

A SWOT Analysis of International Cooperation in Smart City Development between South Korea and Thailand: Perspectives from Thailand^{1 2}

Nirinthorn Mesupnikom³

Surapong Wangcharoensak⁴

³Institute of East Asian Studies, Thammasat University

⁴Independent scholar

Corresponding Author:

Nirinthorn Mesupnikom

Institute of East Asian Studies (IEAS), Thammasat University,

99, Phahon Yothin Road, Khlong Luang, Pathum Thani 12121, Thailand

Email: nirinthorn@asia.tu.ac.th

Received: 1 September 2022 **Revised:** 12 November 2022 **Accepted:** 14 December 2022

¹ It was the first to be presented at the 15th National and 2nd International Conference on Humanities and Social Sciences under the theme “Agility in Humanities and Social Sciences in a VUCA World” arranged by the Faculty of Humanities and Social Science, Burapha University, 1 July 2022 via Zoom Meeting application

² This article is part of the research project titled “A SWOT analysis of international cooperation in smart city development between Korea and Thailand: Thailand’s perspectives” supported by the Korean Foundation (KF).

Abstract

Since 2019, smart city development has been foundational for the strategic partnership between the Republic of Korea (South Korea) and Thailand. This article examines the environment of South Korean and Thai cooperation to develop smart cities by identifying major strengths, weaknesses, opportunities, and threats (SWOT) to provide information for ongoing international promotion of mutual cooperation in this field. Qualitative and descriptive research were done with primary and secondary data gathered between March 2021 and August 2022. Data was evaluated by the SWOT analysis, categorized with a two-tier distinguishing between macro, and micro.

Results were that positive factors (strengths and opportunities) outnumbered negative ones (weaknesses and threats) in international cooperation in this area, permitting continuous early-stage cooperation. Along with strengths and opportunities advancing cooperation, Thai weaknesses and Korean strengths on identical subjects were additional significant factors.

Keywords: International cooperation, Smart city development, SWOT analysis, South Korea, Thailand

Introduction

The 21st century has witnessed the emergence of various global challenges. Due to the challenges caused by the exponential growth of cities' population, the rate of urbanization and industrialization accelerates. These result in social, economic, and environmental transformations. In addition, it contributes to climate change, natural disasters, such as global warming and flooding. They inevitably impact the life of urban residents. Most industries have been revolutionized by the Fourth Industrial Revolution (4IR).¹

The concept of a smart city has come up in the late 1970s, now referring to an inventive city that employs ICTs and other means to address more complex urban issues and enhance the quality of life for its citizens (UNECE, n.d.). Numerous countries, including the Republic of Korea (hereinafter referred to as "South Korea") and Thailand, presently developing smart city development programs using the 4IR technologies to handle more complicated urban problems.

Smart city development in South Korea began in the early 2000s. The South Korean government wants to develop smart cities not only to improve the quality of life of Korean citizens, but also to expand its economy by exporting the Korean style smart city (K-City) and the 4IR technologies to foreign markets, especially in ASEAN. This is consistent with the New Southern Policy (NSP) of the South Korean government which aims to strengthen ties with ASEAN and India. Currently, smart city development projects in South Korea are being implemented at the national, local, and private levels throughout the entire nation. South Korea has become as a global leader in smart cities. Numerous developing countries are interested in South Korea's urban development expertise. Therefore, South Korea has a policy to foster international cooperation in the creation of smart cities with numerous countries around the world. (Choi et al., 2020; Justin, 2021; Kang, 2015; Theadora, 2020; Ministry of Land, Infrastructure, and Transport, Korea, 2020; World Bank Group, n.d.)

For Thailand, Smart city development is one of the most crucial initiatives of the 2016 Thailand 4.0 Model, which aims to transform Thailand into a "stable, prosperous, and sustainable" nation. The Thai government aims to create 100 smart cities throughout the country within two decades. (National Economic and Social Development Council, 2019). Most smart city projects in Thailand are still in the early stage. In this way, Thailand is pushing forward its smart city agenda across many fronts including international collaboration. The seven dimensions of the

¹ In the 4IR era, the prominent smart technologies are; for example, artificial intelligence (AI), the internet of things (IoT), robotics, big data, 5G, etc.

smart city development determined by the Thai government are as follows: 1) smart environment, 2) smart mobility, 3) smart living, 4) smart people, 5) smart energy, 6) smart economy, and 7) smart governance (Digital Economy Promotion Agency [DEPA], 2021).

Due to the complexity of urban issues and the myriad of associated obstacles, no city or country can fully implement smart city development on its own because the development requires expertise and the selection of suitable modern tools. It also necessitates an enormous amount of capital. Learning from countries that have successfully overcome problems and obstacles through international cooperation is a useful strategy. It can contribute a comparative advantage for mutual benefits, resulting in high quality innovation. Absence of international cooperation on artificial intelligence results in duplicative expenditures and investments (Fu et al., 2022; Go Smart, n.d.; Mizutori, 2021; World Economic Forum, 2020; UNCTAD, 2021).

