into a smart city. In so doing, Songdo has strived to establish itself as a central node in the global network, adopting markers of progress and globalism from the Global North while symbolically distancing itself from the adjacent industrial neighborhood and other domestic cities. Leveraging this global network, the Korean Ministry of Land, Infrastructure, and Transport’s “K-Smart City” project has aimed to exhibit and export the city itself as a commodity, marketing this concept to other countries in the Global South, especially in South and Southeast Asia, Latin America, and the Middle

East, including Vietnam, India, Malaysia, Peru, Colombia, Saudi Arabia, and the Philippines.⁴ As chapter 1 has demonstrated, the ability to extend their frontier and to replicate themselves in several other nodes is regarded as a key measure of success for these cities, as they inter-reference each other in the competitive and comparative landscape of smartness. Concurrently, the sovereign power of the state rearticulates its position as an entrepreneurial actor within this landscape by continuously reformulating its developmentalist aspirations and adapting its policies to fit into the fluctuating demands of global capital.

At the time of writing, perhaps one of the most high-profile examples demonstrating the complexity of the global power dynamic of smart cities is Saudi Arabia's Neom city project, a built-from-scratch smart city being constructed in the country's northwest Tabuk province. The word "Neom" combines the Greek word for "new" and the Arabic word for "future," and its blueprint boasts a Jetsons-style, sci-fi vision featuring flying taxis, robot maids, and a giant artificial moon, reflecting Crown Prince Mohammed bin Salman's (MBS's) lofty ambition to "revolutionize urban living" and build "a prototype for a better future." Yet, according to a 2019 report from the *Wall Street Journal*, the city's design has been heavily influenced by global consulting firms like McKinsey and Boston Consulting Group. Paradoxically, alongside their recommendations for using big data surveillance to "objectively" measure standards of livability and health were measures for forced removal of local residents, revealing the project's false claim that the city was being built on empty land.⁵ MBS's visit to Korea in November 2022 sparked a frenzied media spectacle. His meeting with Korean leaders from conglomerates like Samsung, Hyundai, SK, LG, and Lotte became a highly publicized event, with a virally sensationalized photo of the meeting

portraying these leaders arrayed politely next to the prince. As one newspaper reported, the event signaled a prelude to the glorious resurgence of the Middle East construction boom, recalling the construction-driven fast industrial development in the 1970s and fueling hopes and dreams to revive this past glory by exporting the K-Smart City model overseas.⁶ In this context, the interests of numerous global actors were entangled, each vying to lay a claim on the future through self-aggrandized rhetoric about health, security, sustainability, and the promised land of future prosperity. But just as these actors actively promoted and maintained these collective futurist visions, rendering change as inevitable, they simultaneously remained silent about the oppression and antagonism related to the regime's labor practices, extensive surveillance, and governmental control. It is against this backdrop of strategic amnesia that the futurist promise of the smart city can take hold in the present—like a mirage in the desert—selectively narrating history and attempting to transcend, or avoid, the complexities of the present.

CITY IN A FUTURE TENSE

In 2023, the IFEZ celebrated the twentieth anniversary of its official designation as a free economic zone. Its official publication commemorating the anniversary, *Dream Built on a Wetland: Global Business Frontier*, charts the birth of Songdo from its early conception in the 1980s to its ongoing development in 2023.⁷ The official narrative teleologically presents the story of Songdo as one of continuous development and progress, in which its transformation into a “global business frontier” is portrayed as an inevitable and logical outcome of that history. Within this historical continuum, the present is cast as aspiring to a global capitalist future,

with the IFEZ's ambitious developmentalist vision projecting the city as a perpetual dreamscape—one that mobilizes people's hope and anxiety for the future.

As this book has shown, Songdo's future-oriented ambitions have been haunted by its "historical other"—the enduring legacy of developmentalism that persists beneath the city's infrastructure, logics, and aspirations. As Sonja Kim and Robert Ku observe, the future is never imagined in a vacuum: the desires for a better tomorrow are always shaped by the anxieties and aspirations evoked in the past, even as they are continuously reconfigured in response to changing socio-technical conditions.⁸ In a way, Songdo's development has been contingent on this persistent renewal of a *nostalgic future*, a vision that requires constant maintenance in the present, even as skepticism and disillusionment occasionally undercut its promise. Rather than a pure extension of the past, the smart urbanism of Songdo emerges from this very confluence of past and future and an affectively charged and contested promise of technology onto which collective longing, anxiety, uncertainty, and the imperatives to remain hopeful in the present are projected.

This brings me back to the key question posed earlier in this book: When, where, and how does a smart city begin? By now, it should be clear that the answer lies less in a singular narrative with a definite origin and endpoint and more in the iterative emergence of multiple starting points and sequences of events that together have evoked a desirable future while obscuring and suppressing the antagonisms of the present. As communication scholar James Carey once observed, "The more the antagonisms of the present must be suffered, the more the future is drawn upon as a source of pseudo-unity and synthetic morale."⁹ The political purpose of invoking a transcendental futurist vision

thus becomes clear: to suppress, and make tolerable, the perceived inadequacies of the present. In this sense, a city like Songdo serves as a good diagnostic site for examining the antagonisms of the present that underpin the perceived necessity of the future. One way this is manifested is through the iterative enactment of the smart city, a reality that is never singularly fixed but perpetually deferred as “in progress.” The inquiry into the future of the smart city, then, is not only concerned with what is technically possible—the question of *cans*, *coulds*, and *mights*—but also with normative questions about what *ought to be*, which compels us to confront questions of freedom, control, safety, surveillance, and the very goal of the development itself. What are all these technological advancements for? What emerges from this reflection is a remarkable durability and adaptability of developmentality: a governing rationality that sustains its force by blurring these different kinds of futurist inquiry. It offers visions of development as self-evident and as a historically inevitable endpoint, rarely opening the imperative for development itself to interrogation. Instead, it reframes these inquiries of “why” into the question of “how”: the promise of transformation that never demands a fundamental reconsideration of its goals.

This is not a book that seeks to conclude but one that hopes to open the questions. Therefore, as a closing thought, I want to offer a set of questions that should guide the analysis of other smart cities in the world. The first set of questions pertains to the smart city’s *historical context*: What makes up the willingness and aspirations for the smart city in its distinct historical and local contexts, and how can the tenacity of this vision be understood? Which legacies of the past are woven into the present, not only in terms of tangible infrastructural elements, but also the latent psychological and mental framework that shape the worldview of the present?

Importantly, these historical inquiries must be paired with questions about the city's *spatial dynamics*, examining the forces that shape and organize specific spatial configurations. The operation of a smart city relies on systems that enable flow and movement, predicated on material structures that are closely intertwined with the institutional arrangement that governs them. Within such configurations, the city space becomes permeated by global movements of goods, materials, ideas, labor, and capital. How these flows are regulated and strategically ordered in relation to the existing sovereign power should be investigated, along with how they catalyze dreams and aspirations for a modern lifestyle synonymous with the global. These aspirations manifest in many different forms, ranging from micro-level practices of self-improvement and educational endeavors necessary to engage with the systems to macro-level architectural and infrastructural designs and legal and policy frameworks governing their operations.

The second set of questions for the smart city relates to its *ethics and politics*, which goes beyond a simple privacy-centric critique. As this book has illustrated, the discourse and materiality of smart cities are complexly related with ethical values, further compounded by the recent rhetoric about smart cities strategically tailored to normative demands such as those for sustainable development and citizen engagement. While ostensibly distancing themselves from previous industrial modes of development, Songdo's developers have strategically co-opted the languages of environmentalism, sustainability, and green growth—an effort reflected in Songdo's positioning as a green smart city. This rhetorical conflation employed by the proponents of smart cities necessitates a refinement of the critical questions that we ask about these projects and their contradictions. These questions include the following: What precisely is being sustained in sustainable

development? What technocratic standards and methods are being used to validate its greenness? And what material realities (e.g., electricity and water use, invisible labor, and changes to the landscape itself) betray its green promises? Beyond carbon calculations and green technologies, what socio-political relations are necessary to ensure that the proposed green measures do not end up contributing to the problems that they promise to solve?

