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2014 Modularization of Korea's Development Experience:

Innovation of Immigration Inspection Policy in Korea

2014

MINISTRY OF JUSTICE
REPUBLIC OF KOREA

PUSAN NATIONAL UNIVERSITY

2014 Modularization of Korea's Development Experience:

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Innovation of Immigration Inspection Policy in Korea

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Preface

The study of Korea's economic and social transformation offers a unique window of opportunity to better understand the factors that drive development. Within about one generation, Korea transformed itself from an aid-recipient basket-case to a donor country with fast-paced, sustained economic growth. What makes Korea's experience even more remarkable is that the fruits of Korea's rapid growth were relatively widely shared.

In 2004, the Korean Ministry of Strategy and Finance (MOSF) and the Korea Development Institute (KDI) launched the Knowledge Sharing Program (KSP) to assist partner countries in the developing world by sharing Korea's development experience. To provide a rigorous foundation for the knowledge exchange engagements, the KDI School has accumulated case studies through the KSP Modularization Program since 2010. During the first four years, the Modularization Program has amassed 119 case studies, carefully documenting noteworthy innovations in policy and implementation in a wide range of areas including economic policy, admistration·ICT, agricultural policy, health and medicine, industrial development, human resources, land development, and environment.Individually, the case studies convey practical knowhow and insights in an easily accessible format; collectively, they illustrate how Korea was able to kick-start and sustain economic growth for shared prosperity.

Building on the success during the past four years, we are pleased to present an additional installment of 19 new case studies completed through the 2014 Modularization Program. As an economy develops, new challenges arise. Technological innovations create a wealth of new opportunities and risks. Environmental degradation and climate change pose serious threats to the global economy, especially to the citizens of the countries most vulnerable to the impacts of climate change. The new case studies continue the tradition in the Modularization Program by illustrating how different agents in the Korean society including the government, the corporations, and the civil society organizations, worked together to find creative solutions to challenges to shared prosperity. The efforts delineated include overcoming barriers between government agencies; taking advantage of new opportunities opened up through ICT; government investment in infrastructure; creative collaboration between the government and civil society; and painstaking efforts to optimize

management of public programs and their operation. A notable innovation this year is the development of two "teaching cases", optimized for interactive classroom use: Localizing E-Government in Korea and Korea's Volume-based Waste Fee System.

I would like to express my gratitude to all those involved in the project this year. First and foremost, I would like to thank the Ministry of Strategy and Finance for the continued support for the Modularization Program. Heartfelt appreciation is due to the contributing researchers and their institutions for their dedication in research, to the former public officials and senior practitioners for their keen insight and wisdom they so graciously shared as advisors and reviewers, and also to the KSP Executive Committee for their expert oversight over the program. Last but not least, I am thankful to each and every member of the Development Research Team for the sincere efforts to bring the research to successful fruition, and to Professor Taejong Kim for his stewardship.

As always, the views and opinions expressed by the authors in the body of work presented here do not necessarily represent those of the KDI School of Public Policy and Management.

December 2014

Joon-Kyung Kim

President

KDI School of Public Policy and Management

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Summary

An immigration inspection service has two primary requirements: to promote security and efficiency, and to establish mutual cooperation among various agencies. Korea's immigration inspection service successfully meets these two requirements through the implementation of innovative policies. As a result, Korea has been recognized for having one of the best systems in the immigration inspection sector.

The objective of this report is to illustrate the process and achievement of Korea's immigration inspection innovation, and to share information with developing countries. In many cases, countries are reluctant to implement innovative policies because of the requirement for additional human resources and budget. Korea, however, serves as a model case that has achieved success without an excessive investment in either. In addition, its innovative policies effectively respond to a globally changing environment. Korea's system serves as an exemplary model in comparison to other innovative cases.

Chapter 2 sets forth the goals of innovation of immigration inspection policies and its achievements. Such achievements are divided into two categories: the firstin terms of public management and organization of policies; the second related to Integrated Border Management System (IBMS) and the sharing of information among related agencies through an advanced system. The chapter also outlines how Korea's innovation is recognized by foreign countries, and the results of global cooperation for the immigration inspection policy.

Chapter 3 explores the background behind the innovation that led to reform, with environmental and SWOT analyses of the situation. As mentioned previously, a number of various agencies are involved in the inspection process. Therefore, an analysis of their needs is also included in the chapter. Case studies of foreign airports are included as well.

Chapter 4 deals with detailed strategies during innovation and organizational structures which lead to innovation. During the innovation, there was no amendment of laws, but certain systems such as organizational structure and working environments required change. These topics are discussed in this chapter.

Chapter 5 introduces concrete action plans essential to policy innovation and addresses two issues. One issue involves eight (8) innovation tasks, including the reform of organizational structure and its working environment as relates to public management innovation. The other is about IBMS, including Advanced Passenger Information System and Smart Entry System, which operate under the advanced information system. IBMS was first introduced in the immigration inspection system launch in 2000 and later changed in 2005 when the Korean government became the leader in the e-Government sector. This chapter describes which obstacles emerged during innovation, how they were addressed and the factors which contributed to the successful innovation.

Chapter 6 demonstrates the characteristics and strengths of Korea's immigration inspection service and related policies. It reviews several factors that should be considered if Korea's inspection innovation is to be applied to inspection systems in developing countries. These include the influence of top policy decision makers, measures to coordinate various authorities' interests, funding and other items to consider when establishing the information system.

2014 Modularization of Korea's Development Experience
Innovation of Immigration Inspection Policy in Korea

Chapter 1

Introduction

Introduction

In 2005, Incheon International Airport served as a representative gateway through Korea to the establishment and growth of a Northeast Asian community. As such, Korea was considered an international hub, which significantly impacted the nation's branding and image. It also tied into the mission of Incheon Immigration Office, an inspection agency responsible for the annual inspection of more than 22 million passenger arrivals and departures. Such a role was crucial to a foreigner's first impression of Korea during the immigration inspection process. And the administrative service of the immigration system became a criterion by which to evaluate the overall level of administrative services performed by governmental organizations throughout Korea.

In the fourth quarter of 2004, the Airport Service Quality (ASQ) customer satisfaction survey ranked Incheon Airport as number 16 of 45 major airports in the world. Customer satisfaction level was very low compared with competitors in Northeast Asia such as Chek Lap Kok Airport in Hong Kong, ranked number one, and Changi Airport in Singapore, ranked fifth.

As a result, Korea began to look at innovation of its immigration inspection process to improve customer satisfaction through more effective methods. Implementation went into full gear in 2005 when an agency of the Ministry of Justice (MOJ) was chosen to begin carrying out innovative policies in response to requests for reform from the government.

This report aims to introduce policy makers in developing countries to the major and unique immigration inspection policies adopted by Korea since 2005, and to provide suggestions for reform.

The specific contents of this report include eight (8) innovation tasks of the inspection innovation in 2005 and their follow-ups: IBMS, including Smart Entry System and Biometric Identification System.

Chapter 2

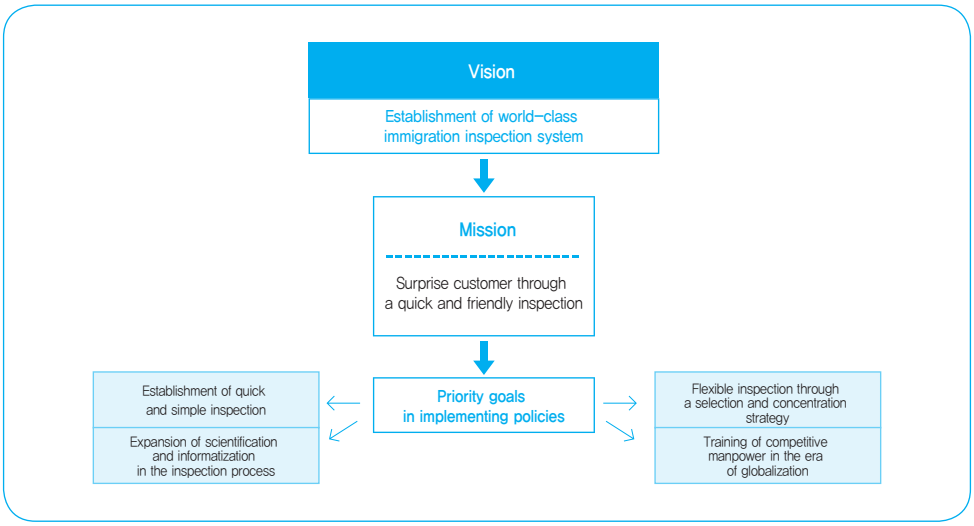
Goals and Outcome Evaluation of Innovative Inspection Policies

Goals and Outcome Evaluation of Innovative Inspection Policies

1. Goals

When carrying out innovation of immigration inspection policies, the vision was to create a world-class immigration inspection system. To that end, two missions were established. One was to exceed customer expectations with a quick and friendly inspection process, and the other was to raise Korea's competitiveness as a major airport through a more efficient inspection process. The specific goals for the vision and mission were four: establish a quick and simple inspection; expand "scientification" and "informatization" in the inspection; conduct flexible inspections through a selection and concentration strategy; and to train competitive manpower in the era of globalization.

Figure 2-1 | Goals of Innovate Policies of Immigration Inspection



Source: Internal Data from the Ministry of Justice.

The objective of establishing a quick and simple inspection process first aims at changing an existing management-and-control-focused inspection[1] into a quick and simple process to improve customer satisfaction.

Secondly, flexible inspection through a selection and concentration strategy was targeted at easing congestion in the inspection process. An analysis of the existing process indicated that the organizational structure was divided based on function. For example, there were separate divisions for arrivals and departures. This resulted in an inflexible system unable to respond to changes in situations. Each inspection counter had a separate booth and inspectors were thus physically bound by an inflexible system. To address the problem, booths in the counters were removed. This enabled inspectors to work with more flexibility, which also quickened the inspection process for passengers.

Third, the expansion of "scientification" and "informatization" since the year 2000 allowed for a more advanced immigration control system and more accurate information management. Technology involves a scientific inspection system which automatically

1. Airport Service Quality (ASQ) is measured through an annual survey by the Airport Council International (ACIP), a consultative group with members of about 1,700 airports around the world. The survey categories related to immigration inspection include: ① waiting time for inspection of passports/visa; ② passport and visa inspectors' courteousness and customer service (departure); and ③ customer satisfaction toward passport and visa inspection (entry) (Incheon Immigration Office, 2013).

collects and manages personal information from passports. This allows for a preemptive response by border management through advance analysis of inbound passenger information to prevent foreign criminals from entering the country. For passengers with little potential to commit crimes, it functions as an automatic system of data which facilitates a quick inspection process while protecting personal information. With implementation of biometric identification technology, such as face and fingerprint identification, capabilities to identify fake and falsified passports are enhanced. In the final analysis, the accuracy of this identification system offers enhanced security and shortened waiting times, which adds to customer satisfaction.

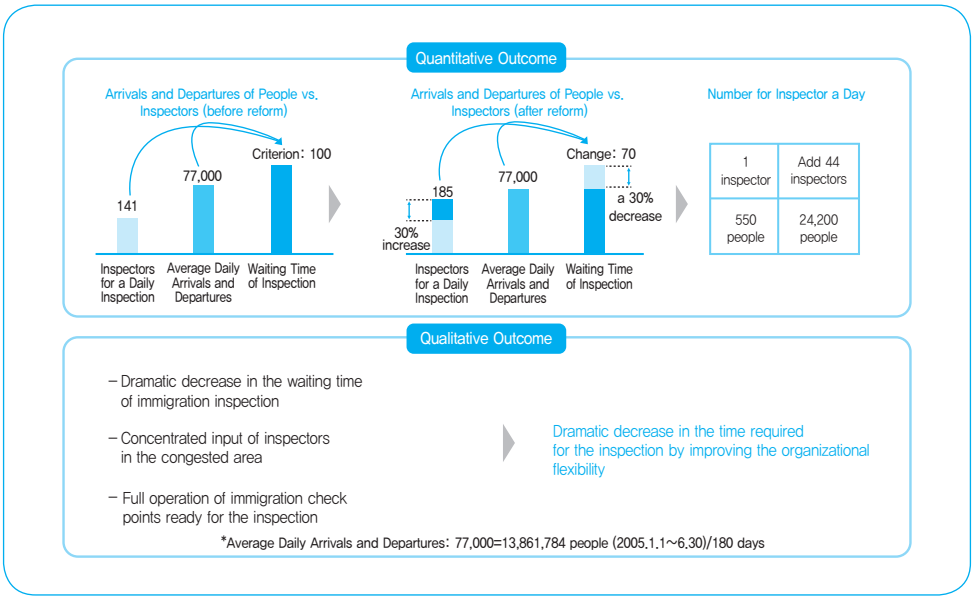
Lastly, the training of professionals was in response to a more globalized society and to further the goal of Incheon International Airport becoming a Northeast Asian hub. For the immigration administration to keep pace with globalization, immigration control officials are expected to have a wide range of expertise, which includes knowledge about immigration and the ability to understand foreign languages. Therefore, training of personnel is a requirement.

2. Outcome Evaluation: Before and After Innovation

2.1. Outcome of Public Management Innovation

Public management innovation in the arena of immigration inspection included organizational reform of the working system. Innovation increased the number of immigration inspectors working daily, which significantly reduced passenger waiting time. For instance, a 30 percent increase in the work force of inspectors reduced waiting time by 30 percent. It was a more efficient use of human resources to place additional inspectors in heavily congested areas so those immigration checkpoints could be fully operational. As a result of such innovation, customer waiting time was dramatically decreased. Before the innovation, the daily number of inspections per inspector was 550 passengers. After the innovation, when 44 inspectors had been added, an additional 24,200 passenger inspections a day were possible. The result was an increase in inspection efficiency.

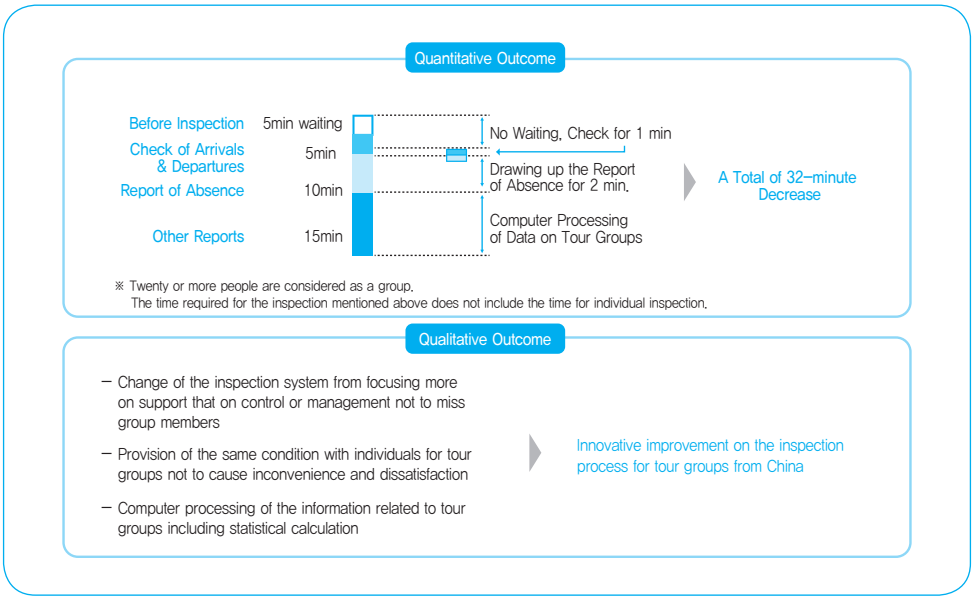
Figure 2-2 | Outcome of Public Management Innovation



Source: Internal Data from the Ministry of Justice.

Moreover, the previous inspection process focused on control or management so as to not miss tour groups. But after innovation, simplifying the process saved inspection waiting time by changing from a control-and management-focus to a support-focus. The innovation removed discriminatory handling of tour groups to prevent group complaints and inconvenience. Computer processes, such as statistical calculation of the information related to tour groups, also dramatically improved the inspection process.

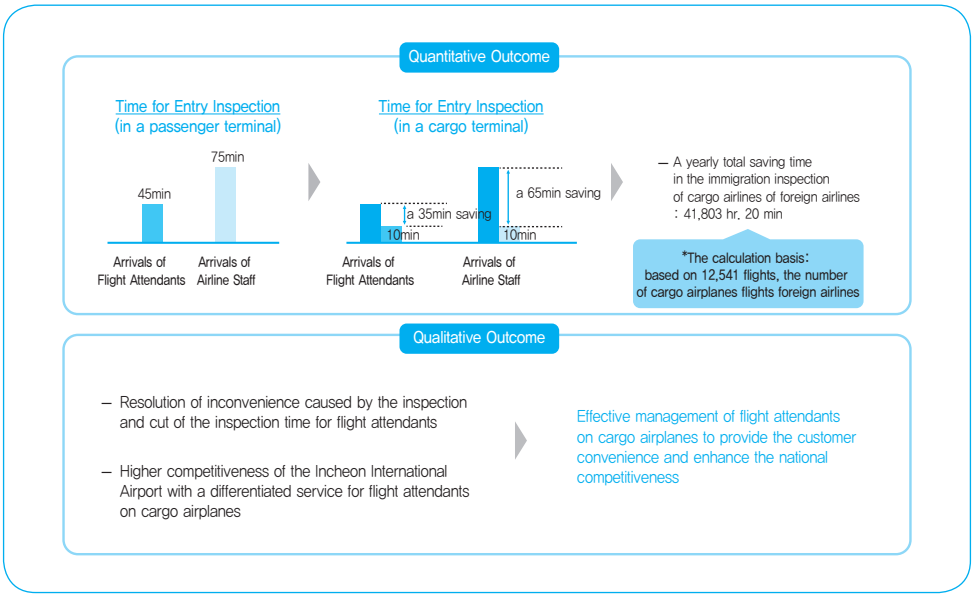
Figure 2-3 | Outcome of Process Simplification for Tour Groups



Source: Internal Data from the Ministry of Justice.

Furthermore, innovation of public management reduced the inconvenience caused by inspecting flight attendants on cargo airplanes, and reduced inspection time as well. For example, the time for entry processing in the existing passenger terminals was previously 45 minutes for flight attendants and 75 minutes for airline staff. The innovation reduced both to 10 minutes. This improvement in service time for flight attendants on cargo airplanes moved Incheon Airport into a higher competitive status.