South Korea and Thailand have had a cordial relationship for many decades. Since the establishment of official diplomatic ties in 1958, the two countries have not only exchanged diplomatic visits by heads of states, but have also developed progressively expanding links in all sectors, including trades, investments, intellectual exchanges, culture, tourism, etc. (The Embassy of the Republic of Korea, 2009)

For the aforementioned reasons, the cooperation between South Korea and Thailand in the development of smart cities is beneficial. The commencement for Thailand and South Korea to build bilateral cooperation in this area began in 2019. The leaders of the two countries, H.E. Mr. Moon Jae-In, President of South Korea and Gen. Prayut. Chan-o-cha, Prime Minister of Thailand, agreed to upgrade cooperation to a strategic partnership and identified smart city development as one of the important topics of cooperation (The Nation Thailand, 2019), leading to the signing of Memorandum of Understandings (MoUs) between Thai and South Korean agencies to support cooperation in the development of smart cities between the two countries. In addition to the aforementioned national level of cooperation, the two countries are also working together at the city, private sector, and educational levels to implement smart cities.

How can the partnership between the two countries in this field be made more successful and efficient in order to develop sustainable smart cities in Thailand? The execution of international cooperation must have a strategy in order to accommodate the national interests of the two countries. However, insufficient research exists to support the implementation of these two countries. This article seeks to address this gap by identifying the strengths (S), weaknesses (W), opportunities (O), and threats (T) of Thailand-South Korea's smart city cooperation using

the theoretical conceptual framework “SWOT analysis” as a tool of analysis to explore the current state of the cooperation, perspectives from Thailand. The SWOT analysis helps identifying whether the cooperation is performing well, thereby facilitating the development of plans to strengthen it.

Research Objectives:

To examine the current state of cooperation between South Korea and Thailand in the development of smart cities, using the SWOT analysis, presenting perspectives from Thailand.

Literature Review

In this section, important literature is collected, and is organized into three primary categories as follows:

International cooperation on smart cities

Literature review reveals that there is only a literature on smart technology development cooperation between South Korea and Thailand. Kwang and Na Ayudhaya (2022) analyzed the collaboration between South Korea and Thailand for the smart port development of Laem Chabang Port in Chonburi Province. Moreover, there is literature on international cooperation in the development of smart cities in other countries, namely, EU-Republic of China (China and Zielonka, 2015), and Singapore-Denmark (Kwang, 2015). These two partnerships are similar in many ways, especially the problems and challenges that arise in the city technological potential, their governments' policies focusing on sustainable smart city development, having a good relationship or cooperation with each other in the past at both national and organizational levels, and the need to learn from each other. These similarities serve as the catalyst for these two partnerships to work together and implement several cooperative projects and activities.

Similarly, there are studies indicating that these countries have the potential to collaborate in the development of smart cities based on the premise that they share the same smart city development policy, similar characteristics and challenges, a history of collaboration in various areas, and the capacity to complement one another. These countries aspire to lead the world in the construction of smart cities. These two suggested international cooperations are EU-Japan and South Korea-UK. Catapult & the Business of Cities (2021) offered suggestions primarily on South Korea-UK intercity matching. Regarding EU-Japan, Pham (2014) offered recommendations for fostering public-private cooperation between the two countries.

International cooperation on other aspects, utilizing the SWOT analysis

The SWOT theoretical framework has been utilized extensively in the literature to analyze international collaboration to make advice regarding how these partners can improve their cooperation. Sergunin and Konyshov (2016) used the SWOT analysis to assess the relations between the United States and Russia which have had conflicts and were at a turning point. Mészáros (2016) utilized the SWOT analysis to examine police collaboration to combat transnational financial crime between the Bihor region in Romania and Haidu-Bihar in Hungary. There are also literature that employs the SWOT analysis to evaluate countries potential and make recommendations for fostering international cooperation. In order to support EU member states in achieving their pollution reduction goals, and releasing it into the environment by using renewable energy, Beneking et al. (2016) conducted the SWOT analysis of each North African (NA) country's potential on renewable energy to recommend which North African countries the EU should work with to import renewable energy. Similarly, Xin-ganga et al. (2013) assessed China's renewable energy potential using the SWOT analysis in order to provide ideas for promoting China's international cooperation in this field.