Another critical dilemma faced by current smart city research is the question of security and privacy. In response to growing privacy concerns, some smart city vendors and developers have proactively embraced the language of openness and privacy, offering ideas like “privacy-by-design,” which advocates data protection through specific technology design. While well-intentioned, these design-centric solutions—such as “smart open platforms” and “smart communities”—tend to oversimplify the issue and default to technology use while perpetuating a reductionist and positivist position in framing the problem solely in terms of information security management and consumer consent. This position falsely conflates basic anonymization and consent policies with protection of the individual right to privacy while also equating the mere presence of digital interface with citizen engagement and participation. In the case of Songdo, particularly challenging was the assertion that citizens themselves demanded more CCTV, implying that surveillance is driven not by corporate or governmental interests but by public demand. The naive assumptions underlying these claims are precisely why I am uncomfortable with accepting the rather optimistic view that more citizen participation is a remedy for all criticisms leveled at the smart city. While it is true that more oversight and public involvement are needed in smart city governance, the existence of initiatives like living labs and open platforms alone does

not automatically engage citizens. Moreover, it is insufficient to assume that everyone is equally empowered to make a conscious choice to either opt in or out of those participatory activities. Mere calls for more participation as an antidote to the problem of smart cities will be ineffective as long as they remain oblivious to the broader workings of an apparatus of the smart city designed to regulate, standardize, manage, and control citizens. This includes programs to enroll citizens in the practices of crime prevention and horizontal surveillance, inducing their willing participation. As this book has shown, the remarkable persistence of the smart city as both a concept and a material reality has stemmed from its capacity to align with public demands for a “safe city,” a “cultural city,” a “creative city,” and a “green city,” drawing from and operating *through* collective desires for safety, prosperity, well-being, and improved quality of life, not *against* them. Therefore, future inquiries about the politics of smart cities must critically scrutinize the rules and regulations that are shaping the new game of “smart citizenship.” This includes a whole range of initiatives that position citizens as vital agents and subjects contributing to the city’s development, which utilizes techniques and methods of stimulating people’s internal motivations and eagerness for values like creativity, innovation, and intelligence, establishing them as the prerequisite for making up the smart city.

This discussion about the broad cultural mechanisms underpinning the smart city leads to the third set of questions that we, as techno-cultural studies researchers, should ask: What is the smart city’s relationship with the future? What problems of the present are expected to be overcome in this envisioned future? What, then, does the envisioned future tell us about the state of the present as it is articulated in embodied practices and mental frameworks? That is, how does a specific vision of the

future become normalized through its alignment with people's enduring anxieties and aspirations stemming from the present? Moreover, are there alternative yet peripheralized ways of addressing those problems?

The series of questions that I outlined in this book explores the smart city as more than just a technical phenomenon, positioning it instead as a phenomenon that necessarily relies on broad cultural conditions for its emergence and consolidation. If the smart city's claim to be an open, democratic, and sustainable model of urban governance is still met with skepticism, one primary reason for this is the tendency to disregard the embeddedness of these projects in a developmental rationale that prioritizes economic development above all else, thereby rendering the city primarily an economic subject. Then, one may ask, are large-scale architectural development projects, due to their reliance on government policy and capitalist resources, bound to fail ethically? To be sure, instead of falling into the binary trap of development/antidevelopment, it is important to direct our focus to the specificities of the problems that are identified, defined, and acted on while being aware that there are multiple ways to approach these issues. For example, the quest for urban safety is not accomplished just by installing more CCTV, which could even have an adversarial effect by undermining and making invisible community-level efforts to address urban safety and by reinforcing a defensive mentality that further isolates citizens. This might require exploring options beyond quick technical fixes and addressing the complex structural roots of the problem, including poverty, inequality, and uneven resource allocation. It must be acknowledged that many changes—both technological and nontechnological—are going to be needed to address complex issues related to contemporary urban life, including the problem

of communication, transportation, environmental risks, urban safety, and citizen empowerment. As a feasible response to this conundrum, this book's examination of Songdo enriched the narrative of development by questioning the particulars of the motives, production, and operation behind it, as well as the normative values it inherently embodies, beyond just questioning its effects. Only with such historical and cultural understanding of a city can we hope to enact meaningful changes to it.

NOTES

INTRODUCTION

1. “2009 Incheon segye dosi chukjeon [2009 Incheon Global Fair & Festival].”

2. Incheon Global Fair and Festival Organizing Committee, “2009 Incheon Segye Dosichukjeon Baekseo” [2009 Incheon Global Fair and Festival White Paper].

3. Kim, City Paradiso.

4. Je-hae Do, “Incheon Hosts Summit of Asia-Pacific Cities,” *The Korea Times*, September 15, 2009, <https://www.koreatimes.co.kr/southkorea/society/20090915/incheon-fair-incheon-hosts-summit-of-asia-pacific-cities>.

5. Mosco, *The Digital Sublime*; Marx, “Technology: The Emergence of a Hazardous Concept.”

6. Ji Gun-tae, “Incheon-si ‘doshichukjeon seonggong gaechoe choegoui senggwa” [Incheon City, “the Global Fair Achieved Outstanding Success”], *Kyunghyang Shinmun*, December 28.

7. The city had initially planned the event as the “Incheon Global City Expo,” but the International Bureau of Expositions (BIE), a Paris-based group that had organized the world exposition since 1851,

complained to the Korean Ministry of Foreign Affairs about the event's "unofficial" denomination as an "expo." It claimed that Incheon's unauthorized use of the title negatively affected the campaign efforts by other Expo hosting cities, including Shanghai, which was going to be the official site for the International Expo the following year. Besides, Shanghai 2010's planned theme, "Better City, Better Life," and its emphasis on the cities would seem redundant with Incheon 2009. Following an extensive effort to deescalate the rising international and domestic tension, Incheon's organizing committee eventually downscaled the event from "Expo" to "Fair and Festival."

8. Halpern et al., "Test-Bed Urbanism," 275.

9. Dourish and Bell, *Divining a Digital Future*.

10. Hong, "Technofutures in Stasis," 1942.

11. Dourish and Bell, *Divining a Digital Future*, 21.

12. Klauser and Albrechtslund, "From Self-Tracking to Smart Urban Infrastructures."

13. See Kang, "Compressed Modernization and the Formation of a Developmentalist Mentalité."

14. While the term "smart city" has gained traction in academic papers only since the 2010s, the field was presaged by earlier works, including Nicholas Negroponte's *The Architecture Machine* (1970); William Mitchell's *City of Bits* (1995); Stephen Graham and Simon Marvin's *Splintering Urbanism* (2001). More recent titles on the topic include Rob Kitchin and Martin Dodge's *Code/Space* (2011), Rob Kitchin and Sung-Yueh Perng's *Code and the City* (2016), Anthony Townsend's *Smart Cities* (2014), Vincent Mosco's *Smart City in a Digital World* (2019), Germaine Halegoua's "The Digital City" (2020), and Andrés Luque-Ayala and Simon Marvin's *Urban Operating Systems* (2020), among others.

15. Günel, *Spaceship in the Desert*, 10.

16. Günel, *Spaceship in the Desert*, 10.

17. Baykurt and Raetzsch, "What Smartness Does in the Smart City," 776.

18. Kitchin, "Making Sense of Smart Cities."

19. Gabrys, *Digital Rubbish*, 11.

20. Gabrys, *Program Earth*, 165.

21. Osborne and Rose. "Governing Cities," 737.

22. Xu, Caprotti, and Chien, "The Smartmentality of Urban Data Politics."

23. Zhang, Bates, and Abbott, "State-Steered Smartmentality in Chinese Smart Urbanism."

24. Chan, *Networking Peripheries*.

25. Burns et al., "Smart Cities," 464.

26. Datta, "Postcolonial Urban Futures."

27. McCarthy et al., *Spaces of New Colonialism*, 6.

28. McCarthy et al., *Spaces of New Colonialism*, 3.

29. Jeon, "A Road to Modernization and Unification." Jeon highlights how these projects cultivated and mobilized a desire among the populace for modernization and modern ways of life, such as driving and traveling. His study of the construction of Gyeongbu Highway illustrates that the rationale for this development went beyond mere economic cost-benefit evaluation; it was "an effective showcase and laboratory of national economic growth and anti-communism" (69). The collective dreams of a unified and developed nation had served as a primary catalyst driving South Korea's rapid development of science and technology and industrialization throughout the 1960s and up to the 1980s.

30. Larkin, "The Politics and Poetics of Infrastructure."

31. Hu, *A Prehistory of the Cloud*, xiii; emphasis original.

32. Shin, "Envisioned by the State."

33. Shin, Park, and Sonn, "The Emergence of a Multiscalar Growth Regime and Scalar Tension."

34. Recent scholarly reflections have highlighted the need to reexamine the concept, which is most notably associated with the work of political scientist Woo-Cumings, who defined the developmental state as the "seamless web of political, bureaucratic, and moneyed influences that structures economic life in capitalist Northeast Asia," particularly Japan, South Korea, and Taiwan. See Woo-Cumings, *The Developmental State*.

35. Foucault, "Nietzsche, Genealogy, History," 81.

36. Thurbon, *Developmental Mindset*, 2.

37. Thurbon, *Developmental Mindset*, 1.

38. Sze, *Fantasy Islands*, 16.

39. It should be noted that several scholars have previously engaged with the concept of developmentality, though it remains relatively marginal outside the field of geography and international development. In the postcolonial Indian context, Legg, “Postcolonial Developmentalities,” develops the notion of “postcolonial developmentalities” to describe a governmental rationality that illuminates both the discontinuities and the continuities of independence. Lie, in *Developmentality*, extends the term to a shifting mode of international development, arguing that donor countries have increasingly adopted a distanced, financial partnership model rather than direct intervention. Deb, in *Beyond Developmentality*, interprets developmentality in a global context, seeing it as an extension of Enlightenment progressivism, particularly as expressed through GNP-based metrics that structure the global North/South division.

