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## An Evaluation of the Required Arrangements for Comprehensive Regulation of the Private SECURITY Industry

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### Abstract

*The purpose of this article is to evaluate the checks and balances that would provide the ideal setting for the best-practice arrangement and regulations governing the private security industry. This article assesses and highlights the desired industry governance principle through the best-practice model under the three Cs criteria; that is, complete national criminal history checks, compulsory training, and continuous monitoring. These criteria are discussed together with possible regulatory strategies that have progressed over the past decades in parallel to optimize the overall monitoring and enforcement system. Overall, this article is constructed around three discussion areas: 1) rationale for the study; 2) the recurring conduct problems associated with the private security industry; and 3) recommendations for the mandated minimum regulatory standards. The concluding chapter that follows reiterates these insights, emphasizing the need for comprehensive-minimum regulation.*

*The findings revealed that the regulation of private security has evolved through piecemeal changes in response to recurring and emerging scandals that challenged the inadequacies in regulatory coverage and lapses in regulatory arrangements. Further, formulated responses are often characterized by a reactive approach. The findings of this study have suggested that what works in one setting does not necessarily translate into effective regulation in another state, and information about regulatory impacts is incomplete. The comprehensive approach to regulation holds that a strong research-based practice should inform judgments about either under- or over-regulation. A research unit, industry advisory board, regular consultation with stakeholders, and accountability mechanisms are all important to best utilize and mobilize the growing power and influence of the industry. To achieve this, implementation of measurable performance indicators and promotion of consistent standards are crucial to this process in order to ensure adequate depth of regulation and to avoid cycles of scandal and reactive reform.*

**[Keywords]** Private Security, Regulation, Industry Management, Monitoring, Regulatory Strategies

### 1. Introduction

Scholarship on crime prevention and safety had tended to focus on the role and effectiveness of law enforcement responses[1]. However, the increments in the presence of private providers in recent decades has stirred an interest in the commercial security provision amongst academics. With the concept of policing beginning to embrace the commercial provision model, issues have

emerged concerning the unwarranted compromise standards.

In a recent book chapter, Prenzler and Sarre(2014) carried out research to evaluate the challenges remain in the security industry and characterize common forms of industry risk profile. In the book chapter, the authors underlined that 'the industry has a clearly identifiable risk profile that derive from opportunities intrinsic to security work'[2]. The consistent observation has been that 'while

the nature of risks may vary to an extent, certain fixed patterns of unprofessional conduct invariably tend to be the norm, rather than the exception, given the common nature of duties and tasks performed. Parallel with this, Prenzler and Sarre(2014) developed a set of criteria that tend to be the by-product of inadequate regulation, which in turn offset the contribution of the industry to crime prevention and community safety. Their model is based on twelve core industry-specific vulnerabilities <Table 1>.

## 2. Rationale for the Study

The various forms of misconduct and incompetence documented in <Table 1> present a comprehensive picture of regulatory lapses. On the other hand, it is presumed that these discoveries have merely scratched the surface of the problem.

While the spate of misconduct emerged internationally, renewed efforts by government, industry and academia have since expanded to a best-practice model. The model, a multi-layered intervention approach under the three Cs criteria, appears to be a developing international consensus. The core elements include, 1)complete national criminal

history checks for disqualifying offences, 2)compulsory training that ensures beginning competencies, and 3)continuous monitoring of the conduct of security firms and operatives. This model has been considered by many, to-date, as the closest to optimal, in terms of the extent to which the depth criteria are consistently covered.

Specifically, the three Cs model encompasses the following considerations: ‘regulation must be managed by one government administrative unit’; ‘regulation should be nationally consistent in federal systems’; ‘guidance on the development of legislation and administration systems should be consultative’; ‘regulation should expand to encompass exclusion of inappropriate persons through a national system of criminal history checks’; ‘all license applicants should be fingerprinted’; ‘mandated training standards should be based on close analysis of security tasks for specific license categories and deliver a range of elective and supporting curriculum’; ‘pre-entry qualifications should include a first-aid certificate’; ‘regulators should actively explore programs for in-service training linked to career path development’; ‘the ethical standards should clearly

**Table 1.** A set of risk profiles in security work[3].

Type	Key features
Fraud	Falsification of security checks/inspection records
Incompetence & poor standards	Willful negligence or limited abilities/qualifications
Under-award payments	Offering cut-price bribes through bypassing taxation/hiring unlicensed staff
Corrupt practices	Soliciting bribes in exchange for preferential police treatment against competitors
Information corruption	Private information trading
Violence	Provoking assaults on patrons
False arrest & detention	Unlawful use of citizen's power of arrest
Trespass & invasions of privacy	Vigorous pat-down searches/misuse of CCTV footage other than for security purposes
Discrimination& harassment	Engaging in racist and discriminatory forms of conduct
Insider crime	Taking advantage of key insider knowledge/specialist skills/access control
Misuse of weapons	Injuries and deaths occurring to bystanders, offenders or nearby officers
Deceptive marketing practices	Misrepresentation or exaggerated claims about the effectiveness of security supplies

set forth a legally binding code of conduct'; 'regulators should take advantage of cost-effective advances in proactive drug and alcohol testing programs'; 'consideration should be given to granting certain license holders special powers to assist them to perform their duties'; 'complaints investigation should be followed by research on industry needs assessment'; and 'regulatory agencies should commit to a mission for professionalization'[4].

As Prenzler and Sarre note, the need for more determined regulatory response to security industry regulation arose due to the adverse events charted in <Table 1>, and the associated exposure of regulatory inadequacies in addressing the occurrences.

The United Nation's 2014 publication '*State Regulation Concerning Civilian Private Security Services and their Contribution to Crime Prevention and Community Safety*' offers an additional valuable source for assessing the core intervention programs which could be considered best-practice for managing risk and compliance.

In sum, the regulations resource handbook contains a compilation of licensing arrangements that could be pursued to optimize the overall system. These are 1)specialist training, managerial-level officer training programs, and auditing and certification of training organizations; 2)the desired policies for ensuring a high degree of independence between the regulatory authority and the industry; 3)the standardized procedure for the monitoring and oversight of security businesses and confidential maintenance of their records that may be of sensitive interest to State authorities; 4)the model legislative provisions that help to systematize the investigation, inspection and enforcement activities by relevant regulatory authorities; 5)the sug-

gested platform for enabling consumers and security employees to easily learn about their rights, lodge complaints and locate reputation of businesses; 6)the appropriate level of penalties and sanctions for the breach of licensing conditions; and 7)the contexts where the government should be urged to consider empowering security personnel to perform their job effectively, to mention the key inputs of the document[5]. These key inputs will serve as the vehicle to evaluate the effectiveness of the intervention arrangements under the three Cs criteria.

### 3. A Developing Best Practice Model

The major limitation of the traditional regulatory approach was the invariable pitfalls of short-term 'fixes' that would provide short-term reliefs, but nonetheless would not solve the problem for the long-term due to the presence of potential coverage loopholes the regulators neglected. That being said, regulation needs to be 'comprehensive, covering all relevant categories'; 'compulsory, in terms of ongoing competency assessment'; 'nationally consistent, in federal systems'; and 'continuous, in assuring compliance monitoring and crime/incident log checking'.

In line with this, regulators should be innovative in employing a range of proactive regulatory strategies in order to challenge 'questionable, potentially illicit techniques' of security operations that 'derive from opportunities intrinsic to security work'(as outlined in <Table 1>), as well as to address the evolving, and periodically converging, compliance bypass tactics employed by undesirable elements. To date, the culmination of the core regulatory arrangement is reflected in the following range of strategies see <Table 2>.

