Abstract

Recently the Republic of Korea has increasingly competitive with the growth of global IT companies such as Samsung and LG in terms of industrial technology. According to the International Institute for Management Development of Switzerland in March 2014, Korea is ranked 6th in the world in terms of science and technology competitiveness and has the world’s best technologies in mobile, semiconductor, LCD, shipbuilding, petrochemical and smartphone.

However, as industrial technology competitiveness increased, technology leakage crimes are also rising. According to the Korean police, the arrest rate of the industrial technology leakage in Korea is higher each year, and the damages amounted to approximately USD 80 million per year in terms of their economic value.

Therefore, such industrial technology leakage crime can not be prevented by the national authority alone, and now, Korea, just like other leading developed nations, can cooperate with national institutions and private companies to prevent and respond to industrial technology leakages, and in the case of hybrid policing, a detective system should also be introduced.

Such a detective system was positively perceived in August 2012 when two of the 60 OLED TVs that were shipped by Samsung Electronics to exhibit at the IFA 2012 in Germany were stolen and it was not the German police but the local detective hired by Samsung Electronics who resolved the case. Starting with this case, Korean companies began to positively perceive the activities of detective in order to prevent and respond to industrial technology leakages.

Therefore, in this study, I intend to examine changes in the security environment and the directions of introducing detective system following the industrial technology leakage crimes in Korea.


1. Need for Research

1.1. Research background

Since the Korean War until 1960, Korea was a closed economy of agricultural base and the GDP per capita was merely $121, but in the 1970s, the market expanded from light industry to heavy industries, and in the 1980s, regulation was relaxed and market economy was privatized, and in the 1990s, it became an OECD member state, and currently, it has become the 11th largest economy in the world in terms of GDP.

In Korea, the technological competitiveness of global companies such as Samsung has grown very rapidly, but the Korean government has failed to provide legal grounds and organization to help protect their core technologies, and the
leakage of core technologies have reached KRW 100 trillion each year, they said.

However, North Korea's Kim Jong Un regime has been expanding overseas espionage activities due to the failure of earning foreign currencies and in facing the economic sanctions by the United Nations. Since the 1990s, North Korea has actively engaged approximately 6,800 men officially by Kim Il-sung Military University, Kim Chaek University of Technology and Pyongyang University of Science and Technology to rob industrial technologies of the neighboring countries including Korea, Japan and the US through its professionalized industrial espionage training programs, and in this field, has been ranked 4th in the world after the US, China, and Russia.

In addition, in order to prevent the loss of competitiveness of Korean companies due to the leakage of key technologies of industrial technologies to developing countries such as China and Southeast Asian countries, Korea now needs to introduce a detective system like major developed countries and prevent and respond to the leakage of industrial technologies along with the national public authorities, and it is also the time to discuss with those in charge legal matters that are considered as obstacles to the legislation of the detective system in Korea and make legislative proposals.

1.2. Previous studies

Korea joined the OECD in 1996, and the detective companies of major developed countries entered Korea and began to operate, following which the National Assembly started to legislate it in 1999, but it has not been introduced yet. However, study of the detective system has begun by scholars, but only a few studies have been conducted in Korea on the introduction of the detective system as a way for preventing industrial technology leakage. The following <Table 1> illustrates previous studies conducted with the same topic.

<table>
<thead>
<tr>
<th>Researcher</th>
<th>Key details</th>
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<tr>
<td>Hwang (2006)</td>
<td>Globally speaking, publicly accredited detectives are a product of capitalist development, and the social system created under the premise that state law enforcement alone can not completely ensure protection for corporate assets. However, in the capitalist Korea, detective system is still illegal. However, the reality of the Korean society is that various disputes that can not be resolved only by the police force and the national government power are accumulated across various areas, and there is a limit to solve these social disputes through proper procedures recognized by laws and institutions. In most capitalist countries trading with Korea, information gathered by detectives to pursue economic interests such as trade is utilized, and so a detective system must be introduced to increase the international competitiveness of economic activities[1].</td>
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<td>Sin &amp; Park (2009)</td>
<td>As Korea entered the post cold war period through the 1990s, the concept of national security shifted from military power to economic power as various security risks emerged. With the change in the concept of national security, each country secured national interests and focused on economic intelligence and industrial intelligence activities. The US and other major developed countries have legislated to protect their advanced industrial technologies to a large extent, yet Korea has weak industrial intelligence activities in place despite its world class technologies across the areas of IT, shipbuilding, steel and automobiles[2].</td>
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<tr>
<td>Lee &amp; Jo (2012)</td>
<td>Korea has achieved economic growth, and it is now unfeasible to control crimes with the power of public authorities alone. Recently, following the development of industrial technologies, the demand for detectives is growing, and the laws for detective activities are needed. This is because the importance of Korea's highly advanced science and</td>
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Table 1. Previous studies.
technologies is rising, and it is necessary to use detectives to overcome the limitations of national law enforcement agencies to help prevent the leakage of industrial technologies[3].

