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Understanding
Smart City Development Strategy:
A Comparison Between Siheung City and Florida Neocity

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Graduate School of Engineering
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Abstract

Understanding Smart City Development Strategy: A Comparison Between Siheung City and Florida Neocity

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Governments around the world form relationships that could expand expertise and gain insight into different cultures, Government to Government (G2G) business is a way for countries to facilitate trade and promote economic growth. G2G business benefits appreciably from taking advantage of opportunities, such as achieving a mutually beneficial outcome, or maintain a vigorous international partnership. As cities around the world become urbanized, urban problems from overcrowding to environmental pollution to corrosion of infrastructure to housing problems can be seen across the world. The concept of smart city suggests potential solution to these various types of globally faced urban problems.

Early smart city developmental guidance can provide a foundation for other smart city latecomers to ensure that smart cities can improve the quality of life for citizens and make cities more efficient and sustainable. The development process can be filled with difficulties but sharing smart city development guidance can provide a framework of implementing smart city into their country. These G2G business relationships are beneficial for both cities and can cooperate to strengthen the economic and social ties between countries. This study identifies two smart cities development strategy, Siheung's local government and Florida's Osceola County government, to find diplomatic ties between cities and governments that can share their knowledge resource of the smart city development. Through qualitative data analysis, the study benefits local governments in what smart city pillars to focus on when trying transform their region into smart cities. Additionally, the study helps the understanding of own city conditions and how to select and pursuit the smart city pioneer is essential in smart city development process.

Keywords: Smart City, Urban development strategy, G2G business, Policy implications

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Table of Contents

Chapter 1. Introduction

1.1. Study Background

Urban development is a decisive issue that has become increasingly prevalent today as cities around the world grow and expand (Cohen, 2006). In an era of globalization and active population growth, it is important that urban areas are developed with sustainability (Xing et al., 2009). Urban development can frame the character and vitality of a city, influencing the lives of its citizens and the city's district in the global economy. It is a complicated process that is composed of multiple aspects, from creating economic opportunity and balancing population growth to promoting sustainable growth and maintaining the character of its city. This study explores the implication of smart city strategies in urban development, regarding how it relates to communities, economies, environment, and through G2G (Government to Government) activities between countries.

Innovation centers are essential, creating a space where creativity, collaboration, and resource sharing can lead to beneficial technological advances, offering a platform to expand scientific capabilities (Anderson & Mubaraki, 2012). Innovation centers enable a creative atmosphere while still providing the essential resources needed to experiment and develop innovative ideas. With the advances that innovation centers bring to the forefront, it offers a unique form of advancement for its potential to expand industries and inspire generations in various fields of interest. Innovation centers have become increasingly common in recent years, providing inspiration and guidance to those looking to create

something new and revolutionary that cooperate with various businesses, educational institutes, or public entities (Hervas-Oliver, et al., 2021). Their purpose is to foster a culture of creativity and discovery and to create something new and meaningful for society. For utilizing innovation centers, data is a powerful tool that allows humans to make better decisions, improve operations and services, and gain valuable market knowledge with its technology (Elijah et al., 2018). As technology continues to develop, its implementation in urban design is inevitable as it offers potential solutions to the evolving urban environment and takes an increasingly important part of life in a modern and urban context (Barns, 2018). The availability of large datasets has revolutionized the way of cities management and how citizens interact with the city on a regular basis especially on how cities function, the dynamics of urban data operations, where resource infrastructures are being allocated and how citizens are interacting with their environment (Berntzen et al., 2018). This dataset of knowledge is incredibly valuable, as it leads to more informed decision-making, greater resource utilization efficiency, and improved quality of life for city residents that brings back to the citizens. To produce better outcomes, cities must leverage urban data to support their decision-making and help to shape their future development plans efficiently and effectively.

Urban problems are a constant and pervasive issue in cities worldwide and continue to the present. The widespread challenges such as air pollution, environmental pollution, water pollution, corrosion of infrastructure, and housing problems due to overcrowding problems cause urban problems (Uttara et al., 2012; Kaushal et al., 2021; Lanrewaju, 2012). A successful solution to pressing urban challenges requires collaboration between various stakeholders, and the productive sharing of knowledge which creates an innovative

ecosystem (Amitrano et al., 2017). Knowledge sharing among city stakeholders facilitates effective and active problem solutions and builds strong communities for everyone by sharing its experience and theory (Chang & Chuang, 2011). Knowledge sharing has become an important part of life in the globalized world, yet one which has been challenged in recent years by advancements in various fields such as technology, socio-cultural divides, economic development, and politics. Over many centuries, governments and individuals have sought ways to share knowledge not only with their own culture but with others, often leading to the spread of ideas, technologies, and distinct cultures. Knowledge sharing plays a vital role in using technologies in terms of urban development. The concept of smart city is to make cities smarter and more efficient as urban planners, technology pioneers, and private-public sectors partnerships with creative ideas, resources, and knowledge to develop concepts that will help cities manage against population growth and the need for a sustainable environment. The importance of knowledge sharing for the creation and maintenance of a successful smart city is a global issue, and no longer a problem of one country (Bai et al., 2010; Dobbin et al., 2007). To promote the knowledge sharing of smart cities, there are forums such as World Smart City Expo (WSCE), where global countries share their innovative ideas or viable solution about urban problems as well as communities that can evaluate each other's smart city index such as competitive web sites (Quantumesco.it) based on ISO which is necessary to share knowledge and fill each other's deficiencies in the city.

Knowledge sharing between different levels of local government is an essential component for successful local governance. Local governments need a way to share the knowledge and experiences of each individual level to expect positive outcomes and

increase efficiency (Khan & Khan, 2019). Interaction between any two governments is a complex and evolving process, due to the complexities that come from G2G (Government to Government) business. Having the government partner with the business to offer services to its citizen can be beneficial in various ways. For instance, it can provide citizens more access to services, such as healthcare and education, that the government may not have the resource to provide otherwise.

Additionally, the private sector can often offer these services more efficiently and cost-effectively than the government, thereby allowing the government to save resources for other needs (Muñoz & Cohen, 2016). The government has a wide range of responsibilities towards small business, from supporting regulation and providing guidance to incentivizing the private sector. For example, the government can provide financial capital for specific types of businesses in the private sector, such as loan guarantees for entrepreneurs, investment rate reductions for small businesses, reduced taxes for start-ups, and other tax incentives for small companies. Moreover, the government can create and support development strategies for small business, as well as collaborating with universities and other research institutions to provide educational services to further the progression of individual business. Through this, the government plays an important role in sustaining and promoting the success of individual businesses.

G2G business is an important tool in the global economy, as it allows countries to benefit from one another's resources and expertise (Fan et al., 2014). The trade relationships formed from this business promote collaboration between governments and can have a significant economic impact. As globalization continues to increase, so does the need for governments to adopt strong governance practices in G2G business. This will

ensure successful dealings and better outcomes for all involved. Furthermore, as technology continues to develop, it is important to maintain strong G2G business practices to ensure international relations remain peaceful and economies continue to grow.

The article by Lee et al (2008) presents the infrastructure planning and development in Korea asserting that "Korea has been a leader in the development of ubiquitous urban infrastructure". In particular, the article focuses on Korea's approach to infrastructure planning and development, including the importance of public-private partnerships (PPP), government incentives, and infrastructure technology. It is clear from the article that the Korean government has taken a proactive approach in developing a wide range for infrastructure penetration, from transport to energy to communications. These achievements are intimate to implementing a range of incentives, such as tax breaks, grants, and subsidies, as well as introducing new technologies such as smart grids, digital infrastructure, and technological solutions for urban areas. **Table 3** summarizes the main fields of investments in Siheung's infrastructure penetration. These technologies allow for the interconnectivity of people, system and data and have revolutionized the way people live in urban areas (Zambon et al., 2019). Representatively, ICT (Information and Communication Technology) integration has been a major contributing factor for the development of smart cities, which aim to optimize efficiency through digital tools and services that focus on the goal of cities' reliability, workability, and sustainability of the city community improvement (Achmad et al., 2018; Arroub et al., 2016). As the case stands, this study focused on how Korea's Siheung smart city development strategy will be used for Florida's Neocity development strategy. Also, it focused on sharing know-how and experiences through knowledge sharing between two local governments; Siheung city and

Osceola County, creating innovative networks from each other, and further activating cooperative networks between countries.

1.2. Research Objectives

This study aims to compare Korea's Siheung smart city development strategy and the U.S. Neocity smart city development process which provides comparative analysis and policy implications. In this regard, the study present crucial differences by comparing and analyzing the urban environment between countries, core competencies, urban strategies, institutional support status, and long-term and short-term plans of local governments.

In this respect, the following research questions were set as follows.

1. What are the smart city development strategies that Neocity can apply by having similar regional features to Siheung?
2. What strategies can Neocity expect by understanding different regional features such as Siheung's case?

This study aims to compare two different cites at a local government level and analyze the importance of local government knowledge sharing, potential avenues for knowledge sharing, and how knowledge sharing can benefit local communities. By understanding how local government knowledge sharing works and its importance to successful local policy, create better local government structures and understand the know-how of smart city implementation. Additionally, it aims to explore the wide variety of roles and responsibilities that governments take on through an analysis of various approaches to G2G business. It will address aspects that influence the way governments interact, such as

economic policies, cultural differences, political interests, and the various challenges that governments face when engaging in this kind of business. Also, highlighting the challenges, opportunities and considerations that exist in G2G business, providing insights into how businesses and governments can better understand the importance of working together to drive effective outcomes would provide. For instance, Neom city is a technologically advanced polycentric project that is being developed in northwestern Saudi Arabia. As it has tremendous potential to revolutionize the region, Neom project is planned to be a smart and sustainable city collaborating with competent Korean companies in the field of high-speed networks, renewable energy, mobility, construction, and ICT.

Therefore, this study understands facts based on Siheung's experience in constructing smart cities through interviews with local government officials and offer Neocity counsel to construct efficient smart city construction through interviews enquiring Osceola County local governments' precedence of smart city.

The rest of this study, section 2, contains the appearance of smart city development stage throughout the countries. Section 3 lists the methodology and steps of this study. Section 4 shows what characteristics it has through a comparative analysis of the smart city development stage between Siheung and Neocity. Finally, section 5 shows analyzed results from the findings and the lessons learned for countries to build smart cities in the future.