40. James, “Songdo: No Man’s City.”

41. Sennett, “No One Likes a City That’s Too Smart.”

42. Greenfield, *Against the Smart City*.

43. Incheon Free Economic Zone Authority, “Population—as of 2025.08.21.”

44. Yeonsu District of Incheon Metropolitan City, “Population and Household Status—as of March 2025,” https://www.yeonsu.go.kr/main/administration/open_info/population.asp.

45. Ahn, “Eotteon incheon-sari-ui jeulgeoum: 1997–2015” [A Certain Joy of Living in Incheon: 1997–2015], 311.

46. Townsend, *Smart Cities*, 28.

47. Townsend, *Smart Cities*, 25.

48. Townsend, “Seoul: Birth of a Broadband Metropolis,” 400.

49. O’Connell, “Korea’s High-Tech Utopia, Where Everything Is Observed.”

50. Park, *Daehan minguk-ui jidoreul bakkun namja* [A Man Who Changed the Map of Korea], 25.

51. Falconer and Mitchell, “Smart City Framework.”

52. Halpern et al., “Test-Bed Urbanism,” 274–75; emphasis original.

53. Hu, *A Prehistory of the Cloud*, xx.

CHAPTER ONE. NETWORKS, HUBS, AND
ZONES: INFRASTRUCTURAL DEVELOPMENT
IN NEW SONGDO CITY, 1986–2009

1. Larkin, “The Politics and Poetics of Infrastructure.” 329.
2. Packer and Robertson, *Thinking with James Carey*.
3. Barry, *Political Machines*, 12.
4. Chon, *An Asia Internet History*. Table of contents for the PCCS Proceedings available at Asia Internet History website (<https://sites.google.com/site/internethistoryasia/lib/pccs>).
5. For instance, the relentless drive of the Park regime, in line with the US government’s anticommunist security strategy, deployed narratives that equated economic development with efforts to protect national security. This was especially the case during the Gyeongbu highway construction, as it was often hailed as a tangible demonstration of national economic growth and, importantly, a bulwark against the Communist North. See, e.g., Jeon, “A Road to Modernization and Unification.”
6. Founded in 1961, the Federation of Korean Industries, or FKI (*Jeonguk gyeongjein yeonhapoe*) is a major economic organization representing the interests of Korean industries and companies, with over 600 registered members as of 2024. Samsung group’s Lee Byung-chul served as its inaugural chairman, followed by representatives of LG, SK, Hyundai, and Daewoo, among others, in the subsequent years.
7. Notably, major newspapers such as *Chosun Ilbo*, *Donga Ilbo*, and *Maeil Gyeongje* frequently invoked the analogy of the “port” when introducing the epochal concepts of the “information society” and “the age of information” during this period. Representative examples are “The Age of Satellite Communication—Entering the High-Tech Era: Teleport” (*Maeil Gyeongje*, April 12, 1984); “Cutting-Edge Science Era, Kim Jeong-heum Column 37: The Port of Information” (*Donga Ilbo*, December 28, 1985); “Information Technology as the Determinant of National Competitiveness” (*Chosun Ilbo*, August 21, 1985); and “Busan to Be Developed into a Port of Information” (*Maeil Gyeongje*, March 17, 1988).

8. Kim, "Cheomdan gwahak sidae Kim Jeong-heum kalleom 37" [Cutting-Edge Science Era, Kim Jeong-heum Column 37.]

9. Since its launch in 1985, *Gwahak Donga*, a monthly science magazine dedicated to publishing science and technology news in South Korea, has served as a platform for popularizing scientific knowledge and educating the general public, including elementary and middle school students, about the significance of science and technology.

10. *Donga Ilbo* Pyeonjipbu [Dong Ilbo Editorial Department], "Mirae-ui hanggu: Teleport, jeongbo tongsin jipjeok dosiga saengginda [Port of the Future: Teleport, a City Dense with Information and Communication Emerges]," *Gwahak Donga* [Donga Science], 1986, 169–71.

11. Van Goor and Lefcoe, Teleports in the Information Age.

12. Kim, "Computer-ui bogeup-gwa inteonet sidae-ui dorae" [Distribution of Computers and the Rise of the Internet Era].

13. Youn, "No Circe with Wicked Charms," 223.

14. Broader cultural initiatives to foster an information-ready mindset among the populace, the so-called New Intelligence Movement (*shin jisigin undong*), and education merging technology and culture are elaborated in chapter 4.

15. Kim, "Ucheguk-dseo jeongbo senteo-ro" [From Post Office to Information Center].

16. Yates, Control Through Communication, xvi.

17. Joyce, The Rule of Freedom.

18. Faced with its crisis of legitimacy in the 1980s, Chun's military regime gestured toward global demands for democracy and liberalization. As a measure of placating public sentiment, the regime devised and implemented its infamous "3S [sex, sport, and screen] policy," which included the introduction of color broadcasting, mass distribution of color television sets, and the establishment of a professional baseball league. The regime also paved the way for the privatization of Korean banks and liberalization of the Korean financial market, including opening the economy to foreign direct investments (FDI). These economic transformations were devised in part to meet the demands by the US Reagan administration.

19. Prior to the reform, in the 1980s, Chun's regime had continued Park's legacy in line with the US government's fight against

communism and violently stifled pro-democracy movements led by students and the public while prioritizing economic growth, anticommunism, and national security as the central governmental agendas. This period also saw the severe oppression of civil liberties, including control of broadcast and journalistic media. This resulted in forced mergers and closures of newspapers expressing views against the dictatorship. In defiance, massive protests erupted nationwide, with hundreds of thousands marching in the streets to rally against the dictatorship, despite the extremely violent punishment imposed on political dissidents. These protests called for the right of citizens to direct presidential elections, among other demands.

20. Jung Se-yong, “Jibang jachi bongyeok gaemak: mueosi dal-lajina” [The Full Launch of Local Autonomy: What Will Change?], *Hankyoreh Shinmun*, January 1, 1995.

21. Graham and Marvin, *Splintering Urbanism*, 12.

22. Carey and Quirk, “The History of the Future.”

23. KBS, South Korea’s public broadcasting station, comparable to the UK’s BBC, aired a series of hour-long programs dedicated to Toffler’s work during this period. Representative examples are *Conversation with Alvin Toffler* (originally aired November 20, 1983); *KBS Special Report: Third Wave* (December 28, 1985); and *Alvin Toffler and Power Shift* (October 23, 1994).

24. Han and Downey, *Engineers for Korea*, 101.

25. Park, *Daehan minguk-ui jidoreul bakkun namja* [A Man Who Changed the Map of Korea], 21.

26. Imai, Joho nettowaku shakai.

27. Morris-Suzuki, *A History of Japanese Economic Thought*, 160–61.

28. Gabrys, *Program Earth*, 187.

29. Merriam-Webster.com, s.v. “hub,” accessed September 3, 2025, <https://merriam-webster.com/dictionary/hub>.

30. Woo-Cumings, “Hanguk-ui mirae-reul bichuneun se gae-ui geoul” [Three Mirrors Reflecting Korea’s Future].

31. Park, “Spatially Selective Liberalization and Graduated Sovereignty.”

32. Graham and Marvin, *Splintering Urbanism*, 358.
33. “7-wolbuteo chinji chocheong haeoe yeohaeng ganeung” [From July, Overseas Travel by Invitation from Relatives Allowed], *Maeil Gyeongje*, June 30, 1982.
34. “Haeoe yeohaeng yeolsoe-neun oehwan sajeong” [The Key to Overseas Travel Lies in Foreign Exchange Conditions], *Donga Ilbo*, June 17, 1981.
35. “Haeoe baenang yeohaeng ingi” [Overseas Backpacking Travel Gains Popularity], *Donga Ilbo*, April 29, 1990.
36. “Annual Air Passenger Transport Statistics, 1971–2024,” Aviation Statistics, Ministry of Land, Infrastructure, and Transport, https://www.index.go.kr/unity/potal/main/EachDtlPageDetail.do?idx_cd=1255 (accessed December 31, 2024).
37. Graham and Marvin, *Splintering Urbanism*, 357.
38. Shin, “Envisioned by the State,” 86.
39. Choi, “Dojeon-gwa gihoe-ui dosi incheon” [City of Challenges and Opportunities, Incheon], 1; emphasis added.
40. Smith, *The Antiquity of Nations*, 212.
41. Kim Yong-ha et al., “Incheon-ui mirae bijeon-gwa dosi gae-bal” [Incheon’s Future Vision and Urban Development], 3–4.
42. John Kasarda, “Airport City,” Aerotropolis Business Concepts LLC, <https://aerotropolis.com/airportcity/index.php/about> (accessed March 8, 2022).
43. Kasarda and Lindsay. *Aerotropolis*, 9–10.
44. Songdo International Business District, Gale International, <http://songdo.com> (accessed March 8, 2022).
45. Sassen, “The Global City.”
46. Planning documents available: Incheon Metropolitan City, *Songdo sindosi gibongyehoek* [Master Plan for Songdo New City], July, 2000, control no. C12M34363, National Archives of Korea; Incheon Metropolitan City, *Songdo sindosi sayeop-hwa gyehoek* [Commercializing Plan for Songdo New City], July 2000, control no. C12M34364, National Archives of Korea.
47. Graham and Marvin, *Splintering Urbanism*, 358.
48. “Eopseotdeon seom, songdo geugoseul saragan saramdeul” [Songdo, an Island That Did Not Exist, the Story of People Who Lived There]. Incheon dosi yeoksagwan [Incheon Urban History Museum], 2019, 89.