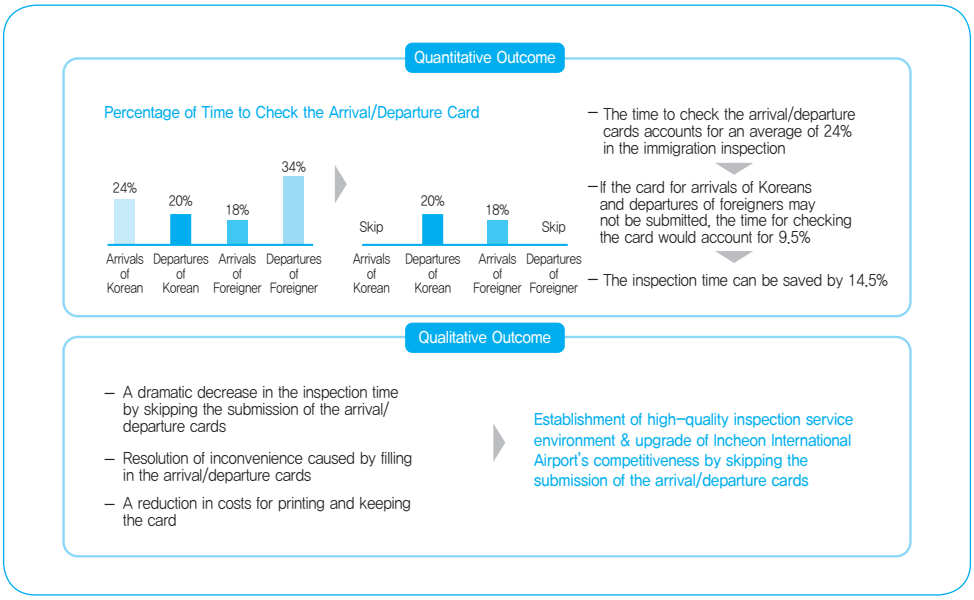
Figure 2-4 | Establishment of e-Gate in a Cargo Terminal



Source: Internal Data from the Ministry of Justice.

Before the innovation, both Koreans and foreigners were required to submit arrival and departure cards. Cards were checked and corrected, and inspectors filled in required information and sealed them. After the innovation, Koreans arriving and foreigners departing were no longer required to submit arrival and departure cards. Computer processing of arrival and departure records decreased inspection time by 15 percent through use of state-of-the-art Automated Passport-Reading System and Advanced Passenger Information System.

Figure 2-5 | Outcome of Skipping Submission of Entry and Departure Cards

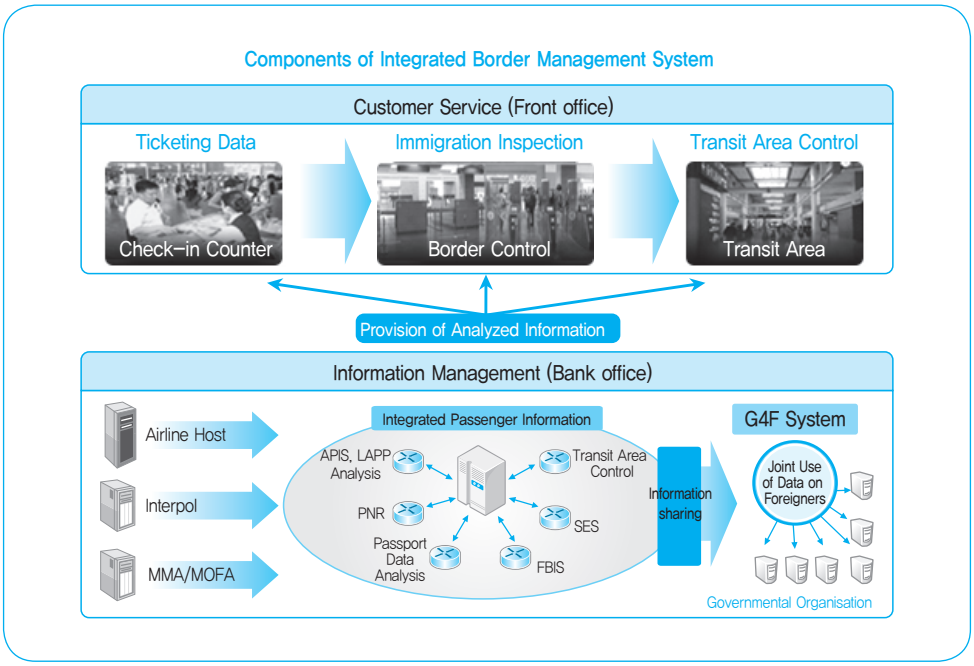


Source: Internal Data from the Ministry of Justice.

2.2. Outcome of Integrated Border Management System

Integrated Border Management System (IBMS) is a collection of various information systems related to immigration inspection. With the launch of the system in 2000, IBMS has consistently been used in a series of phases. The system includes: Advanced Passenger Information System (APIS); Automated Passport-Reading System (APRS); Passenger Name Record (PNR); Smart Entry System (SES); interactive Advance Passenger Processing (i-App); Foreign Biometric Identification System (FBIS) and more. These individual systems have separate and unique functions but are interrelated. They each play an essential role in providing accurate information and enhance the value of analyzed information as it is utilized. The systems collect and analyze information related to the inspection and automatically release the analysis on an inspection screen for quickpassenger-friendly service.

Figure 2-6 | Components of Integrated Border Management System



Source: Internal Data from the Ministry of Security and Public Administration, Korean e-Government IBMS.

IBMS is optimal in the working environment with its automated system to collect and analyze information necessary for the inspection. It is also customer-oriented as it is able to address possible causes of unacceptable immigration in advance, and is equipped with cutting-edge technology such as face recognition, fingerprint recognition and code authentication using IC chips.

The advent of IBMS has had many positive effects. First of all, inspectors in the past were forced to manually input personal data from passports into the information system. But APRS in IBMS quickly inspects with more accuracy and thus better record management is possible.

Secondly, IBMS performs an analysis of information in advance, allowing authorities to form a preemptive plan and response, particularly in the control of foreign criminals. Before IBMS, information on inbound passengers was not available beforehand.

Third, IBMS shares information on fake and falsified passports, previously only shared through off-line training sessions. This real-time feature improves response capacity.

Fourth, IBMS provides various methods of inspection more convenient to passengers than face-to-face inspection. Fifth, a passport using a false name could not previously be detected so foreign criminals could easily enter Korea. IBMS has fingerprint and facial features identification during the inspection to prevent their reentry into Korea.

Sixth and last, IBMS offers real-time search of the database of lost and stolen passports on the Interpol. Previously, inspection time was delayed as lost or stolen passports had to be verified directly with foreign embassies.

Table 2-1 | Effect of Integrated Border Management System

Before		After
Personal data on the passport is manually input and managed by inspectors	⇨	APRS in IBMS makes a quick inspection and more accurate record management possible
Information on inbound passengers cannot be analyzed in advance	⇨	IBMS can analyze passenger information to enhance the preemptive response capacity, including the control of foreign criminals
Information of fake and falsified passports is shared through off-line training	⇨	IBMS can share real-time information on fake and falsified passports to improve response capacity
Face-to-face inspection is the only way for immigration inspection	⇨	IBMS provides various ways for the immigration inspection for customer convenience
Passport using a false name cannot be detected, so foreign criminals can easily enter Korea	⇨	IBMS can use a fingerprint and facial features identification during the immigration inspection to prevent foreign criminals from reentry into Korea
Inspection time is delayed because lost or stolen passports are directly verified with foreign embassies	⇨	IBMS makes a real-time search of the database on lost and stolen passports on the Interpol

Source: Internal Data from the Ministry of Security and Public Administration, Korean e-Government IBMS.

Moreover, APIS annually detects about 16,000 cases of unacceptable arrivals and collects information on over 10,000 cases of lost foreign passports. Transfer System (TS) changes an average of 100 boarding passes annually and detects about 500,000 cases of illegal transfers through passenger data. i-App annually detects about 6,000 cases of unacceptable departures and responds to another 60,000 requests for explanations unacceptable departure cases. SES has successfully decreased inspection waiting time from 10 minutes to one minute.

3. Contribution to National Development

3.1. External Evaluation

Korea Immigration Smart Service (KISS) of the MOJ won the UN Public Service Award in 2007. Its selection was done by the UN CEPA (Committee of Experts on Public Administration) which consists of accredited world-class experts as judges.[2] It is more meaningful than any other award, bringing formal worldwide recognition by the UN to the innovation efforts of the Korean government.

One of the contributing factors for the award was increased customer satisfaction due to reduced waiting time, and the elimination of arrival and departure cards. Total time savings equated to three (3) million hours for the year, or 30 percent as compared to 2005. In addition, elimination of arrival and departure cards reduced costs by 1.78 billion KRW, replaced by automated data. Another factor was that Incheon International Airport ranked first among major airports worldwide in Airports Council International (ACI) survey of customer satisfaction and immigration inspection services.

In Airport Service Quality (ASQ), surveyed annually by ACI, Korea has ranked first in the immigration inspection sector for nine consecutive years, between the years of 2005 to 2013.

Table 2-2 | 2013 Results of Airport Service Quality of Immigration Inspection

Service Category	No. 1 Ranking	No. 2 Ranking	No. 3 Ranking
Total Satisfaction	Incheon International Airport (Korea)	Changi Airport (Singapore)	Beijing Capital International Airport (China)
Passport/ Visa Inspector Kindness	Nanchang International Airport (China)	Beijing Capital International Airport (China)	Incheon International Airport (Korea)
Entry Inspection	Incheon International Airport (Korea)	Haikou International Airport (China)	Pudong International Airport (China)
Departure Inspection	Nanchang International Airport (China)	Incheon International Airport (Korea)	Beijing Capital International Airport (China)

Source: Internal data from the Ministry of Justice.

2. Since 2003, UN has presented the UN Public Service Awards (UN PSA) to pubic organizations and exemplary public policies. The 2007 UN PSA went to 14 countries, including Korea (MOJ news release of June 26, 2007).

In 2005, when Korea's innovative policies had been fully implemented, there was a corollary jump in Korea's ASQ ranking, proof that the innovation measures were effective.

Table 2-3 | Annual Results of Airport Service Quality Evaluation

Year	Participating Airports	Ranking of Incheon	Immigration Inspection	Customs Inspection	Ranking of Participating Airports
2000	57	54 (Gimpo)	N/A	N/A	N/A
2001	52	4	12	16	① Dubai (U.A.E) ② Changi (Singapore) ③ Copenhagen (Denmark) ④ Incheon ⑤ Helsinki (Finland)
2002	51	6	16 (departure)	evaluation excluded	① Dubai (U.A.E) ② Changi (Singapore) ③ Chek Lap Kok (Hongkong) ④ Copenhagen (Denmark) ⑤ Kuala Lumpur (Malaysia)
2003	30	4	23 (departure)	17	① Dubai (U.A.E) ② Changi (Singapore) ③ Kuala Lumpur (Malaysia) ④ Incheon ⑤ Copenhagen (Denmark)
2004	48	2	7 (departure)	5	① Chek Lap Kok (Hongkong) ② Incheon ③ Changi (Singapore) ④ Kuala Lumpur (Malaysia) ⑤ Dubai (U.A.E)
2005	66	1	1 (departure) 5 (entry)	5	① Incheon ② Changi (Singapore) ③ Chek Lap Kok (Hongkong) ④ Kuala Lumpur (Malaysia) ⑤ Austin (US)
2006	86	1	1 (departure) 1 (entry)	1	① Incheon ② Chek Lap Kok (Hongkong) ③ Kuala Lumpur (Malaysia) ④ Changi (Singapore) ⑤ Austin (US)
2007	88	1	1 (departure) 1 (entry)	1	① Incheon ② Kuala Lumpur (Malaysia) ③ Chek Lap Kok (Hongkong) ④ Changi (Singapore) ⑤ Halifax (Canada)
2008	126	1	1 (departure) 1 (entry) 1 (kindness)	1	① Incheon ② Changi (Singapore) ③ Chek Lap Kok (Hongkong) ④ Kuala Lumpur (Malaysia) ⑤ Austin(US)

Year	Participating Airports	Ranking of Incheon	Immigration Inspection	Customs Inspection	Ranking of Participating Airports
2009	131	1	1 (departure) 1 (entry) 1 (kindness)	1	① Incheon ② Changi (Singapore) ③ Chek Lap Kok (Hongkong) ④ Beijing (China) ⑤ Indira Gandhi(India)
2010	154	1	1 (departure) 1 (entry) 1 (kindness)	1	① Incheon ② Changi (Singapore) ③ Chek Lap Kok (Hongkong)
2011	186	1	1 (departure) 1 (entry) 1 (kindness)	1	① Incheon ② Changi (Singapore) ③ Beijing (China)
2012	198	1	1 (departure) 1 (entry) 2 (kindness)	1	① Incheon ② Changi (Singapore) ③ Beijing (China)
2013	228	1	2 (departure) 1 (entry) 3 (kindness)	1	① Incheon ② Changi (Singapore) ③ Beijing (China)

Source: Internal Data from the Ministry of Justice.

ASQ annually announces ranking of airport service through customer satisfaction with surveyed airports around the world. ASQ survey results are seen as a standard for evaluating airports and airlines worldwide. Many world-renowned airports such as Dallas, Vancouver, Sydney, London, Paris, Schipol, Tokyo, Hong Kong, Singapore and Dubai participate. The survey is the only tool available for comparing airport service levels, and is considered to be the "Novel Prize Award" for airports.

Using a sample survey method, ASQ conducts a survey of outbound passengers (the sampling size is 350+) on satisfaction with service in 34 categories including airport facilities and immigration inspection. The specific contents and index of the survey consist of seven components: ① airport service factor; ② government agencies service factor; ③ airline service factor; ④ travel profile; ⑤ demographic profile; ⑥ transfer passenger profile. The contents and indices related to the immigration inspection are waiting time for inspection of passports and visa, inspector kindness and service during departure, and satisfaction with passport and visa inspection during entry.

Korea's ability to win the ASQ award for nine consecutive years is the result of consistently implementing comprehensive management and system innovation, as well as providing kind service. The innovative policies introduced Automated Reading System

(ARS), changed the requirement for entry and departure cards from Koreans and registered foreigners, simplified arrival inspection for nationals no longer needing a stamp, expanded scope of service through SES, and created a flexible team operation to prevent congestion during the busiest inspection times.

In particular, the 2012 ASQ survey results were especially meaningful as Korea had implemented a fingerprint and facial features recognition system. At that time, Incheon International was the only airport equipped with a fingerprint recognition system.

As the ASQ survey conducted by ACI has become increasingly important year after year, the number of participating airports has increased. In 2012, 198 airports participated in the survey. In 2013, that number increased to 228, 30 airports more than the previous year. In this highly competitive era among airports, the fact that the Incheon Airport was internationally acknowledged as the world's best is considered a meaningful outcome.

3.2. Achievement of International Cooperation

As mentioned above, the innovation efforts of Korea's immigration inspection won the UN CEPA in 2007 and the ranking of first place for nine consecutive years in the ASQ's immigration inspection sector. Innovation of the immigration inspection system was in response to an increasing flow of foreigners entering Korea. The number of inbound passengers and migrating foreigners had skyrocketed. To keep pace, the immigration administrative system underwent innovation from an under-developed system to the current advance done in a short period of time.

As a result, the number of foreign countries wanting to learn from Korea's success is increasing. The number of countries that visited the Incheon Airport Immigration Office on a field trip was 18 (196 people) in 2012. That number increased to 31 countries (337 people) in 2013.

Mongolia and Dominican Republic are two exemplary cases of international cooperation in sharing Korea's advanced immigration inspection policies.

3.2.1. "K-Wave in Administrative Service" Supports Mongolia with Sharing of Korea's Immigration Inspection System;

On Dec. 24, 2013, the Ministry of Security and Public Administration announced that the advanced immigration inspection system would be one of the 14 inclusions under "K-Wave in Administrative Service" a program that deploys an envoy of administrative professionals.

The immigration service process consists of a series of phases: issuing visas from embassies in foreign countries; border management; immigration management; obtaining nationality and residency; and integration into society. The development of immigration inspection led to a more efficient and systematic immigration administration service. To share this development, Korea chose Mongolia's immigration agency to which they deployed administrative professionals.

Mongolia has a land area 7.4 times the size of the Korean peninsula, with a 1,600-metersea level terrain and deserts accounting for 40 percent of its land. The country's population was only 278,000 as of March 2011, despite its wide borders and inland location. Lacking management personnel, it needed a better organized management system. This situation gave Korea reason to deploy its administration envoy to Mongolia.

Mongolia's willingness to improve immigration and border management administrative service was another factor for choosing this country. In 2012, an integrated organization combining immigration management with border patrol was launched. At that time, the director of Mongolia's immigration agency visited Korea and expressed a desire to learn about every facet of Korea's immigration management agency.

Since then, Korea has supported Mongolia with four strategies. The first and primary has been to counsel improvement in the agency's management policies. Mongolia's border management and foreign resident control are not good, and an overall improvement of infrastructure is required. For example, border patrols in charge of immigration inspection are not equipped with passport readers, and network connectivity with the headquarters central server is not dependable. Border patrols have had to work with manual immigration blacklists.

The second strategy was to introduce basic equipment into the operation. Currently, the amount of their computing resources is estimated to be less than a hundredth of Korea's Ministry of Justice Immigration Service. And rather than installing expensive state-of-the-art devices, the need is first to supply basic equipment which will strengthen its fundamental infrastructure, and then to provide necessary the guidance to employ it.

The third strategy was to counsel improvement in the performance of local agencies in Mongolia. As mentioned before, the country is more than seven times the size of the Korean peninsula and communication between central and local agencies is weak. It is important to focus on creating a more efficient network of local agencies through the utilization of existing resources.

The last strategy was to provide training for Mongolian officials both on-site and in Korea. There is a definite need to train officials on how to read passports, interview foreign residents and investigate illegal residents.

Progress has been made through annual meetings of immigration agency executives from both countries for the last seven years. In January 2014, the Director of Mongolia's Immigration Agency publically requested Korea's cooperation to assist with development of their immigration policies and system. The following month, February 2014, the agency's Deputy Director and his team visited Korea to work out the details.

3.2.2. Upgrading Administration Service through e-Government Supports the Dominican Republic with Knowledge Sharing Program

The Ministry of Finance and Strategy chose the establishment of the Dominican Republic Immigration Control System as one of its Official Development Assistance (ODA) projects. It aims to introduce Korea's outstanding immigration inspection system and to lend assistance to the country.

The Dominican Republic is an island country whose main industry is tourism with an annual inbound and outbound passenger count of 950,000. Most of the immigration control work, however, is done manually with high rates of inefficiency. Furthermore, since its neighboring country Haiti's catastrophic earthquake in January 2010, the number of illegal residents has skyrocketed by more than one million, which has become a social issue. The establishment of a well-organized immigration control system is urgently required.

The President of the Dominican Republic visited Korea in 2009 to seek ways to improve their immigration control system. After touring Korea's system, he expressed hopes of installing the same in his country and requested aid from the Korean government's Economic Development Cooperation Fund.

Korea's support to the Dominican Republic is an action plan, "Upgrading Administration Service through e-Government" which incorporates Knowledge Sharing Program (KSP). The Economic Development Cooperation Fund (EDCF) provides KSP as a means to introduce Korea's advanced immigration control system to the Dominican Republic.