Chapter 2. Literature Review

The implementation of a smart city initiative is a major step forward for modern urban development as it provides an innovative system to maximize city function, create jobs, and generate innovative solutions to positively influence urban life (Angelidou & Psaltoglou, 2017). With the increasing demand for modern advancements, smart cities are an ideal solution that can provide a better atmosphere for citizens and a vibrant economy for businesses. In recent years, there has been a growing emphasis on urban development, innovation systems and economic development in many cities across the globe (Fagerberg & Srholec, 2008). This combination of factors involves multiple disciplines, including public policy, engineering, economics, and other social sciences (Fagerberg & Sapprasert, 2011). As such these three distinct yet interconnected topics are vital to understanding how cities are built and sustained, impacting the quality of life of their inhabitants.

2.1. Innovation Center

Regional innovational systems (RIS) have become increasingly popular in recent years as a tool for determining the success of regions in terms of economic development (Lau & Lo, 2015). Asheim, Smith, and Oughton (2011) note the importance of understanding how different regions develop and how this influences the innovation capacity of local firms. The authors suggest that RIS theory can provide useful insights into both the structure and

dynamics of regional innovation processes, as well as how policy interventions might affect regional innovation performance. The authors then go on to discuss the empirical evidence for RIS, including case studies from a range of countries. They conclude that RIS theory can provide a useful framework for understanding the complexity of regional innovation systems, and that more research is needed to explore the implications of RIS for policy formulation and implementation.

Going forward, urban development strategy is not only about planning or designing the urban environment and space but also expanding to innovation system and economic development. The concept of a smart city came out in the sense of developing a sustainable city through management operation and infrastructure service provision using an integrated platform, urban innovation, and business innovation creation through urban data (Su et al., 2011). In smart cities, data is an important factor that cannot be missed in smart cities (Cheng et al., 2015). Increasing data from urban people has not only existed to solve urban problems but also has economic effects such as diverse innovative businesses and creating new jobs. However, an innovation center is needed to use these benefits, which acts as an important bridge between data and people. As an example, Global R&DB Center (GRC) at Seoul National University has a core value as a goal to lead the future of mankind through cultivating innovative talents in convergent problem-solving, global leadership training and consulting through global partnerships, and operating international conference for global exchange such as Global Innovation Forum (GIF), Green, Smart, Development, and Vision (GSDV), and World Innovation Network of IT (WINIT). This is not only necessary for smart city urban development, but also an essential element for creating a sustainable city (Zygiaris, 2013).

2.2. Smart City

Smart city contains various of definitions and concepts, both in academic literature and real life (Albino et al., 2015). According to Valianatos (2015), in the year of 1900, Los Angeles was the initial smart city concept to improve urban poverty and residential problems with an aerial infrared camera. Over time, through the development of technologies, the convergence and adoption of more diverse technologies have made the smart city's perspective broader. In addition, when developing a smart city, various environmental situations in cities, different policies and governments' establishment procedures should be considered for each country worldwide.

According to 'Smart Nation Singapore', Singapore's smart city policy was promoted with the goal of constructing the world's first smart country and competitive information technology, starting with the national policy vision of 'Smart Nation'. Smart Nation has discovered a strategic national project to introduce digital and smart technologies throughout Singapore and formed a community to create quality of life and bring more opportunities by utilizing ICT, networks, and data. Initially, it focused on improving the efficiency of public service provision, but it focuses on digital transformation to digitize all aspects of Singapore's urban life through technology.

In other countries, the Saudi Arabia government is planning a large-scale eco-friendly city construction project with the goal of 2030 called 'Neom City'. Saudi Arabia is investing in city development that can provide unique development opportunities such as trade, innovation and knowledge that new regions provide, beyond the existing economic

structure of oil supply channel (Doheim, 2019). According to South Korea's ministry of land, infrastructure, and transport department (2022), the Saudi minister of urban, rural, and housing department plans to engage in cooperative diplomacy with companies in South Korea's smart cities and construction. This can promote community trust around the world through social and cultural innovation and economic growth by sharing smart city vision and technology between the two countries.

2.3. Korea Smart City

In the case of the Korean government, laws related to smart cities have been initially enacted and promoted policies around the globe (Park et al., 2020). However, to changes in government's policies, it impacts Korea's smart city urban development conditions. Along with the analysis of changed conditions at internal and external, it is necessary to supplement the evaluation and direction of the policies. The Korean ministry of land, infrastructure and transport announced the smart city objective from phase 1 of fostering new growth by convergence of construction and information and communication industries to phase 2 which is to generate with low-cost, provide high-efficiency service and to phase 3 that focuses on solving urban problems with innovative ecosystem.

1. 1st Ubiquitous City, combining construction projects in housings such as new cities, happy cities, innovative cites with high-speed information and Information and

Communications Technology (ICT). (Ministry of Land, Transport and Maritime Affairs, 2009)

2. 2nd Ubiquitous City, maximizing the use of established smart infrastructure and focusing on link of information and system (Ministry of Land, Infrastructure and Transport, 2013)
3. Smart City, expanding into policies that include new concepts such as testbeds, living-labs, and innovation ecosystems of new technologies (Ministry of Land, Infrastructure and Transport, 2020)

From changes in the comprehensive plan for smart cities in Korea, various ideas related to smart cities have led to more innovation in urban planning and management. **Table 1** summarizes the objectives of Korea smart city development processes.

	Phase 1 (~'13)	Phase 2 ('14~'17)	Phase 3('18~)
Objective	Foster new growth of construction ICT convergence	Provide high-efficiency services with low-cost	Create innovative ecosystem and solve urban problems
Direction of data information	Vertical	Horizontal	Bi-directional
Institution	1st Ubiquitous City	2nd Ubiquitous City	Smart City
Supervision	National Transport Minister	National Transport Minister + Local Government (partially)	National Transport Minister + Local Government (expansion)
Platform	Enclosed (Silo)	Enclosed + Opened	Enclosed + Opened (expansion)

Table 1. Smart city development of Korea smart city
Source: Korea Ministry of Land, Transport and Maritime Affairs & Infrastructure and Transport

2.4. Research Framework - Smart City Dimensions

The smart city concepts of urban development are affected by the city's environment, government policies, or national goals. Due to each country's differences, it is necessary to focus on the fundamental pillars of each city for the city to transform into a smart city. In scientific literatures, many studies emphasize smart city models that contains fundamental pillars that cities should have to be considered as a potential smart city (Falconer & Mitchell, 2012).

Moustaka (2018) identifies six dimensions of smart cities: smart economy, smart mobility, smart environment, smart people, smart living, and smart governance. This framework is used to analyze how smart the city is and means a component of the smart citification of the city.

Lopez & Castrol (2020) propose six dimensions of smart city components: people, quality of life, environment, smart management and administration, economy, and transport and communications from an aspect of strengthening the sustainability and fulfilling resilience from an urban planning perspective.

Kasznar (2021) argues three dimensions of smart city concepts: technology institute and community. Based on the smart city infrastructure, this research is provided to achieve a smart city using various technologies and highlights the infrastructure technologies.

While many studies have defined, distinguished, and indicated factors in smart cities, the main reason for this study using Dameri (2014) model in this study is due to the view from a territorial point of view, comparing on microscopic level between the United States and South Korea. **Figure 1** represents the model. Additionally, this study attempts to derive

results through a comparative analysis of Siheung smart city in Korea and the development stage of Neocity in Florida. The reason for choosing two regions is that Neocity is trying to construct a smart city based on the successful case of Siheung smart city development strategy. In addition, Florida was selected for a program for local community improvement in the American Rescue Plan program called ‘Build Back Better’ which is organized by the U.S. Economic Development Administration, and qualified for semiconductor licensing through $50.8 million investment funds (Osceola.org). In this regard, Korea has consolidated its position as a semiconductor producer. Neocity hopes to cooperate with Korea in this field to take advantage of an opportunity and grow together.

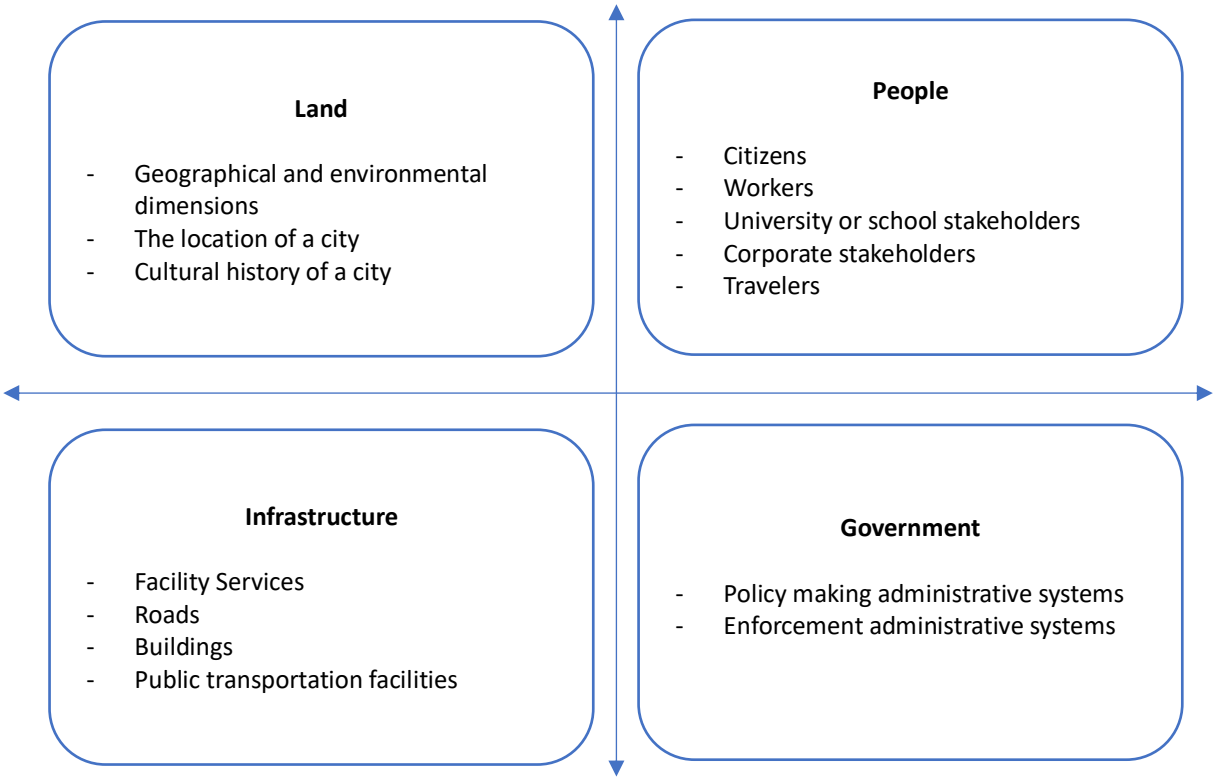

Figure 1. Model of smart city in territorial aspect.
(Source: Dameri, 2014)

The model in this research, Dameri (2014) identifies four dimensions of smart city: land, infrastructure, people, and government.