2. Crisis of Leading South Korea’s Industrial Technologies

According to the data of the National Police Agency’s industrial technology leakage cases by each year, it is growing to 40 cases in 2010, 140 cases in 2011, 140 cases in 2012, 97 cases in 2013, 111 cases in 2014, and 98 cases in 2015, respectively[4].

Furthermore, there was a case of AM-OLED Core Technology Leakage to China Incident as an example of the industrial technology leakage of the National Intelligence Service, Korea’s intelligence agency. This incident was planned by a Chinese named A, who planned and joined company B, which had retained core processing technology for OLED of Korea, and leaked the technology developed as a national task by utilizing personal email, online messenger, and USB before resigning from his job. Another incident was a person who used her Korean husband named C, who worked for company C developing display equipments, to leak display technologies for the next generation military and provide them to company D of China. The following <Figure 1> is the relationship diagram of this incident[5].

It is said that a large proportion of industrial technology leaks in Korea are executed by the Korean Chinese1. There are 75,000 to 800,000 Korean Chinese in Korea, meaning that 1 out of 3 Korean Chinese is in Korea.

As such, as the Korean Chinese in Korea expanded in engaging in organized crime, corporate crimes, and industrial technology leakage crimes, the judicial authorities have enacted a system of professional investigators who investigated only cases in these areas, and the National Police Agency also instituted a system for recruitment to hire specialized investigators[6].

Furthermore, according to the Korean Ministry of Unification, the number of North Korean defectors in Korea has reached 25,025 officially from 2005 to the end of 2017. This indicates that approximately 30,000 North Korean defectors are living in Korea as of 2018. This phenomenon is closely related to the human rights issue of Kim Jong Un regime of North Korea.

North Korea is sensitive to this situation because the defectors who have already arrived in South Korea often bring over their remaining family members through brokers after saving up funds, and in fact, this is the case with the most of those who enter South Korea.

Figure 1. Accidents of attempting to leak core technologies of AM-OLED to China.

1Chinese people of Korean descent, or Korean Chinese, are mainly used to refer to Koreans who migrated to and lived in the Gando area of Manchuria before 1945.
However, the issue is that the defectors still have connections to North Korea after their departure from North Korea, and in this process, there are cases in which the list of names is leaked by resident spies, who had infiltrated into South Korea by the North Korean intelligence agency. Based on such information, it is said that North Korean defectors in South Korea are utilized for double espionage at the expense of the lives of their family members in North Korea. North Korean defectors in South Korea, who have been involved in such double espionage, have handed over South Korea's industrial technologies to North Korea, they said. The following Figure 2 is the yearly compilation of North Korean defectors disclosed by the Korean Ministry of Unification[7].

**Figure 2.** Current status of North Korean defectors who entered South Korea.

### 3. Current Status of Introducing Detective System in South Korea

#### 3.1. South Korea’s detectives

In Korea, the detective business is regulated by law, but due to the increase in demand for security, the number of detective service companies for expendiency has been rising, and these types of businesses are also further subdivided according to the client's request. According to the survey by the police, 68% (27 cases) were private life investigations, 18% (7 cases) were provision of personal information, 12% (5 cases) were location tracking, and 2% (1 case) were illegal debt collection, and in terms of clients, 34% (196 people) were housewives, 27% (152 people) were salaried workers, 14% (78 people) were self-employed, and 6% (35 people) were professionals, respectively, demonstrating how they are commonplace in the Korean society[4].

Meanwhile, in Korea, introduction of detective system has been hesitant as press released on illegal acts of contract assault using Korean Chinese, causing controversies. In November 2011, a show entitled SBS We Want to Know of Korean broadcasting services reported on the status, management and supervision issues of contract assault and half of the detective services operated by Korean Chinese replied that they can provide contract assault services, among which even said that contract skilling services can be provided. In the report, details were provided on pricing for the varying extents of assault and injury. The following Figure 3 is the press release discussed in the above[8].

**Figure 3.** Illegal activities of Korean Chinese detective businesses.

However, detective role has been successful such as when it was positively perceived in August 2012 when 2 of the 60 OLED TVs that were shipped by Samsung Electronics to exhibit at the IFA 2012 in Germany were stolen and it was not the German police but the local detective hired by Samsung Electronics who resolved the case. Starting with this case, Korean companies began to positively perceive the activities of detective. The following Figure 4 is the Samsung Electronics booth displaying OLED TVs at a home appliance exhibition in Germany (IFA 2012).