2014 Modularization of Korea's Development Experience
Innovation of Immigration Inspection Policy in Korea

Chapter 3

Background and Necessity of Innovative Inspection Policy

1. National and International Situation during Innovation
2. Introduction of Innovation and Environmental Analysis
3. Goal and Major Policy-Making Process
4. Analysis of Comparable Systems in Other Countries

Background and Necessity of Innovative Inspection Policy

1. National and International Situation during Innovation

1.1. National Situation during Innovation

As of 2004, the total number of passengers reached more than 22.4 million annually, a combination of 11.21 million outbound and 11.19 million inbound. The Incheon Airport Immigration Office in charge of the immigration inspection service played an essential role in strengthening the national image by setting the standard in its administration and measuring customer satisfaction.

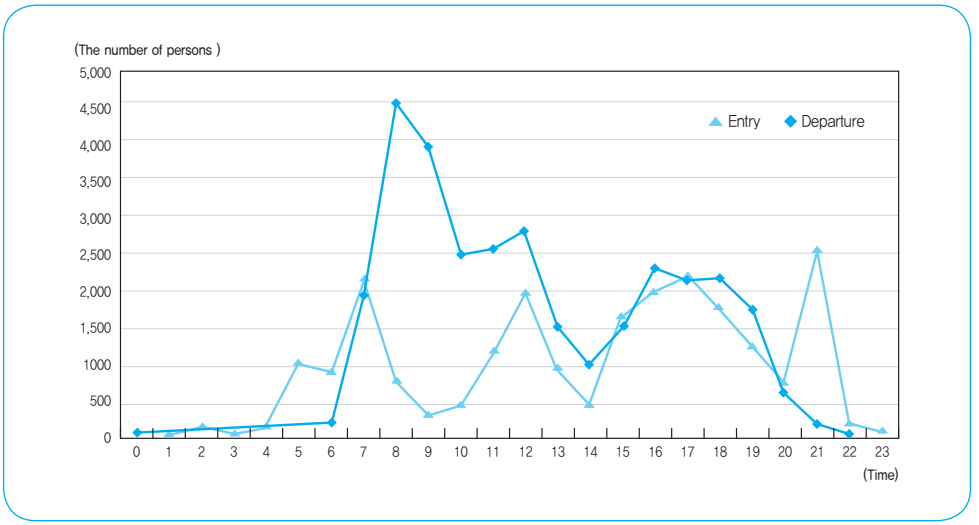
Table 3-1 | 2004 Passenger Arrivals and Departures

Classification	Total	Departures	Arrivals
All Airports in Korea (A)	29,609,460	14,820,796	14,788,664
Incheon International Airport (B)	22,416,307	11,218,016	11,198,291
Percentage (B/A)	75.70%	75.69%	75.72%

Source: Ministry of Justice, 2004, Annual Report of Arrivals and Departures.

An analysis of arrival and departure traffic showed that congestion levels differed throughout the day. In the case of departures, the busiest time was mornings between 8 and 10 a.m. Arrivals were busiest mornings between 4 and 7 a.m., and at night, between 8 and 10 p.m. Despite the traffic patterns, staffing and system were not flexible so it was difficult to deploy more inspectors during peak times and this presented a problem.

Figure 3-1 | Passenger Arrivals and Departures by Hour



Source: Internal Data from the Ministry of Justice.

In addition, customer satisfaction with Incheon Airport's immigration inspection ranked 16th in the AETRA Customer Satisfaction Survey[3] as of the 4th quarter of 2004. Regional competitors, Chek Lap Kok Airport in Hong Kong and Changi Airport in Singapore, ranked 1st and 5th respectively. In comparison, Incheon Airport scored relatively low among its competitors.

Table 3-2 | AETRA Customer Satisfaction Survey
(As of 4th Quarter 2004 Survey of 45 Major Airports)

Ranking	Airport	Ranking	Airport	Ranking	Airport	Ranking	Airport
1	Hong Kong (Chek Lap Kok)	2	Copenhagen	3	Bermuda	4	Minneapolis
5	Singapore (Changi)	6	Brussels	7	Dubai	8	Kuala Lumpur
9	Keflavik	10	San Diego	11	Dallas	16	Incheon

Source: Internal Data from the Ministry of Justice.

3. Note: Name change in 2005 from AETRA to ASQ.

An analysis of the 2004 immigration inspection system illustrated several structural weaknesses. First, customer dissatisfaction was due to excessive waiting time and a complicated inspection process. The inspection time was more than 40 minutes for foreigners and more than 20 minutes for Koreans. Second, unlike the advanced inspection systems of its competitors, internal inefficiencies of the Korean organization undermined its ability to provide customer-friendly service. Third, separate divisions for arrivals and departures led to inflexible staffing of inspectors who were not cross-trained to work in both divisions.

1.2. Changes in External Environment

As barriers between countries disappeared and human and material resource exchanges expanded, the number of airport passengers surged. In particular, a rapidly increasing demand for flights in Northeast Asia and deregulation of the airline industry created fierce competition among airports vying for hub positions. Many countries in Northeast Asia were accelerating efforts to offer greater airport infrastructures and enhanced services. An expansion of existing airports and construction of new larger airports was underway.

For example, Japan opened the new Kansai Airport in 1994 and implemented policies to expand and position Haneda Airport as a hub alongside Narita Airport. In 1998, Hong Kong launched the Chek Lap Kok Airport and China opened the Pudong Airport to respond to skyrocketing demand. Later in 2001, the Incheon Airport went into operation. Competition to be a Northeast Asian hub grew tougher every day (Jo Inhwan *et al*., 2005).

As airline deregulation in Northeast Asia expanded, competition around the world grew. Countries worked tirelessly to maintain or secure hub status. Strategies for developing airports to meet demand were in response to a changing airline industry and evolution of its hubs.

Furthermore, due to economic growth and globalization, travelling abroad became more available and the number of leisure travelers increased. To attract more tourists, countries around the world were developing tourism products and strengthening their promotion. The competition for logistical hubs in Northeast Asia grew fierce among major countries as economic wealth boosted the number of passengers travelling throughout the region.

2. Introduction of Innovation and Environmental Analysis

2.1. Introduction of Innovation

In 2005, the Korean government's reform focused on implementation and expansion of innovation. Along these lines, the MOJ deliberated on the process and concluded that there was a need for a training program for change agents in its agencies.

Nurturing change agents in each of its 145 agencies was not feasible. Therefore, the MOJ designated 15 financial and economic agencies and created an "Innovation Leading Team" of 50 employees. The Incheon Immigration Office was designated as one of the innovation-oriented agencies despite complaints and criticism about its selection.

After its designation, an Innovation Education Program was implemented from February to August 2008. Initially, team members complained about the difficult level of educational content in the program. But through consistent reinforcement of the skills and tools learned, they were able to acquire systematic and professional techniques such as 3C FAW (Company, Customer, Competitor at Work), 7S (Strategy, Structure, System, Staff, Skill, Style, Shared Value), SWOT analysis, Customer Segmentation, Biz System, Business Analysis, Logic Tree, MECE (Mutually Exclusive, Collectively Exhaustive), 4P (Product, Price, Place, Promotion) analysis, strategic thinking, fact-oriented thinking, hypothesis setting and testing, data collecting and analysis, Blank Chart, process mapping, developing methods of innovation tasks and solution, etc. They attended three two-day courses and practiced on-site innovation coaching eight times. Employees were able to apply their training in the field. Consequently, a well-organized analysis of the overall process of Incheon Immigration Offices resulted in a new mind set and paradigm shift. It was an opportunity to look beyond the business-as-usual process for immigration inspection work.

2.2. Creation of Strategic Plan Based on Internal and External Environment Analyses

2.2.1. Environmental Analysis

The purpose of the environmental analysis was to gain perspective and an understanding of the systematic and scientific environment of immigration organizations and their operational structures. The Innovation Leading Team in the Incheon Airport led the analysis to detect inefficiencies in the immigration inspection process through the use of scientific tools and skills, as well as the support of outside subject matter experts.

The environmental analysis has three aspects. The first is segmentation. Inbound and outbound passengers are categorized into four groups: arriving and departing passengers (both Koreans and foreigners); foreigners against the national interest (entry denied and departure ordered); relevant organizations (public and private); employees of the immigration inspection. The second is to benchmark major competitors, e.g., Narita, Dubai, Chek Lap Kok, Changi, Heathrow, Charles de Gaulle, and Frankfurt Airports. The third is 7S analysis: Shared Value, Strategy, Structure, System, Staff, Skill and Style of Organization.

With this in mind, an integrated environmental analysis of the Incheon International Airport was conducted. The results of the analysis are as follow: ① Many people recognize the need for strategies such as continuous scientification for an effective and quick immigration inspection system. Support, however, was low, indicating that promotion of a more dynamic action plan was needed. ② Speed and accuracy of the inspection process are not easily achieved at the same time. Which of the two values takes precedence depends on exterior circumstances or policy maker conviction. This causes delays and the inability to respond to passenger demand. ③ In terms of organizational structure, the separation of arrivals and departures makes the inspection process stable but inflexible. Although the process for both is similar, segregation creates an inflexible operation. Moreover, there is no direction to move toward integration of the two under current leadership. Reports only focus on a certain scope of work. Lastly, it is difficult to effectively manage team members because the department as an organizational unit is quite large. ④ In terms of organizational system, departments rotate personnel in four areas of the arrival and departure immigration inspection process. Inspectors are allocated in the immigration area by department and, as necessary, some can support the workload by changing positions vertically and horizontally. But under these circumstances, no one department has overall control of the inspectors. Inflexible management leads to low work productivity. Furthermore, the organizational structure and inflexible staffing result in low work efficiency. Inspection time is delayed due to the identification process of face-to-face inspection, check of arrival/departure cards, etc. And inspectors are fully allocated into the immigration area as inspectors are needed for other non-inspection duties. ⑤ The organizational structure is designed for arrivals and departures and a basic organizational unit consists of many team members. This hinders the ability to shift staff with changes in demand. In addition, as the inspection process does not require cooperation among inspectors, there is weak integration of skills. ⑥ In terms of staffing, employees with expertise, international understanding and foreign language fluency are well qualified as inspectors. Despite such skillsets, however, individual contribution to the organization is low. ⑦ In terms of organizational culture, indifference toward the organization, lack of teamwork and deep individualism are evident.

2.2.2. Results of Environmental Analysis of Innovation

Results of environmental analysis consist of four elements. First, in the case of passenger arrivals and departures, customer requirements vary, and these have increased quantitatively and qualitatively. The environment does not have enough resources to meet customer needs. Second, in the case of organizational structure, scope of work is divided into arrivals and departures. Such an inflexible operation gives rise to decreased productivity. Third, in the case of staffing, inspectors work independently and are inflexible; a comprehensive management system is needed. Fourth, in the case of immigration inspection, the existing system is control-focused rather than customer-focused inspection process. A customized system is needed.

Table 3-3 | Results of Environmental Analysis for Innovation

Customer (Arrivals & Departures)	Organizational Structure
○ Various customer needs, quantitative and qualitative increase in customer needs ○ Need to better meet customer needs	○ Division of duties for arrivals and departures ○ Low productivity caused by inflexible operation
Human Resources Operation System	**Immigration Inspection**
○ Segregated inflexible operation ○ Need for a comprehensive system for HR management	○ Control-oriented inspection ○ Need for customized service

Source: Internal Data from the Ministry of Justice.

2.2.3. SWOT Analysis: WO Strategy

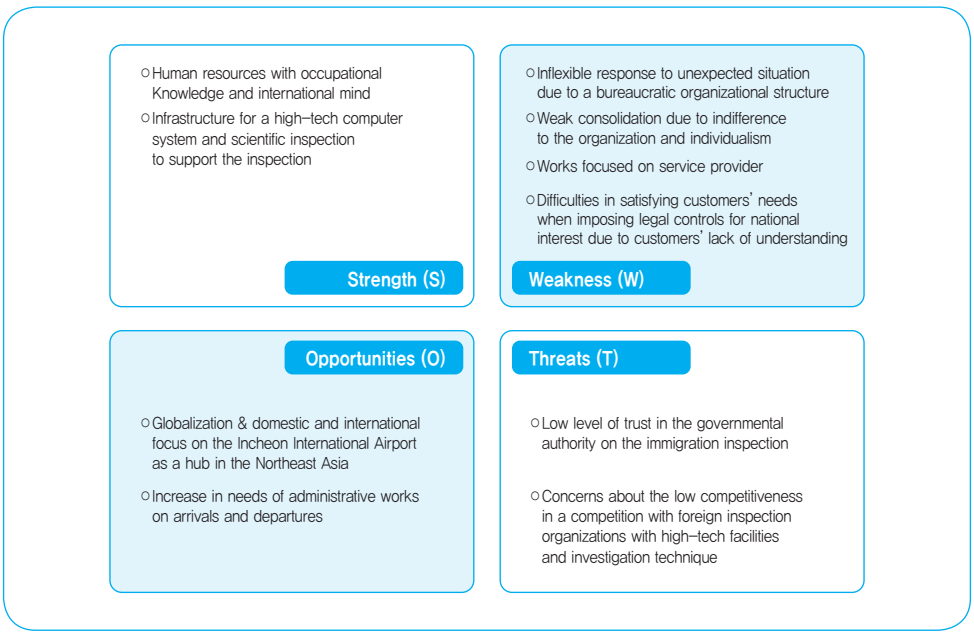
An analysis of SWOT (WO strategy) to turn internal weaknesses into opportunities was conducted. According to the analysis, the following are strengths: ① staff has occupational knowledge and international understanding; ② high-tech computerized system and scientific inspection to support the process exists.

Analysis revealed the following weaknesses: ① flexible response to unexpected situations is difficult due to a bureaucratic organizational structure; ② teamwork is poor due to indifference to the organization and individualism; ③ works focuses on service provider rather than customer; ④ satisfying customer needs is difficult when legal controls for national interest must be done and customers lack understanding of the process.

Analysis indicated threats caused by the weaknesses as follow: ① low level of trust in the governmental authority of the immigration inspection; ② concerns about lacking competitiveness as compared to other immigration inspection organizations with high-tech facilities and investigative techniques.

Nevertheless, there were opportunities identified: ① increased interest at home and abroad in Incheon International Airport as a hub in the Northeast region; ② increased administrative demand as arrivals and departures become more globalized.

Figure 3-2 | SWOT Analysis Results



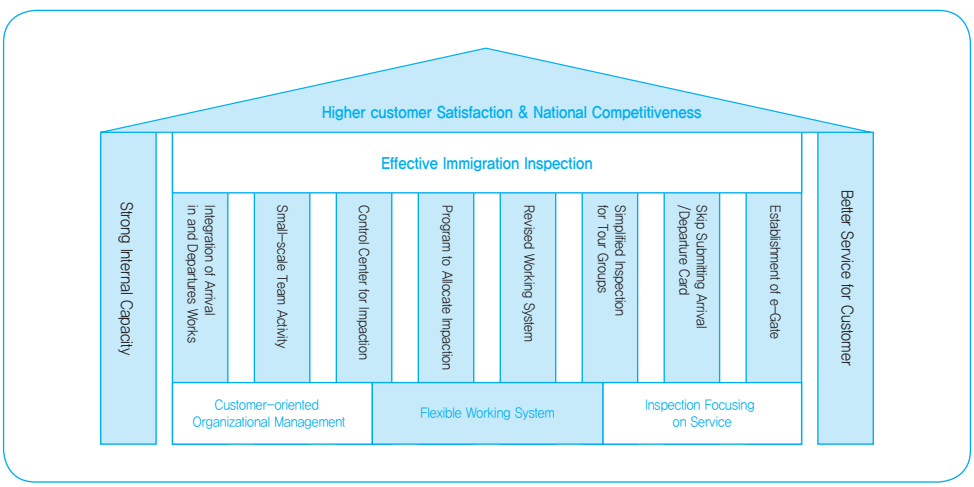
Source: Internal Data from Ministry of Justice.

3. Goal and Major Policy-Making Process

3.1. Establishment of Goals

The goals to innovate immigration inspection policy targeted increased customer satisfaction and enhanced national competitiveness through an effective immigration inspection system. Effective inspection requires a system which maintains accuracy and security at the same time, and streamlines the inspection process which results in reduced inspection time and increased customer satisfaction. For effective change to occur, strengthened capacities and improved customer service are the benchmarks. In view of these goals, we established three features of innovation: a customer-oriented organization management, flexible working time and service-focused inspection. These were then categorized into eight major categories. First, we integrated arrival and departure departments and introduced team-building activities with the inspectors. Secondly, we established a central control center and implanted a system to allocate inspectors differently. Third, to reduce customer waiting time, we simplified the inspection process for tour groups, eliminated the requirement for arrival and departure cards and established e-Gate.

Figure 3-3 | Goals and Contents of Innovation



Source: Internal Data from the Ministry of Justice.

3.2. Request Analysis between Stakeholders during Innovation

3.2.1. Categorization of Groups

A variety of institutions are interrelated in airport immigration inspection systems. Therefore, during this innovation process, the priority was to analyze and categorize customer concerns and requests regarding the immigration inspection process.

Passengers were categorized under arrivals and departures, foreigners and Korean nationals, related organizations and staff. Passenger arrivals and departures were divided into Koreans and foreigners. Koreans were further divided into leisure travelers and business travelers, according to the purpose of travel. Foreigners were divided into developed and developing countries of origin, and further into leisure, business and employment according to purpose of travel. Foreigners who posed a security issue were divided into rejected and deported.

Related organizations were divided into public and private institutions. Public institutions included the National Intelligence Service (NIS), customs, quarantine station, military manpower administration, the Ministry of Foreign Affairs (MOFA) and airport police. Private institutions included airlines, Korea Airports Corporation (KAC), security companies and duty free shops.

3.2.2. Analysis of Stakeholders Requests

We analyzed characteristics of stakeholders as categorized above and collected their requests.

a. Analysis of Arriving and Departing Passenger Needs

First, Koreans requirements were analyzed. Details follow in <Table 3-4>.

Table 3-4 | Requirements of Korean Passengers

Classification 1	Classification 2		Passenger Characteristics (immigration)	Requirements for Immigration
Koreans	Leisure	Group	• Tend to be nervous while waiting in the immigration inspection due to a lack of experience visiting foreign countries • Stay in groups, do not act independently • Sensitive to facial expressions or words of officials working in airports	• Simple inspection • Kind and devoted guide
		Individual	• Backpackers, golfers, visitors of relatives in a foreign country • Have a lot of immigration experience and want to be treated as a customer at the immigration counter	• Simple and quick inspection • Orderly inspection
	Business		• Have a good understanding of immigration inspection due to a lot of experience visiting foreign countries • Want to avoid long waits at airport as they think it affects the competitiveness of the airport • Prefer to be treated differently from tourists	• Differentiated inspection • Simple and kind inspection • Preference for high-tech inspection methods

Source: Internal Data from Ministry of Justice.

Next, foreigners needs were analyzed in <Table 3-5> which follows.