- Land: Open space that explains how a city is built, what geographical areas and what characteristics it has
- Infrastructure: Public and private technological facilities and systems that can improve the quality of the city
- People: Not only citizens living in the city, but also people that work, study, and people who visit the city
- Government: A community that manage a city and makes decisions about services within the city

Land, viewed from the perspective of a smart city, should be considered as the main environmental factor. It means urban problems that occur through human activities. For example, there are air pollution, traffic, energy consumption, wastage, and other environmental problems should be considered with the goal that smart city concept can solve. Therefore, the purpose brings to create a cleaner, better, and livable city on the land.

Infrastructure refers to elements such as roads, buildings, and public transportation provided on land. In addition, efficient energy usage, sustainable transportation, and supplying clean energy are capable. Particularly, Information and Communications Technology (ICT) plays a role in smart cities. It is connected to the city network and connected to smart devices used by citizens, providing real-time information through open data, Internet of Things (IoT) and plays a role in connecting each other. The purpose of

providing infrastructure refers to a service that allows people to improve their quality of life while using various services in the city and solve urban problems.

People in the smart city vision include citizens, workers, university stakeholders, school officials, business officials, and travelers. They play their respective roles and at the same time serve as people who use the city. They are people who can evaluate the value of public services while utilizing the infrastructure in the city, and they can also bring better value to the city by reflecting on their experiences. Citizens are essential to smart cities, and their understanding of smart cities, changes in their behavior when infrastructure is implemented, and willingness to participate and play a big role in smart city management.

The government, especially local government is one of the keys to smart cities. This is because the role of local governments operates to make decisions and implement such matters as the quality of life of citizens and the presence of infrastructure. It is also because it holds financial funds that can be brought to the implementation stage. Thus, local government goals focus on social impact to analyze data for efficient economic development and sustainability, plan how to make changes, move implementation, and create a better city. In addition, although the local government has the authority to make decisions, it plays a major role in selecting companies, universities, research institutes, and collaborating organizations that participate in the development of the city in designing a better smart city.

Chapter 3. Research Methodology

Urban development comparative analysis enhances understanding of the urban environment and plays a role in providing, developing, and operating a better environment for local governments and the lack of urban economic development through long-term urban planning (Bai & Imura, 2000).

Siheung-si has been developing into a city of innovation and growth since 2018 to solve urban problems by establishing smart city construction. On the other hand, Neocity, located in the center of Osceola County, aims to promote growth as an innovative smart city like Korea's smart city.

3.1. Interview Process

As a methodology, case studies both in Siheung and Neocity have been conducted as an emergent framework. The range is in a natural environment corresponding from formal interviews to casual data collection activities such as direct observation (Yin, 2009). In-depth interviews and surveys were selected to know what obstacles were in the smart city development stage, how they overcame them, and what factors played an important role in the development stage. In-depth interviews used in this paper have the advantage of obtaining more detailed information compared to a survey that is difficult to obtain or knowing more deeply about the interviewee's behavior and thoughts (Boyce & Neale, 2006).

The in-depth interview process followed 6 steps:

Step 1. Plan interview.;

Step 2. Develop interview protocol.;

Step 3. Simulate data Collectors.;

Step 4. Collect data.;

Step 5. Analyze data.;

Step 6. Present findings

Step 1 is the step of deciding who will participate in the interview. Set a group of interviewees to see what information is needed from the interviewees. The next step is to create a questionnaire and to think about how to organize the contents in the process of conducting the interview. In addition, it is necessary to consider how to convey examples or explanations of questions about problems that may sprout during the interview process. In step 3, the interviewee should be informed of the objectives of this interview, the content of the data use, and the ethical issues in advance. In step 4, a re-explanation of the settings is conducted for the overall flow of the interview. For example, the interview duration, the reason why interviewees were chosen for the interview, and the purpose of the interview. And during the interview, with the permission of the interviewees, the answers are written or recorded for information collection. In step 5, the pattern and core contents of the interview are reviewed. In addition, the key is to identify meaningful content at this step. In the case of this study, the purpose of this study is to know whether Korean smart leading technologies can be applied to the United States by comparing four territorial aspects (land, people, government, and infrastructure) in the smart city development stage of Korea and

Florida. Lastly, step 6 is to write interview contents based on step 5 and distribute results to interviewees, stakeholders, and communities.

The interview proceeded differently between the two cities as a semi-structured in-depth interview. As the city's environment is different, and Siheung has already focused on how the city was able to reach the development stage, while Neocity has focused on the stage of introducing smart cities. Both interviews were collected with permission for the purpose of the study and the collection of interview data.

The role of the government in urban development is important for development in harmony with existing communities in the region, it must be lined with the urban plan to predict and establish urban growth in the urban development stage. Government has an important role in urban development that has interactions between the state and civil society in cities and connections with various stakeholders (Odendaal, 2003). In addition, the government plays a major role in providing local social services such as education, safety departments in the area, and in supporting funds to provide them (Warner, 2001).

As the role of government is important in urban development, government employees in the city were selected as interviewees in this study. As an interviewee in Siheung, Korea, four people were interviewed by the smart city urban development department, and in the case of Osceola County, Florida, two out of five commissioners were interviewed. In the case of Neocity, to further understand the local atmosphere, there was an opportunity to have unstructured questionaries with Osceola County administration, director of Osceola County economy development center, workers from Florida, corporate managers, university researchers, principal of Florida high school Neo

Academy and Osceola entertainment complex facility manager. **Table 2** consists of detail of the list of the interviewees.

ID	Division	Position	Date	Time
(A)	Osceola County	Commissioner District 5	August 15th 2022	40 minutes
(B)		Commissioner District 1	August 16th, 2022	30 minutes
(C)	Siheung	Smart city urban development Planning Chief	December 14th 2022	1 Hour
		Smart city urban development Planning Officials	December 14th 2022	1 Hour
		Smart city urban development Planning Officials	December 14th 2022	1 Hour
		Smart city urban development Planning Officials	December 14th 2022	1 Hour

Table 2. List of the interviewees

There are two main reasons why the interviews structure between Siheung and Neocity are constructed differently as follows.

1. Siheung has been promoting infrastructure for transportation, crime prevention, transportation, and the environment since 2011 to understand the trial and error and improvements that local government have taken.
2. To find out which infrastructure areas and technologies should be implemented in Neocity through Siheung cases.

In the case of Siheung, interview was conducted on December 14th, 2022, with the Siheung four local government officials (1 urban planning chief, 3 urban planning officials) of smart city urban development department for about an hour. Interview with smart city urban development department was based on urban development strategies using Dameri (2014) model to obtain empirical knowledge in the smart city development stage. The purpose of the interview was explained to the interviewees, and the explanation of the model used in this study was delivered why the interview is focused on the smart city development stage for infrastructure, government, people, and land. The interview was conducted about an hour. **Appendix 1** shows the interview questionnaires details.

Appendix 1. Siheung Interview Sheet

<시흥 스마트시티 개발 전략 관련 인터뷰 및 설문조사>

본 인터뷰 및 설문조사는 시흥 스마트시티 개발 전략에서 Dameri (2014) 연구의 스마트 시티 모델을 적용하여, **인프라**, **정부**, **사람**, **토지**에 대한 네가지 요소들을 구체적으로 파악하여 각각의 스마트시티 발전 단계에서 어떤 역할을 하는지 시흥시 공무원의 경험적 지식을 얻기 위해 실시하였습니다.

*본 설문은 "Understanding smart city development strategy-A comparison between Siheung city and Florida Neocity" 연구의 기초자료로 사용될 예정입니다.

인 터 뷰 일 시	2022 년 12 월 일 ( )요일, 시 분 ~ 시 분 (분)
응 답 자 현 황	성함: 직책: 업무내용:

*귀하께서 익명을 원하시면, 답변만 부탁드리겠습니다.

일반 사항

문 1. 스마트 시티를 어떻게 정의하시나요?

문 2. 시흥에 스마트 시티의 필요성을 얼만큼 느끼나요? (해당 답변에 체크)

①	②	③	④	⑤
전혀 필요치 않다	필요치 않다	보통이다	필요하다	매우 필요하다

문 3. 시흥시가 가지고 있는 도시 문제가 뭐가 있나요? (중요도에 대해 우선순위를 매겨주세요)

1. 2. 3.

문 3-1. **문 3** 에서 언급된 도시 문제들이 기술을 사용하여 해결되고 있나요?
그렇다면 각 문제들이 어떠한 기술로 해결이 되고 있나요?

문 4. 시흥 스마트 시티 도시개발 과정 중, 어떤 문제들이 있었나요?

문 5. 시흥에 들어오고 있는 기술 제공자들은 어떻게 선택되고 있나요?
(*기술/정보 제공자: 대/중소기업, 대학/연구기관, 벤처기업, 스타트업)

사람에 관한 문항

도시에 거주하는 사람만 경계에 포함시키는 것이 아니라, 해당 지역의 직장에 출근하거나, 학교 또는 대학의 학생까지 범위를 넓혀서 정의를 하고 있습니다. 뿐만 아니라, 해당 도시에 일이나 관광을 위해 방문하는 여행객까지 포함시키고 있습니다.
이 분들이 해당 지역의 도로, 교통, 건물과 같은 인프라를 이용하는데 적극적인 주체가 되기 때문에 사용자로서, 혹은 관리자로서 어떤 효과를 누리고 있는지 확인하는 것에 기여할 수 있습니다.

문 1. 시흥 시민들은 스마트 시티에 대한 컨셉을 잘 이해하고 있는가?

①	②	③	④	⑤
전혀 그렇지 않다	그렇지 않다	보통이다	그렇다	매우 그렇다

문 1-1. 시흥 스마트 시티의 컨셉이 시민들에게 잘 공유되거나 인지되지 *않는* 이유는 무엇이라고 생각하시나요?

문 2. 교통 정보(교통신호, 대중교통 정보, 주차정보) 이외에 어떤 정보가 시민들에게 제공되고 있나요? 또한, 해당 정보는 얼마나 투명하게 제공되고 있나요?