**Table 2.** A range of available regulatory instruments governing the security industry[6].

Type	Key Features
National criminal history checks for disqualifying offences	<ul style="list-style-type: none"> <li>· Overseas criminal history checks</li> <li>· Using criminal intelligence that does not have to be disclosed</li> <li>· Palm/fingerprinting</li> </ul>
Compulsory training that ensures beginning competencies	<ul style="list-style-type: none"> <li>· Pre-license on-the-job training</li> <li>· Supervision of registered training organization</li> <li>· Conditions on license renewal</li> <li>· Secondary employment policy</li> </ul>

<p>Continuous monitoring of the conduct of security firms and operatives</p>	<ul style="list-style-type: none"> <li>· Restrictions to license based upon close associates</li> <li>· Powers of search, seizure and questioning</li> <li>· Probe on high security storage of weapons, including ballistic testing of firearms</li> <li>· Maintenance of an incident log register</li> <li>· Register book arrangement</li> <li>· Prohibition of unauthorized third-party subcontracting</li> <li>· National criminal history checks and daily local criminal checks</li> <li>· Eligibility restrictions where a person has been absent from country for 12 months and cannot satisfy probity during that absence</li> <li>· On-site drug inspection</li> <li>· Three strikes disciplinary scheme</li> <li>· Mental competency(psychiatric evaluation)</li> <li>· Fitness for work policy(free from alcohol/other substances)</li> </ul>
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#### 4. Recommendations for Comprehensive System of Regulation

The range of regulatory instruments outlined in <Table 2> are more readily employed among the high-level-check states where the financial resources allow. In relation to the practical endorsement of these guiding principle, Prenzler and Sarre(2014) emphasize the importance of thorough inclusivity; that is, ‘establishing the basic level of intervention levels in the industry necessary to ensure minimum protections’. Where the approach is not ‘economically viable’, Prenzler and Sarre(2014) propose that ‘the model should remain aspirational’[7].

To achieve this, implementation of measurable performance indicators is crucial. The extent of problems in security work can be difficult to measure and may be elusive. Thus, regulatory arrangement should be evidence-based and regulators should be innovative in applying a range of strategies available to them and maximize the full benefits of existing strategies, given that what works in one setting does not necessarily translate into effective regulation in another state. A strong research-based practice should inform judgments about either under- or over-regulation[8]. A research unit, industry advisory board, regular consultation with stakeholders, political reconciliation, and accountability mechanisms are all crucial to this process to effectively settle regulatory challenges. Findings might entail lifting cumbersome burdens on industry or fine-tuning controversial ele-

ments. To move forward with security’s private and public roles, responding to the evolving threat environment in the coming decades requires networking and feedback sharing[9].

#### 5. Best Practice for Managing Risk and Compliance

Prenzler and Sarre(2012) suggest that the comprehensive-minimum level of regulation can best be achieved by combining broad compliance promotion efforts informed by research and stakeholder engagement. Their criteria for best practice are based on the following eight sets of principles:

1. ‘Regulatory enforcement and inspections should be evidence-based and deterrence-focused, and seek to utilise a mix of compliance promotional strategies’.
2. ‘Strategic add-on options to facilitate compliance and enforcement should be evaluated regularly and explored actively wherever possible. The existing set of regulatory strategies cannot uniformly address jurisdictional specific problems and issues’.
3. ‘Regulators should be innovative in applying a range of strategies available to them. Feedback from industry insiders and experts, and case-study analyses can be simulated to draw the optimal level of intervention’.
4. ‘Enforcement should be responsive to the degree of compliance breaches. An in-

tervention based on a strong penal, accusatory style of enforcement should be discouraged. Enforcement action should avoid generating socially-costly consequences such as creating loss of supply of services and unemployment through major sanctions (punishment by removal, shut down)'.

5. 'Regulatory authority should take a graduated approach to sanctioning with clear guidelines and a long-term road map. Lower level breaches, such as unfair employment practices, are best countered by lower level responses, unless they become repeat breaches'.

6. 'Enforcement systems should induce compliance and support good relationship. Execution of regulatory enforcement should be independent from political or third party influence. Voluntary compliance promotion efforts by businesses should be rewarded and publicized'.

7. 'Regulatory authority should ensure clarity of rules and a process for inspections and enforcement. A coherent statutory instrument to organize inspections and audit check-ups needs to be adopted that clearly articulates legal rights'.

8. 'The review of enforcement activities should draw from measured outcomes on positive contributions made. Inspectorates' actions and their effectiveness and efficiency should be regularly evaluated against a set of well-defined indicators, such as the merits of different enforcement tools for each given risk, as well as the level of resources dedicated to enforcement activities'[10].

## 6. Conclusion

This article has highlighted the adverse events that brought the need for more determined responses. The article then identified the cumulative knowledge regarding common risk factors, and presented recent efforts to model sound regulatory principles and practices. The developing international consensus on the best practice

model has been presented and its backbone criteria. At the same time, the importance of the three 'Cs' precautionary principles was put forward; that is, complete national criminal history checks, compulsory training, and continuous monitoring.

This article overviewed a variety of regulatory instruments progressed to date to attain these objectives. Overall, it has been observed that a window of opportunity for such a shift might be limited without overcoming the invariable pitfalls of short-term fixes or scandal-driven interventions, through communication, consultation and research. To move forward with security's private and public roles, the market-driven regulatory mechanism may not be sufficient and there is a need to look systematically at the structural problems, preferably through a standing research unit that conduct policy-oriented analysis of growing challenges.

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## Spatial and Temporal Patterns of Cyberattacks: Effective CYBERCRIME Prevention Strategies around the Globe

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### Abstract

*The issue of cyberattacks has become very pervasive and increasingly dangerous in the digital age. Many industrialized nations are highly dependent upon computer systems and other technologically supported infrastructures. An attack on such infrastructures may very likely compromise a nation's security and economic vitality. However, to date there has not been a multinational cooperation system as an effective cyberattack prevention strategy.*

*While the policing of high crime areas, known as hotspots, has garnered much attention among scholars and law enforcement officials, the spatial identification of hotspots in cybercrime has been limited. Routine activity theory has often been applied to explain crimes in the physical space, and consistent with this framework, a new theory has been put forth to explain crimes in cyberspace: cyber-routine activities theory. This theory contends that an unguarded virtual network must be present in addition to a potential offender and potential target in order for a cybercrime to occur. Further, unlike the spatial and temporal convergence of the physical world, the virtual world is not bound by the same spatial and temporal orderings. Due to the dynamic nature of cyberspace, a cyberattack may be committed against a target in different real-world time zones, while also allowing the attacker to escape.*

*The current study seeks to address gaps in the literature concerning spatial and temporal patterns of cyberattack origins and victimizations. The purpose of this study is to identify spatial and temporal patterns of cyberattack hotspots, which can help law enforcement establish an effective cybercrime prevention strategy for international communities. In terms of methodology, Geospatial Information System(GIS) technique is employed to investigate the patterns of cyberattacks and victimizations. Data was derived from the Norse website from February 15-16, 2017, which feeds a livestream of cyberattacks worldwide. The data includes cyberattack origins, types, targets, times, IP addresses, locations, and ports.*

*This study focuses on answering the following four research questions: Which nations are the top seven countries by count: cyberattack origins? Which nations are the top seven countries by count: cyberattack victimizations? Do the spatial hotspots for cyberattack origins differ from the spatial hotspots for cyberattack victimizations? Does a temporal pattern of cyberattacks in the daytime differ from a temporal pattern of cyberattacks in the nighttime? Thus, the findings of the current study indicate (1)the spatial hotspots of the cyber attackers and victims, and (2)the difference between temporal patterns of cyberattacks in the daytime and nighttime. Finally, policy implications and limitations of the current study are discussed.*

**[Keywords]** Protection Security, Cyberattack Hotspots, Cybercrime Preventions, GIS Technique, Spatial-Temporal Patterns

## 1. Introduction

Cyberattacks have been a controversial issue

for modern society in recent years[1]. A cyberattack is defined as any action to alter, disrupt, deceive, degrade, or destroy a computer systems or



networks for a political or national security purpose[2]. Most industrialized nations heavily rely on the internet and technologically supported infrastructures. Consequently, if cyber perpetrators attack these critical infrastructures, national security and economic vitality could be threatened[3]. Others have argued that the use of technology by cyber perpetrators is in its infancy, but it is difficult to deny the existing and considerable risks of cyberattacks. In doing so, major cyberattack incidents have caused substantial impacts on critical infrastructures.