Table 3-5 | Requirements of Foreign Passengers

Classification 1	Classification 2			Passenger Characteristics (immigration)	Requirements for Immigration
Foreigners	Developed countries	Tour	Group	• Mainly from Japan, Hong Kong, and Taiwan • Visit airports during peak times including holidays and weekends • Prefer short line at immigration counter due to their busy schedule	• No visa needed for immigration • Quick and kind inspection • Different treatment from tourists of developing countries
			Individual	• Interested in immigration inspection due to high interest in Korea as destination • Tend to link impression of inspection to the image of Korea and share their thoughts with others	• Simple and kind inspection
		Business		• Have much immigration experience and a great amount of interest in Korea for business reasons • Acknowledge the importance of immigration inspection and have a good trust in officials working for immigration • Tend to be strongly offended in a disadvantageous situation during the inspection • Prefer kind and accurate inspection to speedy one	• Kind inspection
		Employment		• Educated class including professors, business investors and language teachers • Long stay visitors highly interested in immigration declaration • Some language teachers come to do illegal lectures and violate immigration law	• Quick and kind immigration inspection • Information on the inspection requirements for a long stay • Guidance on policies and procedures

Classification 1	Classification 2		Passenger Characteristics (immigration)	Requirements for Immigration
	Developed countries	Tour – Group	• Tour purpose and schedule fixed, little experience visiting Korea • Many from China and Thailand, some leave the group during tour • Very nervous about not being permitted to enter the country	• Simple inspection • Not discriminated against at the inspection • Avoid complicated inspection by officials at the immigration counter
		Tour – Individual	• Visit for sightseeing but also for casinos • Upper class with a lot of experience traveling to foreign countries • Spend a lot of money shopping in Korea	• Simple visa issuance process • Differentiated immigration inspection from people in developing countries • No disclosure of visiting purpose
		Business Trip	• Difficult to know real purpose of visit when they have counterfeit trade documents • Disguised as participants of international events, want entry to find employment • Most are individuals invited by businesses, so denial of entry affects business seriously • Most stay illegally after entry	• Simple immigration inspection for those with invitation or trade documents • Fair, accurate and differentiated inspection
		Visit (employment)	• Relatives of foreigners who have been legally in Korea for a long time, who are in difficult economic and social situations and want entry to find employment • Most visitors stay on in country illegally • When entry denied, foreigners who invited them complain strongly • Enter county for purpose of participating in religion events	• Non-restrictive regulations of invitation and entry qualifications • Simple inspection

Source: Internal Data from Ministry of Justice.

Lastly, foreigners who pose a threat to the national interest were analyzed in <Table 3-6> below.

Table 3-6 | Analysis of Foreigners who Pose Threat to National Interest

Classification 1	Classification 2	Customers' Situation (immigration)	Requirements for Immigration
Foreigners who may damage national interest	Entry denied	• Mostly from low income countries and try to enter to find job illegally • Carry forged passport to hide history of being evicted or denied entry into country • Lack of ability to speak foreign language and to communicate • Very nervous about being denied entry and tend to injure themselves or flee	• Not to be treated as a criminal • Provide interpreters • Legal and legitimate process, meeting their ambassador
	Evicted	• Very anxious as they are caught by immigration officials during their illegal stay • When they are handed over to airport authorities, waiting time should be short as they are likely to attempt escape	• Not to be treated as a criminal • Allowed re-entry to Korea and reduced entry regulations

Source: Internal Data from Ministry of Justice.

An analysis of the spectrum of passenger requirements and situations follows. Not only has there been an increase in the number of passengers, but in the variation of needs due to passenger age, occupation and purpose of visit. The process of immigration inspection has come to be viewed as more than administrative, but as a regulatory requirement due to changes in economic capacity and advanced consciousness. A higher quality of immigration inspection is expected. Arriving passengers from developing countries are using sophisticated ways and means to enter Korea. Across all categories of passengers is a request for an immigration inspection that is quick and kind, differentiates according to purpose of travel (business or leisure), fair, transparent and accurate.

b. Analysis of National Agencies Requirements

National agencies requirements were analyzed in <Table 3-7> as follow.

Table 3-7 | Requirements of National Agencies

Classification 1	Classification 2	Passenger Situations (immigration)		Requirements for Immigration
		Departure	Arrival	
National Authorities	Customs	• Declare taxable items • Inspect to check whether duty free goods are taken out (security company contracted)	• Inspect to check whether taxable items are taken into the country • Inspect to check whether forbidden items such as guns and drugs are being carried	• Prompt notification of immigration records for screening frequent customs law violators • Cooperation
	Quarantine Station		• Inspect Koreans and foreigners from quarantine regions	• Provide immigration records of people from quarantine areas • Cooperation
	Manpower Administration	• Permit and check departure of those subject to obligatory military service • Ask for notification when potential draft dodgers leave the country	• Ask for notification when potential draft dodgers enter the country	• Check whether those subject to obligatory military service are permitted to leave the country • Cooperation
	Ministry of Foreign Affairs	• Issue passports • Cancel stolen passports • Provide protocol service for distinguished guests of international events (arrivals also) • Control citizens who visit dangerous countries	• Cancel stolen passports	• Seize false passports and ban departure of those with cancelled passports

Classification 1	Classification 2	Passenger Situations (immigration)		Requirements for Immigration
		Departure	Arrival	
National Authorities	International Airport Police	• Collect data on criminal suspects (arrivals also) • Locate suspect whereabouts (arrivals also)	• Inspect citizens from terror-supporting countries	• Notify arrival and departure of citizens from terror-supporting country • Notify when criminal suspect is caught • Provide immigration information • Cooperation
	Others	• Forbid suspects from leaving the country	• Forbid suspects from entering the country	• Forbid suspects from entering and leaving the country and notify

Source: Internal Data from Ministry of Justice.

Private organization requirements are as follow in <Table 3-8>.

Table 3-8 | Requirements of Private Organizations

Classification 1	Classification 2		Passenger Situations (immigration)		Requirements for Immigration
			Departure	Arrival	
Private Organizations	Airline	Crew	• Subject to inspection when leaving the country • Frequent entry/ departure (arrivals also)	• Subject to inspection when entering the country	• Simple inspection
		Office Workers	• Issue and withdraw boarding pass • Help passengers lacking requirements for departure • Submit GD (arrivals also)	• Send those denied entry • Help passengers lacking requirements for entry	• Speedy inspection for on-time departures • Reduce regulation carriers • Cooperation

Classification 1	Classification 2	Passenger Situations (immigration)		Requirements for Immigration
		Departure	Arrival	
Private Organizations	Korea Airports Corporation	• Manage major facilities including immigration counter (arrivals also) • Establish and execute comprehensive plan for efficient operation of airport (arrivals also) • Operate a consultative system for companies located in the airport		• Manage facilities carefully • Maintain speedy immigration inspection system to secure competitiveness of the airport • Give full support of immigration inspection for 24-hour airport operation
	Security Firms	• Security check for visitors • Security check for employees of the companies located in the airport security zone (arrivals also)	• Security check for transferring passengers	• Full support of security check
	Duty Free Shops	• Sell duty-free goods to travelers including transferring passengers		• Speedy inspection to secure enough time for shopping • Support immigration inspection to run 24-hour airport operation

Source: Internal Data from Ministry of Justice.

Analysis of the agencies requirements shows that most rely upon an accurate immigration inspection system to restrict/remove foreigners who pose a national threat, to strengthen national security and to maintain public order. At the same time, private organizations make requests of the immigration inspection system because they conduct a variety of tasks necessary for optimum airport operations. Customer satisfaction takes precedence in the event of conflicting objectives and thus cooperation between parties is critical for an effective working system.

c. Analysis of Internal Employee Requirements

Requirements of immigration counter employees are as follow in <Table 3-9>.

Table 3-9 | Requirements of Immigration Counter Employees

Classification	Passenger Situations (immigration)	Requirements for Immigration
Employees at the Counter	• Must work independently but lack cohesiveness • Recognize the importance of immigration inspection but consider the work unimportant • Prefer to maintain the status quo rather than change • Have experience, knowledge and foreign language ability but low productivity	• Predictable personnel transfers • More opportunity for self-development • Pleasant working environment • Compensation for working Saturdays and working 24 hours

Source: Internal Data from Ministry of Justice.

4. Analysis of Comparable Systems in Other Countries[4]

4.1. Asia

Narita Airport in Japan streamlined their system to efficiently utilize human resources. After estimating the passenger flow, the airport allocated inspectors from the first to the eighth inspection areas without distinction of job duties. In addition, immigration cards were no longer required for Japanese passengers in order to expedite the inspection process. Through a study of the Japanese system, it was found that arrival and departure areas were integrated, staffing was flexible, and that this restructuring improved the inspection process for nationals.

Dubai Airport in the UAE introduced "e-Gate" in September of 2002. At that time, not many passengers were inspected through e-Gate. Immigration inspectors used stamps for arrivals and departures, so they could perform manual inspections as needed. In addition, the UAE operated various types of checkpoints. Among them, e-Gate was operated only for nationals and citizens from 34 Arab countries. Passengers could pass the first entrance with their passports and ID cards, and then they passed the second entrance through a

4. Information on foreign countries from internal data of the Ministry of Justice during innovation

fingerprint recognition system. The checkpoint of the Gulf Cooperation Council (GCC) was for passengers from 34 Arab countries. The checkpoint of Fast Track (FAST) was only for first and business class passengers. The checkpoint of Passport Control was for ordinary foreign passengers. Through analysis of Dubai airport, we found that the country used e-Gate system based on biometric identification technology and provided specialized services to meet varied passenger needs.

Chek Lap Kok Airport in Hong Kong managed inspector staffing in through the flexibility of a labor pool. Immigration inspectors had stamps for arrivals and departures to manually conduct arrival and departure inspections. And security scanning was conducted after immigration inspection. Hong Kong was expected to introduce a system whereby nationals who held smart cards with embedded finger prints would be inspected through e-Gate. Through researching the system in Hong Kong, we learned effective and flexible labor management and the efficiency of placing a security scanning after the immigration inspection process.

Changi Airport in Singapore focused on improved airport service, summed up in their mission statement, "To be the best and friendliest airport in the world." The Immigration Organization of Home Affairs was responsible for immigration control as well as customs duty and inspectors performed their duties of immigration control and customs in shifts. As needed, immigration officials conducted inspections at the arrival and departure immigration checkpoints. Nationals and registered foreigners with smart cards were allowed through e-Gate. Passengers passed through e-Gate by scanning their right thumb print and without the use of arrival or departure cards. Through a case study of Singapore, we learned the importance of focus on courteous and kind service, integrated duties of immigration and customs officials and scientific measures for a quick immigration inspection process.

4.2. Europe

Heathrow Airport in Britain attempted to introduce e-Border program to prevent passengers from misuse of visas by attaching electronic tracking devices to every individual who passed through their borders. Passengers not from EU countries were required to fill out arrival and departure cards, whereas EU passengers were exempt from this requirement. Through a study of Heathrow Airport, we learned the British were developing automated inspection measures to integrate the inspection process with management of foreign residents.

As a rule, passengers not from EU nations needed to complete arrival and departure cards except in the case of Charles de Gaulle Airport in France. This airport's attempt to simplify the immigration inspection process was of interest in our study.

Frankfurt Airport in Germany is ranked 7th in the world for the total number of arriving and departing passengers. At this airport, passengers did not fill out arrival or departure cards, and inspectors verified expiration dates on passports and possession of visas. This airport was considered a role model in preparation for growth, anticipating that the passenger count would climb to 50 million.

4.3. Implications

At the time of the study, Incheon International Airport had an advanced immigration inspection system and well organized use of its human resources which served to secure its status as a Northeast Asian hub. Furthermore, the airport was unceasing in its efforts and investment to quicken and simplify the immigration inspection process. Coupled with the use of automated inspection equipment, further efficiencies in human resources were realized. We recognized, however, that an immediate and major innovation of the entire immigration inspection system was needed to gain a competitive edge. There were many steps to ensure success. First, it was important to have equipment such as e-Gate for a biometric recognition system and e-cards. Secondly, we needed to adopt the process of simplifying the immigration inspection process for nationals by eliminating the requirement for arrival/departure cards from these passengers. And finally, we needed to restructure the system from specific job du twill set a foundation to flexibly operate human resources by changing from works-oriented organization into efficiency-oriented one.

2014 Modularization of Korea's Development Experience
Innovation of Immigration Inspection Policy in Korea

Chapter 4

Strategies and System in Process of Innovation

1. Set-up of Overall Process of Innovation
2. Management of Organizational Structure for Policy Implementation
3. Enactment and Amendment of Law in Innovation Process

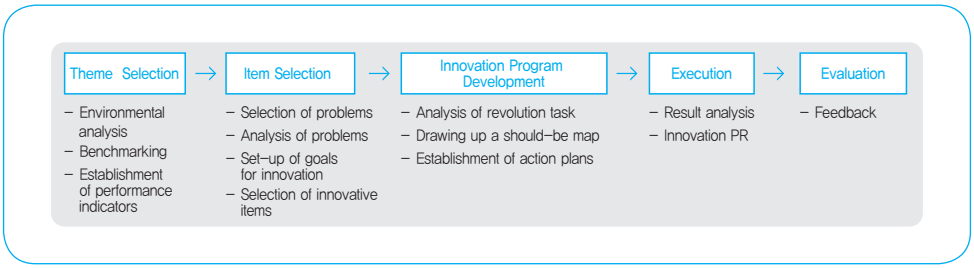
Strategies and System in Process of Innovation

1. Set-up of Overall Process of Innovation

1.1. Implementation

The overall process of the implementation of the innovation was set up in five steps. The first step was theme selection based on environmental analysis, benchmarking, and establishment of performance indicators. The second step involved problem selection and analysis, establishing goals and selecting innovative items. The third step was development of the innovation program. It included analysis of revolution tasks and a layout or blueprint of the operation. In this step, action plans were established as well. The fourth step was execution in which results of the changes were analyzed and publicized. In the fifth and final step, feedback from previous steps was evaluated.

Figure 4-1 | Overall Process of Innovation



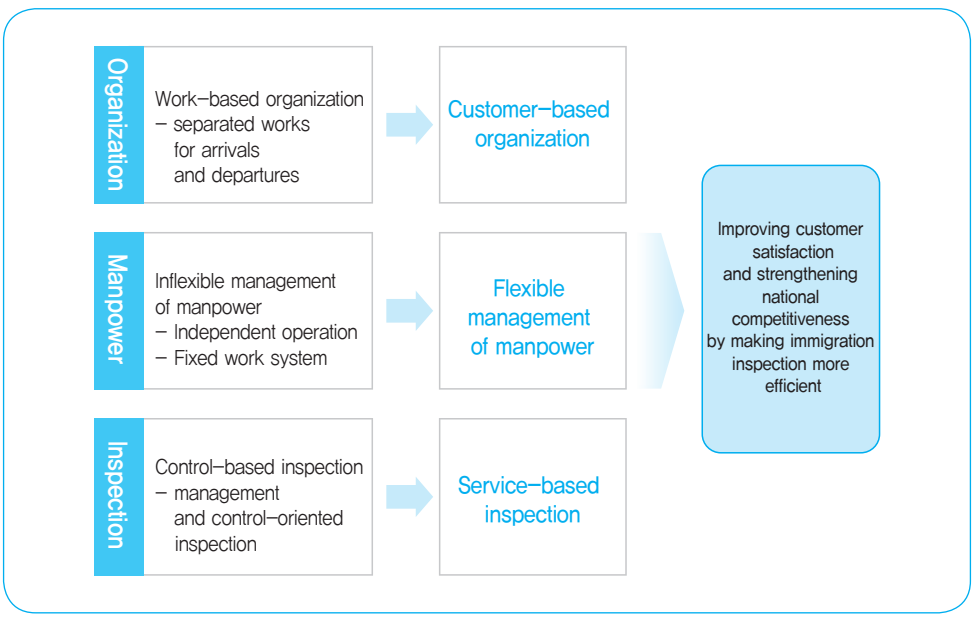
Source: Internal data from the Ministry of Justice.

Details of the implementation measures are outlined as follow.

1.2. Implementation Measures in each Phase of Process

1.2.1. Theme Selection

Figure 4-2 | Theme Selection



Source: Internal data from the Ministry of Justice.

Analyzing the environment, benchmarking and establishing performance indicators were done in this phase of theme selection. The environmental analysis and benchmarking were reviewed in the Chapter 2. Performance indicators were established as a result of the environmental analysis, SWOT analysis and benchmarking of foreign rival airports.

The Key Performance Indicators (KPI) involved areas such as the rate of operation by inspectors, passenger waiting time, customer satisfaction, etc. The operation rate of inspectors was defined as the number of total immigration inspectors per arrival and departure traffic. The waiting time for the immigration inspection was measured as the time required for a passenger to clear inspection. In the case of departures, waiting time was considered the time a passenger spends in the departure lounge. For arrivals, it was the time a passenger spends waiting for the inspection after arriving at the inspection point. The customer satisfaction rate is the immigration inspection index of passengers from major international airports as conducted by the International Air Transport Association (IATA) and the Airports Council International (ACI). A separate target for performance indicators was set with regard to present levels specified in <Table 4-1>.

Table 4-1 | Key Performance Indicators and Performance Goals

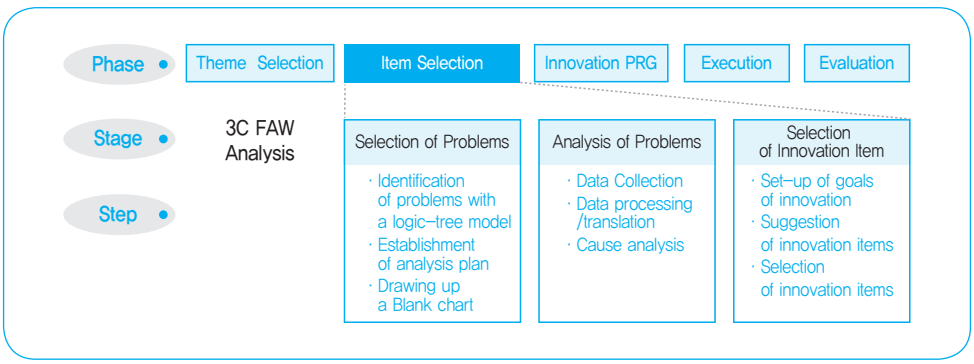
KPI (Key Performance Indicator)	Current	Target
Operation Rate of Inspectors	49%	60%
Time for Immigration Inspection	Departure (39 sec. for Koreans, 41 sec. for foreigners) Arrival (33 sec. for Koreans, 74 sec. for foreigners)	Departure (26 sec. for Koreans, 35 sec. for foreigners) Arrivals (21 sec. for Koreans, 63 sec. for foreigners)
Waiting Time for Immigration Inspection	Departure (17 min. for Koreans, 17 min. for foreigners) Arrival (20 min. for Koreans, 43 min. for foreigners)	Departure (10 min. for Koreans, 10 min. for foreigners) Arrival (11 min. for Koreans, 32 min. for foreigners)
Customer Satisfaction	14th at AETRA	Within top 7

Source: Internal data from the Ministry of Justice.