①	②	③	④	⑤
전혀 안되고 있다	안되고 있다	보통이다	잘되고 있다	매우 잘되고 있다

문 3. 시흥 스마트 시티 개발 당시, 해당 분야 사람들이(대/중소기업, 대학기관/연구기관, 벤처기업), 시흥 도시개발에 몇 개의 프로젝트를 진행하였습니까?

대/중소기업의 프로젝트			
①0 개	②1 개 이상 5 개 미만	③5 개 이상 10 개 미만	④ 10 개 이상

대학기관/연구기관			
①0 개	②1 개 이상 5 개 미만	③5 개 이상 10 개 미만	④ 10 개 이상

벤처기업			
①0 개	②1 개 이상 5 개 미만	③5 개 이상 10 개 미만	④ 10 개 이상

정부에 관한 문항

정부와 관련하여, 도시 정부 모델과 권한 및 역량의 할당은 도시개발 전략과 실행 경로에 영향을 미치기 때문에, 도시 정책은 도시 지역과 프로젝트에 따라 변화합니다. 지역적인 차원에서 프로젝트에 참여하는 대학, 연구 센터 및 기업, 기술 대기업 혹은 스타트업이 더 나은 솔루션을 설계하고 혁신적인 서비스를 제공하기 위해 협력하면서 중추적인 역할을 할 수 있습니다.

문 1. 정부지원 사업, 민관참여 프로젝트, 민간참여 프로젝트 등 정부 주도의 스마트 시티 유관 사업 유치 시, 지방 정부의 역할은 어떻게 설정되고 있으며, 어떠한 체계와 구조로 이루어져 있나요?

문 2. 민간 참여를 유도하기 위한 어떤 노력을 기울이고 계시나요? (예:소셜미디어, 홍보/마케팅, 등) 이 과정에서 정부의 역할을 무엇이라고 정의하시나요?

문 3. 스마트시티 요소 구현을 위한 기업 및 전문가 유치 및 프로젝트 수주, . 계약을 지방 정부의 어떤 의사결정의 절차로 진행하나요? 또한, 지방정부가 중앙정부의 의사결정 없이, 계약을 진행 할 수 있나요?

문 4. 현 지방정부가 계획중인 프로젝트가 있다면 간단하게 3 개 정도 소개 부탁드립니다. (스마트도시서비스 단위사업별 우선순위 평가결과에 의하면, 스마트 행정 부문의 상수도 통합관리시스템이 개발의의성 1 순위라고 매겨졌습니다. 진행 절차는 어떻게 되었나요?)

<보기>

구분							
스마트 교통	스마트 안전	스마트 환경	스마트 복지	스마트 에너지	스마트 해양레저 관광	스마트 행정	기타 (스마트 교실, 스마트 홈, 로봇 등

토지에 관한 문항

토지 구성요소는 지리적, 환경적 차원을 고려합니다. 도시의 지리적 위치는 물리적 지리 뿐만 아니라 정치적 지리에서도 도시의 위치를 고려합니다. 이 두 가지 측면은 다른 나라와의 관계, 문화사, 물류에 영향을 미칩니다. 환경적 측면은 스마트 시티에서 중심적인데, 이는 오염, 교통, 폐기물 및 에너지 소비에 해당되는 중요하게 고려되는 측면입니다.

문 1. 스마트 시티를 도시에 도입하기 위해서는 도시에 대한 심도 있는 이해를 기반으로 해야 한다고 알려져 있습니다. 시흥시의 지리적, 환경적 특징에 대해 간략히 설명 부탁드립니다.

문 2. 현재까지는 정왕동을 중심으로 스마트 시티가 개발되고 있다고 알려져 있습니다.
문 1 의 특징에 기반하여 스마트 시티의 확장 계획과 예정된 개발 지역에 대해 설명 부탁드립니다.

문 2-1. 스마트 시티의 확장 계획이 있다면, 해당 입지를 선정하는데 어떤 요인이 고려되었나요? (개발 지역의 선정기준, 이를 통해 해결하고자 하는 도시적 문제가 무엇인가요?)

문 3. 토지 개발을 통해서 어떤 것들을 해결하고 싶나요? (답변은 1~3 가지 요소로 부탁드립니다.)

인프라에 관한 문항

인프라는 도시 공간의 질에서 중요한 측면 중 하나입니다. 이는 도로, 건물, 대중 교통 시설과 같은 시민들에게 서비스를 공급하는 유형 시설을 의미합니다. 또한, 도시 환경의 질도 도시 생활의 질에 큰 영향을 미칩니다. 예를 들어, 청정 에너지 생산, 낮은 에너지 소비, 건물 에너지 효율성, 지속 가능한 교통과 같은 ICT 기술의 활용을 통해 풍부하고 정보의 확산을 기반으로 유형과 무형 모든 측면의 실현을 고려해야 합니다.

문 1. 시흥시가 스마트 시티로 개발되기 위해 초기 단계에 도입한 인프라는 무엇이 있나요? 또한, 먼저 도입된 이유는 무엇인가요?

<보기>

구분					
교통	환경	공공안전	에너지	경제	생활복지

이유:

문 2. 시흥시가 개발되면서 현재까지 주요하게 투자된 인프라는 무엇인가요? 그 이유는 무엇인가요?

<보기>

구분					
교통	환경	공공안전	에너지	경제	생활복지

이유:

문 3. 시흥시가 앞으로 더 똑똑하고, 살기 좋은 스마트 시티로 나아가기 위하여 투자하고자 하는 인프라는 무엇인가요?

<보기>

구분					
교통	환경	공공안전	에너지	경제	생활복지

이유:

종합 문항

지금까지의 인터뷰 참여에 감사드립니다. 마지막으로, 지금까지 살펴본 4 가지 차원 (사람, 정부, 토지, 인프라) 중, 스마트 시티 개발 과정에 중요한 차원을 아래 항목에 따라 순서대로 평가 부탁드립니다.

문 1. 초기 스마트 시티 도입 및 유치에 중요한 차원을 순서대로 기입 바랍니다.

사람, 정부, 토지, 인프라 중에서 중요한 순서 (1: 가장 중요함, 4: 마지막으로 중요함)			
①	②	③	④

문 2. 현재 시흥시 개발 단계에서 중요하게 평가하고 있는 차원을 순서대로 기입 바랍니다.

사람, 정부, 토지, 인프라 중에서 중요한 순서 (1: 가장 중요함, 4: 마지막으로 중요함)			
①	②	③	④

문 3. 앞으로 미래의 시흥시 개발을 위하여 중요한 차원을 순서대로 기입 바랍니다.

사람, 정부, 토지, 인프라 중에서 중요한 순서 (1: 가장 중요함, 4: 마지막으로 중요함)			
①	②	③	④

인터뷰 및 설문에 참여해 주셔서 진심으로 감사합니다

Conducting an interview with Neocity, Neocity's commissioner interview was conducted on August 15th and August 16th, 2022, for 30-40 minutes with two of the five districts commissioners. Interviewees received explanation of Korea's smart city status due to the development of the region and connect Korean technology and knowledge to Neocity. In particular, the content of how Korean smart city is solving urban problems using the technology, and how the innovative ecosystem is being established through this. Then, an interview was conducted on the direction of Neocity's development into a smart city. Interview lasted about 30 minutes to an hour. Interview questionnaires details are showed in the **Appendix 2.**

Appendix 2. Neocity Interview Sheet

<Meeting with The County Commissioner – Osceola County>

<Table of Contents>

Interview Date	2022.08.15 – 2022.08.16
Interviewee	Osceola County Commissioners

Interview Questions

Q1. In long term, what is your view of planning Neocity as a 'smart city'?

Q2. In short term, what do you think is required for the city council, administrative bodies to act regarding the Neocity project development?

Q3. Which area have you participated in the new city area's development? (e.g., decision making, raising opinions for infrastructure, etc.)

Q4. What are the key social problems of Osceola County from your (your district) perspective?

Q5. Do you think that up-to-date technology could be a possible solution for the problems? Why or why not?

Q6. Is there any area you want to benchmark in planning and establishing Neocity? If so, what would you like to differentiate between the area and Neocity?

Q7. What are you most concerned within the developing phase of Neocity?

Chapter 4. Qualitative Analysis

Through comparative research, countries can learn the core strategies operated by each country and consider the possibility of adoption and determine which part of the country's project operations are weak (Asase et al., 2009). In this study, a comparative analysis was conducted focusing on the Siheung urban development masterplan and Neocity masterplan. In addition, interview data and the Korean Ubiquitous city phase 1 to 2 and Korea smart city phase 3, instructional documents, web site texts, professional reports related to smart cities were applied to the study. During the process, to these various knowledge database, Dameri (2014) smart city territorial aspect model was applied as identified in four dimensions:

a. Land.
b. Infrastructure.
c. People.
d. Government.

In the process of collecting and organizing data, how Korea's ICT technologies or environment could be applied to Neocity was considered. In addition, it was possible to expand the characteristics of how the environment for introducing smart cities in Florida was formed.

4.1. Land

In terms of the smart city concept, urban problems are described as possible problems within the land, such as greenhouse gas emissions, pollution, land devastation, and accumulation of waste (Asian Development Bank, 2022). However, land does not mean the scope of the area, but also has a locational meaning that determines social and political relationships, peoples and means the supply of various resources and environments that land has (Lund & Boone., 2013). Moreover, with more and more people moving to cities in search of jobs, the struggle for employment opportunities has become more pressing. As Sergey (2019) mentioned, the land is necessary not only for the fertility of the land, but also for other indicators, it is important to understand the importance of job creation in addressing this urban problem, emphasizing the potential of job creation to reduce poverty and inequality in cities, as well as the potential benefits for cities to become vibrant and prosperous centers of innovation and improvement. In addition, the smart city concept not only create jobs, but also benefits by optimizing sustainability for land use through analysis, evaluation, and status prediction through monitoring systems.

Siheung

Siheung is a city adjacent to the main cities such as Seoul, the capital in South Korea. As a geographical feature, Siheung consists of a green area with natural scenery such as the west sea and natural green areas and reservoirs. In 1987, Siheung used to be a Korea gunpowder and chemical explosive test site. However, the land was reclaimed to Siheung-

si in 2006 through citizens' claims of the development profit area. Siheung also has various urban accessibility as 10km from Gimpo Airport, 20km from Incheon Airport, and 5km from Gwang-myeung KTX high-speed railway station. The congenital position of a city brings the benefits of potential economic competitiveness of the global economy in the expected regional vision process and not only benefits facilitate movement, but also provides more job opportunities and forms regional economic development (Appold, 2015; Cattaneo, 2021).