49. From 1998 to 2000, OMA partnered with the Korean domestic engineering firm Daewoo after winning IMG's commission bid, before being replaced by the Gale International and POSCO partnership in 2001.

50. Greenfield, *Against the Smart City*.

51. Koolhaas, *The Generic City*.

52. Greenfield, *Against the Smart City*.

53. Jung Yoomi, "Songdo 'mideo baelli' gihoek: samsipdae yeoseong haekmulrihakja choi gyu-hyeon—kkum kkuneun jamani sesangeul bakkunda" [Songdo "Media Valley" Plan: Choi Gyu-hyeon, a Nuclear Physicist in Her Thirties—Only Those Who Dream Can Change the World], *Kyunghyang Shinmun*, November 24, 1998.

54. Choi, *Choi gisun, incheon sidae-reul yeolda* [Choi Gisun, Opens the Era of Incheon], 73.

55. Choi, *Choi gisun, incheon sidae-reul yeolda* [Choi Gisun, Opens the Era of Incheon], 43.

56. Shin, Park, and Sonn, "The Emergence of a Multiscalar Growth Regime and Scalar Tension," 1622.

57. Shin, Park, and Sonn, "The Emergence of a Multiscalar Growth Regime and Scalar Tension," 1628.

58. Cho, "The National Crisis and De/Reconstructing Nationalism in South Korea during the IMF Intervention."

59. Central Officials Training Institute, "The Case of Foreign Investment in Songdo, Incheon," control no. CM00029946, National Archives of Korea.

60. Kyung-eun Lee, "Songdo, jangmitbit miraereul kkumkkuda" [Songdo Dreams of a Rosy Future], *SPACE Magazine*, no. 490 (September 2008): 96–97.

61. Lee et al., "Saeroun dosi-ui bijeon-gwa jwapyo-reul ilgda" [Reading the Vision and Coordinates of a New City], *SPACE Magazine*, no. 490 (September 2008): 98–106.

62. Lee et al., "Saeroun dosi-ui bijeon-gwa jwapyo-reul ilgda" [Reading the Vision and Coordinates of a New City].

63. Yoon Yeo-un, "Incheon-si, miraega itneun dosi-ro mandeul geot" [Incheon City: We Will Make It a City with a Future], *Naeil News*, July 17, 2009.

64. Collier and Ong, "Global Assemblages, Anthropological Problems."

65. Ong, "Neoliberalism as a Mobile Technology."
66. Ong, "Graduated Sovereignty in South-East Asia."
67. Ong, Neoliberalism as Exception.
68. Park, "Spatially Selective Liberalization and Graduated Sovereignty."
69. KPF, New Songdo City.
70. Williamson, "Tomorrow's Cities."
71. Easterling, *Extrastatecraft*.
72. McCann, "Policy Boosterism, Policy Mobilities, and the Extrospective City."
73. KPF, New Songdo City, 22.
74. KPF, New Songdo City, 23.
75. Easterling, *Extrastatecraft*. 65.
76. Numerous sociologists and historians of Korea's late modernity have explained how Korean political hegemony defies the binarism of individual freedom versus state control. The inherent hybridity and complexity of this formation in the late twentieth century has been captured by various terms like the "national-individual" (Cho, "The National Crisis and De/Reconstructing Nationalism in South Korea"), "developmental liberalism" (Chang, "Predicaments of Neoliberalism in the Post-developmental Liberal Context"); "urban schizophrenia" or "bipolarity" (Cho, "Flexibilization through Metropolis").

CHAPTER TWO. SMART GREEN CITY: DEVELOPMENTALITY AND ENVIRONMENT AS ECOSYSTEM

1. The Paper, "Haneulgil araeeseo saramui gireul chatda—Incheon gukjegonghang jubyeonjiyeog juminundong girokwa saeop" [Finding One's Way under the Skyway: A Documentation Project of Local Resident Movements Around Incheon International Airport], YouTube video, 19:03, https://www.youtube.com/watch?v=lijRBYz8H_c&list=WL&index=41.
2. Crawford, *Atlas of AI*, 26.
3. Strengers, *Smart Energy Technologies in Everyday Life*.

4. Williamson, "Tomorrow's Cities."
5. Ji, "Jajeun gojang, sagoro eollukjin 'keurinnnet' gadong ilbu jungdan" [CleanNet Operation, Stained by Frequent Breakdowns and Accidents, Has Been Suspended], *Munhwa Ilbo*, October 8, 2018.
6. Jung, "Saramdo sunsikgane pparadeurineun . . . 'Sindosi keurinnnet-eun sarin gigyee'" [Sucking up People in an Instant . . . "The New City CleanNet Is a Murder Machine"], *Herald Gyeongje*, May 3, 2018.
7. Gabrys, Program Earth.
8. Gabrys, "Programming Environments," 34–36.
9. Townsend, *Smart Cities*, 29–30.
10. Hyundai and Hanjin are among Korea's largest conglomerates that started in the construction and logistics business during the post-Korean War recovery. Their rapid growth in the 1950s and 1960s is partly owed to its contractual relationship with the US military, as it expanded its infrastructural presence across the Asia-Pacific. For the history of the US military's impact on global logistics, see Chung, "From Korea to Vietnam."
11. Noble, "The Former Foreign Settlements in Korea."
12. Moore, "From 'Constructing' to 'Developing' Asia," 87.
13. Kim, "The Korean Construction Industry as an Exporter of Services," 227.
14. Kim, "The Korean Construction Industry as an Exporter of Services," 229.
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20. “Seohaean 1cheonyeo manpyeong maerip toseok chaechwi eopgye bisang” [West Coast Land Reclamation of over 10 Million Pyeong Triggers Emergency in the Earth and Stone Extraction Industry], *Maeil Gyeongje*, June 19, 1987.

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treaty that provides the framework for national and international actions to ensure the ecological character of wetlands is maintained. This convention recognizes the significant value of wetlands designated as “Ramsar Sites.” As of 2023, there are 172 contracting parties (member states), with 2,400 wetland sites designated for inclusion in the Ramsar List of Wetlands of International Importance (see Convention on Wetlands, <https://www.ramsar.org/about/convention-wetlands-and-its-mission>).

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28. Moores, “Is Song Do New City an Example of Sustainable Development and ‘Good Globalization’?”

29. Kim, “Place Promotion and Symbolic Characterization of New Songdo City.”

30. Whan-woo Yi, “Songdo Striving to Showcase ‘Green City,’” *The Korea Times*, October 15, 2012.

31. Yuka Yoneda, “Songdo ConvensiA Is First LEED-Certified Convention Center in Asia,” *Inhabitat*, April 13, 2010.

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33. Jonathan Andrews, “Songdo Named First Pre-Certified LEED City,” *Cities Today*, June 17, 2017.

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40. Shin Jae-hyun "Noksaek seongjang, geurin IT sa-eop dagak-jeok uigyeon gyohwan" [Green Growth: Exchange of Diverse Opinions on Green IT Projects], *Kyeongsang Ilbo*, April 15, 2009.

41. Kim and Thurbon, "Developmental Environmentalism," 214.

42. Statistics Korea, Korean Green Growth Indicators 2013, <http://kostat.go.kr/portal/eng/pressReleases/15/index.board?bmode=read&aSeq=346871>.

43. Kim and Thurbon, "Developmental Environmentalism."

44. Kim, "Place Promotion and Symbolic Characterization of New Songdo City," 13.

45. Sonn, Shin, and Park. "A Mega Urban Project and Two Competing Accumulation Strategies."

46. Incheon Free Economic Zone Authority, "IFEZ Seen through Statistics: Population," <https://www.ifez.go.kr/main/intro/stats/population.do>.

47. The Korean Environment Administration (EA), established in 1980, was scaled up to the Ministry of Environment (ME) in 1990 as a national government branch overseeing scientific research and environmental surveillance programs for biodiversity and natural resources. Its early attempts to initiate systematic environmental data collection aimed to help direct the green agenda of the state by providing empirically verifiable evidence of pollution and assessments of its impact. For instance, its reports specified the amount of vegetation and pollution levels in concrete and numerical terms, such as particle per milligram (ppm) and percentages, which could be quickly translated and integrated into the terms the state instrumentalized in its centralized policy making.

48. Gabrys, "Practicing, Materialising and Contesting Environmental Data."

49. Cho and Cho, "Incheon gyeongje jayu guyeok songdojigu-ui gihu seumateu siti joseongeul wihan jeongchaek yeongu" [Policy Research for the Development of a Climate Smart City in the Songdo District of IFEZ].