1.2.2. Item Selection

To ensure consistency in item selection, the selection process included an analysis of problems and possible innovative items to increase the efficiency of immigration inspection policy.

Figure 4-3 | Item Selection Process

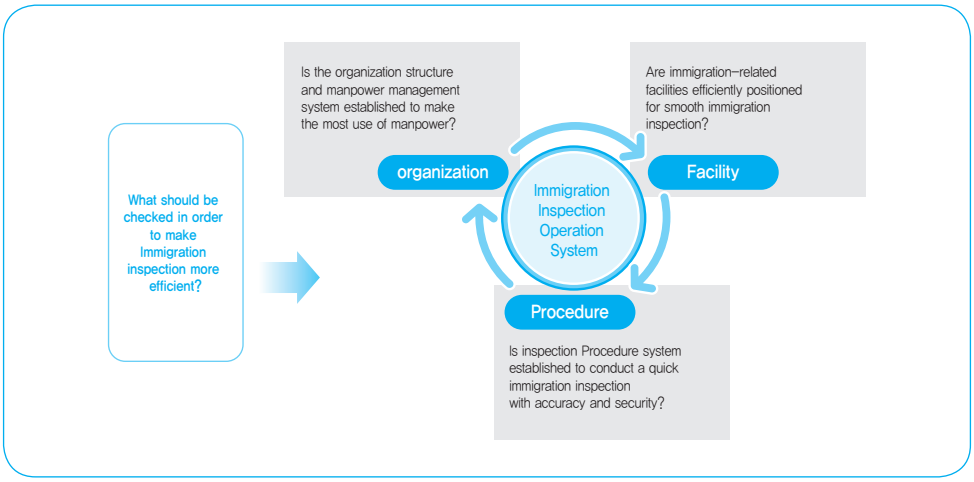


Source: Internal data from the Ministry of Justice.

In the stage of problem analysis, a logic-tree was drawn up to find the root cause. Based on that logic-tree, a hypothesis was reached through consensus of team members following three rounds of evaluation. Content, methodology and schedule to effectively test the hypothesis were considered. Parameters were established for the collection and analysis of data. The first step to establishing parameters was to create a rough draft of content and indices, as well as a chart to organize possible solutions to address the problems. Based on missing information in that chart, it could be determined which data needed expansion and gathering. At that point, parameters for analyzing data would be established.

As mentioned above, identifying and categorizing problems were integrated in the process. The analysis criteria was determined by examining the organization, facilities, and inspection procedures from an integrated perspective.

Figure 4-4 | Set-up of Analysis Frame to Achieve Goals



Source: Internal data of the Ministry of Justice.

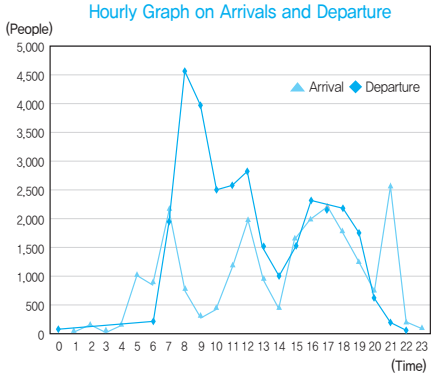
Based on the criteria, the obstacles to a more streamlined immigration inspection were identified: ① inflexible organization with separate divisions for arrivals and departures; ② lack of systematic manpower management; ③ ineffective location of immigration inspection facilities; ④ inadequate security screening checkpoints; ⑤ imbalanced allocation of airline check-in-counters; ⑥ excessive number of indices for the immigration inspection; ⑦ complex process for Chinese group tourists; and ⑧ unsystematic management of flight attendants.

First of all, it was determined that staffing should be positioned at congested areas depending on the level of passenger traffic, but manpower schedules were not in support of this. The busiest arrival time was 7~9 a.m, and the busiest departure time was 8~10 p.m. Yet the greatest number of inspectors were not available from 8~10 a.m. despite the peak passenger traffic.

Furthermore, manpower support was complicated by the segregation of arrivals and departures. That is, arrivals were processed strictly by immigration inspection officials and departures by departure immigration officials.

Figure 4-5 | Hourly Graph on Arrivals and Departures of People/ Personnel for Arrivals and Departures & Support

Hourly Graph on Arrivals and Departure



Personnel for Arrivals and Departures

Time	5:00	8:00	9:00	10:00	21:00
Support for Arrivals	4				5
Support for Departure		8	12	2	
No. of Personnel for Arrivals	35	106 (9)	106 (9)	106 (9)	32
No. of Personnel for Departure	30	105 (10)	105 (10)	105 (10)	33

Source: Internal data from the Ministry of Justice.

Secondly, the human resources management system was not efficient. There was no system in place to manage the 492 arrival and departure inspectors leading to ineffective staffing. Employees were positioned routinely with no consideration for the levels of passenger arrival and departure traffic. Flexing staffing levels in response to passenger demand was not easy as inspectors were controlled by separate departments. Furthermore, inspectors were not adequately allocated at immigration checkpoints to respond to situations.

Third, immigration inspection facilities were not properly allocated. Immigration inspection was in four separate areas, but passengers were not evenly dispersed. Therefore, inspections were congested in certain areas and a shortage of inspectors due to an inefficient inspection system for flight attendants. Also, support offices such as an interview rooms were remotely located, making it difficult to provide prompt support and for the operation in general.

Fourth, delayed security screening in immigration hampered the flow of arriving and departing passengers which further lengthened waiting time in the immigration inspection process. This was primarily due to an insufficient number of security checkpoints, 25 in all, servicing 120 immigration checkpoints. Furthermore, passengers backed up in security screening lines crowded the aisles, delaying passenger thoroughfare.

Fifth, check-in counters were concentrated around specific airlines and regions, making it difficult to allocate passengers. Departing aircraft are often among the same airlines in a specific area which leads to a concentration of passengers in the same areas. Longer passenger waiting times to clear immigration is the result of such a configuration.

Sixth, inspection was delayed by many confirmation points during the immigration inspection. During the inspection, a considerable amount of time was spent checking the submitted form. However, inspection time can be reduced by about 30% by eliminating the need for arrival/departure cards or simplifying the forms themselves.

Seventh, the congestion caused by Chinese tour groups was a barrier to other foreign visitors. The introduction of the Chinese tour group system in 1998 contributed to an increase in Chinese visitors. It is necessary for the immigration process to be less focused on the Chinese groups and to strive to serve the greater diversity of foreign arrivals.

Eighth, the lack of an effective system for processing flight attendants caused undue inconvenience in the immigration process and made it difficult to control flight attendants. A bar code printed on flight attendant certificates of registration was difficult to rely on because of frequent code reading errors. When flight attendants arrived and departed, a name list check was used in place of a proper immigration record. And for flight attendants on cargo aircraft forced to process at immigration inspection counters in the passenger terminals because of a lack of counters in cargo terminals, it was both inconvenient and inefficient.

Table 4-2 | Analysis of Immigration Inspection Inefficiency

Analysis Areas	Major Issues	Analysis Results
Organizational Structure	Arrival/Departure separation	It is difficult to be flexible within the organization due to separation of duties for arrivals and departures
	Large-scale department organization	It is difficult to manage and distribute workforce due to number and size of departments
Manpower Control	Manpower management	A comprehensive management system for inspection manpower is not established
	Working system	A flexible arrangement of inspectors according to the concentration of passengers is not in place

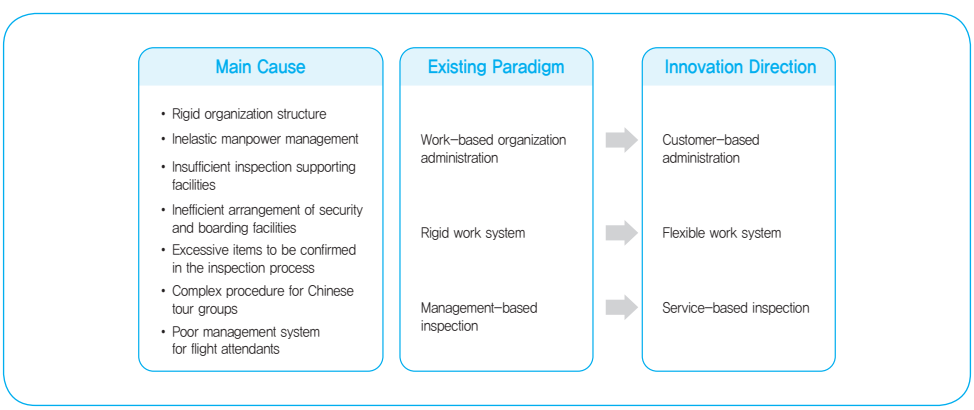
Analysis Areas	Major Issues	Analysis Results
Immigration Inspection	Items to be confirmed	Immigration inspection time is lengthened of an excessive number of items to be confirmed
	Group tours	Complex immigration inspection procedure and discrimination of group tourists leads to passenger dissatisfaction
	Flight attendants management	Flight attendants are inconvenienced by lack of immigration counters in the cargo terminal

Source: Internal Data from Ministry of Justice.

1.2.3. Direction of Innovation Established

The general direction of removing the main obstacles was established. Removal of the seven (7) causes identified in the problem analysis stage was the content of the new direction. Thus, the direction for revolution task was established to upgrade efficiency in the immigration inspection policy. That is, the list of the main causes of ineffective immigration inspection were: rigid organizational structure; inflexible human resources; shortage of inspection facilities; ineffective allocation of security screening counters; boarding facility; excessive confirmation points in the immigration inspection; congestion of Chinese visitors groups; and shortage of management system for flight attendants. These causes resulted from an organizational management that focused on existing work policies, a rigid system and a management-oriented immigration inspection policy. The proposed direction of innovation in immigration inspection was to be a more passenger-oriented managed organization, a flexible working system and a service-oriented immigration inspection.

Figure 4-6 | Innovation Direction Established



Source: Internal Data from Ministry of Justice.

1.2.4. Innovation Task Selection

Establishing the direction of innovation targeted items such as a customer-based administration, flexible work system and service-based inspection. Each item was selected according to the overall direction of desired innovation. Customer-based administration involved the integration of arrival and departure departments into a single organization, and breakdown of a large department into smaller work teams. Flexible work system meant an integrated management center for immigration inspection, an automated program to control inspector work and reorganization of the rigid work system. Service-based inspection simplified the immigration inspection procedure for tour groups, eliminated immigration form submission and implemented an automated immigration inspection system in cargo terminals.

Table 4-3 | Innovation Item Selection

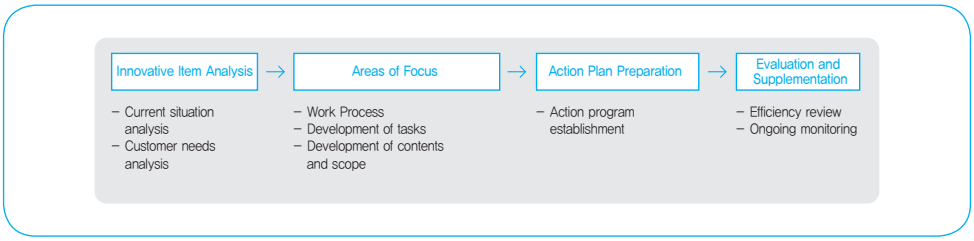
Items for Innovation	Innovation Task Description
Customer-based Administration	Integration of arrival and departure departments into a single organization
	Breakdown of large department into smaller work teams
Flexible Working System	Establishment of integrated management center for immigration inspection
	Implementation of automated program to control inspector work
	Reorganization of the rigid work system
Service-oriented Immigration Inspection	Simplification of immigration inspection procedure for tour groups
	Elimination of immigration form submission
	Implementation of automated immigration inspection system in cargo terminals

Source: Internal data from the Ministry of Justice.

1.2.5. Development of Innovation Program

An analysis of passenger requirements pertaining to the designated eight (8) innovation items and an analysis of each of the innovation items was conducted. Desired end results and the necessary steps in an overall action plan with time table were drawn up.

Figure 4-7 | Detailed Process to Develop Innovation Program



Source: Internal data from the Ministry of Justice.

1.2.6. Implementation

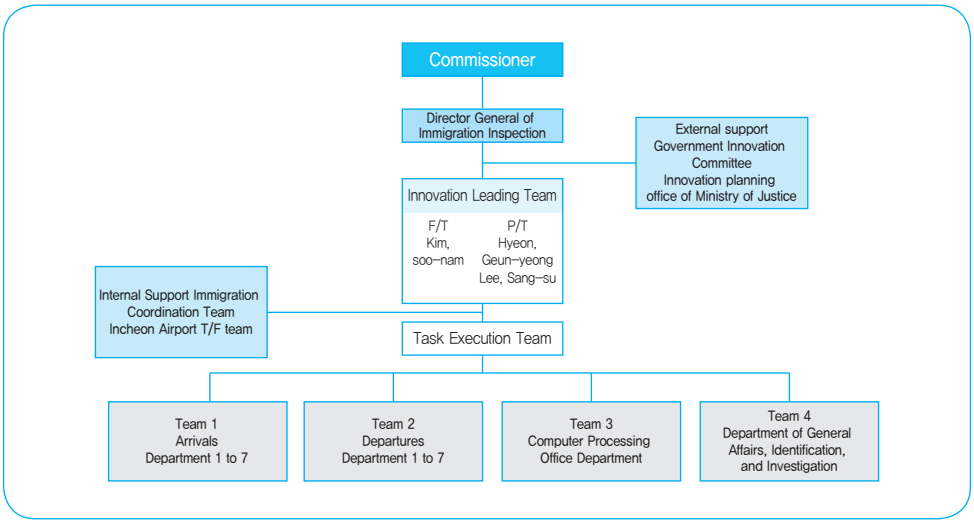
A task force of 10 persons was formed to support the innovation implementation. In addition, a task force of five (5) was established to build the e-Gate immigration inspection system in cargo terminals. A cargo terminal operation council comprised of nine (9) organizations such as customs, quarantine services, NIS and 17 officials was established. After 10 consultation meetings among institutions, an agreement on a cargo terminal immigration check-in service was reached. The agreement went into effect September 2005.

To gain support of the innovation, a public media campaign promoting the vision, background and expectation of benefits was announced through radio and newspaper. Employee participation in innovation activities was encouraged through staff conferences, training, surveys and a letter from the director.

2. Management of Organizational Structure for Policy Implementation

Taking the lead in innovation efforts was a team based in the immigration offices of Incheon International Airport. The team consisted of full-time and part-time personnel from the immigration inspection offices. In addition, there were four (4) task execution teams. The first team consisted of arrival sections 1 through 7; the second team was made up of departure sections 1 through 7. A third team came from the computer processing office. Team four (4) was derived from members of the department of general affairs, identification and investigation. Furthermore, to support the innovation leading team and task execution teams internally, there were an immigration coordination team and an Incheon Airport T/F team. To support the teams externally, there were the government innovation committee and the innovation planning office.

Figure 4-8 | Innovation Promotion Organization Chart



Source: Internal data from the Ministry of Justice.

3. Enactment and Amendment of Law in Innovation Process

For an effective innovation of immigration inspection policy, integrating arrival and departure sections and reducing a large department into smaller teams were undertaken. A restructure of the organization and work system supportive of the proposed team system was reviewed.

First, integration of arrival and departure sections into a single organization was conducted. A study of such integrated systems in Japan, Hong Kong and Europe which did not differentiate between arrivals and departures was performed. The analysis and reorganization proposal took place from February to May of 2005. The reorganization proposal was then submitted to the Ministry of Justice on May 25, 2005. At the same time, the reorganization proposal was submitted to the Ministry of Government Administration and Home Affairs. The proposal stated that the existing seven (7) arrival sections and seven (7) departure sections should be integrated into 14 inspection departments. This was expected to generate efficiencies equivalent to the hiring of 46 additional inspectors by effective management of the inspector workforce and system. It was determined that 95 percent of departures took place between 9 a.m. and 7 p.m. On the other hand, arriving

passenger inspections took place around the clock. But some employees were scheduled for earlier starting or later ending shifts which allowed them to avoid the heavier traffic times. With this proposed change, it was expected that employee satisfaction would increase as standardized working conditions would apply to all in an integrated department scenario.

Second, we took large scale departments and broke them down into smaller sections and created a team operational system for Incheon International Airport Immigration Office. This change took place on May 25, 2005 as well. The director of the immigration office did a briefing on the restructure of the organization on June 7, 2005. Press releases were distributed on June 9, 2005. The main focus of the reorganization was to integrate the two segregated departments and establish a total of 28 teams of about 13~14 members per team. With this new structure, we devised a system to strategically deploy inspector teams to checkpoints according to passenger traffic.

Next, we reviewed a new working system adapted to this reorganized team system. That is, we wanted a flexible working system to be able to assign inspectors to areas of higher passenger congestion within the new organizational structure. We began reorganization in July of 2005, and decided to adopt the system as soon as a computer program for inspector management was designed with the input of employee feedback.

2014 Modularization of Korea's Development Experience
Innovation of Immigration Inspection Policy in Korea

Chapter 5

Detailed Content of Innovation and Status

1. Major Content
2. Development of Innovation Process
3. Challenges and Solutions of Execution Process
4. Analysis of Success Factors

Detailed Content of Innovation and Status

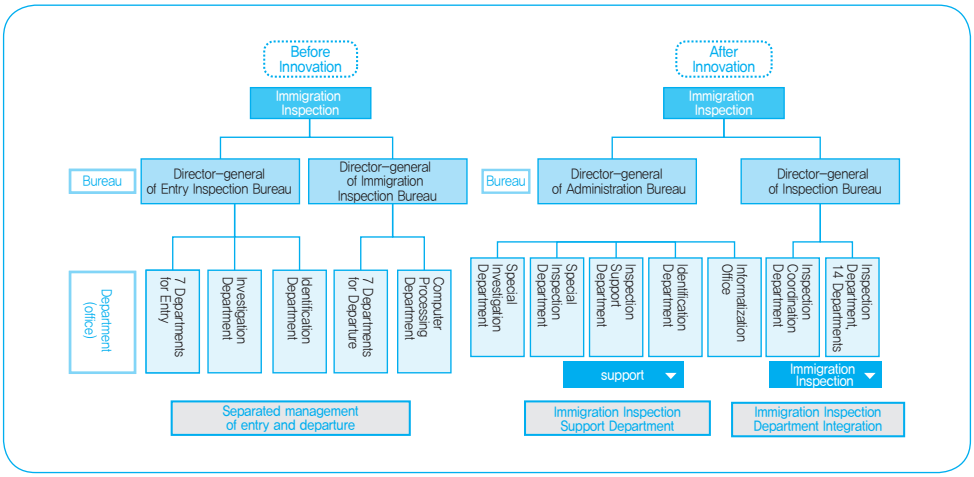
1. Major Content

1.1. Public Management Innovation

1.1.1. Innovation Task 1: Integration into a Unified Arrival/Departure Immigration System

The segregation of departments for arrivals and departures was the reason for problems such as ① inflexible allocation of inspectors; ② delayed waiting times for arriving and departing passengers; ③ imbalance of support for arrivals and departures; and ④ an irregular working system. To address the problem, we first integrated arrivals and departures into a unified inspection system, then we separated into two units, either inspection or support. Second, we adopted a flexible staffing framework through a pooled labor management system, increased manpower for the congested passenger arrival/departure areas and improved working conditions through minimum work support.