Siheung was selected as a smart city construction demonstration project by the government in 2018 and is a futuristic city that solves urban problems and improves citizens' quality of life by applying ICT technology to cities where citizens live.

Neocity

In Osceola County, Florida is proceeding to make a smarter innovative ecosystem city called 'Neocity'. Neocity is a futuristic city invested by Osceola County where the land of Neocity is owned by the county with no debt. Like Siheung city, this area is an open innovation area where ports, airports, and railways are gathered, and activities of import and export are possible. It is a rapidly growing area in the United States that can develop professional individuals by establishing an innovation center, semiconductor production facilities and STEM high school. According to County Official stated Neocity wants to adopt and learn about Korea's smart city vision which has been developed three to four

years earlier and develop as a partner for Korea's knowledge, technology enhancement, business creation and industry cooperation.

The creation of Neocity comes from lowering a dependence on the local economy, it is built to create high-tech, high-wage jobs in semiconductors and to transform as a smart city. In the process of revitalizing the region, County focused on semiconductors, which led to the construction of smart cities. The statement has stated to this matter from Osceola County officials.

> *"As a doorstep to Disney World, Osceola County's local economy is primarily tied to tourism and as a result we were devastated by the pandemic. (omit) Following the impacts of the great recession, Osceola County decided to make a long-term investment to create a 500-acre technology campus known as 'Neocity' to diversify our economy located in the heart of central Florida. Neocity is located with proximity to Orlando major universities and America's only grouping of spaceport, seaport, airport, and rail." – Osceola County Official Manager*

Neocity is located at the center of the port and the airport, with a 10-minute distance from Kissimmee gateway airport, 20-minute apart from Orlando international airport, and 25-minute to Orlando executive airport. Currently it has a management research center called 'Bridging the Innovation Development Gap (BRIDG)'. The building is under contract with various partners, with the county and Skywater Technology, Radiance Technologies, Inc. In the case of Skywater Technology, it is U.S. based semiconductor

development and manufacturing plant. Tourism is one of the largest industries in Florida. Especially, theme parks such as Walt Disney, and Universal Studio, and aviation & aerospace such as NASA and SpaceX. However, as County officials responded, the tourism industries were devasted by the pandemic in 2019, more than relying on the economy only on the tourism industry, the state expects the development of more diverse fields, especially on semiconductor related companies.

Water management is a vital component of urban planning and development. As the population in urban areas grows, the need for effective water management strategies has become increasingly important (Cosgrove & Loucks, 2015). As Osceola County government includes agriculture activities that improve the quality of life of farmers and urban residents through urban and rural exchanges, Osceola's agriculture in greenfield is trying to regenerate nature-friendly and solve social problems occurring in cities. However, Osceola County has geographical features that allow it to create a clean natural environment through enough water because water has not been circulated and has not been purified for a long time. Therefore, a project to save that large amount of water is still underway.

> *"There is a log of money and there is a lot of investments from the state level in is water. Water management. Because as you know, all these homes have been built in central Florida for the last hundred years are only here, because we had canals and drainage system like… got rid of water or send them all to South. (omit) So, main focus was South Florida water*

management district and state department of environmental protection is water quality." – (A)

Osceola has abundant water, and its water quality management project is underway to examine the water quality and improve the quality of water. Siheung had similar problems in water conditions before implementing the integrated water supply management system which monitors water quality in real-time.

Additionally, Osceola County is trying to maintain its characteristics of how their regions appear to the present point which are the environments of both urban and rural areas. Agriculture has emerged over the years as an important factor in urban planning and development. As cities expand and become more crowded, the need to find innovative ways of providing sustainable urban food sources has become ever more pressing.

"I think we have the growing pains, so I guess I could say this. If we can minimize the growing pains of from going from rural to suburban to urban, I think those are important things that could be taken across the country. (omit) Around Florida you're seeing farms, and cattle ranches, taken for homes, and commercial development, which that's the normal process of things, but that ease of making that transition, but that is, sometimes we see we are growing too fast. (omit) We want to be the best that we can be in Osceola County, and we also want to be an extension of our region as well." – (A)

Based on what Osceola County official has delivered, technology advances at a much faster rate than expected, bringing new opportunities, but ‘harmony’ and ‘balance’ and its own characteristics are more important in the cities. Therefore, when constructing smart cities, the benefits and drawbacks of common technology implementation strategies should be explored in each city and interactivity between the urban populations and each local governments’ policies. In doing so, it is necessary to seek to understand how to best serve the needs of urban inhabitants through effective technology management.

4.2. Infrastructure

Infrastructure is a physical network for the general or common goods, such as pipes, roads, cables, wires, etc., for the purpose of supporting the human population (Neuman, 2010). It is emphasized that having sensors and distributed networks, reliable social networks, interoperable networks, Internet of Things (IoT) and Information & Communication Technology (ICT) in infrastructure is an important factor in constructing smart cities (Lytras & Visvizi, 2018). ICT-based infrastructure can provide various services such as transportation systems, natural resources, energy water monitoring, buildings, population concentration, medical and urban safety, online education, and e-government operations which are practical and successful implementations of urban management and improvement of citizens' quality of life (Yeh, 2017).

In the process of bringing out meaningful information, today's society is gradually moving toward a hyper-connected society. Information and communication technology (ICT) is the cornerstone of the modern world. It is a high technology that creates values and paradigms that merge networks by enabling communication between people, devices, systems, and various services (Toms & O'Brien, 2008). ICT incorporates the use of electronic devices to store, retrieve, transmit and manipulate data, and is used in all aspects of our everyday lives. The Korean information and communication technology industry has seen a rapid development over the past few decades, playing a crucial role in the unprecedented economic growth of the country (Dayton, 2020). As South Korea is one of the most developed areas in terms of information and communication technology, Dayton

contends the impact of information and communication technology in enterprises of Korea has been immense and could become one of the leading global innovation countries in the field (Dayton, 2020).

1. High R&D intensity: due to government investment and sharing knowledge through collaboration between government, industry, and academic
2. Pressure on industrial development from the government: the government pressured companies to invest in R&D while protecting them from competition
3. Investment for the future: the government focused on high-tech industries such as semiconductor and manufacturing
4. Innovative attempts: by funding new entrepreneurs and supporting national technology infrastructure, the government is a decisive factor in creating new industries and creating an innovative economy

Information and communication technology has become one of the key driving factors in the country's booming technology sector and has become an essential part of life in Korea. While modern information and communication technology systems have been prominent in Korea for some time, the country has been increasingly focusing on ICT's potential to drive innovation, creativity, and global economic development. With one of the highest proportions of citizens connected to the internet, Korea has firmly established itself as a leader in the global ICT sector (Omdia, 2020). Furthermore, according to the article Lee et al (2008) emphasizes the importance of public-private sector partnerships in developing infrastructure, noting that such partnerships are key to creating a more efficient

and effective infrastructure system. Thus, Korea has been at the forefront of infrastructure planning and development, with its proactive approach to the development of ubiquitous urban infrastructure providing a model for other countries to follow. Siheung's officials have mentioned in the early stages of development as a smart city, that infrastructure that has already been verified in the market and can be implemented, such as CCTV (Closed-Circuit Television), BIS (Bus Information System) and ITS (Intelligent Transport Systems) should be implemented first.

> *"We put in in infrastructure with a budget from the country, so we implement services with proven infrastructure and facilities with having public characteristic first in the early stage. Currently, there is a lot of investment going on in living welfare in the country, so the government pays a lot in personnel payrolls and subsidies. So, it would be nice to reduce the budget for living welfare by utilizing the technology of smart cities." – (C)*

From the government's point of view, making budget reductions can be a challenging task for any organization. To successfully reduce a national budget, it is important to understand the bigger picture and the various aspects that need to be considered. Since there are ways to reduce the budget by implementing operational innovation and improving work productivity, it is seen as an opportunity for future smart city technology to achieve national budget savings. In Siheung, as a smart city-level implementation service, Siheung-si derived seven strategies by presenting a smart city service model: smart transportation, smart safety, smart environment, smart welfare, smart energy, smart leisure tourism, and

smart facility management. The following **Table 3** contains details of the seven strategies of a smart city service model in Siheung smart city.

Type	Applications	Purpose
Smart transportation	Personal mobility sharing services,	Operation of various means of transportation such as electric bicycles, electric wheels, electric kickboards, and Segways without personal vehicles.
	Smart bus shelter,	Bus information terminals, fine dust, heating and cooling systems, CCTV, Wi-Fi, real-time monitoring
	Smart crosswalks smart parking services	Smart pedestrian safety system to prevent jaywalking Real time sharing of parking lot location and remaining parking space information
Smart Safety	IoT-based fire detection systems	Fire hazard area detection
	AI- based smart integrated poles,	The automatic illumination function of CCTV and WIFI streetlights on the road and pedestrian paths
	Smart police	Drone monitoring in the sky, patrol robot deployment
Smart Environment	Air quality measurement sensors	Mobile/Portable Air Quality Measurement, odor Monitoring/Predicted Pollutant Management
	Smart recycling bins	A vending machine-type robot that collects recyclable waste from cans and PET bottles
	Urban cleaning robots	Optimizing garbage collection routes through street pollution analysis and putting in cleaning robots
Smart Welfare	IoT-based total care for the elderly living alone	Smart sensor technology enables early recognition of emergencies
	Smart healthcare solutions wellness centers	Health care services using daily data Dedicated physician establishes/supports customized health care plans
Smart Energy	Expanding the supply of smart meters	Analysis of power use, driving energy conservation practices
	Applying smart energy platforms	Providing energy information services to consumers
Smart Leisure Tourism	AR media facades	Various content projection services on the exterior wall of the building with the AR function
	Water screens Solar media benches	Fountain and water screen operations provide attractions Recharge smart phones on the bench and provide night view lighting and Wi-Fi
Smart Facility Management	IoT-based underground management	Remotely provide accurate information about pipelines prior to excavation
	Integrated water supply management system	Real-time Water Quality Monitoring System

Table 3. Siheung-si smart city seven strategies model
Source: 시흥시 스마트도시계획 (2019)

In Neocity, since it is in the stage of transforming the area, the target of the city from commissioners' perspectives are as follows. First, in terms of the environment, water quality management, and good quality of transportation infrastructure was needed.