Smart city development in South Korea and Thailand

There are a great deal of literature on the development of smart cities in South Korea and Thailand, with the following publications being significant:

South Korea

There is a large numbers of literature mentioned that South Korea has a long history of smart city planning, development, and management, beginning with the Ubiquitous (U)-City projects, which have been in operation since the early 2000s and continuing to the present day. These works analyzed many aspects, including the reasons why South Korea develops a smart city as a result of internal and external factors (Oh and Larson, 2020; Choi, 2020). Currently, South Korea leads the world in smart city technologies and digital transformation. Several significant factors have contributed to South Korea's advancement in smart city development (Choi et al., 2020; Choi, 2020; Kwang, 2015; Kwak and Lee, 2021).

However, throughout the past two decades, South Korea has encountered numerous problems and obstacles. Choi et al. (2020) analyzed that during the U-City construction period, 2003-2013, the development of U-Cities did not make any substantial advance or improvement due to lack of coordination and separate ministry operations. The government had not implemented coherent and consistent policies. It also experienced an economic recession. Kim et al. (2021) recognized the obstacles to driving South Korea's smart cities over the past two decades and

categorized them into four interconnected primary areas: 1) technologies, 2) industries, 3) government, and 4) society.

Thailand

Iamtrakul and Klaylee (2019) provided an overview of smart city development in Thailand, despite the role of the Smart City Development Committee at both the national and provincial levels, as well as the establishment of laws to determine development strategies and smart city development guidelines. However, Thailand has encountered numerous issues and obstacles, resulting in the inability of the majority of Thailand's smart city development to operate in practices.

In addition, there are extensive investigations examining Thailand's national smart city pilot projects, such as Phuket, Khon Kaen, and Chiang Mai, and three provinces in the Eastern Economic Corridor (EEC), namely Chonburi, Rayong, and Chachoengsao, by assessing many dimensions of policies, operations, the potential of the cities' success elements, challenges and hurdles, and proposing development proposals (Krishna, et al., 2021; Ruenpakpój et al. 2020; Naprathansuk, 2017; Tunming et al., 2019; and Visakha and Priyanart, 2020) .

The aforementioned literature has offered a clear picture of the elements influencing international cooperation in smart city development as well as the growth of smart cities in South Korea and Thailand. Both the positive aspects that contribute to its success and the negative factors that impede international collaboration in the development of smart cities and other fields, in accordance with the SWOT analysis rules. In addition, the numbers of literature that uses the SWOT analysis to assess international cooperation. This illustrates the general adoption of this conceptual framework. There are also studies that use the SWOT analysis to assess international cooperation. This shows that this conceptual framework is widely accepted. The literature on the cooperation between South Korea and Thailand in the development of smart cities is scant; therefore, this article helps filling the resulting knowledge gap.

Research Methodology

This article employs the research methods of documentary research, qualitative research, and descriptive research, with data collection and analysis described as follows:

Data Collection:

Primary Data: comprising formal in-depth interviews with experts related to or knowledgeable about the cooperation between Thailand and South Korea in the development of smart cities from the public, namely, the Digital Economy Promotion Agency (DEPA), the Ministry of Digital Economy and Society (MDES), in order to collect information about cooperative activities at the policy and practice levels. An expert from the Mekong Institute

was consulted in order to acquire complete strategic perspectives that are related to the Mekong region. An expert from the education sector was a professor at the Faculty of Architecture and Urban Planning, Thammasat University who is a professional on the development of smart cities in Thailand and abroad. Their different viewpoints on policies, practices, and academics led to the creation of more comprehensive policy proposals and plans in this research. This research focuses on interviews with essential specialists in Thailand in order to obtain information from the Thai perspectives. To interview these experts, the structural interviews were utilized. Each set of interview questions varies dependent on the knowledge and experience of the interviewees. The questions were regarding the SWOT analysis of cooperation. The average interview lasted around 90 minutes. In addition, a seminar was arranged to disseminate the research findings in order to solicit the opinions of specialists from associated institutions, including the DEPA, MDES, the Faculty of Science at Khon Kaen University, and the Faculty of Engineering at Burapha University.

Secondary Data: includes academic articles and research articles from Thai and foreign academic publications and numerous websites, books, research reports, and government data reports, international organizations, papers of government agencies from their websites as well as direct contact for information from government agencies, such as the MOUs between South Korean and Thai authorities on smart cities. It also contains news from online publications and other related documents, all of which are available in both Thai and English. The researchers also collected data regarding attendance at many related seminars organized by educational institutions or government agencies in cooperation with other related organizations. Secondary data collecting was in order to gain more about the cooperation activities, and the development of smart cities in South Korea and Thailand from relevant organizations. In addition, the researchers observed the atmosphere of coordinated actions between the two countries, which help the comprehension of the actual circumstances.

The aforementioned primary and secondary data collecting occurred between March 2021 and August 2022.

Data Analysis:

As noted previously, this article applies the theoretical framework of the SWOT analysis for data analysis to examine primary and secondary data.