Figure 5-1 | Integration into a Unified Arrival/Departure Immigration System

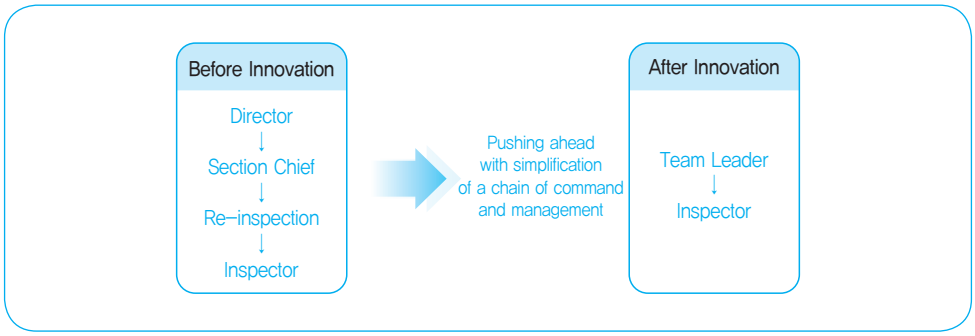


Source: Internal Data from Ministry of Justice.

1.1.2. Innovation Task 2: Breakdown of Large Department into Small Teams

Each departmental manager supervised 37 personnel in arrival sections and 33 personnel in departure sections. Therefore, some problems occurred as follow: ① difficulty in allocating personnel based on the passenger traffic; ② difficulties caused by managing personnel according to job duties; ③ weakened sense of belonging to organization; ④ less than optimal work performance. To address the problems, we implemented a system of dispersing small inspection teams of 13~14 persons, organized under the two departments of inspection or support. Were structured the organization to be team-based and empowered the individual team leaders.

Figure 5-2 | Team-based Organization

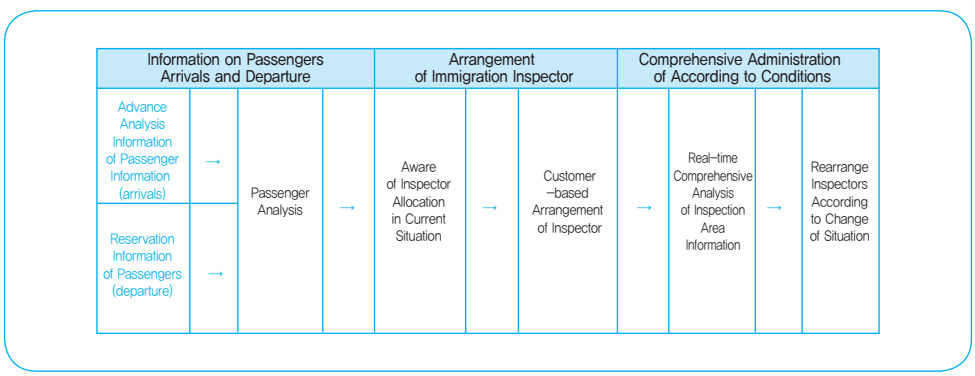


Source: Internal Data from Ministry of Justice.

1.1.3. Innovation Task 3: Establishment of an Integrated Administration Center for Immigration Inspection

Fourteen (14) departments operated independently and employees were segregated by job duties at that time. Therefore, two primary problems occurred as follow: ① inspectors were allocated routinely without considering the concentration of arrival and departure traffic patterns; and ② it was difficult to respond promptly to changes in arrival and departure passenger traffic because of poor communication. To address these problems, First, we centralized management of inspectors and created an integrated immigration inspection center and information collection system. Second, we created a central department responsible for support functions under a comprehensive administration center.

Figure 5-3 | Integrated Administration Center for Immigration Inspection

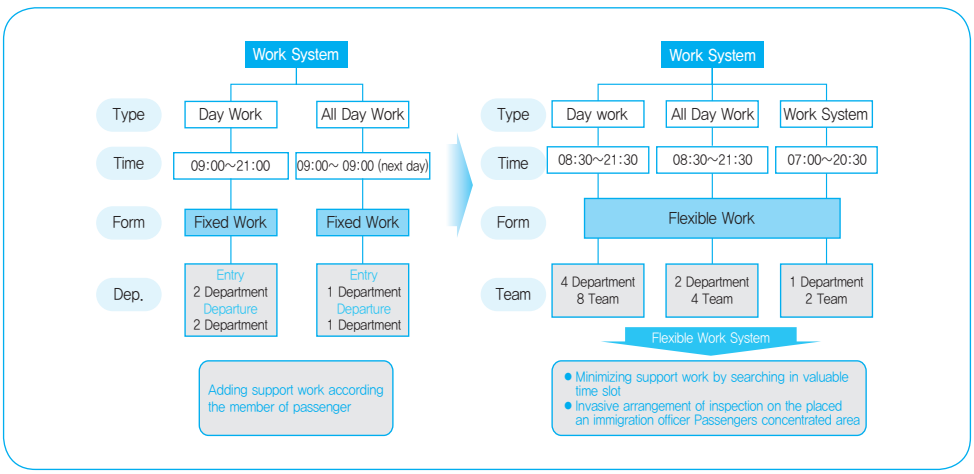


Source: Internal data from the Ministry of Justice.

1.1.4. Innovation Task 4: Work System Reform

Previously, work areas were allocated by department and employee shifts scheduled accordingly. Additionally, arrival and departure inspectors were scheduled separately. Therefore, some problems occurred as follow: ① limited movement of inspectors due to fixed work assignments; ② inability to supplement staffing which led to shortage of inspectors in heavy passenger traffic periods of time; ③ difficulty in scheduling leave time for inspectors. To address the problems, we first began allocating inspectors according to passenger congestion in interchangeable job positions. Second, we allocated inspectors as necessary without distinguishing between arrival and departure immigration inspection duties, and alleviated employee conflict through such standardized work assignments.

Figure 5-4 | Work System Reform Direction



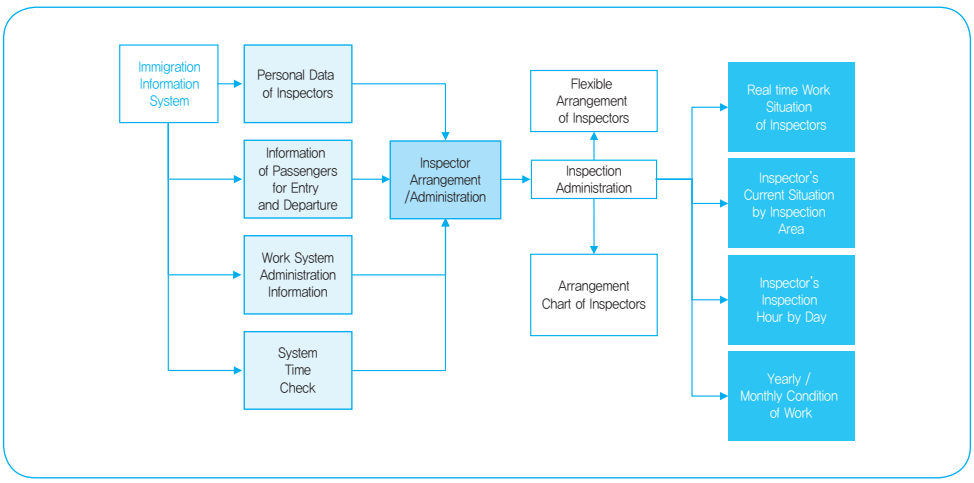
Source: Internal data from the Ministry of Justice.

1.1.5. Innovation Task 5: Innovation of Automated Administration Process

At that time, a manually generated staffing system was used and supervisors had to be physically present to manage inspectors. A confirmation of working status was only possible by visual check. Therefore, some problems occurred as follow: ① inefficient time and human resource management due to allocating inspectors by department; ② difficulty in allocating inspectors proportionate to flow of passenger arrival and departure traffic; ③ difficulty in confirming status of inspectors. To address the problems, we managed inspectors

through a centralized system, integrating overlapping work duties within departments. Next, we computerized inspector allocation, management and work performance through an automated administration process.

Figure 5-5 | Innovation of Automated Administration Process



Source: Internal data from the Ministry of Justice.

1.1.6. Innovation Task 6: Exemption of Immigration Form Submission

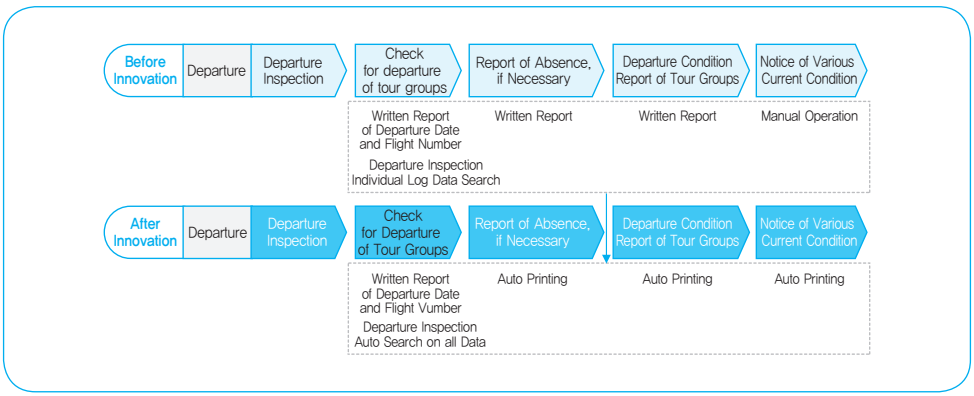
Under the previous situation, both Korean and foreign passengers were required to submit immigration forms, and inspectors needed to correct completed forms, verify and fill out missing information on such forms. This process caused the following major problems: ① inconvenience to arriving and departing passengers; ② unnecessary and time-consuming process of identifying and completing immigration forms; and ③ high cost of immigration forms.

To address these problems, it was determined that submission of the immigration form for the arriving and departing Korean and foreign passengers was no longer necessary. This was made possible through use of advanced technology, i.e. an automated passport reading system and advance analysis of passenger information for the immigration inspection process.

1.1.7. Innovation Task 7: Simplification of Immigration Inspection Process for Chinese Tour Groups

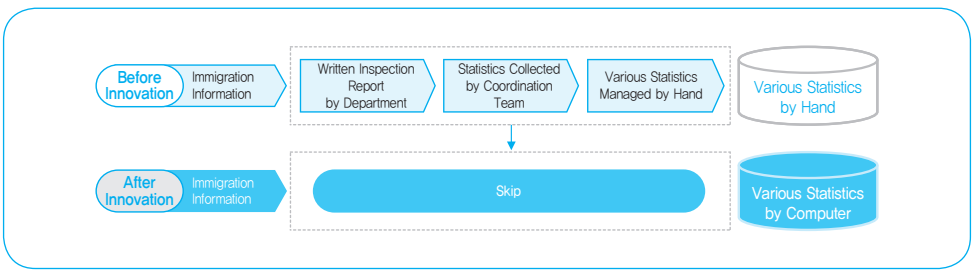
The immigration inspection process for Chinese tour groups to prevent missing tourists was drastically simplified.

Figure 5-6 | Simplification of Inspection Procedure for Chinese Tour Groups (departures)



Source: Internal data from the Ministry of Justice.

Figure 5-7 | Simplification of Inspection Procedure for Chinese Tour Groups (statistics management)

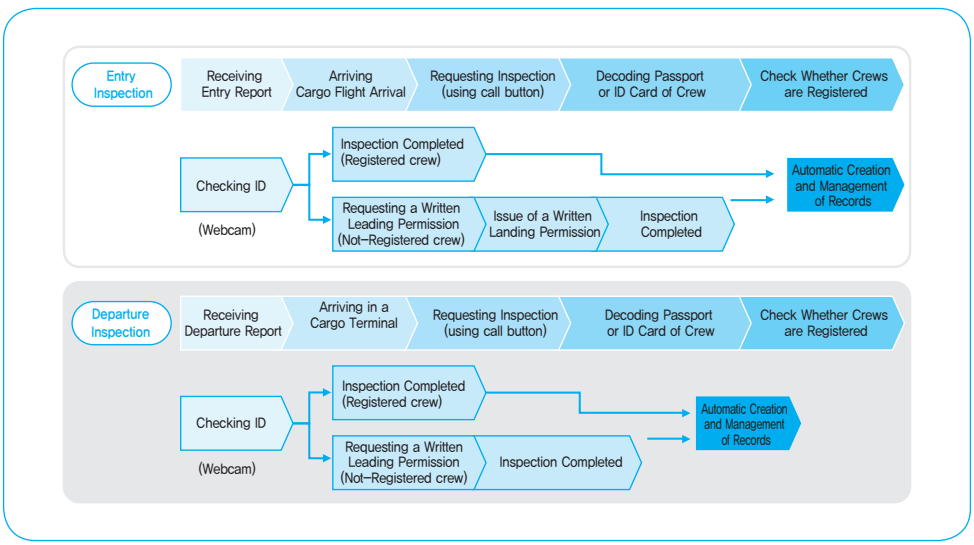


Source: Internal data from the Ministry of Justice.

1.1.8. Innovation Task 8: Establishment of e-Gate in Cargo Terminals

Under the previous system, the absence of immigration inspectors in cargo terminals forced air crews to transfer to passenger terminals for immigration inspection. This process caused the following major problems: ① inconvenience and prolonged time for the immigration process; ② inefficient use of time and human time resources to follow the movement of air crew; and ③ absence of management of arriving and departing passengers in the cargo terminals. To address these problems, an immigration inspection system was established in cargo terminal which was available 24 hours a day, 7 days a week.

Figure 5-8 | Cargo Terminal Immigration Inspection Process Development



Source: Internal data from the Ministry of Justice.

1.2. Establishment of Integrated Border Management System (IBMS)

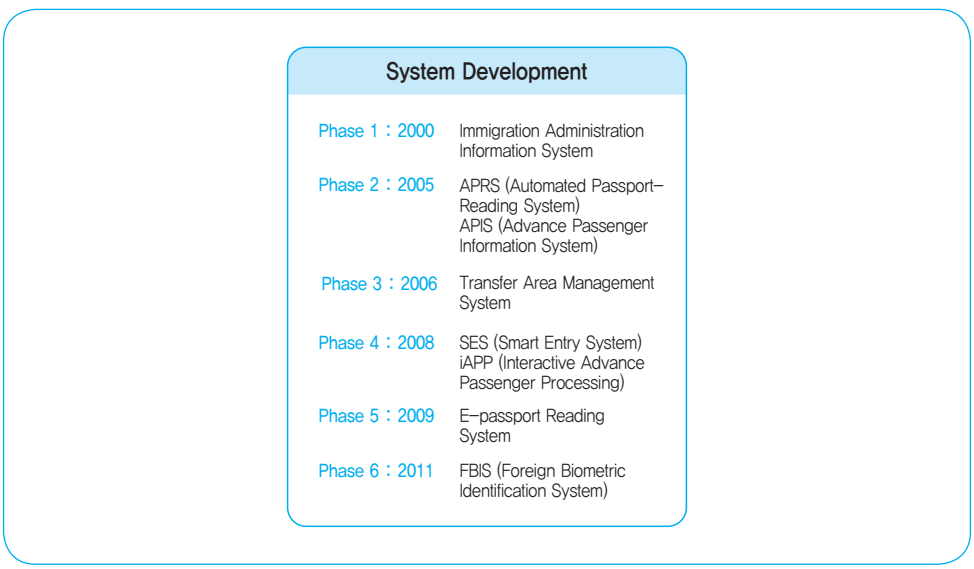
A variety of border management methods were introduced in recognition of the need to protect national security from the entry of foreign terrorists, criminals and those who posed a threat to Korea. At the same time, the need for automation and mechanization of tasks was also recognized to manage and maintain accurate information and allow for a speedy immigration inspection service that would reduce waiting time for passengers. IBMS was thus selected to provide quicker and more comfortable immigration inspection services,

an efficient and expanded border management system and amore customer-oriented administrative service.

Details of IBMS are as follow: (1) to automatically collect and manage personal and other information on the passport for an accurate immigration inspection and information management (modernization of inspection method); (2) to reduce national threat potential of entering foreigners by advance analysis of passenger arrivals (capacity improvement of border management); (3) to provide swift immigration inspection services for low-risk passengers and to protect personal data collected (introduction of Smart Entry System); (4) to improve capabilities for identifying fake or falsified passports by applying high-tech biometric technology such as fingerprint or facial recognition; and (5) to reduce the waiting time for inspection by performing accurate individual identification (improved satisfaction with immigration administrative services).

IBMS is composed of several systems which were implemented in stages. Immigration Administration Information System was first established in 2000. Establishment of other systems began in earnest from 2005 when innovation emerged as a timely issue in the immigration inspection policy arena.

Figure 5-9 | Implementation Phases of Integrated Border Management System



Source: Ministry of Public Administration and Security, Korea e-Government System, Integrated Border Management System (IBMS) p.six.

Content of the individual systems of IBMS, as well as their effects and utilization, are described in detail below.[5]

1.2.1. Advance Passenger Information System (APIS)

a. Overview

Through APIS, data on crew members and passengers of inbound aircraft are transmitted within 20 minutes after departure or within two hours before arrival in Korea. The analysis results are then provided to immigration inspectors. The system enables us to analyze the nationality, originating airport, tour route of passengers, and to predict the purpose of visit. In the case of a potential threat, we can follow the passenger arrival into Incheon International Airport and prevent illegal activity in advance. As a result, we are able to secure and maintain public trust of the international community.

b. Components

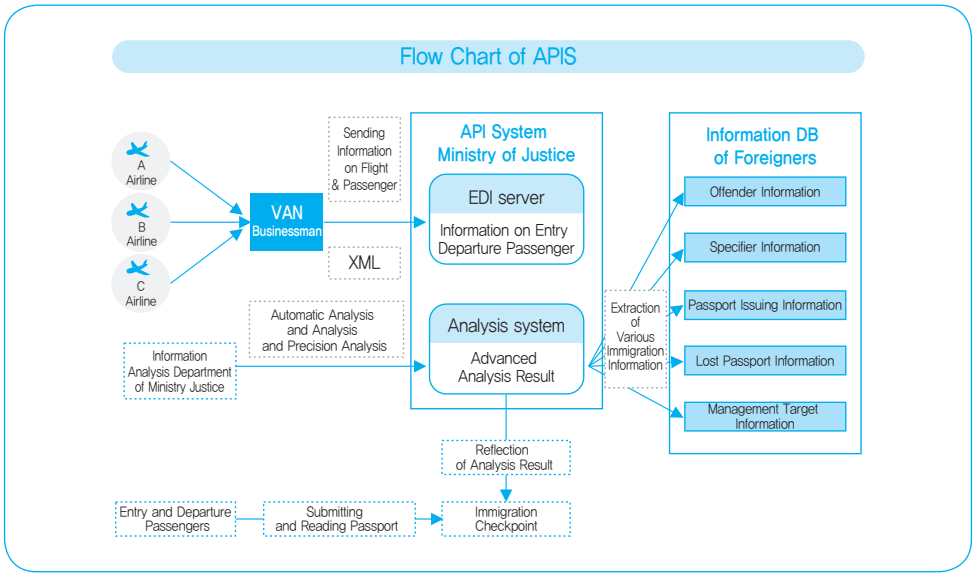
APIS consists of the following major functions: (1) accurate passenger information from airline data bases; (2) collection of all information necessary for the analysis; (3) provide analytical results on the basis of collected information; and (4) reproduce the analysis method.

c. Features

APIS has two primary features. First, an accuracy rate in excess of 95 percent compared to immigration inspection records. Second, analysis results are reliable and so minimize operational disruption caused by false information when provided to other organizations.