> *"If there could be traffic upgrades with the current infrastructure that we have, because I think you could upgrade even with our current lack of infrastructure, there could be upgrades in traffic analyzation." – (A)*

> *"Tourists are seeing this area as a good place to visit. However, we are very back aged when it comes to transportation. For example, having enough charging stations for EVs in that country. (omit) It would be great to emphasize that Neocity really think outside the box, (omit) Even Disney has autonomous vehicles in Disney springs. Imagine having that, that's faster and safer and autonomous that can do actual transportation." – (B)*

Transportation, in all its forms, plays an essential role in globalization and economic development. It is an important aspect of everyday life, and advancements allow people to move from one place to the next with greater ease. As such, because of the United States geographical features of not being able to travel without a car, it was possible to clearly show the difference from Korea. However, Neocity wants the city's good quality of transportation infrastructure with new vehicles to provide the latest technology which are more penetrating than electric vehicles to improve efficiency and convenience that benefit both public and private sectors.

4.3. People

In the people dimension, it is emphasized that there are various stakeholders to form a smart city, such as stakeholders from government, investors, universities and research officials, and citizens (Patrão et al., 2020). When developing smart cities, each role is essential and important. The role of the government is not only to support policies, but also to help connections with government departments and non-governmental fields, and to achieve a smart community (Nam & Pardo, 2011). The role of citizens in smart cities has a vital role in sustainable urban development, political and environmental activities (Khansari et al., 2013). As such, it is mentioned that citizens need active participation. In the case of universities and research institute, they aim to share research and knowledge, conduct learning, which is the most important aspect of the pilot, and share the learning content with other partners (Baron, 2012). Venture companies' interest in switching to smart cities plays an important role in building new businesses attractive to new startups through investment in smart technologies and services, including intellectual assets such as smart city patents, smart solutions, and innovative procurement systems (Giourka et al., 2019). Smart cities are also used in relation to the educational aspects of urban residents (Lombardi, 2010). Therefore, it is important to educate and train residents to be smart. There are various actors in the stage of development to transform into a smart city.

In Siheung, Siheung's smart city has established roles for each subject of the private sector, citizens, and government. The government promotes the corporate innovation ecosystem by introducing regulatory sandboxes and special regulations, creating an

innovative start-up ecosystem, and providing R&D support for various private business models and corresponding models. It even created an environment for corporate investment through leading investment in public infrastructure. In addition, governance implementation and crowdfunding were conducted to induce citizens' participation. As education is important within smart cities, Siheung aims to promote smart campus in cooperation with Seoul National University to provide an educational environment, so that universities and regions can grow together, and to create a self-sufficient city by creating a medical industry cluster as well. In addition, empirical support is provided to solve urban problems through corporate project support such as Living Lab. Therefore, citizens are actively participating and contributing to the use of necessary services and improving quality by presenting ways to solve urban problems themselves.

> *"As smart cities concept is to interconnect, efficient, and eco-friendly between technology and residents. Using technology, I think it is important for citizens to feel convenience and have an impact on their lives. Now people have no awareness of the usage of the technology. It is naturally blended into our lives." – (C)*

According to the interview from Siheung's officials, the rise of technology, of course, should be smart, eco-friendly, benefit in areas such as improved public services and higher quality of life. Going forward, it is important to discuss how smart cities are impacting people, and how they can best be implemented to benefit individuals. One of the projects based on a Siheung's local government research institute, it is a citizen-participating

‘living-lab’ construction. It provides a way to improve the quality of life of citizens by reflecting the needs of various stakeholders in the development of technologies in the environment, energy, and welfare fields. This leads to economic and social values by sharing various information transparent to citizens and increasing accessibility to citizens and the region through meaningful information of data.

However, these advancements in technology have highlighted the need for better and more secure data privacy. With the improvement of technology gathering data and using it for the purpose of convenience and profit, the government must take more responsibility for citizens’ data privacy and better understand the legal and ethical implications of data privacy. Therefore, Siheung has an operation policy for responding to personal information leakage and accessing personal information under approval. Because this is a keen issue, technologies that protect personal information in various ways are being created and applied which will be introduced in Neocity research results.

The U.S. smart city promotion focuses on urban problem-solving and smart energy areas based on R&D projects led by national research institutes, and the construction is being delegated to the state/local government. Under the current circumstances of Neocity, there are semiconductor research institutes Skywater Technology, The corridor Florida high tech, Argonne national laboratory, Defense microelectronics activity, University of Central Florida, Arizona state university, Neo Academy STEM high school. In addition, LG in Korea is a technology partner, there is a real estate, Lincoln property company, and even now, it is in the process of discovering and selecting companies in cooperation with Osceola County and the Department of Economy Development Center.

However, through the interview, it was possible to find that tracking data, which is an essential source when transforming into a smart city, Osceola County officials expressed their concerns about this matter.

> *"I don't know how keen about people would be having all their data track all the time. So, I do worry about when I see smart city is a kind of a big brother watching you. But I also understand we were talking about traffic, or we were talking about water quality, or we were talking about improving agriculture practices that make more environmental-friendly and profitable. Those are things that we can certainly work through and state of emergency, hurricanes, flooding, those kinds of things, any natural disasters."* - *(A)*

Commissioner found that citizens in the United States or the region said that understanding of data should be informed and that smart city concepts related to protecting privacy on data should be well shared and understand its procedure. This is because each person may have different interests or needs for data that is helpful for smart cities. In Korea, Radar systems have proven to be an invaluable tool for tracking, navigation, and security purposes. The value of these systems has led to developing ways to protect citizens data. In addition, the Siheung Campus of Seoul National University cooperates with private sector commercializing and incorporating radar systems into various industries, such as hospitals and elevators, along with the mobility industry, such as autonomous driving, highways, and drones.

4.4. Government

The importance of smart city strategies to strengthen cooperation between local governments and ecosystem stakeholders (Clement et al., 2022). Local administration is used to manage urgent urban tasks and support various stakeholders in the region (Wirtz et al., 2020). According to Ruhlandt (2018), the study shows that an appropriate governance system is needed and understood to maximize the socio-economic and environmental performance of cities through governance in smart cities. Factors such as stakeholders, structures and organizations, process, roles and responsibilities, legislations and policies constituted by smart city governance have been highlighted (Ruhlandt, 2018).

Siheung smart city project is a national project that has been carried out as a 'Smart Industrial Complex Leading Project' in accordance with government policy. Korean government selected Siheung as a smart city development city that can improve the economic development of the city and the quality of life of citizens. Siheung was facing urban problems in terms of infrastructure, transportation, energy, social safety, environmental pollution, and water resources in the city due to climate change and urbanization.

Nation projects can be defined as initiatives undertaken by governments, institutions, and organizations to support stability, progress, and prosperity for its citizens. It is a complex process that incorporates the understanding of different contexts, interests and needs of the likely beneficiaries and stakeholders.

"During the Siheung smart city urban development, it was difficult to satisfy and meet the requirements of all stakeholders. There were a lot of trial and error at the development stage." – (C)

As such, since Korea's smart city urban development is a project with the national government's budget, it delivers a performance management system to local governments, carried out in the form of top-down procedure system. Therefore, it can be understood that cooperation with stakeholders and its policies within the country is important. As Korea had a limited budget, the local government invested in public infrastructure in the first place which is essential for corresponding cities. Korean government top-down policies refer to laws of regulations imposed by the national government on lower levels of authority, such as local governments.

"I think it is important in the order of people, government, infrastructure, and land when implanting and attracting early smart cities. Because, after all, people must be a priority in any city, and the government that will understand and solve the problems in the region, The next is infrastructure and land." – (C)

Additionally, Siheung officials revealed by the interview that it is important in the order of people, government, infrastructure, and land. People is vital in the development of the city's economic power in the smart city development process. In that sense, Siheung prioritized solving fine dust, odors, and traffic problems in the environmental sector, which

were Siheung's biggest urban problems, so that more Siheung locals can gather people that can live and form a bigger community. In addition, there are various projects to develop economic growth, new jobs, and a sustainable future, which are bio-industry and leisure-industry. Seoul National University Siheung campus retains R&D center and technology cultivation programs to be a frontier in the bio-field that can promote the first research-medical treatment convergence model in Korea.

Leisure tourism in Siheung has been creating new economic growth called 'Siheung Wave-Park'. Wave-park in Siheung is the world's largest artificial surfing park that creates a field of sustainable experiential activities that improves Siheung's and other citizens quality of life with the local community. The government is taking advantage of these geographical features, the use of urban space by reflecting ecological, geographical, social, and cultural characteristic.

The U.S. smart city promotion focuses on urban problem-solving and smart energy areas based on R&D projects led by national research institutes, and the construction is being delegated to the state/local government. In Neocity, new economic development and job creation was needed, and in the process of revitalizing the region, they focused on semiconductors, which led to the construction of smart cities as well. Unlike Korea, the project procedure process is separately in the state beyond the authority of the federal government and is not entirely controlled by government intervention which derives a bottom-up approach. However, for this reason, there are difficulties for Neocity officials to find and contract stakeholders directly, which also brings the freedom to choose stakeholders for their city development.

"How do we integrate all those things (technologies) that have been already embedded, like we know that there are good disaster management, flood management, traffic management system is all-ready. How do we implement those things in our community, I think that is next big challenge. Not just that we need traffic analysis data that helps us better than this situation, it is that how do we get point A to point B." – (A)

Recently, in the United States, a major economic bill called 'Build Back Better' was a way to proceed to revive the U.S. economy. This is a federal policy to save jobs and stimulate economic development in the United States. Away back in the Osceola County, Osceola County officials had been investing $273 million dollars to create a semiconductor hub, and additional $50.8 million dollars were awarded from the Department of Commerce's Economic Development Administration due to the vision of Osceola County officials. In the process of selecting the vision for urban development, Neocity first formed partnerships with experts in the industry and to communicate and invest in the industry for the region.

"Upscale Osceola led by the Orlando economic partnership. This will expand and scale a skills-based workforce development program that will leverage unique analytics to help the clusters industry partners recognize and hire workers without traditional academic credentials such as a bachelor's degree who may otherwise be overlooked. (omit) Catalyst Osceola led by the Orlando economic partnership, they will establish a cluster management organization

to make alignments between the coalition industry and academia. (omit) A coalition governance and community outreach. This project establishes the internal governance structure for the coalition. It will ensure the community's voices heard within the coalition through workshops and community outreach with community stakeholders." – Osceola County manager

These dialogues are Osceola County manager's city development vision from Build Back Better showcase presentation. The commissioners were able to focus on job creation and future sustainability from a people's point of view which is based on the objective of Build Back Better.