**Figure 4.** Samsung electronics booth displaying OLED TVs at a home appliance exhibition in Germany (IFA 2012).
Concerning this case, there are claims made based on such theories as theory of threshold, theory of privatization, and theory of hollowization towards the introduction of detective system in Korea and actively utilizing the system for protecting corporate technologies.

3.2. South Korea’s legislative efforts and issues for detective system

The largest issue in delaying the introduction of detective system in Korea is the confrontation between the National Police Agency and the Ministry of Justice, and there were 5 proposals for the Agency and 5 proposals for the Ministry in attempts for legislation. The following <Figure 5> is the National Assembly of Korea, which is discussing the legislation of such a detective system.

Figure 5. South Korea’s national assembly.

During the 19th National Assembly of Korea, the issue was, amending the private security business, which was legislated in Korea, and including the detective business to have the National Police Agency as the agency in charge, whereas allowing attorneys to inquire detectives on the areas needed from within the clients cases they take on and having the Ministry of Justice as the agency in charge.

However, since the two agencies have confronted over the issue, detective system has not yet been introduced in Korea.

4. Research Method and Analytical Result

4.1. Research method

To accomplish the purpose of this study, reference study and empirical analysis were performed concurrently. First, the research analysis model was set based on data such as books, academic papers, research reports, periodic publications, the Internet, and legislative materials on the detective system.

And the empirical analysis tried to analyze the interview contents of experts. This is an inferential methodology for exploring research questions rather than validating hypotheses and is a suitable method for identifying the types formed by the subjective structure of on site actors.

This study reviewed the previous studies related to this study in June 2018 and started to study the references, after which I conducted an empirical study through in depth interviews with attorneys (15 people) and police officers (15 persons) and discussed and organized analytical results from September 2018.

The sample of data presented was determined by the Factor of Redundancy. This meant that interviews were conducted until new information was no longer available, and in this study, from the 14th interview, new questions were not added to the next interview, and responses

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2 The need for security arises only if the economic scale and high value added technological development reach above a certain level.

3 Provision of more efficient services by achieving shift from internal supply to external supply of services, in whose process the concept of competition is adopted.

4 It is a theory which provides that private security supplements for the vacuum state created by the reduction of human and material capabilities to provide services such as crime prevention and control, which are functions or roles conferred to the police.
to the interviewing questions began to repeated. This meant that enough resources were secured to answer research questions through the interviews.

The interviews took between 50 and 70 minutes per participant. The conversations during the interviews were recorded with a digital tape recorder and were transcribed into documents after the interviews. The transcribed conversations were categorized again by research questions and detailed topics through the content analysis, and the categorized data were analyzed through the narrative analysis.

4.2. Analytical result

This study conducted in depth interviews with the Interview Guide secured through the Pilot Study for performing research tasks regarding the characteristics of setting agency in charge if detective system is introduced in Korea and for the directions of the introduction along with changes in the security environment following the crimes of Korean industrial technology leakage, and the following is a transcription of the parts which repeated by analyzing the details of the interviews of the experts and the coding number of the interview details were excluded after the incineration of data.

"Currently, North Korean defectors and all types of crimes committed by Korean Chinese have become social problems in Korea."

"There are many cases of North Koreans and Korean Chinese taking out personal information of Koreans."

"There is a limit to how the police and prosecutors can satisfy all the rights of companies in possession of industrial technologies."

"By protecting the industrial technologies of the company, detectives will contribute to protecting the interests of the national enterprises."

"Industrial technological protection is mainly carried out by industrial espionage who have infiltrated abroad, so Korean detective manpower should appropriately be utilized to perform tasks where there is no reach of the national public authority."

"Because the clues of criminal investigation arising from within the private lives of industrial espionage are many that are not within the reach of national public power......"

"Intelligence gathering and fact finding should be conducted to the extent permitted by law, but it is difficult to investigate industrial technology leakage only by the manpower concentrated in Korea."

"I think investigation by the use of private enterprise for the overseas activities of industrial espionage will be far much more efficient because they do not confer authorities such as arresting criminals in the commission of crimes, requesting warrants, and urgent arrests as under Korean law."

"We need to be competent in our task performance overseas because we are gathering evidence outside the scope permitted by the Korean law."

"If there is a problem in gather intelligence overseas, it will be just a crime report."

"To track down industrial espionages in Korea, we need to find organizations overseas, but we need to have intelligence of a variety detectives cannot know about."

"In order to avoid diplomatic conflicts and confrontations that have arisen abroad, we need more careful review such as by using enterprise activities of the private sector."

"To thoroughly supervise detectives, the expertise and reliability of the agency in charge should be high."