Theoretical framework “SWOT Analysis”

The theoretical framework for strengths (S), weaknesses (W), opportunities (O), and threats (T) or the SWOT analysis is the concept of identifying factors or organizational environments that affect businesses, plans, projects, individuals, or activities. It is frequently employed in the analysis of both public and private organizations. The SWOT analysis is defined as follows in Table 1.

Table 1 Definitions of SWOT

	Contributing Factors to Successful Implementations (+)	Impediments to Successful Implementation (-)
Internal Factors	Strengths (S) = internal resources or capabilities that organizations can utilize effectively to accomplish its objectives.	Weaknesses (W) = internal constraints or deficiencies that prevent the attainment of goals.
External Factors	Opportunity (O) = circumstances or external conditions that enable organizations to accomplish its goals.	Threat (T) = unfavorable external conditions or obstacles to achieving objectives that may damage operational strategies.

Source: Zhao et al., 2013

The advantages of conducting the SWOT analysis are as follows:

The above SWOT analysis table provides decision-makers with a concise and comprehensive qualitative overview. It benefits in accurately comprehending the current state/potential of organizations' or projects' operations, resulting in the creation of context-specific solutions, including the creation of effective new strategies (Sinfonia, n.d.; Zhao et al, 2013).

Although the SWOT analysis is primarily used to evaluate organizational potential, it is also a valuable tool for analyzing international cooperation as mentioned in the literature review section. Hence, this theoretical framework is clearly a useful tool for analyzing this research because it relates not only to organizations' operations but also to international cooperation. Therefore, this article uses the SWOT analysis to analyze South Korea and Thailand cooperation on smart city development.

Research Scope:

For the content scope, this research focuses on the analysis at two levels: macro and micro.

In terms of the macro level analysis, it includes signing the MoU between South Korea's Ministry of Land, Infrastructure and Transport (MOLIT) and Thailand's MDES aiming to support the exchange of policies, technologies, information and human resources, as well as to promote related industries to develop smart cities in both countries. Moreover, the broader context is taken into account.

In terms of the micro-analysis, it includes the collaboration at the organizational level between DEPA, the agency under MDES, whose primary responsibility is to facilitate the development of smart cities in Thailand by promoting cooperation with both domestic and foreign agencies, and six South Korean organizations.² In addition, some important related parties such as cities, academic institutions, and companies are encompassed.

The time scope of the study extended from the beginning of their partnerships in 2019 until the present.

Results

Since the beginning of the smart city development collaboration between South Korea and Thailand in 2019, MOUs have been signed at both the national and organizational levels. The SWOT analysis produced the following outcomes:

² **Signing the MoUs in 2019:** 1) Korea-Trade Investment Agency (KOTRA) to promote trade and investments between two countries for the development of a livable smart city; 2) Korea Association for Photonics Industry Development (KAPID) to collaborate on lighting industries for the development of smart cities; 3) Korea Agency for the Advancement of Infrastructure Technologies (KAIA) to jointly build the technological infrastructure of the project in the areas where are national pilot projects for smart cities in Thailand; 4) Korea Transport Institute (KOTI), one of the leading research institutions in the world, conducts research on all types of transportation; and 5) Korea Research Institute for Human Settlements (KRIHS), a research institute that investigates housing stability, infrastructure development, and geographic information systems. DEPA, KOTI, and KRIHS have signed the MoU to collaborate on smart mobility and smart city development.

Signed the MoU in 2020: 6) Busan IT Industry Promotion Agency (BIPA) is Busan's information technologies industry promotion agency; following the signing, the two parties addressed the implementation of digital COVID-19, a program designed to combat the city's epidemic through technological means. Recently both sides discussed expanding their collaboration in the fields of manufacturing technology, digital content, and smart cities.

Table 2 The Results of the SWOT Analysis Evaluating the Efficiency of Cooperation