People are still the central actors for committing cyberattacks or cybercrimes, even though cyberattacks are actively executed by using cutting-edge technologies in the virtual environment. Research on cyberattacks has increased over the last decade. These existing studies normally focus on illustrating the law and policy of cyberattacks or the technical prevention systems of cyberattacks(e.g., cyberattack detection and firewall systems). Only a few studies assess the characteristics of cyberattacks and victimizations. Accordingly, the criminology field needs to conduct further research concerning the characteristics of cyber attackers and victims, specifically spatial and temporal characteristics for cyberattacks. As a result, the identification of spatial and temporal characteristics could be a key answer to understanding the phenomenon of cyberattacks. Thus, the purpose of this study is to examine spatial and temporal patterns of cyberattacks and victimizations through the implementation of Geographic Information System(GIS), which can assist law enforcement in establishing an effective cybercrime prevention strategy for the international communities.

## 2. Literature Review

### 2.1. Theoretical framework

From the perspective of routine activity theory[4], crime in the terrestrial world may occur when three elements(motivated offender, suitable target, and absence of capable guardian) converge in a certain space and time. According to routine activity theory, if any one of these elements are missing, then crime is less likely to occur. This theory has had an impact on crime

prevention policy. For example, one way to increase the capable guardianship of an area and thereby prevent crime, according to the theory, is through the use of situational crime prevention measures, such as added lighting, CCTV cameras and increased police officers in high crime places[5][6]. However, how does routine activity theory apply to the cyber world where there is not necessarily a physical time and space convergence in order for a crime to occur?

Using the basis of routine activity theory, Choi[7] created an integrated theory, cyber-routine activities theory, to explain crimes in cyberspace since such crimes do not require the physical convergence of time and space between the victim and offender. Cyber-routine activity theory states that three elements must be present in order for a crime to occur: a potential offender, a potential target, and an unguarded virtual network. Choi especially stresses the need for a specialized form of digital guardianship to decrease the incidence of many types of cybercrime. He further argues that this guardianship must be present 24/7 because of the temporal instability of most cybercrime, unlike many types of street crime. In addition, Choi touches on the temporal aspects of cybercrime, but does not address the spatial aspects of cybercrime.

The spatial aspects of street crime have received considerable attention from criminologists and law enforcement officials in recent years. Many studies have shown that street crime is not randomly distributed in place, but generally occurs in clusters across a given area. In fact, studies consistently show that approximately 50 percent of crime calls to police are generated by a mere 3 to 5 percent of places in a city[8][9][10]. These findings have led to the identification of these “hotspots” of crime across a city, and have narrowed law enforcement efforts into those micro locations through increasing the guardianship, known as hotspot policing. Because of this heavy crime concentration, hotspot policing has generally shown to be effective in reducing crime in a given area[11][12]. While a large body of research has been conducted on hotspots of physical crime, studies on the spatial identification of hotspots of cybercrime have been limited. The current study will

address this gap.

Yar[13] argued that the condition of spatial and temporal convergence in the virtual world may differ from the condition of spatial and temporal convergence in the terrestrial world. He asserted that there is the collapse of spatial and temporal orderings between the motivated offender and suitable target. In other words, the spatial and temporal structures of cyberspace allow perpetrators to commit cyberattacks against suitable targets living in different real-world time zones(24/7) without border controls. Space transition theory[14] posits that individuals behave differently when they move from the physical space to the cyber space, due in part to the dynamic nature of cyber space. Specifically, a tenet of space transition theory associated with the current study is that there is the dynamic spatial-temporal nature of cyberspace, which can provide cybercriminals with the chance to escape. In short, based on routine activity theory, traditional crime occurs when three elements converge in a certain space and time; however, based on Choi's cyber-routine activities theory, Yar's argument, and Jaishankar's space transition theory, criminals commit cyberattacks against suitable targets without spatial and temporal orderings between offender and victim.

## 2.2. Present study

In addressing these gaps in the literature, the following four research questions related to determinants of spatial and temporal patterns of cyberattacks and victimizations are guided in the present study:

1. Which nations are the top seven countries by count: cyberattack origins?
2. Which nations are the top seven countries by count: cyberattack victimizations?
3. Do the spatial hotspots for cyberattack origins differ from the spatial hotspots for cyberattack victimizations?
4. Does a temporal pattern of cyberattacks in the daytime differ from a temporal pattern of cyberattacks in the nighttime?

Based on Choi, Yar, and Jaishankar, the following hypotheses are proposed for the present study.

1. There is no spatial ordering between the motivated offender and suitable target, due to the dynamic spatial-temporal nature of cyberspace.
2. There is no temporal ordering between the motivated offender and suitable target, due to the dynamic spatial-temporal nature of cyberspace.

## 3. Methodology

Data was collected from the Norse website, which is dedicated to providing live cyberattack intelligence that uncovers hidden breaches and tracks cyber threats emerging around the world[15]. The live cyberattacks were recorded using Ocam, a video recording tool from 00:04 on February 15, 2017 to 00:10 on February 16, 2017. The recorded data included cyberattack origins, types, targets, times, IP addresses, locations, and ports. As a next step, the researchers coded the information – cyberattack origins, IP addresses, victimizations, and times of occurrences using an Excel worksheet. The data were comprised of an Excel worksheet with 1733 cyberattack incidents worldwide. "Geocode by awesome table," a Google spreadsheets add-on, was employed to geocode longitudes and latitudes for location information of the cyberattack origins and victimizations.

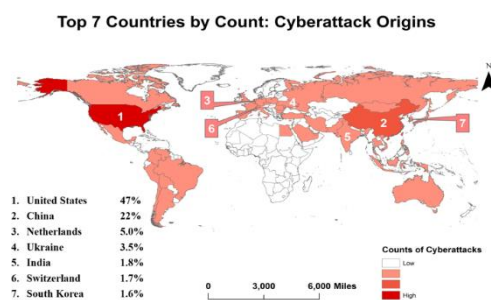
The researchers used the world shapefile and the coded data set for cyberattacks. Within ArcGIS, the points were plotted using the GCS North American 1983 coordinate system. This coded data set was utilized for displaying xy data and then two files were made. These two files were joined into the world shapefile for the layer's features. After the data was joined by spatial location, it compressed the xy points into a count per country, the layer properties were opened and graduated colors were applied to create the color coded choropleth map included.

In addition, the "kernel density raster" method was utilized. The researchers created a kernel density map, which demonstrates the

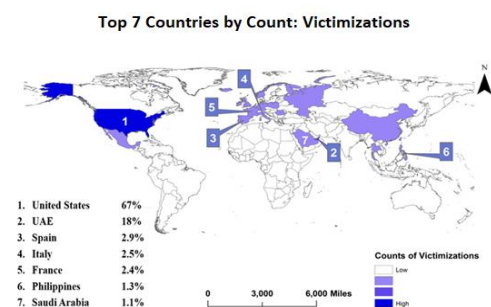
hotspots for cyberattack origins and victimizations via the use of Arc Tool Box. Natural breaks with 4 classes were selected to help readers have a better understanding of the data distribution. The red color was selected to indicate the hotspots for cyberattack origins and the blue color was selected to indicate the hotspots for victimizations. Also, to clearly demonstrate the hotspots for cyberattack origins and victimizations, the researchers selected 20% transparency for the red color and 40% transparency for the purple color.

In order to create <Figure 1>, <Figure 2>, <Figure 5>, and <Figure 6>, the “select by attributes” method was employed. The researcher has respectively exported data from the files of all cyberattack origins and all victimizations. Accordingly, times of occurrences during the daytime were selected from 10:08 to 13:02 and times of occurrences during the nighttime were selected from 23:01 to 02:07. The time was limited to collect a broad range of cyberattack incidents, so the researchers utilized the simple random sampling technique to collect a certain number of samples(1733 cases).