5. Discussion and Conclusion

5.1. Discussion

As seen in the background of this study, Korea has made a lot of effort at the national level to respond to the industrial technology leakage crimes, and most representatively, the National Intelligence Service, Korea's intelligence agency, established the Industrial Secret Protection Center in October 2003, has conducted preventive activities such as industrial security training and security consulting in conjunction with industrial espionage detection activities to prevent illegal
leakage of highly advanced technology and management intelligence of Korean enterprises and research institutes overseas. The following Table 2 illustrates key tasks of the Industrial Secret Protection Center.

Table 2. Key tasks of industrial secret protection center.

<table>
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<th>Classification</th>
<th>Details</th>
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<tbody>
<tr>
<td>Highly advanced technology leakage blocking activities</td>
<td>Cracks down on industrial spies attempting to illegally leak overseas South Korea’s highly advanced technologies of global competitiveness and corporate business secrets thereby blocking leakage of national wealth and also supports the corresponding corporations or prosecutors and police.</td>
</tr>
<tr>
<td>Hosting of industrial security training, consulting and presentation</td>
<td>Conducts industrial security training and diagnosis for corporations and research institutes and offers industry security presentations for corporations in conjunction with related government agencies to expand security awareness of corporations and build self regulated security system.</td>
</tr>
<tr>
<td>Defense industrial technology and strategic materials’ illegal export blocking activities</td>
<td>Undertakes activities of blocking illegal exports of strategic materials and defense industry and military technologies overseas, prevents new economic security infringement acts and tracks spy activities.</td>
</tr>
<tr>
<td>Intellectual property right infringement related counter response activities</td>
<td>Conducts counter response activities in collaboration with related government agencies against damages incurred overseas such as those related to intellectual property rights including Korean companies’ patents, trademarks, designs, and copyrights.</td>
</tr>
<tr>
<td>Foreign economic disorder disturbance blocking activities</td>
<td>Conducts intelligence activities against infringements of economic security by speculative capital connected with foreign countries and illegal activities of leaking technologies disguised as M&amp;A transactions.</td>
</tr>
<tr>
<td>Industrial spy reporting center operation</td>
<td>Takes reports and offers consultations for 24 hours via phone(111), website(report 111) and mobile website.</td>
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The police also recognized the gravity of the industrial espionage threatening Korea’s industrial technological competitiveness since 2010 and established an industrial technology leakage investigation team across 8 local provincial offices in Korea. The Industrial Technology Leakage Investigation Team is said to have patent attorneys who comprise 65% of its manpower. In addition, the National Police Agency has decided to expand the Team for all 17 provincial offices nationwide from 2016, and the investigative manpower will also be expanded, they said[9].

However, the national public authority alone cannot resolve Korea’s industrial technology leakages. In Korea, the private security market has already become commonplace, and the majority of citizens are receiving security services at their expenses. In Korea, it will also not be able to satisfy the range of responses to industrial espionage which have become increasingly internationalized and diversified solely based on the availability of the manpower and budget of state agencies.

Therefore, it is desirable to expand the hybrid polishing area by expanding the intelligence gathering and response of the industrial espionage to the common area with the private enterprises, deviating from the area unique and proprietary to the national public authority.

5.2. Conclusion

The conclusion of this study is that Korean companies are suffering a great deal from foreign industrial espionages including those of North Korea and China, which cannot be handled by the national public authority alone, and should introduce a detective system as with other key developed countries to respond in the context of the private sector.

However, in terms of the characteristics of industrial technology protection, the investigation of industrial espionage requires an overseas intelligence network, and in this respect, it is necessary to adequately consider which should be the agency in charge to support legislation and supervision. The following Table 3 illustrates the current status of overseas dispatch of its officers by the Korean police[4].

Table 3. Current status of dispatching resident officers overseas by South Korea’s police.

<table>
<thead>
<tr>
<th>Region</th>
<th>Classification</th>
<th>Details</th>
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<tbody>
<tr>
<td>China</td>
<td>9 diplomatic Offices (12 people)</td>
<td>China (3), Shanghai (2), Shenyang, Qingdao, Chengdu,</td>
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Korea has not been able to decide as to whether it is going to be the National Police Agency or the Ministry of Justice by introducing a detective system for a long period close to 20 years. As a result, Korea has not been able to legislate a detective system in Korea yet, and the economic security is shaking due to the crimes of leaking industrial technologies which cannot be handled by the national public authority alone.

Through this study, I have claimed that the Korean government should introduce a detective system as a countermeasure for the protection of industrial technology in Korea, and in the legislative stage of the Korean detective system, the agency in charge needs to establish an overseas intelligence network as a matter of the study result.

In a subsequent study, if the protection of industrial technologies requires overseas intelligence network, which agency will be the proper agency in charge should be promptly investigated and reflected in the legislative stage.

6. References

6.1. Journal articles


6.2. Additional references


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