50. Wolman, "The Metabolism of Cities."

51. Choy, Ecologies of Comparison.
52. Strengers and Kennedy, *The Smart Wife*.
53. Ross, *Bird on Fire*; Gabrys, *Digital Rubbish*; Gabrys, *Program Earth*; Hogan, "Data Flows and Water Woes"; Crawford, *Atlas of AI*.
54. Swyngedouw, "Circulations and Metabolisms."
55. Furuhashi, "Multimedia Environments and Security Operations."
56. Braun, "A New Urban Dispositif?"
57. Osborne and Rose, "Governing Cities."
58. Gabrys, *Program Earth*, 200–201.

CHAPTER THREE. THE CITY MUST BE
DEFENDED DIGITALLY: SURVEILLANCE,
SECURITY, AND EVERYDAY ENVIRONMENTS
OF CONTROL

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3. "Yuchiwon gomini-sijyo?" [Worried about Choosing a Kindergarten?], *Songdo International City Mom Café*, Naver Café, July 14, 2015, <https://cafe.naver.com/momsofsongdoifez/55180>.

4. The term "affective fact," as used by Brian Massumi, refers to a self-legitimizing logic of preemption that reconfigures the present in anticipation of a potential future threat. Even if the threat does not yet exist and may never actualize, the fact that it "could have been" allows the felt reality of a future threat to exert power over the present, thus producing what he calls an affective fact. As he writes, "Once a nonexistent reality, always a nonexistent reality. A past anticipation is still an anticipation, and it will remain having been an anticipation for all of time. A threat that does not materialize is not false. It has all the affective reality of a past future, truly felt. The

future of the threat is not falsified. It is deferred. The case remains forever open.” Massumi, “The Future Birth of the Affective Fact,” 54.

5. Yang, “Digital Contact Tracing in the Pandemic Cities.”

6. Andrejevic, *Automated Media*, 103–8.

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8. Townsend, *Smart Cities*, 28.

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10. Han, “Gonggong CCTV-e daehan simindeul-ui insik” [Citizen Perception of Public CCTV].

11. Statistics Korea, “Number of Installed Closed-Circuit Television (CCTV) Cameras in Public Places in South Korea from 2008 to 2023 (in 1,000s),” *Statista*, July 17, 2024, <https://www.statista.com/statistics/651509/south-korea-cctv-cameras>.

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20. Lyon, *The Culture of Surveillance*.
21. Allon, "An Ontology of Everyday Control," 260.
22. Hwang Jin-woo, "Beomjoeja soknae kkaji gamsi . . . ttokt-tokhaejin CCTV" [Watch Inside the Criminal, Smarter CCTV], *KBS News*, September 14, 2009.
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25. "Eoryeoun ildo swipge saenghwal-ui yoyu hwaljjak, keompyuteo juteak" [Even Difficult Tasks Made Easy—A Home with Ample Leisure, the Computer House], *Maeil Gyeongje*, January 3, 1990.
26. Hay, "Designing Homes to Be the First Line of Defense," 350.
27. Allon, "An Ontology of Everyday Control," 260; emphasis original.
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29. Deleuze, "Postscript on the Societies of Control."
30. Halpern and Mitchell, *The Smartness Mandate*, 78.
31. Kat Hall, "Three-Quarters of IoT Projects Are Failing, Says Cisco," *The Register*, May 23, 2017.
32. Andrejevic, *Automated Media*, 104–5.
33. Andrejevic, "Digital Citizenship and Surveillance," 18.
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35. Newman, *Defensible Space*.
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39. O'Malley, "Risk and Responsibility."

40. O'Malley, "Risk and Responsibility," 191.

41. Osborne and Rose, "Governing Cities," 754.

42. Cozens, Saville, and Hillier, "Crime Prevention Through Environmental Design (CPTED)."

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CHAPTER FOUR. CULTURAL ECONOMIES OF CREATIVITY AND "NEW INTELLIGENCE": K-CULTURE AND SONGDO

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3. Arirang News, "AI spices up K-Pop Industry: Virtual Idols and Their Fans," YouTube video, 24:08, February 16, 2023, https://youtu.be/HQeMEsfYjw?si=R66FX_ke1H_O4Rry.

4. As of October 2023, IFEZA's "K-pop Contents City" plan was officially scrapped due to resistance from the Incheon City Council and some residents who questioned the genuine intentions behind the project. Their opposition was largely centered on the top-down way the project was carried out, as well as the concerns that the plan prioritized developing residential and commercial properties—apartment complexes and "officetels" (a hybrid structure combining office spaces and rental residential units)—over creating K-content facilities.

5. Florida's mantra "new geography of creativity" is most famously (or notoriously) advanced in his 2002 book, *The Rise of the Creative Class*, in which he elaborates the "3Ts" of urban development—Technology, Talent, and Tolerance—as key conditions for fostering human creativity. In his framework, the pursuit of "quality of place" involves not only cultural amenities like galleries, arts centers, and boutique cafés but also a culturally diverse and tolerant atmosphere that supports a certain lifestyle conducive to innovation. To this end, primary importance is given to technology for its ability to mobilize urban resources, establish high-tech infrastructure, and attract R&D industries. This, in turn, is claimed to produce synergy when combined with the talent of creative individuals, who, crucially, are expected to pay rent and consume services within the city.

6. du Gay and Pryke, "Cultural Economy: An Introduction."

7. du Gay and Pryke, "Cultural Economy: An Introduction," 2.

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9. IFEZ Incheon Free Economic Zone, "Munhwa kontencheureul hwal-yonghan incheongyeongjejayugu-yeok-ui beuraending jeonryak" [IFEZ's Branding Strategy Using Cultural Content], 00:19:00.

10. Lindtner, *Prototype Nation*, 30.

11. Joo Gwan-cheol, "Gim jinyong incheon gyeongjecheongjang chwim il junyeon" [The First Anniversary of Director Kim's Inauguration], *Joongdo Ilbo*, September 9, 2023.

12. Kim, "National Identity Discourses in Visual Culture and Art Education."

13. Oh, *Pop City*.

14. Oh, *Pop City*, 3.

15. Joo Gwan-cheol, "Incheon-e k-pop munhwadosi" [K-pop Cultural City in Incheon], *Joongdo Ilbo*, November 11, 2021.

16. Choi Jong-il, "Gim jinyong incheon gyeongjecheongjang, 'songdo r2 buji k-pop gongyeonjang chujin'" [IFEZA Director Kim Jin Yong, "Songdo R2 District to Become a K-Pop Arena"], *Kyeonggi Ilbo*, August 13, 2023.

17. Rose and Willis, "Seeing the Smart City on Twitter."

18. Kang, "There Is No South Korea in South Korean Cultural Studies," 256.

19. KBS 1TV, "*Je3-ui jeonjaeng, ijeneun munhwada*" [The Third War: Now It is Culture], July 25, 1995; Choi Jung-ho, "Hanguk munhwa je3-ui reunesangseu" [The Third Renaissance of Korean Culture], *Chosun Ilbo*, January 5, 1995; Heo Yup, "Daegieopdeurui munhwajeonjaeng" [Culture Wars of Large Corporations], *Donga Ilbo*, January 30, 1996; Heo Yeon, "21-segi gukbu munhwasaneope-seo naonda" [National Wealth of the 21st Century Comes from the Cultural Industry], *Maeil Gyeonje*, January 5, 1999.

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22. Lee, "Detraditionalization of Society and the Rise of Cultural Studies in South Korea," 486.

23. Examples are Seoul National University's Graduate School of Convergence Science and Technology (founded in 2008), Jeonju University's Department of Culture Technology, and Changwon

National University's Department of Culture Techno. Similarly, Kang, "There Is No South Korea in South Korean Cultural Studies," 256, referenced the surge in animation-related undergraduate programs across South Korea after animation was identified as a strategic industry for economic development in the twenty-first century. In the early to mid-2000s, the output of animation-related majors at four-year universities and two-year colleges totaled over two thousand annually.

24. Yun, "1990-nyendae hanguk sahoe jisiginsang-ui bunhwa wa geu yeoksa sahoejeok gyegideul" [Differentiation of Intellectuals in Korean Society in the 1990s and Its Historical and Social Causes], 26.

25. Je 2-ui geon-guk beomgukmin chujin wiwonhoe [Second Nation Building Pan-National Promotion Committee], "21segi-ui juyeok sinjisigin" [The New Intellectuals Leading the 21st Century], Korean Educational Development Institute and Korea Information Society Development Institute, 1999.

26. Park Je-gyoon, "President Kim's Dialogue with New Intellectuals: A Housewife Who Lives Within Her Husband's Salary Is Also a New Intellectual If She Manages Her Home Economically," *Donga Ilbo*, February 24, 1999.

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29. Je 2-ui geonguk beomgukmin chujin wiwonhoe, *Leaders of the 21st Century, New Intellectual*, 117.

30. Editorial, "New Intellectual Movement and Preparation for the 21st Century," *Daehak Shinmun*, May 3, 1999.

31. Je 2-ui geonguk beomgukmin chujin wiwonhoe, *Leaders of the 21st Century, New Intellectual*, 134.

32. Kang, "Technology, Culture, and Meanings," 730.

33. The period also saw an expansion of government-funded institutions like the Agency for Digital Opportunity Promotion (now defunct and absorbed into the National Information Society Agency [NIA], established under the Ministry of Information and Communication in 1984) that were charged with educating technical personnel for computer networks and promoting research in computing areas.