**Figure 1.** Top 7 countries by count: cyberattack origins(February 15, 2017).



**Figure 2.** Top 7 countries by count: victimizations(February 15, 2017).

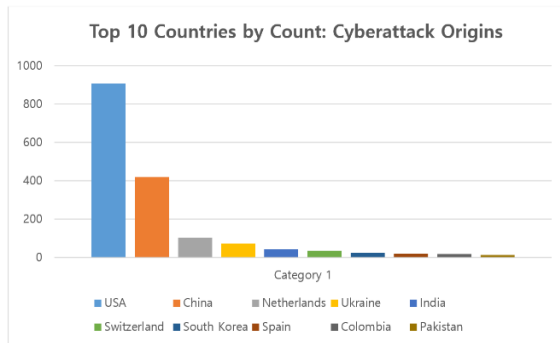


## 4. Results

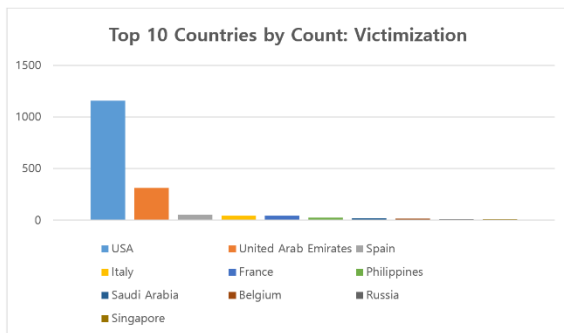
The current study examined the spatial and temporal patterns of cyberattack origins and victimizations. By implementing GIS techniques, four maps were created – <Figure 1>, <Figure 2>, <Figure 5>, and <Figure 6>. <Figure 1> reveals that most cyberattacks occurred in these seven nations: United States(47%), China(22%), Netherlands(5.0%), Ukraine(3.5%), India(1.8%), Switzerland(1.7%), and South Korea(1.6%). <Figure 2> indicates that most cyberattack victimizations occurred in these seven nations: United States(67%), United Arab Emirates(18%), Spain(2.9%), Italy(2.5%), France(2.4%), Philippines(1.3%), and Saudi Arabia(1.1%).

<Figure 5> demonstrates that there are spatial concentrations for both cyberattack origins and victimizations. Interestingly, the hotspots for cyberattack origins are slightly different from the hotspots for cyberattack victimizations around the globe. For example, the hotspots for cyberattack origins are formulated on the west coast of the United States(California and Washington), western and eastern Europe(Netherlands, Switzerland, and Ukraine), and northeast Asia(China and South Korea), whereas the hotspots for cyberattack victimizations are intensively formulated on the northeast and west coast of the United States, western Europe(Spain, Italy, and France), and middle east Asia(United Arab Emirates and Saudi Arabia). According to attribute tables for both daytime and nighttime cyberattacks, 783 incidents occurred in daytime and 950 incidents occurred in nighttime. In a related sense, <Figure 6> suggests that there is no difference of temporal pattern between daytime and nighttime. In fact, temporal factors may not substantially impact the occurrence of cyberattacks.

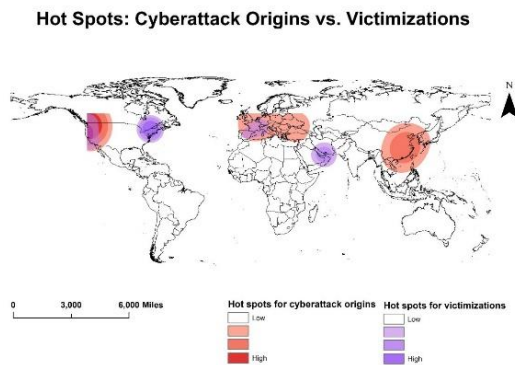
**Figure 3.** Top 10 countries by count: cyberattack origins.



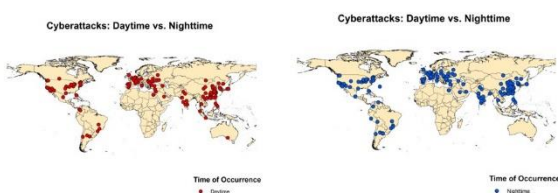
**Figure 4.** Top 10 countries by count: victimizations.



**Figure 5.** Hotspots: Cyberattack origins vs. victimizations(February 15, 2017).



**Figure 6.** Cyberattacks: Daytime vs. nighttime(February 15, 2017).



## 5. Discussion

The findings of the current study reveal that there are spatial concentrations for both cyberattack origins and victimizations, creating hotspots for cybercrime across the globe. Most cyberattacks and victimizations occurred in industrialized countries of the world. For example, nine out of 14 nations from the top seven countries for cyberattack origins and victimizations are members of G20, which is a forum for international co-operation that brings together the governments and central bank governors from 20 major economies in the world[16]. In other words, most active cyberattackers and victims live in industrialized or developed countries in the world. Also, the findings suggest that the hotspots for cyberattack origins differ from the hotspots for cyberattack victimizations. Consistent with the statements of Choi, Yar, and Jaishankar, the researchers found support for a principle element of cyberspace—that there is no spatial ordering between motivated offender and suitable target. At the same time, the findings of this study demonstrate that there is no difference of temporal pattern between daytime and nighttime. This means that the temporal factors may not substantially impact the occurrence of cyberattacks. Therefore, both hypotheses of this study were supported. As a consequence, the present study confirmed that the spatial and temporal structures of cyberspace allow perpetrators to freely commit cyberattacks against suitable targets who live in different real-world time zones(24/7) without border controls.

These findings have policy implications to reduce the occurrence of cyberattacks. According to cyber-routine activity theory, capable guardianship must be increased to reduce cyberattacks. However, because cyberattacks can be carried out globally without regards to borders, a fragmented approach with various countries taking diverse and independent actions is less likely to have an impact. Instead, the results suggest a multi-national cooperation system for the global community as an effective cyberattack prevention strategy. Due to the spatial and temporal structures of cyberspace displayed in this study, cyberattacks tend to be implemented at the transnational level on a 24/7 basis. Therefore,

global collaborative work may be an essential step to effectively combat cyberattacks[17][18]. Some steps to make progress could include an international agreement on the multifaceted problem, such as a global definition of cyberattack and cybercrime, as well as unified data collection, prevention strategies, and prosecution efforts.

Spatially, just as in hotspot policing, efforts can also be focused on “hotspots” of cybercrime. This may be efficient where there exist increased offenders as well as enhanced prevention efforts in the areas where victimization is more likely to occur. Furthermore, temporally, results of this study suggest that this monitoring must be around the clock, since no temporal association was found.

As a limitation, our analyses were only based on cross-sectional data gathered at one point in time. Consequently, the present study was limited to demonstrate the broad scope of patterns and trends regarding the spatial and temporal patterns of cyberattacks and victimizations. As another limitation, due to the size of world shapefile, it was unable to clip hotspots map in <Figure 5>. Future research should use longitudinal data to support more in-depth studies pertaining to cyberattacks.

## 6. Conclusion

The present study used GIS techniques to identify spatial and temporal patterns of cyberattack hotspots around the globe. Based on the work of Choi, Yar, and Jaishankar, two hypotheses were empirically examined. The first hypothesis was that there is no spatial ordering between the motivated offender and suitable target, due to the dynamic spatial-temporal nature of cyberspace. The second hypothesis was that there is no temporal ordering between the motivated offender and suitable target, due to the dynamic spatial-temporal nature of cyberspace. Using data from the Norse website detailing international cyberattacks occurring on February 15-16, 2017, the results of this study provided support for both hypotheses.

The study also identified the global hotspots of cyberattack origins, which included the west

coast of the United States(California and Washington), western and eastern Europe(Netherlands, Switzerland, and Ukraine), and northeast Asia(China and South Korea). Furthermore, the results identified that the hotspots for cyberattack victimization were somewhat different and included the northeast and west coast of the United States, western Europe(Spain, Italy, and France), and middle east Asia(United Arab Emirates and Saudi Arabia).

As technology continues to advance, the risk of cyberattacks is also likely increase. Due to the unique spatial and temporal structures of cyberspace, traditional crime prevention measures are unlikely to be effective. Therefore, a 24/7 global effort across time and space will be necessary to reduce cyberattacks.