	Factors Contributing to Successful Implementation (+)	Factors that Impede Implementation's Success (-)
Factors within the Cooperation	<p>Strengths (S) =</p> <p>Macro Level</p> <ol style="list-style-type: none"> 1. The signing of <u>MoUs</u> at the <u>state-to-state</u> (G2G) <u>level</u> based on mutual benefits, good relations, interdependence, and consistent policies, activating more practical activities. 2. The leaders of both countries shared <u>common visions</u> and <u>strong political commitments</u> to cooperate. 3. In negotiations, Thailand and South Korea are on an <u>equal level</u>. 4. Both countries <u>share similar</u> political, social, and cultural <u>characteristics</u>. Therefore, it is easier to understand, comprehend, and adopt best practices from the similar dimension country in Thailand. 5. Thailand has a <u>positive opinion about South Korea</u>, the nation with a unique combination of hard and soft power. Korean investors have potential. Therefore, the Thai government aims to attract Korean investments in Thailand. <p>Micro Level:</p> <ol style="list-style-type: none"> 6. <u>Cooperative mechanisms</u> to support operations and coordination are established. (Setting up organizations/divisions, and working groups) 7. Organizations of both countries have the <u>potential</u> to develop smart cities. Thailand, a latecomer compared to South Korea, also has the ability to execute smart cities effectively. Consequently, both countries are capable of cooperating. Their relationships are not between a provider and a recipient, but rather between two developers. 	<p>Weaknesses (W) =</p> <p>Macro Level</p> <ol style="list-style-type: none"> 1. The two countries are <u>not</u> each other's <u>most</u> important <u>partners</u>. The value of bilateral trade, investment, and industry remains low, compared to countries like China, Japan, and the United States. 2. There is <u>no in-depth research</u> on the pros and cons before beginning the cooperation. There are currently <u>few research possibilities</u> for actual implementation of the cooperation. 3. The majority of people in both countries are service consumers. They have <u>little interest</u> in participating in the collaboration. <p>Micro Level</p> <ol style="list-style-type: none"> 4. The establishment of <u>a neutral coordinating institution</u> to foster the cooperation, compromise conflicting interests, and emphasize common interests over individual interests has not occurred. 5. There are <u>fewer collaborations</u>, exchanges, and joint research projects between universities, research institutes, and enterprises in both countries. 6. The cities and organizations of the two countries have <u>limited understanding</u> of one another's smart cities. 7. <u>Lack of online platforms</u> for exchanging information to support the cooperation. 8. <u>Different languages, cultures, perspectives</u>, and <u>work methods</u> between the two countries impede cooperation and joint platform development. <p>Thailand's problems</p> <ol style="list-style-type: none"> 9. The implementation of international cooperation <u>polices</u> at the <u>operational level</u> is <u>insufficiently comprehensive</u> or clear to enable the diverse sectors of the two nations to implement the

Factors Contributing to Successful Implementation (+)	Factors that Impede Implementation's Success (-)
<p>8. The organizations of the two countries anticipate <u>mutual benefits</u> and desire to complement one another (win - win situation).</p> <p><i>Thailand's benefits</i></p> <p>8.1) Thailand benefits from <u>gaining knowledge</u> of South Korea's effective working models and technologies, <u>purchasing</u> world-class South Korean technologies, and <u>receiving</u> South Korean grants, such as in case of Khon Kaen Smart Mobility.</p> <p>8.2) There are prospects for Thai businesses, the majority of which are <u>small businesses</u>, to <u>invest</u> with South Korean businesses in order to <u>study</u> business methods and <u>extend</u> technological development.</p> <p><i>South Korea's benefits</i></p> <p>8.3) The Thai government has allowed both Thai and foreign private companies to participate in the development of smart city promotion zones, creating <u>opportunities</u> for South Korean businesses.</p> <p>8.4) South Korean companies have <u>demonstrated their technological potential</u> through system demonstrations for business expansion, increasing their customer base in Thailand through joint ventures with Thai companies in smart city technologies which include not only hard technologies, but also all support systems, meaning that the Thai side must rely on the support system and personnel development from South Korea.</p> <p>8.5) There are also <u>options to invest</u> with Thai firms that may be able to assist South Korean firms with investing in the local areas of Thailand.</p>	<p>policies, visions, and missions outlined in their respective practices.</p> <p>10. Thai <u>laws, regulations, and centralized bureaucratic system</u> imposing <u>restrictions delayed</u> the implementation of smart city technologies, whereas the same factors in South Korea promote greater operations.</p> <p>11. The implementation of international cooperation activities requires a large <u>budget</u>. In addition, the one-year budget allocation for the nation's research budget is <u>insufficient</u> for continuous development.</p> <p>12. The Thai policy to determine the role of the <u>South Korean private sector</u> in developing smart cities in Thailand is <u>unclear</u>. The structure for cooperation with other industries is <u>ambivalent</u>, and the <u>profitability</u> of operating smart city businesses in Thailand <u>cannot be determined</u> with precision. As a result, there is <u>little incentive</u> for South Korean companies to conduct business on smart cities in Thailand.</p> <p>13. The <u>budget</u> of DEPA only supports Thai organizations for the development of smart cities, excluding South Korean organizations.</p> <p>14. DEPA does <u>not have enough personnel</u> responsible for smart city projects across the country, even if there are personnel who aspire to work in this field but still lack the necessary knowledge, skills, and experience.</p> <p>15. Some of Thailand's <u>pilot smart cities</u> lack <u>businessmen</u> and <u>universities</u> in the area. Therefore, there is a lack of important sectors in helping to develop smart cities and may affect the expansion of cooperation with foreign countries.</p> <p>16. Many <u>cities</u> in Thailand lack <u>international collaboration</u> experience, knowledge, and resources</p>