5. For the IBMS below, content of "Korea's e-Government IBMS (unpublished internal data of the Ministry of Security and Public Administration for the promotion of the IBMS from the Ministry of Justice)," was summarized and arranged.

Figure 5-10 | Flow Chart of Advance Passenger Information System (APIS)



1.2.2. Automated Passport-Reading System (APRS)

a. Overview

Automated Passport-Reading System (APRS) is a screening machine that automatically collects information on Machine Readable Zone (MRZ) from photographs and IC chips on the bottom of passports, and uses such information in the immigration inspection process and to manage data on foreigners.

APRS automatically reads MRPs and e-Passports issued by countries in compliance with international standards of the International Civil Aviation Organization (ICAO). The system collects and manages accurate personal information and photos of passengers, as well as identifies fake and falsified passports through a chip verification process. In addition, it expedites the immigration inspection process, a convenience to passengers. It is a safer border management system due to the use of technology that can identify fake and falsified passports.

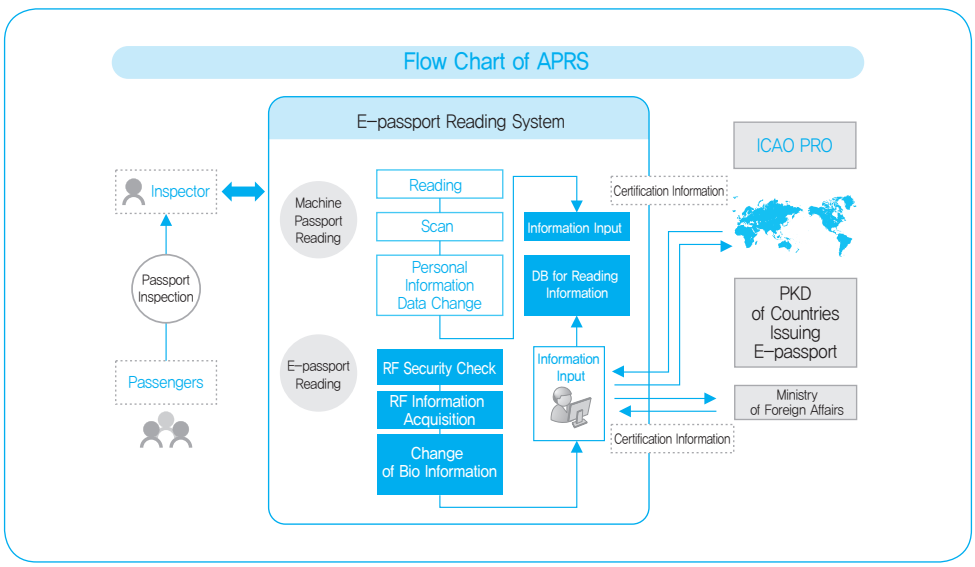
b. Components

APRS consists of MRZ reading, photo image extraction, verification of IC chip in e-passports and automated scan of landing cards. All information required for the immigration inspection is automatically managed. And the system is connected with PKD (Public Key Directory) of the ICAO to identify e-passport chips by country.

c. Features

APRS has a high accuracy rate compared to an immigration inspection process in which inspectors enter passenger information by keyboard, including a passenger's personal information.

Figure 5-11 | Flow Chart of Automated Passport-Reading System (APRS)



Source: Ministry of Public Administration and Security, Korea e-Government System, Integrated Border Management System (IBMS) p.six.

1.2.3. Transfer System (TS)

a. Overview

Transfer System (TS) recognizes and prevents illegal activities by gathering and analyzing the information of transfer passengers through airports or ports to move a third country.

TS collects passport information and tour routes of transfer passengers and identifies potential offenses by comparing the collected information to ticket information, departure inspection information, etc. The system also aims to maintain the safety of airports and ports by barring illegal activities of international criminal organizations in transfer areas.

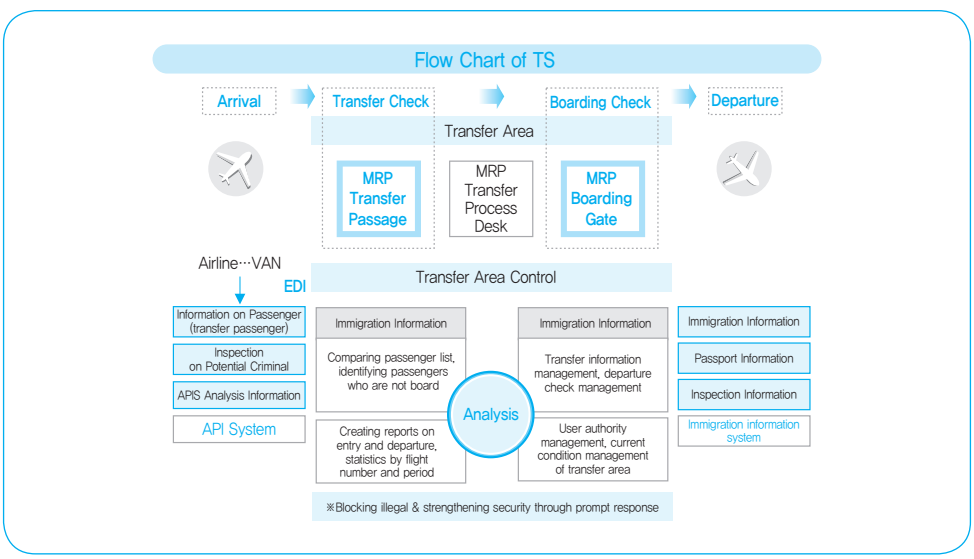
b. Components

TS consists of an information collection system of transfer passengers through APRS, analysis of potential offenses, and management of illegal activities and brokers.

c. Features

TS is highly appreciated in view of airport safety and security. For example, after the introduction of the system, illegal activities in transfer areas of the Incheon International Airport were drastically reduced.

Figure 5-12 | Flow Chart of Transfer System (TS)



Source: Ministry of Public Administration and Security, Korea e-Government System, Integrated Border Management System (IBMS) p.six.

1.2.4. Interactive Advance Passenger Processing (iAPP)

a. Overview

Interactive Advance Passenger Processing (iAPP) automatically transmits outbound passenger personal information and tour routes to the Ministry of Justice. The MOJ analyzes such passenger information and responds to airlines as to whether the passenger is legally ready for departure.

In iAPP, when tickets are issued, personal information from passports and flight numbers of outbound passengers are automatically transmitted to the Ministry of Justice. Such information is compared and analyzed to determine whether the passenger should be permitted to depart the country. Results of the analysis (permission for issuing ticket, temporary permission, or restrictions on issuing ticket) are transmitted to the airlines. For those with restrictions on issuing ticket, the reason for restriction and resolution are given to encourage passenger to voluntarily solve the problem. The system prevents potentially offending passengers from entering security areas by limiting the issuance of a ticket.

Furthermore, iAPP prevents financial loss of passengers and common carriers by strengthening the security of airports and ports and preventing the delay of airplanes.

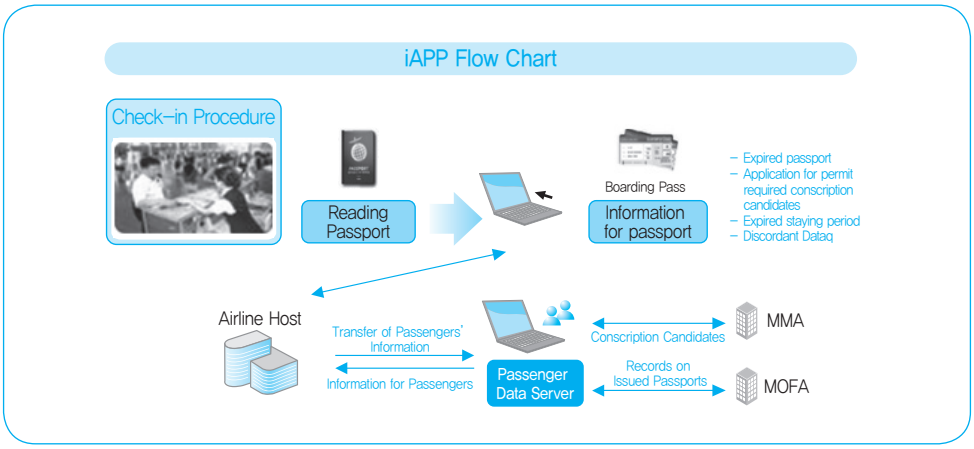
b. Components

The process of iAPP includes authorization on ticket issuance based on passenger information being analyzed and released to the ticket-issuing system of airlines. Information onflight itinerary is automatically stored and managed during the departure inspection.

c. Features

iAPP is utilized for blocking illegal activities. For example, the system recognizes in advance transfer crimes with double ticketing and can lead to criminal arrests.

Figure 5-13 | iAPP Flow Chart



Source: Ministry of Public Administration and Security, Korea e-Government System, Integrated Border Management System (IBMS) p.six.

1.2.5. Passenger Name Record (PNR)

a. Overview

Passenger Name Record (PNR) analyzes not only the passenger information supplied by airline carriers, but a variety of other information such as booking dates, travel agencies, payments and identification of passenger groups travelling together.

PNR performs an in-depth analysis by utilizing a variety of information including identification of travel companions, methods of payments, amount of luggage, etc. These factors are taken into account in order to accurately identify potentially dangerous passengers in the first screening analysis of APIS or iAPP. The system also prevents errors in judgment caused by lack of information. In the case of trends in crimes being committed, it can swiftly identify and categorize criminal methodology.

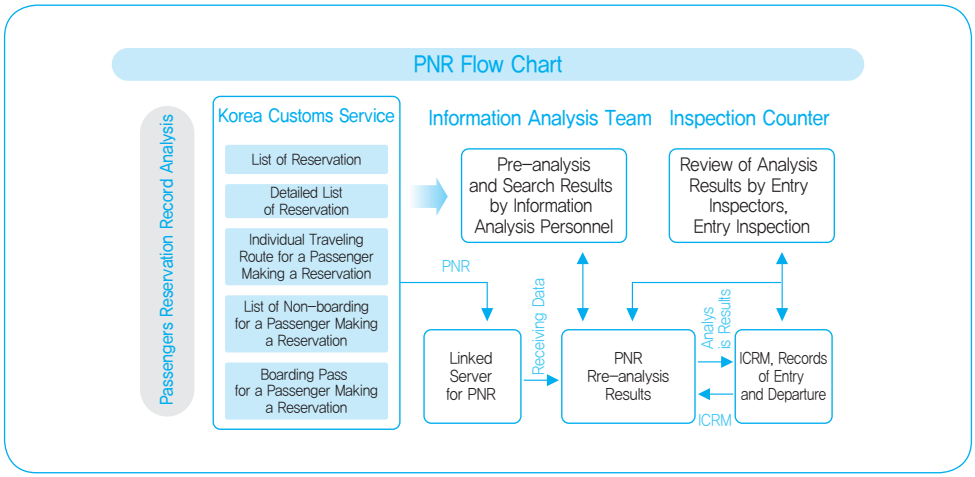
b. Components

PNR provides categorization of passenger information, precise analysis and the screening of dangerous passengers.

c. Features

PNR has the ability to identify and manage not only potential criminals but also their accomplices and agents, playing a pivotal role in analyzing passenger information.

Figure 5-14 | PNR Flow Chart



Source: Ministry of Public Administration and Security, Korea e-Government System, Integrated Border Management System (IBMS) p.six.

1.2.6. Smart Entry System (SES)

a. Overview

Nationals and foreigners who satisfy certain conditions can have their names added toe-Gate. Registered passengers are able to utilize e-Gate when undergoing an immigration inspection.

In Smart Entry System (SES), passport information, fingerprints, facial features, etc. of e-Gate passengers are provided. Passengers are pre-registered and allowed to use e-Gate for entry and departure, a convenience that reduces inspection waiting time and loss of privacy that takes place in face-to-face inspections.

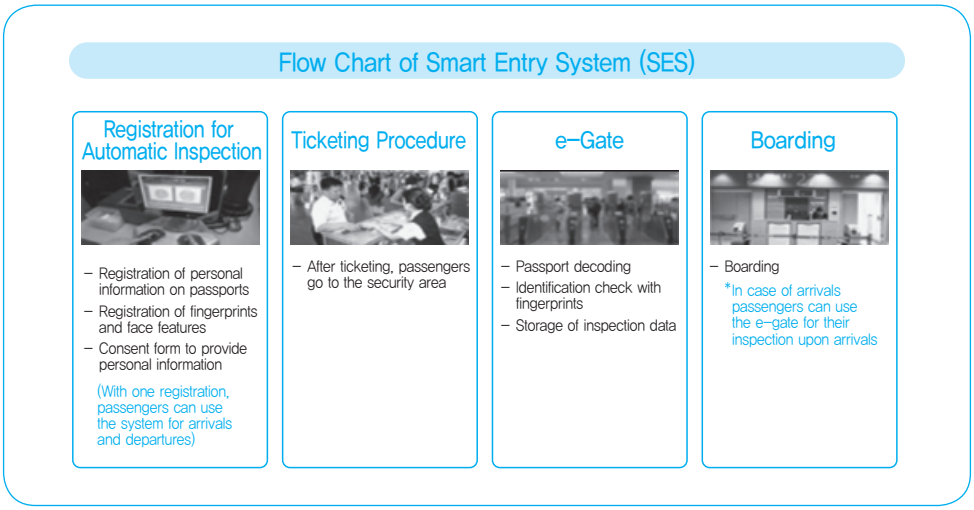
b. Components

SES consists of Automated Inspection Registration System and Smart Entry System, along with cutting-edge technology such as Automated Passport-Reading System and Biometric Identification System.

c. Features

SES has simplified its registration process and methods of use so it is very user-friendly. The system emphasizes security management through automatic re-inspection of registered users in order to maintain qualifications to participate.

Figure 5-15 | Flow Chart of Smart Entry System (SES)



Source: Ministry of Public Administration and Security, Korea e-Government System, Integrated Border Management System (IBMS) p.six.

1.2.7. Foreign Biometric Identification System (FBIS)

a. Overview

Foreign Biometric Identification System (FBIS) collects and manages fingerprint and facial information of inbound foreign visitors 17 years of age and above, and long-term foreign residents staying in the country for more than 91 days.

The system collects fingerprints and facial information of inbound and registered foreigners and compares them with those of foreign criminals. Facial features and the fingerprints of index fingers are maintained on inbound foreigners; for registered foreigners, fingerprints of all ten fingers are collected and managed. Moreover, FBIS is utilized to strengthen border management by identifying those with fake or falsified passports and to uncover suspects in the case of foreigner-related crimes.

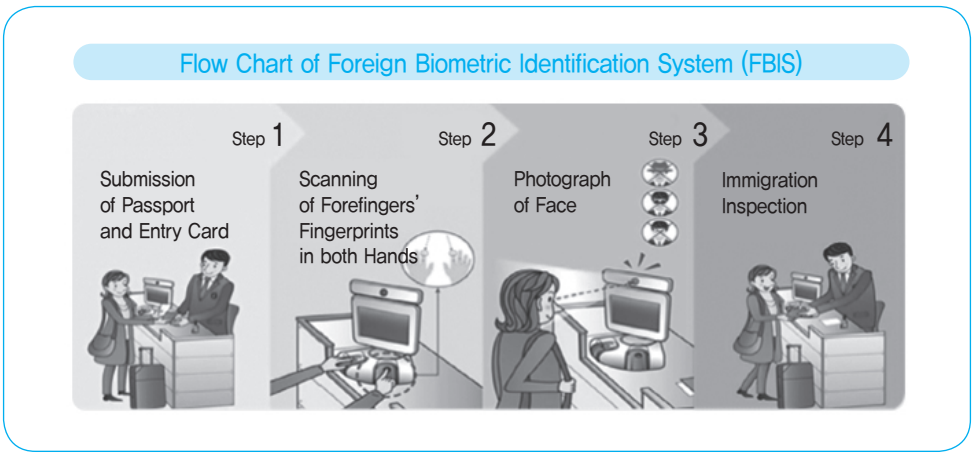
b. Components

FBIS consists of a basic and a specialized analysis system. The former focuses on collecting the biometric information of passengers and provides limited search functions. The latter utilizes biometric information with a variety of other methods such as 1:1 and 1:N search.

c. Features

FBIS is equipped with a state-of-the-art fingerprint identification machine and provides detailed biometric information in eight (8) different languages.

Figure 5-16 | Flow Chart of FBIS



Source: Ministry of Public Administration and Security, Korea e-Government System, Integrated Border Management System (IBMS) p.six.

2. Development of Innovation Process

Innovation process regarding the eight (8) tasks started with an environmental analysis.

Regarding the task of integrating job duties in arrivals and departure, means to organizational restructuring were examined by an analysis of the organization, analysis of the proposed measures, confirmation of the number of employees within the arrival and departure departments and consultation on legislation of the organizational restructuring. Staffing was then reassigned to each department, during which time a plan for better facilities and staff training were implemented.

As far as the task of reorganizing the large department-based system into a small team-oriented one and establishing an integrated management center for immigration inspection, similar steps were taken. These included an environmental analysis, organizational analysis and integration of arrivals and departure. But the innovation processes after these initial steps were different. In the team-oriented restructuring task, detailed guidelines on the team-oriented system, staff training sessions and a follow-up evaluation were carried out.

In the task of establishing an integrated management center for immigration inspection, a central office and equipment were set up only after securing funding to create the center.

For the task of reforming the work system, after the environmental analysis, a plan for reorganization was written only after analyzing the working condition of the employees and gathering their suggestions. The plan was briefed for approval and then executed.