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## Police ACTIVITIES in the Age of BIG DATA Utilization

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### Abstract

*The purpose of this research is to search the precondition and discuss at time of building the crime forecast program through the discussion for the utilization of big data for the active utilization of security information.*

*Nowadays, crime forecast systems utilizing the crime information as it enters into the era of information utilization from the era of information collection are being attempted. The more information is, the higher the crime forecast system becomes precise and the prediction rate becomes high.*

*However, points that the invasion of privacy, information country, the surveillance government and the infringement of the personal information, etc. should be discussed exist. Accordingly, what should be preconditioned for the public order of utilization era of big data has been suggested. As a result of discussion, first, the understanding for the police activity utilizing the big data should be preceded. Secondly, the social agreement for the utilization of big data for the utilization of crime forecast system should be drawn. Thirdly, the collection agency should be procured variously. Lastly, the criteria should be prepared so that the numerical value for the forecast may be verified.*

**[Keywords]** *Crime Big Data Utilization, PredPol Program, NGI Program, Compstat, AI-Policing*

## 1. Introduction

We heard a lot about the information age from the late 1990s to the early 2000s. The reason was that as the Internet was widely supplied, we were beginning to use information on the Internet. That period can be called an age when all the information was stored and accumulated in the Internet. As Apple put the iOS-based iPod into the market in 2007 and at the same time Google supplied the Android system, a smartphone became popular. As a result, the Internet connection efficiency was increased.

A change in connection efficiency meant that we went into the information-utilizing age from the information age. Valuable information began to be created instead of mere

information being searched for. The dissemination of a smartphone made it possible to collect, store, and process a wide range of information like search information, geography information, body information, and object information, and the automatic treatment of information turned the existing order into a paradigm in which big data was built up. The South Korean society could predict more precise actions by making use of big data.

As actions could be predicted by making use of big data, a prediction system aimed at preventing crimes began to be developed in other countries. For example, the United States, the United Kingdom, Japan, China and others are constructing crimes-related information prediction programs. In addition, they are focusing their investments on research on crime prediction and public order-securing



systems utilizing artificial intelligence as well as big data. As a result, some programs have already been implemented as a prototype and its effects have also been verified.

However, the introduction and utilization of the crime prevention programs must be preceded by the collection and process of big data. Now is also the time when we begin to discuss the issues of an Internet state, private information protection and infringement on privacy as they are still at the heart of controversies.

Therefore, this study is aimed at presenting why police activities are needed in order to secure public order in the artificial intelligence age and seeking to find more effective police activities by having a discussion about the intelligence -oriented police activities which should be premised in police activities in the artificial intelligence age.

## **2. The Understanding of Police Activities Utilizing Big Data**

Nowadays, we can have access to information anytime and anywhere by utilizing personal assistants like a smartphone. Thanks to smartphone's cameras, sensors(GPS, Fin Tech, and others), and access record classification programs(data treatment technology), the paradigm related to the collection, supply, and process of information has changed into a two-way information sharing dimension from a one-way information supply dimension.

Already-formed information sharing has recently maximized the efficiency of information utilization by analyzing big data and introducing artificial intelligence. Intuitive activities through experience in the past have changed into scientific technologies utilizing statistics, and moreover, the AI-based prediction technology has reduced the danger of a social system.

The public police activities utilizing information are not a concept which was recently developed. The policing was secured by working out problems based on the collection and analysis of information on them through problems-oriented policing in the traditional police activities age.

Tools designed to collect and analyze information like the SARA(Scanning, Analysis, Response, Assessment) model were also utilized in order to more precisely analyze information.

Later, the police increased citizens' activities by reducing disorderly activities and fear of crimes in the local society in the local society police activities age, and such philosophy and strategies led to the collection of information by obtaining crime information and securing witnesses, making the public order firmly established.

As computers began to be fully utilized in the public order field later, the Compstat introduced by the New York City Police Department in 1994 made it possible for information to be efficiently analyzed and processed, and the application of communication and statistics techniques led to a stage at which the public order was established by introducing scientific analysis techniques like geography profiling and criminal profiling. It is a crime prediction system utilizing big data that was a step further advanced related to such achievements[1][2][3].

## **3. The Current Situation of Policing Program Development in Major Countries and Their Police Activities**

A variety of policing technologies, which make use of big data, attempt to predict the prevention of crimes in the United States. The New York City Police Department introduced a crime prediction program called Compstat(the abbreviation of compare and statistics) in 1994. The program points out an area where crimes are most highly likely to take place every morning in terms of probability by analyzing the previous crime data. When it comes to each individual program's development, UCLA developed "the PredPol program," which was designed to predict areas where crimes are most highly likely to take place in terms of probability by analyzing crimes for the past seven years. Later, the Santa Cruz Police Department began to utilize the PredPol program by upgrading it in a way that it can predict the likelihood that subsequent crimes will take place with the help of

its function to analyze crime patterns. As a result, the accuracy rate of prediction stood at 71%, and the robbery rate in July when it was first introduced went down by 27% compared with the same month of the previous year[1][4]. IBM developed a program called "i2 coplink on cloud," which predicts crime patterns on the basis of a data analysis function and is equipped with the function to make it visible to point out an area where crimes are likely to take place by marking it on the map. The Texas University developed "an action analysis CCTV system", a higher-level of system which can identify a criminal by applying the facial recognition technology and the big data technology. When it comes to government agencies, the Federal Bureau of Investigation developed "the NGI program" and is now using it. This program identifies a criminal through the body database like facial pictures, iris recognition, and voices[5].

The Durham City Police Department of the United Kingdom introduced the 'HART'(Harm Assessment Risk Tool), an artificial intelligence program in May 2017 in deciding whether a suspect would be detained. HART presents whether and how long a suspect will be detained and on what conditions the suspect will be released on bail by measuring the second offense rate of the suspect through the three-stages(high, usual, and low). The prediction accuracy rate turned out to be 88~98% at an initial tests in 2013. A number of British law enforcement agencies are considering introducing HART.

The Chinese government is also preventing crimes through artificial intelligence. The Chinese Police Agency built up 'the Sky Net,' a criminal surveillance system which utilizes the GPS of artificial satellites and as many as 20 million CCTVs across the country. According to the People's Daily, China used the Sky Net last year to arrest 1,032 crime offenders hiding out overseas in around 70 countries. The Chinese Police Agency is pushing forward with a project to develop a facial recognition system in association with Isvision, a security company.

#### **4. Implications and Policy Suggestions**

##### **4.1. The dilemma and social consensus of an internet intelligency state**

In order to build up a crime prediction system utilizing big data, information in the past and present should be collected at real time. The more information we have, the more accurate action prediction can become. In other words, it means that if all the information across the world is connected and collected, crimes can be more perfectly predicted. The Chinese Police Agency is pushing forward with a project to develop a facial recognition system in association with Isvision, a security company. It is expected that a criminal can be identified within three seconds by relying on the program.

In spite of various positive aspects, many people are concerned about the side effects of an Internet information state like human rights violation and infringement on privacy information. The Human Rights Watch, an international human rights organization, pointed out in its report that the Chinese government collects all the information concerning dissidents or ethnic minority groups including medical records, contraception methods, and supermarket delivery records, and predicts their action types[3][4]. In the United Kingdom, people feel resentful that HART information is senselessly treated. Therefore, social consensus on information collection should be reached in advance.

##### **4.2. The diversification of collection channels**

A crime prediction program utilizing big data can make a more accurate prediction through various and enormous information. In order to do so, collection channels for information should be diversified. The reason is that the collection channels possessed by the police are limited. As a result, all the information possessed by the whole criminal justice agencies and the whole social organizations related to the police should be able to be utilized. In order to build up such a system, the cooperation among agencies and legislation can be the only answer for that goal. In addition, cooperation experts should be deployed to each agency, so necessary information should be restrictedly shared.

### 4.3. Verification research on prediction numbers

The prediction of crimes is much more difficult than that of natural phenomena. The reason is that crimes are committed by human beings and that crimes are characterized by traits like abruptness and sporadicness. Therefore, a crime prediction measurement method which can be verified should be developed and further, the crime prediction programs should be verified as well.

## 5. Conclusion

The information utilization of big data by a scientific analysis is extremely meaningful in the field of public order. The reason is that the success or failure of crime prediction is decided by information. The crime prediction has not been effective and scientific so far in preventing crimes since it has been dependent on investigators' intuition, intelligence obtained by simple inquiry, or report by citizens. In many cases, admissibility of evidence has been ruled out. Rather, the public order has been maintained by resolving crimes through physical evidence like CCTV, fingerprints, and trace evidence which were obtained after crimes.