"My main focus is jobs, being able to create, the high-tech industry, bringing those jobs in this community. We have tons of residential property, but we don't have enough employment centers. We do not have enough employment centers in Osceola County." – (A)

"I do talk with 5th graders and on what they want to see in the future. What they always say is that we are very far behind. They see videos of technological happenings in other countries. (omit) Involvement of kids in everything because they want things fast and have a different solution for problems. We do ask professionals, but younger generations can help this change." – (B)

In city development projects, collaboration with various stakeholders such as the public sector, private sector, the local community, and the government in partnership is essential (Firman, 2004). Through various local government interviews, government officials have various perspectives of urban development strategy: urban development through collaboration and open communication with coalition industry and academia, new technology development for urban employment center development, and urban development through collaboration and communication with the younger generation.

Chapter 5. Conclusion and Implications

5.1. Theoretical Implications

Smart city is emerging and becoming increasingly substantial all over the world. With the use of technology and innovation to improve the services offering citizens more efficient and effective ways to manage their natural resources and according to its local policies. With the digital revolution taking place all around the world, more and more cities are considering implementing smart city initiatives and joining the smart city movement for the sustainability of the city and citizens' enhancement of living such as Saudi Arabia's Neom City, Indonesia's Nusantara smart city, Senegal's Akon city and India's Amaravati smart city'. However this paper highlights the difference between South Korea's Siheung smart city and Florida Neocity as an expert of smart city development strategies capturing similar regional features and differences to implement for potential benefits as transforming to smart cities. This allows other cities that aim to become smart cities to have a better understanding in smart city development strategy that could be implemented into their cities.

For the development as a smart city, an innovation center that can be linked to academic, or business activities through the collection and management of various urban data are needed. The innovation center is not only a place for collecting data, but it also details how data involvement can help urban initiatives companies or individuals manage their risk and gain valuable market intelligence. Fostering creativity and innovation comes from the

innovation center by bringing stakeholders together with different experiences, perspectives, and skill sets, these create the atmosphere to facilitate ideation and collaboration. However, all cities have different characteristics such as government operating systems, different city problems, citizens perspectives, and national policies. Regarding that, this study aimed at comparing at a microscopic level between two countries where the city that already has implemented smart city and a city that wants to follow its strategy in the microscopic aspect of land, infrastructure, people, and government using Dameri's smart city model.

Siheung and Neocity have similar characteristics geographically and environmentally as cities with diverse industrial groups infrastructure and the city's consideration for water quality due to urbanization. Despite environments that can be similar in some ways, the nuances of each place set them apart and allow for diverse experiences tailored to each area. As Korea stands out as a pioneer in the semiconductor industry, it can provide the ideal canvas for technological experimentation, combining the necessary infrastructure that Neocity needs, and resources to facilitate the development and integration of innovative technologies that can sustain and improve the community. On the other hand, Neocity focuses on water circulation through efficient water canal penetration and water quality management where a large amount of water can flow to South Florida.

For infrastructures, Siheung's infrastructures are now well established, but since it is mainly built through national finance, the local government wants to build infrastructure in the field of living welfare which costs a lot in personnel payrolls and subsidies, but so far, it has been invested in infrastructure that strongly reveals public characteristics such as transportation, environment, and public safety. As a national policy to support social and

economic development, policy that can overcome limitation in consideration of national funds is needed. On the other hand, it can be seen through interviews that Neocity is particularly focused on the transportation and environment sectors with state financial aids and local funds to upgrade its current infrastructure. Despite the state's commendable technology and unstinting financial support from the state, other countries' resources or partnerships using new technologies are needed for innovation. Those new attempts will bring the city an efficient and competitive urban area and it seems to be necessary from a long-term perspective for the global environment.

The result of this qualitative study found that Korea is set based on the national budget and government investment has a top-down method, the government is to provide a place for organic communication with the government and citizens through digital e-government. For this reason, Korea's policy has a limitation in that it can only do projects that are verified in terms of efficiency for the city. On the other hand, the United States was able to participate more with greater willingness and passion to innovate its region, centering on commissioners. Since the United States has policies and cultures that can collaborate on more diverse fields of technology and challenge complex problems, competent technologies that cannot be experimented in Korea can have this wide opportunity to develop through cooperation with the United States. Meanwhile, through the individualistic tendencies of American citizens, there have been concerns about sharing data. As a proof of Siheung smart city that utilize citizens' data for efficient urban management, these different culture between Korea and the States can establish interrelationships between countries through such policy information exchange. Not only that, but it also appears that Korea's radar technology is showing how to utilize citizens' data that could be implemented

for data collection and protection or application as a method of standards for the protection of data utilization and storage.

5.2. Practical Implications

In conclusion, while there are many solutions available to implement smart city to complex structural, environmental, and social problems, one solution doesn't always work. In recognizing differences, it is important to understand and see multiple solutions that other cities implement in smart city, to identify the best method for success in each city. It is also essential for any solution proposed to include ongoing evolution and analysis to adjust and adapt to changing conditions as needed. Therefore, it is important to remain open-minded to smart city development strategies and continuously research and implement various solutions to them to find the best possible solution from other smart city developments.

The result of this study suggests implementing a new smart city concept and understanding the smart city development strategy by sharing knowledge. Not even Korea and Florida, there are public-driven, G2G interactions that create an open, efficient, and effective relationship between entities such as Saudi Arabia 'Neom city', 'Nusantara smart city' in Indonesia, Senegal's 'Akon city' or 'Amaravati smart city' in India and so on. Governments should set policies that allow for appropriate public representation for these interactions to result in an atmosphere of collaboration, information sharing, collective problem solving, and effective policymaking. This is because sustainable urban

development and innovative technologies can come out only when diverse stakeholders take interest in smart city development.

Urban development is a difficult and challenging endeavor that requires experience and thoughtful planning. The responsibility of maintaining, preserving, and improving cities falls on various stakeholders such as urban planners, smart city educator, government officials and private entities. The key to successful smart city development and growth is to ensure that knowledge is shared among all involved parties and globally. Collaboration between urban planners, individuals, and organizations is crucial to effectively use resources and progress towards a better and more sustainable future. In addition, funding from the national government and corporates' economic support, which are new growth engines for constructing a sustainable ecosystem of smart cities, are potential solutions in creating more flexible operations around the world. Furthermore, there are different urban problem solutions because each city has a different environment and capacity, but it is important to prevent possible urban problems in other cities in advance. In this respect, a smart city can be a powerful tool in promoting and exchanging knowledge, understanding, and ideas among multiple cities. This is essential for supporting and enabling sustainable city transformation with cities-by-cities cooperation and urban sociality.

Bibliography

국토교통부 (2013). 제 2 차 유비쿼터스도시종합계획 (2014~2018)

국토교통부 (2019). 제 3 차 스마트시티종합계획 (2019~2023)

국토해양부 (2009). 제 1 차 유비쿼터스도시종합계획 (2009~2013)

디지털시흥문화대전. Retrieved December 22, 2022, from http://siheung.grandculture.net/siheung/toc/GC06900379

시흥시 (2020). II.토지이용계획

Achmad, K. A., Nugroho, L. E., & Djunaedi, A. (2018, August). Smart city for development: towards a conceptual framework. In *2018 4th International Conference on Science and Technology (ICST)* (pp. 1-6). IEEE.

Albino, V., Berardi, U., & Dangelico, R. M. (2015). Smart cities: Definitions, dimensions, performance, and initiatives. *Journal of urban technology*, *22*(1), 3-21.

Amao, F. L. (2012). Urbanization, housing quality and environmental degeneration in Nigeria. *Journal of Geography and Regional planning*, *5*(16), 422-429.

Amitrano, C. C., Coppola, M., Tregua, M., & Bifulco, F. (2017). Knowledge sharing in innovation ecosystems: a focus on functional food industry. *International Journal of Innovation and Technology Management*, *14*(05), 1750030.

Anderson, B. B., & AL-Mubaraki, H. (2012). The Gateway Innovation Center: exploring key elements of developing a business incubator. *World Journal of Entrepreneurship, Management and Sustainable Development,* 8(4), 208-216.

Angelidou, M., & Psaltoglou, A. (2017). An empirical investigation of social innovation initiatives for sustainable urban development. Sustainable cities and society, 33, 113-125.

Appold, S. J. (2015). The impact of airports on US urban employment distribution. *Environment and Planning A*, *47*(2), 412-429.

Arroub, A., Zahi, B., Sabir, E., & Sadik, M. (2016, October). A literature review on Smart Cities: Paradigms, opportunities, and open problems. In *2016 International*

conference on wireless networks and mobile communications (WINCOM) (pp. 180-186). IEEE.

Asase, M., Yanful, E. K., Mensah, M., Stanford, J., & Amponsah, S. (2009). Comparison of municipal solid waste management systems in Canada and Ghana: A case study of the cities of London, Ontario, and Kumasi, Ghana. *Waste management*, *29*(10), 2779-2786.

Asheim, B. T., Smith, H. L., & Oughton, C. (2011). Regional innovation systems: Theory, empirics and policy. Regional studies, 45(7), 875-891.

Asian Development Bank. (2022, December 20). *11th Asian smart city conference*. Asian Development Bank. Retrieved December 22, 2022, from https://www.adb.org/news/events/11th-asian-smart-city-conference

Bai, X., & Imura, H. (2000). A comparative study of urban environment in East Asia: stage model of urban environmental evolution. *International Review for Environmental Strategies*, *1*(1), 135-158.

Bai, X., McAllister, R. R., Beaty, R. M., & Taylor, B. (2010). Urban policy and governance in a global environment: complex systems, scale mismatches and public participation. *Current opinion in environmental sustainability*, *2*(3), 129-135.

Barns, S. (2018). Smart cities and urban data platforms: Designing interfaces for smart governance. *City, culture and society*, *12*, 5-12.

Baron, G., Brinkman, J., & Wenzler, I. (2012). Supporting sustainability through smart infrastructures: The case for the city of Amsterdam. *International Journal of Critical Infrastructures*, *8*(2-3), 169-177.

Berntzen, L., Johannessen, M. R., Böhm, S., Weber, C., & Morales, R. (2018). Citizens as sensors: Human sensors as a smart city data source. In *SMART 2018-The Seventh International Conference on Smart Systems, Devices and Technologies*.