	Factors Contributing to Successful Implementation (+)	Factors that Impede Implementation's Success (-)
Factors within the Cooperation	<p>8.6) Overall, South Korea seeks not only to share information and experiences to obtain <u>international reputation</u> and to be the <u>global leader</u> in technologies and innovation, but also to promote <u>domestic economic growth</u>.</p> <p>9. Organizations from both countries are <u>capable</u> of engage in cooperative activities.</p> <p>9.1) <u>DEPA</u> is proactive, visionary, and staffed with knowledgeable specialists. In addition, the relevant industries have potential.</p> <p>9.2) <u>South Korean organizations</u> are professional, have international standards, are highly flexible, and work as a team. South Korean governmental agencies serve as coordinators, while the private sector is the primary negotiator.</p> <p>9.3) Currently, DEPA and Korean authorities have collaborated in <u>many ways</u>, including:</p> <ol style="list-style-type: none"> 1) Government-to-Government (G2G) 2) Government-to-Government-to-Business (G2G2B) 3) Government-to-Business (G2B) 4) Business-to-Business (B2B) <p>9.4) Many <u>cities</u> in South Korea and Thailand have the <u>potential</u> to develop smart cities and MoUs have been signed with many overseas cities.</p> <p>9.5) <u>Early-stage</u> cooperation activities and initiatives <u>can be expanded</u> further. Both countries have <u>appropriately executed</u> collaborative activities well, identifying focal points, and creating priorities based on local requirements.</p>	<p>17. <u>Organizations</u> in Thailand involved in the development of smart cities <u>lack of motivation</u> to work beyond the scope required by laws, and lack of <u>integration</u> for collaboration. This could affect for cooperation with South Korean organizations.</p> <p>18. The majority of <u>Thai businesses</u> are <u>small</u> and have small business networks, which hinders the expansion of business partnerships with South Korean businesses.</p> <p><i>South Korea's problems</i></p> <p>19. South Korean companies <u>lack local partners</u> in Thailand, resulting in a lack of comprehension of the context of each area. As a result, the presentation of technological systems and services does not fulfill Thai requirements.</p> <p>20. Few Korean companies <u>signed agreements</u> with Thai companies, including coordination with the Thai local authorities to understand the laws/measures in each Thai locality.</p>

	Factors Contributing to Successful Implementation (+)	Factors that Impede Implementation's Success (-)
factors outside the cooperation	<p>Opportunities (O) =</p> <p>Macro Level :</p> <ol style="list-style-type: none"> 1. Due to <u>global challenges</u>, such as globalization, rapid technological advancements, Coronavirus disease 2019 (COVID-19) outbreak, etc. Countries cannot solve this problem alone. In addition, the United Nations (UN) established the Sustainable Development Goals (<u>SDGs</u>) for member countries to follow. These are the primary <u>motivating factors</u> for several countries, including Thailand and South Korea, to seek solutions to the problems. This provides both countries the <u>chance to deepen collaboration</u> in the development of smart city technologies that will help in responding to the aforementioned changes and mitigating their consequences. 	<p>Threats (T) =</p> <p>Macro Level :</p> <ol style="list-style-type: none"> 1. The spread of <u>COVID-19</u> causes cooperation operations to be intermittent or <u>delayed</u>. 2. As <u>competition</u> among the world's smart city leaders intensifies, there are also competitions in which information technologies systems from countries, such as <u>China, Japan, and the United States</u> are presented in Thailand. This may cause Thailand to choose the technologies of other countries over those of South Korea, thereby preventing South Korean companies from expanding their market share in Thailand. This may result in the South Korean government providing less support for Thailand's smart city development. 3. If the South Korean government alters its foreign policy by eliminating the <u>New Southern Policy (NSP)</u> that prioritizes Southeast Asian countries, Thailand may receive less support.

Source: Researchers' data synthesis and analysis

Discussion and Conclusion

South Korea and Thailand have established cooperation based on good historical ties, interdependence, policy coherence, and benefits that are complementary to each other. This has led to the introduction of smart city design into the political decision-making process and their primary economies, as well as the establishment of bilateral cooperation agendas. This is appropriate for both domestic and international driving conditions.

The operations are voluntary on the determination of commitments to shared objectives. Emergence of issues that are mutually advantageous for all parties resulted in the development of a model for decision-making that is supported by rules and shared expectations. This could result in complex interdependence in the future. The two countries pursue strategic cooperation as an instrument of their foreign policies. The key to addressing systemic international challenges in the future is to coordinate international actions with other governments.