However, as science has advanced, crimes can be predicted by making use of big data. Some countries have actually implemented a prototype of crime prediction program and succeeded in producing tangible results. In my personal judgment, crime prediction programs utilizing big data will be aggressively introduced. Nevertheless, considering that the Internet state, infringement on privacy, and personal information violation still remain unresolved, social consensus should be reached to find a solution to them. What is more, in order to more accurately predict crimes, collection channels should be diversified and verification should also be precisely carried out.

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## A Study on Psychological Perceptions toward NORTH KOREAN Defector for PROTECTION

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### Abstract

*As the number of North Korean defectors entering South Korea has dramatically increased, various efforts have been made to settle them as members of the society. These days, the military is also positively considering military duties for North Korean defectors in line with current social movements. However, prejudice and a sense of distance towards North Korean defectors may act as negative factors in military operations. To solve this problem, the military needs to exert effort to lessen the prejudice and sense of distance towards North Korean defectors, in preparation for the latter and their second generation in joining the army.*

*The purpose of this study is to investigate the prejudice of army soldiers on North Korean defectors by examining the effects of individual psychological traits(authoritarian personality, inclination to perfectionism, empathic ability) on prejudice(stereotypes, emotions, sense of social distance) towards North Korean defectors. A survey was carried out targeting four hundred soldiers from various units ranging from front to rear troops, representing the entire army.*

*To summarize the results of this study, efforts are needed among the army in reducing their authoritarian personality, enhancing self-oriented perfectionism, and improving empathic ability to lessen the prejudice towards North Korean defectors. To do this, public advertisements and social programs(prejudice and stereotype mitigating program) must be created for soldiers to learn other cultures and positively embrace social minority groups. Through this study, the presentation of the policy making plan on recognition improvement towards North Korean defectors may be considered as an achievement.*

**[Keywords]** North Korean Defectors, Authoritarian Personality, Perfectionism, Prejudices, Protection

## 1. Introduction

As the number of North Korean defectors entering South Korea has dramatically increased, various efforts have been made to settle them as members of the society. These days, the military is also positively considering military duties for North Korean defectors in line with current social movements. In addition, an enactment was done to allow the special appointment of North Korean soldiers subject to protection to be transferred in the South Korean Army if they want to(Lee & Kim, 2016)[1]. However, the Military Service Act stipulates that North Korean defectors can be

exempted from military service without undergoing physical examination if they desire. There is no official information on the military service exemption scale of North Korean defectors(Oh & Jeong, 2013)[2].

According to the statistics on the North Korean defectors policy of the Ministry of National Unification, the number of North Korean defectors steadily entering South Korea is about 1,500 people per year(Ministry of National Unification, 2017)[3]. The second generations of North Korean defectors, who entered between the late 1990s to the early 2000s, are approaching their time in joining

the military. In accordance with the Military Service Act mentioned above, North Korean defectors are exempted from military service. However, second generation defectors are subject to joining the military. In preparation for the increasing number of North Korean defectors and a true social integration, and by extension, a reunification of two countries, the military needs to prepare more actively for cases of North Korean defectors and their second generation joining the military. The first thing that needs to be done is to lessen the prejudice and sense of distance towards North Korean defectors.

The prejudice and sense of distance towards North Korean defectors can act as negative factors for military operations. When the American military had a sense of distance and prejudice towards Sunni due to lack of appropriate understanding, the Iraqi stabilization campaign did not succeed during its early stages which resulted to their loss of combat power. As the military is an organization that exists in preparation for war, if the prejudice and sense of distance on North Korean defectors are not solved, psychological inconvenience such as a sense of difference and resistance on North Koreans will negatively influence the country's military civil operations.

This research intends to analyze the perception of army soldiers on North Korean defectors and examine the effect of individual psychological traits(authoritarianism, perfectionism, empathy) on prejudice(stereotype, emotion, sense of social distance) towards North Korean defectors. Through this, a policy and intervention plan for military soldiers that lessens prejudice and induces a positive perception on North Korean defectors is being sought for.

## **2. Theoretical Background**

### **2.1. Authoritarian personality**

Authoritarianism has the duality of domination and submission. It makes a person become obedient to power and authority but at the same time, motivates one to get power

and rule over the weak. Adorno et al.(1950) said that authoritarian personality is the same with prejudice on many minority groups and a kind of sentiment on authority[4]. Here, the obedience on the superior, the asperity on the inferior, and the belief that authority and rule is important are said to be included. Also, Maslow(1970) mentions authoritarian tendency, desire for authority, hatred for the enemy, prejudice, external judgement, stinginess of kindness, inclination in considering human as other means, sense of guilt, and conflict as the attributes of authoritarian personality[5].

Many studies on the nature of authoritarian personality have shown that it has the characteristic of evading cognitive rigidity and uncertainty(Block & Block, 1951)[6]. It rejects minority groups, has a conservative political, economic attitude, and embraces the attitude of power and authority(Izzertt, 1971)[7]. In addition, based on various studies on the relationship between authoritarian personality and prejudice, people with high authoritarian tendencies were shown to have prejudice towards the black, women, homosexuals(Whitley, 1998)[8], disabled(Noonan, Barry, & Davis, 1970)[9], and AIDS patients(Cunningham, Dollinger, Satz, & Rotter, 1991)[10].

### **2.2. Inclination to perfectionism**

Perfectionism is a tendency to set a high standard for oneself by suppressing and controlling oneself to reach this standard. Hyun(1992) stated that the higher the inclination to perfectionism, the higher the level of anxiety is, denoting a positive correlation between the two[11]. Choi(1998) stated that the relationship between the inclination to perfectionism and anxiety show a positive correlation[12]. In addition, Ha(2013) found out that perfectionists show a negative attitude towards multicultural families which belong to the social minority group as they do not seem like a socially perfect structure[13]. As a result, the viewpoint for North Korean defectors who have the characteristics of a social minority group may be reflected in negative attitudes and prejudice even in the military.



### 2.3. Empathy

Empathy is the ability of a person to feel the emotions and experiences of others from the latter's viewpoint (Marsumoto, 2000) [14]. The ability to empathize with others contributes to a wide range of interpersonal relations, social relationship, and diverse abilities. Empathic ability becomes the foundation in forming personal relationships and helps in various issues such as solving conflicts or coping with stress. Also, Johnson (1990) stated that empathy is helpful in making interpersonal relations better and resolving conflict productively [15]. People with high empathy are found to be friendlier and have a higher helping behavior towards minority groups compared to several groups.

### 2.4. The prejudice towards North Korean defectors

Prejudice is a lopsided thinking which is not fair. Generally, prejudice has a negative influence on social life whether it is true or not (Park & Chung, 2006) [16]. Especially in the case of the military, considering it is an organization where unity and cooperation is important than any other organizations, prejudice against a specific group increases internal conflicts in the military and may lead to the decline of combat power (Choi, 2010) [17].

Looking at the study on prejudice towards North Korean defectors, it was shown that South Koreans have negative thoughts on directly becoming a family with North Korean defectors. However, in terms of building a relationship as friends or co-workers, South Koreans showed a positive attitude towards North Korean defectors. As mentioned above, South Koreans were shown to have ambivalence on North Korean defectors and in particular, they have noticeable prejudice in situations wherein they have to build a direct relationship with the latter.

In this research, prejudice towards North Korean defectors was explored by classifying it into cognition, emotion, and behavior. For the cognitive aspect, stereotypes about North Korean defectors were examined. For the emotional aspect, prejudiced emotions towards North Korean defectors were looked

into. Finally, for the behavioral aspect, the sense of social distance on North Korean defectors was measured.

## 3. Research Method

### 3.1. Research model

In this study, the psychological traits of the individual (authoritarian personality, inclination to perfectionism, empathic ability) were set as independent variables and the dependent variable is the prejudice (stereotype, emotion, sense of social distance) on North Korean defectors. A research model was constructed in order to investigate the effect of these independent variables on the dependent variable.