34. Townsend, "Seoul: Birth of a Broadband Metropolis," 404. In 2002, the Seoul metropolitan government launched a "cyber building certification" program that ranked buildings based on their broadband speed. Tier 1 was awarded to buildings with speeds of 50 Mbps or higher, Tier 2 for those between 10 and 50 Mbps, and Tier 3 for speeds under 10 Mbps. The system was intended to incentivize the developers to install state-of-the-art digital infrastructure.

35. Vanolo, "Smartmentality." Based on the Foucauldian framework of power/knowledge, Vanolo explains smartmentality as a governmental strategy that produces self-regulating, entrepreneurial citizens by embedding neoliberal rationalities.

36. Ho, "Smart Subjects for a Smart Nation?," 3111.

37. Cho, "The Spec Generation Who Can't Say 'No.'"

38. Ahn, "Eotteon incheon-sari-ui jeulgeoum: 1997–2015" [A Certain Joy of Living in Incheon: 1997–2015], 316.

39. Kim, "Seumateu cheje-e daehan ironjeok gochal" [Smart Regime].

CONCLUSION

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INDEX

- Abu Dhabi, 15
- Ahn, Eunbyeol, 30
- Ahn, Sang-soo, 85, 89, 109, 207
- air travel, 72–73; international
 - air passengers by year (1970–2020), 73*fig.*
- Allon, Fiona, 158
- All That Songdo (online forum), 168
- Andrejevic, Mark, 163–64
- apartment complexes (*apateu*), 109
- architecture, 13, 35, 45, 79,
 - 91–92, 117, 160–61, 220; centralized control, 131; environmental, 134, 164; of large-scale development projects, 223
- artificial intelligence (AI), 82, 175
- Arup, 45
- Asian financial crisis (1997), 22,
 - 87–88
- Asian Tiger economies, 69
- Asia Pacific Cities Summit (2009), 4
- automated license plate
 - recognition (ALPR), 166
- Barcelona, 79
- Barry, Andrew, 47
- Baykurt, Burcu, 15
- Beast: *Fiction* (2011), 184
- Bell, Genevieve, 10–11
- Bendor, Roy, 214
- Big Bang: *Beautiful Hangover* (2010), 184
- bin Salman, Crown Prince Mohammed, 216–17
- biodiversity, 113, 238*n*47
- Bio Information Technology (BIT) Zone, 204
- biotechnology (BT), 25, 35, 69, 82,
 - 183, 191
- Birds Korea, 113, 115
- BoA: *Hurricane Venus* (2010), 184
- Boston Consulting Group, 216
- brain building (*dunoe bilding*), 56
- Braun, Bruce, 135
- Britain, 54
- British Broadcasting Corporation (BBC), 35
- Busan, 106–7

- Cable News Network (CNN), 190
capitalism, 17–18, 88, 192, 216–17, 220, 223; digital, 11, 14; territorial expansion and growth of, 120
Carey, James, 63, 218
Chambers, John, 122
China, 18–19, 64, 225n7
Cho, Hae-joang, 206
Choi, Gyu-hyun, 82–84
Choi, Ki-sun, 74, 85
Chongming Island, 24
Chosun Ilbo (newspaper), 107, 229n7
Choy, Timothy, 130
Chun, Doo-hwan, 57, 60, 230nn18,19
Chungra, 86–87, 124. *See also* Incheon
Cisco, 35, 120–22, 147, 149–50, 161
citizenship, 16, 21, 80, 95, 136, 139, 182, 189, 205; smart, 222
city: generic, 80; green, 96–136; hub, 80. *See also* smart cities
City Paradiso (animated science fiction film), 4
civic awakening (*simin gak-seong*), 194
CleanNet, 98–99, 99fig.
climate change, 15, 128. *See also* greenhouse gas emissions
closed-circuit television (CCTV), 137–54, 159–60, 162, 166–71, 213, 223. *See also* surveillance
coastal preservation, 113
Coin Locker Girl (film), 116
Collier, Stephen J., 90
Colombia, 216
consumerism, 109, 156
COVID-19 pandemic, 140, 169
Cowper, William, 44
Crawford, Kate, 98, 133
creative economy (*changjo gyeongje*), 176
creativity: cultural economies of, 173–208, 243n5; national reform and, 176
crime, 139, 145, 164–65; horizontal surveillance and practices of preventing, 222; situational methods of controlling, 167. *See also* surveillance
Crime Prevention through Environmental Design (CPTED), 142, 164–67, 169
culture technology (*munhwa-gisul*), 179, 183–92
culture war (*munhwa jeonjaeng*), 190
cybernetics theory, 129
Daehak Shinmun (student newspaper), 201
Daewoo, 3, 58, 229n6, 233n49
Datta, Ayona, 19, 214–15
democracy, 66, 223, 230n18
developmentalism, 12–13, 24, 27, 51, 60–70, 88–109, 114, 123–126, 134, 212–19, 223–24
developmentality, 24, 60–70, 88–89, 94–97, 100–102, 110, 114, 124, 139, 212–13, 228n39; cultural dimension of, 177–80, 215; dictatorship of, 235n15; expansion and entrenchment of, 210–11; and smartmentality, 204–9
digitalization, 16; sublimity of, 5; universalism of, 19
Donga Ilbo (newspaper), 53, 55, 229n7
Donga Science (magazine), 55
Dongchun-dong, 30
Dourish, Paul, 10–11

- Downey, Greg, 212
Dream Built on a Wetland: Global Business Frontier (official publication), 217
 Drucker, Peter, 182
 du Gay, Paul, 179, 186
- Easterling, Keller, 92–93
 eco-desire, 24–25
 ecosystem (*saengtaegyey*), 129
 Electronics and Telecommunications Research Institute (ETRI), 51
 Electronics Industry Fostering Plan (1981), 57
 Elfrink, Wim, 120
 endangered species, 108
 environmentalism, 100–101, 123–25, 132–34, 141; sustainability and, 209, 220
 environmental technology (ET), 183
 epistemology, 37
 Exo: *MaMa* (2012), 184
- F(x): *Hot Summer* (2011), 184
 factory automation (FA), 159
 Federation of Korean Industries (FDI), 53, 229n6
 Florida, Richard, 4, 177, 243n5
 foreign investment, 52, 77, 86–87, 91, 124, 230n18
 Framework Act for Informatization Promotion (1996), 193
 France, 54; Sophia Antipolis project, 78, 83
 freedom, 33, 60, 66, 139, 146, 219
 free economic zones (FEZs), 38, 80, 83, 85–95, 106, 120, 210, 217
 “Free Economic Zones in Korea: The Future of Northeast Asia” (2003 report), 88
- Furuhata, Yuriko, 134
 future shock, 33
 futurism, 61, 218–19
- Gabrys, Jennifer, 16, 24, 69, 100–101
 Gale, Stan, 76
 Gale International, 76, 86, 88, 91, 117, 123, 147
 “General Plan for Cyber Korea 21” (1999), 203
 Germany, 54
 globalization (*segryehwa*), 23, 45, 94
 Global North, 214–15
 Global South, 214–15
 Goldstar (LG), 58, 155
 Gore, Al, 122
 governance: environmental, 25, 100–102, 114, 125, 132, 135, 141, 213; generalized method of, 159; paradigm of systematic, 57; sustainable model of, 130, 223
- Graham, Stephen, 72
 Green Building Act (2013), 132
 “green city” movement, 37
 Green Climate Fund (GCF), 43
 Greenfield, Adam, 29, 79
 greenhouse gas emissions, 128.
 See also climate change
 greenwashing, 102
Guardian, The (newspaper), 27
 Günel, Gökçe, 15
Gwahak Donga (newspaper), 59, 230n9
Gyeongin Ilbo (newspaper), 103
- Halpern, Orit, 8, 160
 Han, Kyonghee, 212
 Han, Tae-il, 117
 Hanjin, 104, 235n10
Hankyoreh (newspaper), 61