The collaboration of South Korea and Thailand on smart city activities may also lead to changes in the structure and organization of society as their activities have led to delivering social services and public goods. This is similar with Chinwanno (2014) explained that international collaboration is an international policy tool that usually occurs when two countries have common goals/benefits. This leads to the establishment of shared decision-making plans and rules and regulations, while at the same time might lead to complicated interdependencies.

Cooperation will benefit not only from the strengths and potential of both nations in the sphere of smart city development. Likewise, Thailand's weaknesses on the same topic as South Korea's strengths is advantageous for collaboration. Because it can serve as the topics for discussion and mutual education. Although the conclusions are cautiously positive, there remain significant issues that have split the two countries. The relationship will advance considerably more rapidly if Thailand's domestic policies strengthening measures are enhanced. In comparison to other countries, particularly in the Asian region, South Korea's investments in Vietnam have expanded considerably during the past several years. This trend may reflect that Thailand's investment promotion measures do not attract South Korean investors. In addition, the fact that the two countries have different working styles, and languages. Relevant agencies can use the results of this SWOT analysis to develop strategies to bolster their strengths, eliminate their weaknesses, and capitalize on each other's strengths.

References

Beneking, A., Ellenbeck, S. & Battaglini, A. (2016). Renewable energy cooperation between the EU and North Africa: Findings of a SWOT analysis. *International Journal of Energy Sector Management*, 10(3), 312-336.

Cameron, F. Joshua, P. Andrea, R. Alex, E. & Rosanna, F. (2021, October 25). Executive summary international cooperation on artificial intelligence-why, what, and how. *Strengthening international cooperation on AI*. <https://tinyurl.com/243nvba8>.

Catapult & the Business of Cities. (2021). Smart city demonstrators, a global review of challenges and lessons learned. *Catapult Future Cities*. <https://tinyurl.com/yfdpkzky>.

China, F. L. & Zielonka, R. (2015). *Smart cities cooperation between the EU and China: towards a sustainable future*. European Institute for Asian Studies. <https://tinyurl.com/2p8mt88s>.

Chinwanno, J. (2014). *The world in the 21st century: Framework for the analysis of international relations*. Bangkok: Printing House of Chulalongkorn University.

Choi, C., Choi, J., Kim, C. & Lee, Dong. (2020). The smart city evolution in South Korea: findings from big data analytics. *Journal of Asian Finance, Economics and Business*, 7(1), 301-311.

Choi, Y. S. (2020). Smart city development projects in the Republic of Korea. *R-Economy*, 6(1), 40-49. <https://doi.org/10.15826/recon.2020.6.1.004>.

Digital Economy Promotion Agency (DEPA). (2020). *DEPA congratulates Khon Kaen smart city development plan funded by Korean government*. <https://tinyurl.com/fc2b2cex>.

Digital Economy Promotion Agency (DEPA). (2021). *Smart city plan*. <https://www.depa.or.th/th/smart-city-plan>.

Fu, W. Tshinghua, H. & Liu, X. (2022). International doctoral students negotiating support from interpersonal relationships and organizational resources during COVID-19. *Comparative Education*, 24(1), 26-40.

Go Smart. (2022). *GO SMART, an international network of smart cities*. <https://www.citiesgosmart.org/about>.

Iamtrakul, P. & Klaylee, J. (2019). Lesson learns of success factors from 10 smart cities development: *Thailand context*, 1-6. doi: 10.1109/STUD49732.2019.9018765.

JICA. (2020). The study on development of smart city concept for the Bang Sue area in the Kingdom of Thailand the final report. <https://tinyurl.com/59247nv9>.

John, M. (2018, April 4). Smart cities are complicated and costly: Here's how to build them. *Harvard Business School*. <https://tinyurl.com/yck75ne4>.

Justin, O. (2021, October 28). ASEAN, India can prioritise cooperation on digital transformation, public health: PM Lee. *Straitstimes*. <https://tinyurl.com/5ec4xsw8>

Kang, M. (2015). Smart city: Case of Seoul. *Nakhara Journal of Environment Design and Planning*, 11(2), 87-100.

Kerry, C. (2021). Strengthening international cooperation on AI: *Progress report*, 3, 6-8, 60, 68-69.

Krishna, S., Pongmethee, C., & Khamkhenapoom. (2021). Policy guidelines for Khon Kaen municipality. *Journal of Buddhist Social Sciences and Anthropology*, 6(3), 319-333.

Kim, S. (2014). Digital development in Korea: Building an information society - by Myung Oh and James F. Larson. *Journal of Communication*, 64. 10.1111/jcom.12081.

Kim, Y. J., Hwang, H., & Choi, H. J. (2021). Impediments to driving smart cities: A case study of South Korea. *Asian Journal of Innovation and Policy*, 10(2), 159-176.

Kwak, Y. & Lee, J. (2021). *Toward sustainable smart city: Lessons from 20 years of Korean programs*. IEEE Trans Eng Manag.