### 3.2. Research subject

In this study, a survey was conducted among four hundred soldiers from various units ranging from front to rear areas, representing the whole army. First, the purpose of the survey was explained and then it was carried out with consent. The age range of the four hundred soldiers were from 19 to 26 years old with an average of 21.09 years old (SD=1.23). The academic background was shown as 68 soldiers with high school education and below (17.0%), 102 soldiers with college education (25.5%), and 230 soldiers with university education (57.5%).

### 3.3. Measurements

#### 3.3.1. Authoritarian personality

The translated and modified Korean version of Authoritarian Personality Scale by Min (1989) [18], originally developed by Adorno et al. (1950) [4], was used to measure the authoritarianism of his father. The Korean version of the Authoritarian Personality Scale has a total of 35 items which are all composed of a 5-point-scale. The reliability coefficient (Cronbach  $\alpha$ ) in this study is 0.901.

#### 3.3.2. Inclination to perfectionism

The Korean version of the Multi-dimensional Perfectionism Scale, MPS translated by Han (1993) [19] and modified by

Jeon(2009)[20], originally developed by Hewitt & Flett(1991) was used. It covers the inclination to perfectionism in a personal basis and social basis[21]. There is a total of 45 items consisting of three sub-factors which are self-oriented perfectionism, others-oriented perfectionism, and socially prescribed perfectionism. The reliability coefficient(Cronbach  $\alpha$ ) in this study is 0.812.

### 3.3.3. Empathic ability

The test tool developed by Jeon(2002)[22] which he reconstructed based on the emotional sympathy criterion developed by Mehrabian & Epstein(1972)[23], and the Interpersonal Reactivity Index(IRI) test developed by Davis(1980)[24] were used. It is composed of a total of 30 items and the reliability coefficient(Cronbach  $\alpha$ ) in this study is 0.790.

### 3.3.4. The prejudice towards North Korean defectors

To measure the prejudice towards North Korean defectors, sections were classified into cognition, emotion, and behavior. For the cognitive and emotional aspect, the criterion of Yang(2009) was used in which the attitude on minority groups was modified into North Korean defectors[25]. On the other hand, for the behavioral aspect, the modified version of Kim et al.(2011)[26] based on a sense of social distance criterion developed by Bogardus(1925) was used[27]. The reliability coefficient(Cronbach  $\alpha$ ) in this study for cognitive prejudice was 0.780, 0.746 for emotional prejudice, and 0.783 for behavioral prejudice.

## 4.1. The relationship between authoritarianism and prejudice towards North Korean defectors

As a result of analyzing the correlation between the sub-factors of authoritarianism and the prejudices towards North Korean defectors, it shows that the higher the scores of authoritarianism sub factors, the higher is the negative stereotypes and emotions towards North Korean defectors. Moreover, as the scores of some factors like conventionalism get higher, the sense of social distance towards North Korean defectors increased as well.

## 4.2. The effect of perfectionism on the prejudices towards North Korean defectors

### 4.2.1. The effect of perfectionism on the stereotypes of North Korean defectors

This research examined how the perfectionism of soldiers influences positive stereotypes of North Korean defectors. The result, as seen in <Table 1>, showed that perfectionism has a 1.3% significant explanatory power on positive stereotypes of North Korean defectors. In particular, self-oriented perfectionism among the sub factors of perfectionism had a statistically significant effect on positive stereotypes of North Korean defectors. However, other-oriented perfectionism and socially prescribed perfectionism did not have statistically significant results. This means that the higher the self-oriented perfectionism of soldiers is, the stronger the positive stereotypes of North Korean defectors.

## 4. Results

**Table 1.** The effect of perfectionism on the positive stereotypes of North Korean defectors(N=400).

Independent variable	Dependent variable	B	SE	$\beta$	t
Self-oriented perfectionism	Positive stereotypes	.071	.025	.151	2.817**
Other-oriented perfectionism		-.044	.033	-.073	-1.338
Socially prescribed perfectionism		-.018	.034	-.027	-.529



$$R^2=.013 F(3, 396)=2.756^*$$

Note: \*p<.05, \*\*p<.01, \*\*\*p<.001.

This study examined how the perfectionism of soldiers influences negative stereotypes of North Korean defectors. The results, as seen in <Table 2>, showed that perfectionism has an 11.8% significant explanatory power on negative stereotypes of North Korean defectors. In particular, self-oriented perfectionism and socially prescribed perfec-

tionism among the sub factors of perfectionism had a statistically significant effect on negative stereotypes of North Korean defectors. However, other-oriented perfectionism did not have statistically significant results. This means that the lower the self-oriented perfectionism or the higher the socially prescribed perfectionism of soldiers, the stronger the negative stereotypes of North Korean defectors is.

**Table 2.** The effect of perfectionism on the negative stereotypes of North Korean defectors(N=400).

Independent variable	Dependent variable	B	SE	$\beta$	t
Self-oriented perfectionism	Negative stereotypes	-.113	.023	-.251	-4.959***
Other-oriented perfectionism		.032	.030	.056	1.092
Socially prescribed perfectionism		.180	.030	.290	5.975***
$R^2=.118 F(3, 396)=18.874^{***}$					

Note: \*p<.05, \*\*p<.01, \*\*\*p<.001.

#### 4.2.2. The effect of perfectionism on the emotion towards North Korean defectors

The effect of the perfectionism of soldiers on the positive emotions towards North Korean defectors was examined. The result, as seen in <Table 3>, showed that perfectionism has a 5.9% significant explanatory power on the positive emotions towards North Korean

defectors. In particular, self-oriented perfectionism among the sub-factors of perfectionism had a statistically significant effect on positive emotions towards North Korean defectors. However, other-oriented perfectionism and socially prescribed perfectionism did not have statistically significant results. This means that the higher the self-oriented perfectionism of soldiers is, the stronger the positive emotion towards North Korean defectors.

**Table 3.** The effect of perfectionism on the positive emotions towards North Korean defectors(N=400).

Independent variable	Dependent variable	B	SE	$\beta$	t
Self-oriented perfectionism	Positive emotions	.075	.014	.277	5.283***
Other-oriented perfectionism		-.033	.018	-.096	-1.803
Socially prescribed		-.011	.019	-.030	-.589

perfectionism					
$R^2=.059 F(3, 396)=9.315^{***}$					

Note: \* $p<.05$ , \*\* $p<.01$ , \*\*\* $p<.001$ .

The effect of the perfectionism of soldiers on compassion towards North Korean defectors was examined. The result, as seen in <Table 4>, showed that perfectionism has a 4.1% significant explanatory power on compassion towards North Korean defectors. In particular, self-oriented perfectionism and socially prescribed perfectionism among the sub-factors

of perfectionism had a statistically significant effect on compassion towards North Korean defectors. However, other-oriented perfectionism did not have statistically significant results. This means that the higher the self-oriented perfectionism and socially prescribed perfectionism of soldiers is, the stronger the compassion towards North Korean defectors.

**Table 4.** The effect of perfectionism on compassion towards North Korean defectors(N=400).

Independent variable	Dependent variable	B	SE	$\beta$	t
Self-oriented perfectionism	Compassion	.051	.017	.160	3.026***
Other-oriented perfectionism		-.001	.022	-.002	-.040
Socially prescribed perfectionism		.057	.022	.129	2.556*
$R^2=.041 F(3, 396)=6.715^{***}$					

Note: \* $p<.05$ , \*\* $p<.01$ , \*\*\* $p<.001$ .

This research examined how the perfectionism of soldiers influences negative emotions towards North Korean defectors. The result, as seen in <Table 5>, showed that perfectionism has an 11.3% significant explanatory power on negative emotions towards North Korean defectors. In particular, self-oriented perfectionism and socially prescribed perfectionism among the sub-factors

of perfectionism had a statistically significant effect on negative emotions towards North Korean defectors. However, other-oriented perfectionism did not have statistically significant results. This means that the lower the self-oriented perfectionism and the higher the socially prescribed perfectionism of soldiers is, the stronger the negative emotions towards North Korean defectors.

**Table 5.** The effect of perfectionism on the negative emotions towards North Korean defectors(N=400).

Independent variable	Dependent variable	B	SE	$\beta$	t
Self-oriented perfectionism	Negative emotions	-.077	.016	-.249	-4.901***
Other-oriented perfectionism		.037	.021	.093	1.800
Socially prescribed perfectionism		.118	.021	.274	5.626***

$$R^2=.113 F(3, 396)=17.939^{***}$$

Note: \*p<.05, \*\*p<.01, \*\*\*p<.001.