Boyce, C., & Neale, P. (2006). *Conducting in-depth interviews: A guide for designing and conducting in-depth interviews for evaluation input* (Vol. 2). Watertown, MA: Pathfinder international.

Cattaneo, M., Morlotti, C., Malighetti, P., & Redondi, R. (2022). Airports and population density: where benefits outweigh costs. *Regional Studies*, 1-14.

Chang, H. H., & Chuang, S. S. (2011). Social capital and individual motivations on knowledge sharing: Participant involvement as a moderator. *Information & management*, *48*(1), 9-18.

Cheng, B., Longo, S., Cirillo, F., Bauer, M., & Kovacs, E. (2015, June). Building a big data platform for smart cities: Experience and lessons from santander. In 2015 IEEE International Congress on Big Data (pp. 592-599). IEEE.

Clement, J., Manjon, M., & Crutzen, N. (2022). Factors for collaboration amongst smart city stakeholders: A local government perspective. *Government Information Quarterly*, *39*(4), 101746.

Cohen, B. (2006). Urbanization in developing countries: Current trends, future projections, and key challenges for sustainability. *Technology in society*, 28(1-2), 63-80.

Cosgrove, W. J., & Loucks, D. P. (2015). Water management: Current and future challenges and research directions. Water Resources Research, 51(6), 4823-4839.

Dameri, R. P. (2014). Comparing smart and digital city: initiatives and strategies in Amsterdam and Genoa. Are they digital and/or smart?. In *Smart city* (pp. 45-88). Springer, Cham.

Dayton, L. (2020). How South Korea made itself a global innovation leader. *Nature*, *581*(7809), S54-S54

Dobbin, F., Simmons, B., & Garrett, G. (2007). The global diffusion of public policies: Social construction, coercion, competition, or learning?. *Annu. Rev. Sociol.*, *33*, 449-472.

Doheim, R. M., Farag, A. A., & Badawi, S. (2019). Smart city vision and practices across the Kingdom of Saudi Arabia—a review. Smart cities: Issues and challenges, 309-332.

Elijah, O., Rahman, T. A., Orikumhi, I., Leow, C. Y., & Hindia, M. N. (2018). An overview of Internet of Things (IoT) and data analytics in agriculture: Benefits and challenges. *IEEE Internet of things Journal*, *5*(5), 3758-3773.

Fagerberg, J., & Sapprasert, K. (2011). National innovation systems: the emergence of a new approach. Science and public policy, 38(9), 669-679.

Fagerberg, J., & Srholec, M. (2008). National innovation systems, capabilities and economic development. Research policy, 37(9), 1417-1435.

Falconer, G., & Mitchell, S. (2012). Smart city framework. *Cisco Internet Business Solutions Group (IBSG)*, *12*(9), 2-10.

Fan, J., Zhang, P., & Yen, D. C. (2014). G2G information sharing among government agencies. Information & Management, 51(1), 120-128.

Firman, T. (2004). Major issues in Indonesia's urban land development. *Land use policy*, *21*(4), 347-355.

Giourka, P., Sanders, M. W., Angelakoglou, K., Pramangioulis, D., Nikolopoulos, N., Rakopoulos, D., ... & Tzovaras, D. (2019). The smart city business model canvas—A smart city business modeling framework and practical tool. *Energies*, *12*(24), 4798.

Hervas-Oliver, J. L., Gonzalez-Alcaide, G., Rojas-Alvarado, R., & Monto-Mompo, S. (2021). Emerging regional innovation policies for industry 4.0: analyzing the digital innovation hub program in European regions. *Competitiveness Review: An International Business Journal*, *31*(1), 106-129.

Hodges, A. W., & Spreen, T. H. (2012). Economic impacts of citrus greening (HLB) in Florida, 2006/07–2010/11. *EDIS*, *2012*(1).

Kasznar, A. P. P., Hammad, A. W., Najjar, M., Linhares Qualharini, E., Figueiredo, K., Soares, C. A. P., & Haddad, A. N. (2021). Multiple dimensions of smart cities' infrastructure: A review. *Buildings*, *11*(2), 73.

Kaushal, S. S., Likens, G. E., Pace, M. L., Reimer, J. E., Maas, C. M., Galella, J. G., ... & Woglo, S. A. (2021). Freshwater salinization syndrome: From emerging global problem to managing risks. *Biogeochemistry*, *154*(2), 255-292.

Khan, N. A., & Khan, A. N. (2019). What followers are saying about transformational leaders fostering employee innovation via organisational learning, knowledge sharing and social media use in public organisations?. *Government Information Quarterly*, *36*(4), 101391.

Khansari, N., Mostashari, A., & Mansouri, M. (2014). Impacting sustainable behavior and planning in smart city. *International journal of sustainable land Use and Urban planning*, *1*(2).

Lanrewaju, A. F. (2012). Urbanization, housing quality and environmental degeneration in Nigeria. *Journal of Geography and Regional planning*, *5*(16), 422-429.

Lau, A. K., & Lo, W. (2015). Regional innovation system, absorptive capacity and innovation performance: An empirical study. Technological Forecasting and Social Change, 92, 99-114.

Lee, S. H., Yigitcanlar, T., Han, J. H., & Leem, Y. T. (2008). Ubiquitous urban infrastructure: Infrastructure planning and development in Korea. Innovation, 10(2-3), 282-292.

Lombardi, P., Giordano, S., Farouh, H., & Yousef, W. (2012). Modelling the smart city performance. *Innovation: The European Journal of Social Science Research*, *25*(2), 137-149.

Lund, C., & Boone, C. (2013). Introduction: land politics in Africa–constituting authority over territory, property and persons. *Africa*, *83*(1), 1-13.

Lytras, M. D., & Visvizi, A. (2018). Who uses smart city services and what to make of it: Toward interdisciplinary smart cities research. *Sustainability*, *10*(6), 1998.

Milman, A., & Pizam, A. (1988). Social impacts of tourism on central Florida. *Annals of tourism research*, *15*(2), 191-204.

Moustaka, V., Vakali, A., & Anthopoulos, L. G. (2018). A systematic review for smart city data analytics. *ACM Computing Surveys (cSuR)*, *51*(5), 1-41.

Muñoz, P., & Cohen, B. (2016). The making of the urban entrepreneur. *California Management Review*, *59*(1), 71-91.

Nam, T., & Pardo, T. A. (2011, June). Conceptualizing smart city with dimensions of technology, people, and institutions. In *Proceedings of the 12th annual international digital government research conference: digital government innovation in challenging times* (pp. 282-291).

Neuman, M. (2006). Infiltrating infrastructures: On the nature of networked infrastructure. *Journal of Urban Technology*, *13*(1), 3-31.

Odendaal, N. (2003). Information and communication technology and local governance: Understanding the difference between cities in developed and emerging economies. *Computers, Environment, and Urban Systems*, *27*(6), 585-607.

Pacione, M. (2014). *Urban Problems (Routledge Revivals): An Applied Urban Analysis*. Routledge.

Park, G. W., Park, H. J., Bae, S. H., Kim, M. K., & Hwang, S. J. (2020). A study on the smart city core value and indicator design. Journal of the Society of Korea Industrial and Systems Engineering, 43(4), 198-207.

Patrão, C., Moura, P., & Almeida, A. T. D. (2020). Review of smart city assessment tools. Smart Cities, 3(4), 1117-1132.

Ramirez Lopez, L. J., & Grijalba Castro, A. I. (2020). Sustainability and resilience in smart city planning: A review. *Sustainability*, *13*(1), 181.

Ruhlandt, R. W. S. (2018). The governance of smart cities: A systematic literature review. *Cities*, *81*, 1-23.

Sergey, Z., & Alyona, K. (2019). ENVIRONMENTAL PROBLEMS OF AGRICULTURAL LAND USE IN THE SAMARA REGION. *Baltic Surveying*, 76.

Solodev. (n.d.). *Osceola County awarded $50.8 million build back better regional challenge*. Osceola. Retrieved December 22, 2022, from https://www.osceola.org/news/osceola-county-awarded-50-8-million-build-back-better-regional-challenge-grant-for-neocity.stml

Su, Z., Xie, E., & Li, Y. (2011). Entrepreneurial orientation and firm performance in new ventures and established firms. Journal of small business management, 49(4), 558-577.

Toms, E. G., & O'Brien, H. L. (2008). Understanding the information and communication technology needs of the e-humanist. Journal of Documentation, 64(1), 102-130.

Uttara, S., Bhuvandas, N., & Aggarwal, V. (2012). Impacts of urbanization on environment. *International Journal of Research in Engineering and Applied Sciences*, *2*(2), 1637-1645.

Vallianatos, M. „Uncovering the Early History of "Big Data" and the "Smart City" in Los Angeles", Boom California, 16 June 2015.

Verspagen, B. (1997). Estimating international technology spillovers using technology flow matrices. *Review of World Economics*, *133*(2), 226-248.

Volkov, S. N., Shapovalov, D. A., Klyushin, P. V., Shirokova, V. A., & Khutorova, A. O. (2017). Solutions of problems in defining indicators of agricultural land within the framework of activities for the implementation of the concept of development monitoring in the Russian Federation. *International Multidisciplinary Scientific GeoConference: SGEM*, *17*, 819-827.

Warner, M. (2001). Building social capital:: The role of local government. *The Journal of Socio-Economics*, *30*(2), 187-192.

Wirtz, B. W., Müller, W. M., & Schmidt, F. (2020). Public smart service provision in smart cities: A case-study-based approach. *International Journal of Public Administration*, *43*(6), 499-516.

Xing, Y., Horner, R. M. W., El-Haram, M. A., & Bebbington, J. (2009, September). A framework model for assessing sustainability impacts of urban development. In *Accounting forum* (Vol. 33, No. 3, pp. 209-224).

Yeh, H. (2017). The effects of successful ICT-based smart city services: From citizens' perspectives. *Government Information Quarterly*, *34*(3), 556-565.

Yin, R. K. (2009). *Case study research: Design and methods* (Vol. 5). sage.

Yun, H. J. (2002). The implications of the smart growth for urban development policy. *Journal of Korea Planners Association*, *37*(7), 7-16.

Zambon, I., Cecchini, M., Egidi, G., Saporito, M. G., & Colantoni, A. (2019). Revolution 4.0: Industry vs. agriculture in a future development for SMEs. Processes, 7(1), 36.

Zygiaris, S. (2013). Smart city reference model: Assisting planners to conceptualize the building of smart city innovation ecosystems. Journal of the knowledge economy, 4, 217-231.