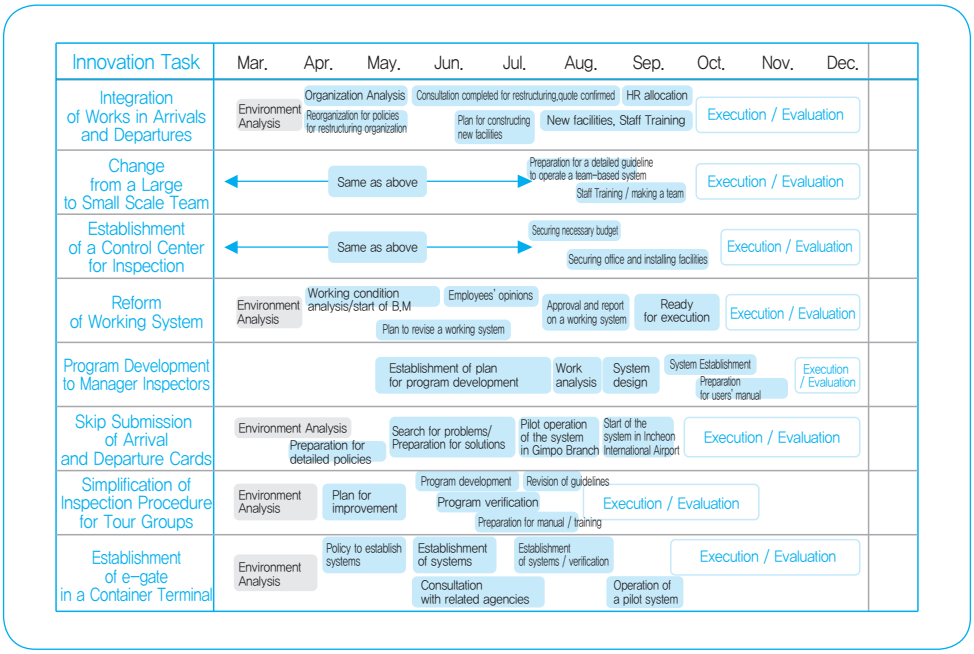
As far as the task of developing a program to manage inspectors, an environmental analysis was not conducted. Instead, inspector job duties were analyzed and a program developed. After analysis, the system was designed and implemented, and procedural manuals were written for easy use.

In the case of the task to eliminate the requirement to submit arrival and departure cards, action plans were prepared after an environmental analysis. Based on that analysis, difficulties with completion of arrival/departure cards were identified and complementary measures prepared, A pilot program based on the action plan was implemented in Gimpo branch. After rectifying problems that occurred in the pilot program, an entire plan was carried out in Incheon immigration office.

Regarding the task of simplifying inspection procedures for Chinese tour groups, improvements were hypothesized through an environmental analysis, and verified after the development of the program. Manuals were written on the program and used in staff training.

In the task of establishing e-Gate in cargo terminal, the system was established after the system-building plans were set up through environmental analysis and consultation with related agencies. It was established first as a pilot program and subsequently verified, then implemented in its entirety and evaluated.

Figure 5-17 | Development of Innovation Process



Source: Internal data from the Ministry of Justice.

3. Challenges and Solutions of Execution Process

3.1. Solutions for Lack of Professional Knowledge to Manage an Organized and Systemic Innovation

It was decided that generally accepted problem-solving methods could not motivate employees and related agencies resistant to change to make the fundamental transition from existing practices and an inefficient system. Therefore, in order to bring about change based on the credible expertise, systematic analysis and convincing theories, innovation experts were to be recruited and nurtured.

The MOJ organized a leading innovation team with members who had a wealth of hands-on experience, innovation-pursuing and goal-oriented mindsets and planning capabilities. The team was required to participate in three (3) training sessions fostering innovation leadership that was organized by the MOJ, and to participate in eight (8) intensive training sessions on implementation processes and methods conducted by external experts.

3.2. Solutions for Lack of Cooperation and Coordination among Related Agencies

Most of the innovation tasks were related to a wide range of agencies — Ministry of Security and Public Administration, Ministry of Strategy and Planning and Budget, Customs, Quarantine Stations, Incheon International Corporation, National Intelligence Service, Ministry of Foreign Affairs, and Ministry of Culture, Sports and Tourism. It was a serious challenge to persuade relevant agencies to actively participate in the innovation process. The government agencies, while understanding the need for change and innovation, were reluctant to participate in the innovation process due to insufficient human resources and internal guidelines.

To encourage and persuade, the MOJ actively utilized the support and coordination between internal agencies including the Planning Division of Immigration Service and Innovative Human Resource Office, as well as external organizations such as Incheon Airport Security Measures Council, Working Group Meeting for Security Measures, Korean Government's Innovation Council, private airlines, Incheon Airport, etc. Moreover, organizing a consultative group for collaborative implementation of the innovation was in efforts to address resistance from the above organizations.

3.3. Solutions for Difficulties from Complex Chain of Command to Strong and Systematic Innovation

In anticipation of internal resistance to the innovation tasks, decision making was delayed. The reporting process for related agencies was lengthy and complex. To address this while in the process of task selection, one-to-one reporting lines were established between the related agencies and innovation task force teams. Until innovation tasks were finalized, they were kept confidential while the Ministry's agents discussed options. To address difficulties in the process, the Innovation Leading Team's COP was organized and managed internally and access allowed exclusively to team members only.

Furthermore, in order for employees in charge of the innovation tasks to be treated fairly in their Human Resources (HR) performance evaluations, strict and fair evaluation criteria were applied. When finalizing tasks, the Innovation Leading Team leader would report directly to the general manager or director. Through cooperation between agency, innovation task force team and the department executing the tasks, execution of each of the tasks was assured.

3.4. Solutions for Difficulties to Implementation of Policies in Innovation

It was a lengthy and intricate process to revise laws and guidelines as a prerequisite to changing existing practices. The need for these written revisions was often perceived as cumbersome and some agencies were reluctant to actively implement the changes. To address this, higher level agencies were asked to actively take on the task of rewriting the new guidelines, thus relieving some of the workload for agencies. In the process, other inefficiencies were uncovered and improved upon in the review of existing laws and guidelines.

3.5. Solutions for Employee Cynicism towards Innovation

Employees who were cynical of innovation tasks had the perception that changes were being made so Incheon International immigration system would appear superior to competitive airports, as opposed to being made to improve service for those passing through the system. Thus, anxiety and complaints among employees were widespread that a poorer working environment would result from the organization's efforts to improve customer service, restructure the work system and change immigration inspection policies.

To address this, innovation tasks were carried out in coherent plans by the innovation leading task force teams programs with an emphasis on better working conditions through the organizational restructure. This resolved much of the employee angst. Furthermore, employees were informed that environmental analysis indicated that such innovation was the only means to increase customer satisfaction and the organization. This, too, helped with employee persuasion and to increase buy-in for the innovation.

4. Analysis of Success Factors

To ensure a streamlined immigration inspection that would improve customer satisfaction and raise national competitiveness, innovative policies brought about a great deal of change for the task force team of the Incheon Airport Immigration Office. Success factors from the innovation can be largely divided into the three areas: organizational factors, collaboration among related agencies and effectiveness of benchmarking.

4.1. Innovation Implementation Using Systemic and Scientific Methods

For a successful innovation process, many agencies put forth their utmost efforts. In particular, programs developed by the Innovation Human Resource Planning Office of the Ministry of Justice assisted implementation through active employee training coupled with guidance from innovation experts. What was most important to achieving success, however, was the driving force of the innovation task force teams.

4.2. Commitment of the Head of Organization and Full Support from Headquarters

The firm commitment of the head of the organization to improve customer satisfaction and raise national competitiveness, as well as his drive and energy to address difficulties in the process, were factors important to a successful innovation process.

Such factors included support of innovation training programs, innovation task management, fair and impartial treatment for the members of the innovation teams, COP (exclusive membership program for the innovation training) and full support from headquarters.

4.3. Acceptance of Innovation through Employee Participation, Persuasion and Dialogue

When the Incheon Immigration Office was designated as the innovation leading team on behalf of immigration offices under the Innovation Leading Agency Nurturing Plan by the Ministry of Justice, some complained about that designation. Others complained that it was difficult to understand contents of the innovation programs. With consistent training to develop skills and tools, employees were able to adopt anew and different perspective. Inspectors received systematic and professional innovation training that pertained to the real-world inspection process, and thus acceptance of the innovation was more rapidly established.

4.4. Media Coverage of Innovation Assists with Momentum for Public Support

Innovation themes and tasks, and development of innovation programs, were conceived by subject matter experts in a scientific and systemic manner and proved to be highly reliable. The recognition of this aspect was announced in media coverage by 11 central media—including a KBS news show dated June 9th, 2005 entitled, "A Simpler Immigration Service at Airport," YTN, and The Munhwa Il-bo. Also during July of 2005, the front page of the newspaper of the Ministry of Justice discussed the background and expected effects of the innovation in an article entitled, "Innovation, the Rise of the World's Best Immigration Office." Such media coverage helped somewhat to overcome resistance to change.

4.5. Persuasion for Related Agencies, Development of Logic for Innovation, and Serious Dialogue

When the innovation started, a variety of organizations were involved in the discussions —Ministry of Security and Public Administration; Ministry of Strategy and Planning and Budget; Customs; Quarantine Stations; Incheon International Corporation; National Intelligence Service; Ministry of Foreign Affairs; Ministry of Culture, Sports and Tourism. While many of the organizations agreed with the need for innovation to streamline the immigration inspection system and raise national competitiveness, they were reluctant to participate in the process due to a lack of manpower and guidelines. Serious dialogue among related agencies and the establishment of consultative meetings allowed organizations to take part in the innovation. As a result, it was possible to establish an information-sharing system among national security and other organizations such as the National Intelligence Service, Military Manpower Administration, Police Agency, National Tax Service and Korea Customs Service. The collaboration has continued to ensure communication and interoperability among related organizations for building the INBS based on shared technology.

Incheon Airport's multi-faceted layers of related agencies -- Incheon Airport Corporation, government organizations, airline companies and a number of other partners–made for poor intra-organizational coordination and collaboration. As a result, Global Airport Monitoring, an IATA report, ranked Incheon International Airport low in most service evaluation indices except for facilities.

Incheon Airport is operated by the Incheon Airport Authority which involves more than 570 partners and 35,000 employees. There are a total of 23 government institutions

including Customs, Quarantine Stations, Incheon Airport Immigration Office, Seoul Regional Aviation Administration. It also includes 67 airliners (6 domestic and 61 foreign) operating passenger and cargo flights; 306 stores such as duty free shops, food and beverage stores, etc.; 49 airport businesses; and 37 airport operators. Despite their commonalities at the airport, each had exclusive organizational cultures and was not given to collaboration with their airport neighbors.

To address the problematic service quality due to the nature of airport facilities, various analyses and research were done to uncover causes of poor service. Primarily, the airport organizations and businesses have specific goals and cultures, and they did not view themselves as part of the big picture of Incheon Airport. In addition, there were no opportunities to jointly discuss and exchange opinions. While each organization and business might be individually successful, customers who consider the airport in its totality did not feel its tenants to be efficiently integrated.

The airport also lacked operational expertise and had fallen behind since it opened. After the successful launch of the airport, stakeholders lost sight of the shared goal. A lack of experience had resulted in inefficient management and poor customer service.

Absence of service-mindedness among airport employees was another stumbling block. Airport operations are 24 hours a day, 7 days a week and employees are required to work day and night shifts. As airport facilities was mainly designed around servicing customers around the clock, employees were not satisfied with their working conditions. This led to problems in providing a high level of customer satisfaction.

To address the problems, the first step was to formulate shared goals to present to all airport organizations and businesses at a consultative meeting and solicit active cooperation among the stakeholders.

In December 2003, after meetings with airport organizations and airlines, the foundation of Service Improvement Committee for the Incheon airport was launched. The CEO of the Incheon Airport Corporation was at the helm, with the heads of 10 government institutions and partners as members. The committee, led by the Incheon Airport Authority that owns the airport, was a new form of committee with deliberation and voting rights (JiSeung Jang et al., 2011).

4.6. Removal of Inefficiencies through Benchmarking International Competitors

Japan's Narita Airport unified the immigration inspection organization to operate human resources flexibly. Hong Kong's Chek Lap Kok Airport operates a labor pool. Singapore's Changi staffing is flexible so employees in the Immigration and Checkpoints Authorities of Singapore take turns dealing with immigration administration and customs works. The e-Gate in Arab Emirates' Dubai shortens the inspection time to make the inspection convenient. France's Charles de Gaulle Airport skips the submission of arrivals/departure cards which streamlines the immigration process. With benchmarking of immigration inspection systems in the Northeast Asia, the implementation of an improved and advanced system at Incheon could begin.

Waiting time in the inspection area is the most sensitive measure of service quality for passengers. Heightened security measures, however, increased such waiting times. In the past, the immigration system at Incheon Airport required manual typing of personal information at checkpoints to identify unacceptable arriving and departing passengers, and to detect fraudulent and falsified passports.

As of 2005, sophisticated high-tech inspection systems such as Automated Passport-Reading System, Advance Information Passenger System and Foreign Biometric Identification System were introduced. This not only strengthened border control but the addition of e-Gate also improved customer service. When setting up the immigration control system, three elements were prioritized—accuracy, promptness and seamlessness.

Automated Passport-Reading System enabled an inspector to have prompt and accurate access to passenger data without the use of arrival/departure cards within a matter of seconds. Advance Passenger Information System identified foreign criminals and passengers with little potential to commit crimes, prior to the arrival of flights, helping to simplify the arrival inspection. Foreign Biometric Identification System helped to effectively block foreigners with false identities. Smart Entry System improved the quality of service for passengers significantly (IT DAILY 2014.6.2.).

2014 Modularization of Korea's Development Experience
Innovation of Immigration Inspection Policy in Korea

Chapter 6

Application of Immigration Inspection to Developing Countries

1. Strengths of Korea's Innovated Inspection Process
2. Considerations for Innovation in Developing Countries

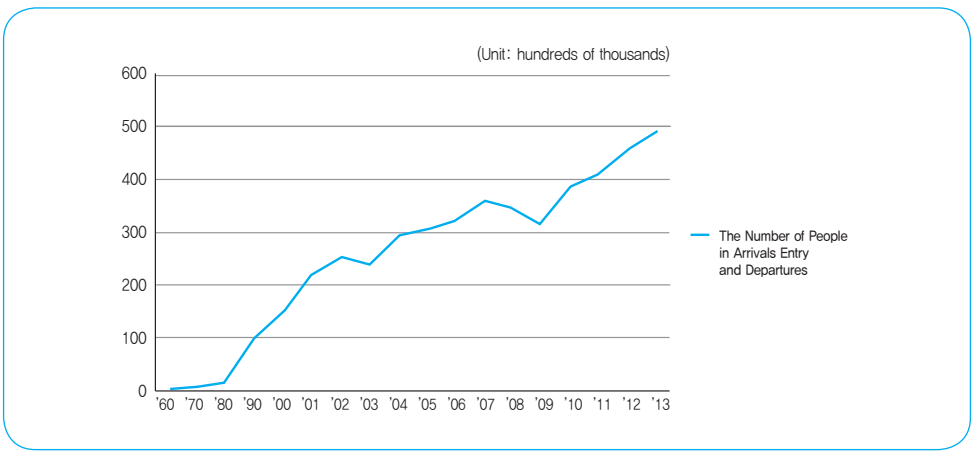
Application of Immigration Inspection to Developing Countries

1. Strengths of Korea's Innovated Inspection Process

The successful case of Korea to innovate immigration inspection process reveals a few noteworthy points.

First, there was a significant increase in outbound Koreans and inbound foreigners after innovation. In particular, since foreigners entered into Korea after liberation from the Japanese colonial rule, the number of resident foreigners reached over 1 million in 2007 and the number of foreigners entering Korea has dramatically increased. The significant increase in arrivals and departures was key consideration to innovate the outdated inspection system.

Figure 6-1 | Change in Number of Arrivals and Departures



Source: Ministry of Justice, Statistics Yearbook of arrivals and departures.

Second, Korea's excellent ICT enabled inspection policies to be innovated and the inspection system to be improved at the same time. The policy to establish a customer service-oriented system in governmental organizations, such as the immigration inspection system, proceeded quickly and systematically as the part of the policy to promote e-government. Efforts to computerize administration began in the 1980s, followed by projects for an administrative network and a communications network, both of which became fully operational in the 1990s. The public service system was operable from the early 2000s, and Korea ranked first for e-government for three consecutive years as pronounced by the UN. As a result of the success of those program upgrades, immigration inspection was easily innovated.

In this way, science and availability of information are of utmost importance in advancing security and speed, elements which are seemingly in conflict and therefore not easily improved in the inspection process. Both contribute to a more accurate and secure inspection, but also to a quicker and simpler innovation through automation.

Finally, the maturity of environmental elements and the superiority of technological elements supported innovation in pubic management as far as reorganization and an improved working system. At the same time, the innovation of the immigration system was done with success very quickly and systematically.

2. Considerations for Innovation in Developing Countries

As mentioned previously, the commitment of the top policy decision maker is vital to the success of innovation. When implementing innovation policies, including the immigration inspection innovation policy, research shows leadership is one of the main factors for success. Therefore, when Korea shares their innovation of immigration inspection policies with developing countries, it is paramount to ensure the top decision maker supports and understands the innovation. In this regard, it is also important to understand the environment, culture and institutions of those countries wanting to duplicate Korea's innovation.

Secondly, one of the aspects of immigration inspection service is that many organizations in airport operations are interrelated. Therefore, in the process of implementing innovation, it is essential to obtain the cooperation of related organizations. As shown previously, Korea divided the related organizations systematically and analyzed the requirements of each organization. Considering those factors, strategies were then devised. Moreover, from start to finish of the innovation process, cooperation is necessary for consistency in the governance system. The question then becomes which type and method of cooperative

governance is desired. The inspection policy was built through establishing a system, and the governance needed to be a collaborative system through which related organizations could share information so all factors could be considered the first step in innovation.

Third, securing funds for innovation should be considered. When developing countries implement immigration inspection policies and create necessary systems, it is recommended that they apply for funding from international aid programs. As the Korean government also provides financial aid programs, those programs in particular are recommended. Establishing the required system is an important phase of the immigration inspection policy, so financial aid can be sought through a public and private partnership.

Fourth, based on information technology, a number of systems built into the immigration inspection process require safety and security first and foremost. In this regard, a conducive environment in which to build and maintain the system is necessary. Rather than introduce expensive high-tech devices for the inspection from the start, developing countries must first build the basic environment. And as there are many developing countries without basic inspection policies, sometimes having such a policy itself is required as the first phase in considering integrated system architecture based on BPR (Business Process Re-engineering) and ISP (Information Server Platform). Such countries may need a strategy to develop the system which embodies the spirit of "Government 3.0" in Korea, that being openness, sharing, collaboration and communication.

Lastly, as mentioned in the background of the innovation of Korea's immigration inspection, in this era of globalization, the number of passenger arrivals and departures is inevitably increasing. In this situation, developing countries that lack resources may find it difficult to secure effective measures for inspection as it may call for an increase in resources, human and financial. In such cases, Korea can serve as an exemplary model as implementation was done through efficient public management of the innovative system without the need for large scale investment in additional resources.

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