- health, 217
- high-spec individuals, 206–7
- Hillstate Lake Songdo, 130–31
- Ho, Ezra, 205–6
- home automation (HA) technologies, 5, 39, 65–66, 140–41, 154–60, 156*fig.*, 157*fig.*, 171, 203
- Hong, Sun-ha, 10
- Hong Kong, 54, 68–69
- Hu, Tung-Hui, 21
- Hyundai, 3, 58, 96, 104–5, 130, 182, 216, 229n6, 235n10
- IBM, 121, 154
- Incheon, 2, 4, 25, 30, 34, 61, 80, 106–16; economic decline of, 63–64; General Plan for New Songdo City (2000) of, 85; as industrial complex city (*gongdan dosi*), 111–16, 119–20, 149; as logistical hub, 75; manufacturing identity of, 35, 63, 101, 108, 111, 113; Penta-port Rock Festival of, 84; post-Hong Kong strategy of, 69; as smart and green city, 39, 48–49, 52, 149–51; Tri-port Rock Festival of, 84; Tri-port strategy (1996) of, 73, 74*map*, 75–78, 82, 84–85. *See also* Chungra; Korea; Songdo; Yeongjong
- Incheon City Council, 87, 243n4
- Incheon Development Committee, 104
- Incheon Federation for Environmental Movements (IFEM), 103, 113–14
- Incheon Free Economic Zone (IFEZ), 43, 68, 83–90, 114, 117, 122–24, 142, 149–52, 173–76, 181–85, 185*fig.*, 217–18, 243n4; Smart City Department of the, 144; Smart Operation Center of the, 142–43, 143*fig.*, 155, 161; video game development in the, 186
- Incheon Global Fair and Festival, 2–8, 6*fig.*, 225n7
- Incheon International Airport, 44–45, 71, 75–76, 87, 96
- Incheon Metropolitan Government (IMG), 79, 114, 127–28, 150, 233n49; “Incheon, Challenges and Development Directions for Urban Development” (white paper), 49, 103, 180–81; “New Songdo City Commercialization Plan” (white paper), 78; “Policy Research for the Development of a Climate Smart City in the Songdo District of IFEZ” (study), 128
- Incheon Research Institute, 181
- Incheons’ Citizens Coalition for Economic Justice, 7
- Incheon Techno Park (ITP), 186–87, 204
- Incheon University, 181, 186–87
- India, 18–19, 214, 216; Software Complex project, 83
- industrialization, 74, 110
- Information Age, 63
- information and communication technologies (ICT), 4, 22–38, 46–59, 54*fig.*, 64–72, 77, 84, 89, 95–97, 156, 180–83, 193, 196, 212, 215
- information culture (*jeongbo munhwa*), 193, 204
- information society (*jeongbo sahoe*), 51
- informatization (*jeongbohwa*), 45
- infrastructures, 62, 65–67, 74, 89, 94, 104–6, 218; affective, 12, 20;

- broadband, 203–4; clean and green public image of computational, 133; communication, 39, 49, 59, 70–85, 106; critical, 38; cultural, 178; digital, 32, 58, 203; green, 128; high-tech, 49; industrial-era logistics, 56; information, 56, 59; large-scale, 20, 130, 211, 214; multi-layered, 18; smart, 26, 128, 133, 139, 153, 160–61; transportation, 39, 45–48, 70–85, 227n29; urban, 37–40, 49, 96–97, 102–3, 107, 133, 139. *See also* Korea; mega-infrastructure projects
- International Bureau of Expositions (BIE), 225n7
- International Monetary Fund (IMF), 87, 90
- internet, 51
- Internet Assigned Numbers Authority (IANA), 51
- Isedol, 173–75
- Israel: Tel Aviv Science Park project, 83
- Japan, 54, 134; Technopolis project, 83; Tokyo Teleport project, 78; Yokohama Minato Mirai project, 78
- Jeon, Chihyung, 20, 227n29
- jibang jachi* (local self-governance) policy, 34
- Jin, Dae-je, 2–3
- Jjang* (comic book series), 116
- Joongang Daily* (newspaper), 111–12
- Joyce, Patrick, 60
- Jurassic Park* (film), 190
- Kakao Entertainment, 175
- Kang, Inkyu, 203
- Kang, Myungkoo, 13, 190
- Kasarda, John, 76; *Aerotropolis*, 76
- KC Smart Service (KCSS), 147
- K-dramas, 184
- Kenichi, Imai: *Information Network Society*, 69
- Kennedy, Jenny, 133
- Kim, Dae-jung, 86*fig.*, 87, 114, 195–97, 198*fig.*, 199*fig.*
- Kim, Hong-jin, 147
- Kim, Jin Yong, 185
- Kim, Jung-heum, 53
- Kim, Max, 170
- Kim, Myung Sung, 143
- Kim, Sonja, 218
- Kim, Sung-young, 122–23
- Kim, Yeran, 208
- Kitchin, Rob, 15–16
- Kohn Pedersen Fox (KPF) Associates, 91–92, 118, 166
- Koolhaas, Rem, 79–80
- Korea, 18–20; Child Care Act (2015) of, 145–46; Constitutional Court of, 145, 162; construction exports of, 105–6; democratic constitutional reforms (1987) in, 60; as global high-tech powerhouse, 2; Green New Deal policy of, 122; Japanese colonial period of, 75, 104–5, 215; late modernity of, 234n76; Ministry of Culture, Sports, and Tourism of, 175, 199; Ministry of Education and Human Resources of, 197; Ministry of Environment of, 238n47; Ministry of Finance and Economy of, 88; Ministry of Food and Drug Safety of, 171; Ministry of Government Administration and Home Affairs of, 197; Ministry of Health and Welfare of, 145; Ministry of

- Korea (*continued*)
 Information and Communication of, 197; Ministry of Land, Infrastructure, and Transport of, 132, 165, 215; Ministry of Trade, Industry, and Energy of, 132; National Archives of, 197; Small and Medium Business Administration of, 197; social-political dynamics of, 62; urbanization and industrialization of, 5, 106, 236n16. *See also* Incheon; infrastructures; Seoul
- Korea Advanced Institute of Science and Technology (KAIST), 51, 192
- Korea Building Management System, 132
- Korea Creative Content Agency (KOCCA), 173, 175
- Korea Information Society Development Institute (KISDI), 194–95
- Korea Institute of Police Technology, 242n37
- Korea Land & Housing Corporation, 111
- Korea Telecom (KT), 147, 149–50
- Korean Broadcasting System (KBS), 154, 231n23; “KBS Special Report: What Is the New Intellectual?” (screen-shot), 196*fig.*
- Korean cinema, 198–99
- Korean CPTED Association (KCA), 165, 242n37
- Korean Disease Control and Prevention Agency (KDCA), 169
- Korean Environment Administration (EA), 238n47
- Korean Exposé* (independent media outlet), 27
- Korean Green Growth Indicators, 123
- Korean hip-hop, 173
- Korean Institute of Criminology and Justice, 146
- Korean War, 74
- K-Pop, 3–4, 26, 41, 173–77, 180–81, 184–85, 213; music videos of, 188–89; and virtual festivals, 205; virtual idols in, 173–74
- “K-pop Future Entertainment City” Memorandum of Understanding (MOU), 175
- K-Smart City, 36
- Ku, Robert, 218
- labor practices, 64, 80, 87, 89, 104, 217
- land reclamation, 25
- Landry, Charles, 177
- Larkin, Brian: “The Politics and Poetics of Infrastructure” (essay), 43, 46
- Leadership in Energy and Environmental Design (LEED) program, 117–18, 121–23
- Leaders of the 21st Century, New Intellectuals* (textbook), 200
- Lee, Keehyeung, 191
- Lee, Myung Bak, 122
- Lee, Won Jae, 181
- LG Electronics, 173, 216, 229n6
- liberalism: development strategies of, 91; emerging discourses of advanced, 66; moral imperatives of, 61. *See also* neoliberalism
- liberalization, 90, 230n18
- liberalization of overseas travel (*haeoyeohaeng jayuhwa*), 72

- Lindsay, Greg, 120; *Aerotropolis*, 76
 Lindtner, Silvia, 182
 local self-governance policy
 (*jibang jachi*), 60, 73
 “Long-Term Plan for Science and
 Technology Development to
 the Year 2000” (1987–2000), 57
 Lotte, 216
 Lovelock, James, 122
 Lyon, David, 151–52
- Maeil Gyeongje* (newspaper),
 229n7
 Malaysia, 216; Multimedia Super
 Corridor project, 78
 Marvin, Simon, 72
 Marx, Leo, 4–5
 Massumi, Brian, 239n4
 McCann, Eugene, 92
 McCarthy, Cameron, 19
 McKinsey, 216
 media, 38, 65, 174, 190
 mega-infrastructure projects, 51,
 227n29, 229n5. *See also*
 infrastructures
 microelectronics, 69
 Middle East, 215–17
 monitoring. *See* surveillance
 Moore, Aaron S., 105
 Moores, Nial, 115
 Mosco, Vincent, 4, 7
- Namdong Industrial Complex
 (NIC), 111–12, 150
 nanotechnology (NT), 183
 National Institute of the Korean
 Language, 206
 nationalism, 19, 51, 183
 National Project on Computer
 Research and Development
 (1981), 57
 National Public Radio (NPR), 35
- neoliberalism, 17–18, 22, 24, 87,
 90, 203. *See also* liberalism
 Netherlands, 54
 New Cities Foundation, 152
 New Cities Summit (2017), 152
 New Intellectual Movement
 (*sinjisigin undong*) (NIM),
 194–96, 199–200, 230n14
 Newman, Oscar: *Defensible Space:
 Crime Prevention Through
 Urban Design*, 164–65
 New Songdo City, 16, 31fig., 38, 82,
 115; infrastructural develop-
 ment in, 43–97; sketch of the
 Songdo oversea new town
 development plan, 50fig.
 See also Songdo
 New Songdo Intelligent City Plan
 (1986), 33–34, 38, 47–61, 69
 New Songdo International City
 Development Company (NSIC),
 86–88, 91, 147
 new towns (*shindosi*), 104, 109
New World (film), 116
 New York, 68, 92
New York Times, The
 (newspaper), 32
 nongovernmental organizations
 (NGOs), 113
 Northeast Asian International
 Business Hub Project, 34, 47
- office automation (OA),
 65–66, 159
 Office for Metropolitan Architec-
 ture (OMA), 79–80
 Oh, Myeong, 59
 Oh, Youjeong, 183
 O'Malley, Pat, 167
 one-person demonstrations (*irin
 siwi*), 138
 Ong, Aihwa, 90