Kwang, H, & Na Ayudhya, S. (2022). Guidelines for the development of cooperation in the marine and fisheries sector between Thailand and the Republic of Korea. *Journal of Political Science and Public Administration*, 13(1), 147-174.

Kwang, T. W. (2015). *Singapore and Copenhagen: A tale of two smart cities*.

Mami, M. (2021, October 13). A world in crisis needs international cooperation. *UN Chronicle*. <https://tinyurl.com/ycsnap99>

Meszaros, E. L. (2016). The evaluation of police cooperation between Hungary and Romania in the fight against cross-border financial criminal activities. *Eurolimes*, 21, 143-156.

Miah, M. & Amin, R. (2020). Role of technologies in the development of smart cities. *Engineering International*, 8, 31-42.

Ministry of Land, Infrastructure and Transport. (2020, October 15). *New bases for frontline promotion of K-Smart City Model*. <https://bit.ly/3eT1YzI>

Ministry of Land, Infrastructure and Transport. (2019, November 26). *Launching a new smart city cooperation platform for ASEAN and ROK*. <https://bit.ly/3rFGDPd>

Mizutori, M. (2021, October 13). A world in crisis needs international cooperation. *UN Chronicle*. <https://tinyurl.com/3eb6vhbt>

National Economic and Social Development Council. (2019), *Smart city framework and guidance for Thailand*. <https://tinyurl.com/5828mmpc>

Napraphansuk, N. (2017). A national pilot project on smart city policy in Thailand: A case study on Phuket, Khon Kaen, and Chiangmai province. *European Journal of Multidisciplinary Studies*, 2(6), 337-346.

OECD. (2020). *Smart cities and inclusive growth*. <https://tinyurl.com/yuke32j2>

Oh, L. & Larson, J. (2020). Digital development in Korea: Building an information society. *Journal of Communication*, 10(64). 10.1111/jcom.12081.

Pham, C. (2014, October). *Smart cities in Japan: An assessment on the potential for EU-Japan cooperation and business development*. Tokyo, EU-Japan Centre for Industrial Cooperation. <https://tinyurl.com/ycnxj9zs>.

Sergunin, A., & Konyshov, V. (2016). SWOT analysis of U.S.-Russian Relations. *Russian Analytical Digest*, 178, 1-9.

Sinfonia. (n.d.). *SWOT tool to assess smart city plans*. <http://www.sinfonia-smartcities.eu/>.

Smart City Korea. (2022). *Smart city international cooperation*. <https://tinyurl.com/ynsxxe7v>

Theadora, M. (2020, May 29). How the Republic of Korea became a world ICT leader?. *ITU News*. <https://tinyurl.com/3rbhc453>

The Embassy of the Republic of Korea in Thailand. (2009). Overview of Korea - Thailand relations. <https://tinyurl.com/3x5k8zxu>.

The Nation Thailand. (2019, September 3). *South Korea, Thailand agree on high-tech industry cooperation, closer defense ties*. <https://www.nationthailand.com>

Tunming, P., Chaigasem, T., & Siriwong, P. (2019). The increasing of potential in tourism logistics supply chain to Khon Kaen ME city, Thailand. *African Journal of Hospitality, Tourism and Leisure*, 8(1), 1-12.

UNCTAD. (2021). *Why global cooperation on science, technologies and innovation is more crucial than ever*. <https://tinyurl.com/5bamk97a>

UNEDE. (2017). *Sustainable smart cities*. <https://tinyurl.com/whvvuzym>

Visakha, P. and Priyanart, S. (2020). Strategies for developing smart travel and transportation for tourism in the Eastern Economic Corridor area. *Burapha Journal of Business Management*, 9(1), 86-102.

World Bank Group. (2020). *Korea innovation 2020: Korea's smart city strategy, smart cities of Korea and global smart city partnership program*. <https://tinyurl.com/4sk2kb98>

World Economic Forum. (2020, September 22). Why we need international cooperation now more than ever. <https://tinyurl.com/4ceyr43r>.

Xin-ganga, Z., Yi-shenga, Y., Tian-tiana, F., & Yu-heng, Y. (2013). International cooperation on renewable energy electricity in China – A critical analysis. *Renewable Energy*, 55, 410-416. <https://doi.org/10.1016/j.renene.2012.11.039>.

Zhao, X., Jiaoli, K. & Lan B. (2013). Focus on the development of shale gas in China—based on SWOT analysis. *Renewable and Sustainable Energy Reviews*, 21, 603-613. [10.1016/j.rser.2012.12.044](https://doi.org/10.1016/j.rser.2012.12.044).

0|재현 (2020). *Smart city, economy, innovation and quality of life: Empirical research on the effect of the first ubiquitous city comprehensive plan in Korea*. Seoul National University.