- Osborne, Thomas, 16–17;
“Governing Cities” (essay),
137, 168
- Pacific Computer Communica-
tions Symposium (PCCS), 51
- Park, Bae-gyoon, 90
- Park, Chung-hee, 51–52, 60,
63–64, 229n5, 230n19
- Park, Haecheon, 109
- Park, Se Hoon, 22, 86
- Park, Yeon Soo, 34; *A Man Who
Changed the Map of South
Korea*, 47–48
- Park, Young-min, 4
- personal computers, 39
- Peru, 216
- Philippines, 216
- Pohang, 106–7
- Pohang Iron and Steel Company
(POSCO), 3, 35, 86, 88, 123, 147
- police, 144, 152, 163, 163*fig.*;
futuristic and high-tech image
of the, 166. *See also* security
- pollution, 9, 111–14, 127, 129
- postcolonial futurism, 19, 214–15
- privacy, 139–40, 152, 170
- productivity, 205, 210
- Pryke, Michael, 179, 186
- Psy: *Gangnam Style* (2012), 184;
Right Now (2010), 184
- public safety, 153, 171. *See also*
security
- radiofrequency identification
(RFID) technology, 3, 142,
149, 166
- Raetzsch, Christoph, 15
- Rain: *Love Song* (2010), 184
- Ramsar Convention on Wetlands
(1997), 113, 236n26
- reclamation, 102–15, 120, 235n15.
See also Songdo
- recycling, 113, 117
- reform of consciousness (*uisik
gaehyeok*), 194
- remittances, 106
- risk, 167–68, 172
- Robbins, Chuck, 161
- Rose, Gillian, 189
- Rose, Nikolas, 16–17; “Governing
Cities” (essay), 137, 168
- Sadowski, Jathan, 214
- Sambo Computer, 58
- Samsung, 2–3, 35, 45, 58, 155, 216,
229n6
- Sassen, Saskia, 77
- Saudi Arabia, 216; Neom city
project of, 216
- scientific security (*gwahak
chi-an*), 164
- Second Nation Building Move-
ment (*je-i geonguk undong*),
195
- security, 139–41, 159–66, 169–72,
217, 223; automated, 163–64;
data-driven, 141, 162, 167–72;
discourse of scientific,
242n37; statistical definition
of, 155; United States govern-
ment’s anticommunist strat-
egy for, 229n5, 230n19. *See
also* police; public safety;
smart cities; Songdo;
surveillance
- semiconductor industry, 2–3
- Sennett, Richard, 27
- Seoul, 9, 29–30, 34, 64, 110–13,
116, 122, 185, 215. *See also*
Korea
- Seoul Metropolitan Overpopula-
tion Control Zone, 176
- Seoul National University (SNU),
51, 59
- Shapiro, Ari, 1

- Shim, Hunchang, 88
- Shim, Hyung-rae, 198–99; *Tyranno's Claw* (film), 198; *Yonggari* (film), 198
- Shin, HaeRan, 22, 86
- Shin, Hyun Bang, 22, 74
- Singapore, 18–19, 54, 68–69, 206
- SK Group, 216, 229n6
- small and medium enterprises (SMEs), 175
- Smart Building Energy Management Systems (BEMS), 131–32, 134–35, 210
- smart cities, 7–12, 96–136, 189–204, 226n14; as commodity, 215–17; and developmentality, 12–27, 209, 218; ethics and politics of, 220; and governmentality, 17–18; historical context of, 219–20; security technologies of, 40, 167–72, 217, 221; spatial dynamics of, 220; subjective basis of, 186–88; surveillance landscape of, 153–54, 160. *See also* city; security; Songdo; surveillance; technologies
- social overhead capital (SOC), 63–64, 74
- Songdo, 2–11, 14, 16, 20–41, 28map, 66, 86–89, 210fig., 215; central business district (CBD) of, 80; Chadwick International School in, 166; construction activities in, 45, 110fig.; ConvensiA Convention Center in, 118, 184; global aspirations of, 91, 114; as green city, 117–19, 124–30; G-Tower in, 43, 44fig., 117, 119fig., 181; infrastructural formation of, 95–97, 218; land reclamation work for the development of, 97fig.; Lotte Castle & Haemoro apartment complex in, 148; Office for Metropolitan Architecture (OMA) of, 81fig., 85, 88; population growth rate of, 124–25; progressive character of, 93–94, 217–19; Sharp First World apartment complex in, 148; smart security system of, 154–55; Techno Park and Media Valley in, 80, 82–83, 183, 203; as testbed city, 36; Tomorrow City Plaza in, 184; Tribowl Gallery in, 184; waste disposal system of, 98. *See also* Incheon; New Songdo City; reclamation; security; smart cities; surveillance
- Songdo Childcare Center Incident, 137–38, 145, 159
- Songdo International City Mom Café (online forum), 138, 146, 153, 168
- Sonn, Jung Won, 22, 86
- South Korea. *See* Korea
- sovereignty, 18, 21, 23, 216, 220; split, 90
- space technology (ST), 183
- Strengers, Yolande, 98, 133
- Sung, Gi-wook, 150–51
- surveillance, 32–33, 137–72, 217–22; as affective fact, 26, 239n4; corporate activities of, 125; cultural dimensions of, 151–52; data-driven, 19, 32, 162, 216; disciplinary mode of, 163; limits of mechanical, 169; political-economic systems of power and, 11, 14; virtuous, 170–71. *See also* closed-circuit television (CCTV); crime; security; smart cities; Songdo; technologies

- sustainability, 95, 99–100, 114–22, 125, 128, 217, 220–21
- Sze, Julie, 24–25
- Taiwan, 69
- Take Care of My Cat* (film), 116
- techno-environmental solutionism, 133
- technologies, 2, 5, 209, 214, 218; communication, 22–23, 27, 159; cultural, 41, 178–79; digital, 13, 20, 32, 101, 132, 171, 174, 189, 202; ethical relationship between responsible parenthood and, 168; green, 98–99, 133, 221; information, 156; manufacturing, 89; multimedia, 174; sustainable, 130–31. *See also* smart cities; surveillance
- techno-nationalism, 19, 215
- technoscientific rationality, 40
- Thailand, 105
- Thorpe, Jonathan, 91–92
- Thurbon, Elizabeth, 24, 122–23
- Time* magazine, 122
- Toffler, Alvin: “Beyond the Crisis: Korea in the 21st Century” (report), 197; *Future Shock*, 63; *The Third Wave*, 63, 64*fig.*, 196
- Tokyo, 68
- tourism, 48, 52, 82, 178, 185–86, 205
- Townsend, Anthony, 30–31; *Smart Cities: Big Data, Civic Hackers, and the Quest for a New Utopia*, 31–32, 102
- toxic wastewater, 111
- transnational urban systems, 77
- Ulsan, 106–7
- United Kingdom: Milton Keynes project, 78; Science Park, 83
- United Nations, 35, 165; Green Climate Fund, 117
- United Nations Office for Disaster Risk Reduction (UNDRR), 43
- United States, 54; Center for Disease Control and Prevention of the, 165; Department of Education of the, 165; Department of Transportation of the, 165; New Jersey Teleport project, 78; North Carolina Research Triangle Park project, 78; San Francisco Bay Area Teleport project, 78; Stanford Research Park project, 83
- United States Green Building Council (USGBC), 118
- urban development, 36–37, 61, 75–78; and divine creation, 44; smart, 207. *See also* urbanization
- Urban Information Service* (journal), 75
- urbanism, 19; computational, 14; critique of smart, 23; smart green, 134–36
- urbanization, 16, 109; and climate change, 121. *See also* urban development
- urban metabolism theory, 128–30
- utopia, 20
- Vanolo, Albert, 205
- Venice, 92
- Vietnam, 216
- violence, 139–40
- virtual reality (VR), 192
- VR Chat, 174
- Wak Entertainment, 174
- Wall Street Journal* (newspaper), 216

- wetlands preservation,
112, 114
- Wiener, Norbert, 129
- Williamson, Lucy, 1, 98
- Wohn, Kwangyun, 192
- Wolman, Abel, 128
- Woo-Cumings, Meredith, 71,
227n34
- Woowakgood, 174–76, 186
- World Bank, 35
- World Teleport Association
(WTA), 53
- World Teleport Conference, 54
- worldview (*seggyegwan*), 174
- Yeongjong, 86–87, 124. *See also*
Incheon
- Yeosu, 107
- Yoon, Sug-yoon, 79
- Youn, Jungmo, 57–58
- YouTube, 174, 176, 184
- Yun, Yeo-il, 194
- zoning, 85–95

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