### 4.2.3. The effect of perfectionism on the sense of social distance towards North Korean defectors

This study investigated how the perfectionism of soldiers influences a sense of social distance towards North Korean defectors. The result, as seen in <Table 6>, showed that perfectionism has a 5.7% significant explanatory power on the sense of social distance towards

North Korean defectors. In particular, self-oriented, other-oriented, and socially prescribed perfectionism, which are the sub-factors of perfectionism, all had statistically significant effects on the sense of social distance towards North Korean defectors. This means that the lower the self-oriented perfectionism, and the higher the other-oriented and socially prescribed perfectionism of soldiers is, the stronger the sense of social distance towards North Korean defectors.

**Table 6.** The effect of perfectionism on the sense of social distance towards North Korean defector(N=400).

Independent variable	Dependent variable	B	SE	$\beta$	t
Self-oriented perfectionism	Social distance	-.147	.035	-.220	-4.207 <sup>***</sup>
Other-oriented perfectionism		.135	.046	.158	2.964 <sup>**</sup>
Socially prescribed perfectionism		.115	.046	.125	2.493 <sup>*</sup>

$$R^2=.057 F(3, 396)=9.103^{***}$$

Note: \*p<.05, \*\*p<.01, \*\*\*p<.001.

### 4.3. The effect of empathy on the prejudice towards North Korean defectors

#### 4.3.1. The effect of empathy on the stereotypes of North Korean defectors

This study examined how the empathy of soldiers influences positive stereotypes of North Korean defectors.

The result, as seen in <Table 7>, showed that empathy has a 4.4% significant explanatory power on positive stereotypes of North

Korean defectors. In particular, cognitive empathy had a statistically significant effect on positive stereotypes of North Korean defectors. However, emotional empathy did not have statistically significant results. This means that the better the cognitive empathy of soldiers is, the stronger the positive stereotypes of North Korean defectors. However, as a result of examining how the empathy of soldiers influences negative stereotypes of North Korean defectors, both cognitive and emotional empathy did not have statistically significant effects on the negative stereotypes of North Korean defectors.

**Table 7.** The effect of empathy on the positive stereotypes of North Korean defectors(N=400).

Independent variable	Dependent variable	B	SE	$\beta$	t
Cognitive empathy	Positive stereotypes	.101	.034	.167	2.999 <sup>**</sup>
Emotional empathy		.048	.032	.084	1.499

$$R^2=.044 F(2, 397)=10.127^{***}$$

Note: \*p<.05, \*\*p<.01, \*\*\*p<.001.

#### 4.3.2. The effect of empathy on the emotion towards North Korean defectors

This research examined how the empathy of soldiers influences positive emotions towards North Korean defectors. The result, as seen in <Table 8>, showed that empathy has a 7.9% significant explanatory power on the

positive emotions towards North Korean defectors. In particular, both cognitive and emotional empathy had statistically significant effects on positive emotions towards North Korean defectors. This means that the more cognitive empathy and emotional empathy soldiers have, the stronger the positive emotion towards North Korean defectors is.

**Table 8.** The effect of empathy on the positive emotions towards North Korean defectors(N=400).

Independent variable	Dependent variable	B	SE	$\beta$	t
Cognitive empathy	Positive emotions	.048	.019	.139	2.530*
Emotional empathy		.063	.018	.195	3.555***

$$R^2=.079 F(2, 397)=18.015^{***}$$

Note: \*p<.05, \*\*p<.01, \*\*\*p<.001.

The effect of the empathy of soldiers on compassion towards North Korean defectors was examined. The result, as seen in <Table 9>, showed that empathy has a 4.9% significant explanatory power on compassion towards North Korean defectors. In particular, emotional empathy had a statistically significant effect on compassion towards North Korean defectors. However, cognitive empathy

did not have statistically significant results. This means that the better the emotional empathy of soldiers, the higher the compassion towards North Korean defectors is. However, as a result of examining how the empathy of soldiers influences negative emotions towards North Korean defectors, both cognitive and emotional empathy did not have statistically significant effects on negative emotions towards North Korean defectors.

**Table 9.** The effect of empathy on compassion towards North Korean defectors(N=400).

Independent variable	Dependent variable	B	SE	$\beta$	t
Cognitive empathy	Compassion	.013	.023	.033	.594
Emotional empathy		.082	.021	.214	3.852***

$$R^2=.049 F(2, 397)=11.313^{***}$$

Note: \*p<.05, \*\*p<.01, \*\*\*p<.001.

#### 4.3.3. The effect of empathy on the sense of social distance towards North Korean defectors

This study examined how the empathy of soldiers influences a sense of social distance towards North Korean defectors. The result, as seen in <Table 10>, showed that empathy has a 4.0% significant explanatory power on

the sense of social distance towards North Korean defectors. In particular, cognitive empathy had a statistically significant effect on compassion towards North Korean defectors. However, emotional empathy did not have

statistically significant results. This means that the better the cognitive empathy of soldiers is, the higher the sense of social distance towards North Korean defectors.

**Table 10.** The effect of empathy on the sense of social distance towards North Korean defectors(N=400).

Independent variable	Dependent variable	B	SE	$\beta$	t
Cognitive empathy	Social distance	-.164	.048	-.193	-3.449***
Emotional empathy		-.026	.045	-.033	-.590

$R^2=.040 F(2, 397)=9.240^{***}$

Note: \*p<.05, \*\*p<.01, \*\*\*p<.001.

## 5. Conclusion

In this study, the effect of the soldiers' psychological traits(authoritarianism, perfectionism, empathy) on the prejudices(stereotype, emotion, sense of social distance) towards North Korean defectors was explored. First, as a result of examining how authoritarianism influences the stereotypes of North Korean defectors, it showed that the higher the authoritarianism, the higher the negative stereotypes, negative emotions, and sense of social distance towards North Korean defectors. However, it was found out that authoritarianism does not have any relation with positive stereotypes and positive emotions towards North Korean defectors. Second, as a result of the influence perfectionism has on North Korean defectors, it showed that as self-oriented perfectionism increases, the positive stereotypes, positive emotions, and compassion towards North Korean defectors increase as well. As other-oriented perfectionism increases, the sense of social distance was found to decrease. Moreover, as socially prescribed perfectionism increases, negative stereotypes, negative emotions, and a sense of social distance get higher. On the other hand, compassion towards North Korean defectors was shown to get lower. Third, as a result of examining how empathy influences the stereotypes of North Korean defectors, when cognitive empathy gets higher, positive

stereotypes and positive emotions get higher as well and the sense of social distance gets lower. Therefore, it seems that basically empathy generates positive prejudice towards North Korean defectors. It was also found out that cognitive empathy influences positive stereotypes and a sense of social distance, while emotional empathy influences compassion differently.

As shown in the results of the study, efforts to reduce authoritarianism, increase self-oriented perfectionism, and improve empathic ability are needed. First, in order to reduce authoritarianism, understanding the social minority group which contrasts the authoritarian personality, and recognition change, which is to live a community life together with North Korean defectors, are needed. For this to happen, authoritarianism which is rampant in Korean society should be reduced through public advertisements and various social programs. In addition, a social atmosphere where people can sympathize with North Korean defectors must be created, similar to conducting campaign on understanding the multicultural families. Moreover, aside from educating soldiers within the military, it should be applied to the students' curriculum system to induce the formation of character that is not authoritative towards social minority groups. Second, rather than educating soldiers on the overall concept and understanding of perfectionism, detailed education on lower dimensions of perfectionism

and formation of self-oriented perfectionism should be done. Through this, self-oriented perfectionism which provides a positive view should be increased and socially prescribed perfectionism which forms a negative view must be reduced. Third, it is necessary to improve empathy to understand North Korean defectors and build affection and intimacy in having them as members of the society. The social bond of sympathy that can positively help in embracing social minority groups needs to be prepared through having appreciation education, public advertisement, and developing communication ability on North Korean defectors.

In preparation for a true social integration, and by extension, a reunification of two countries, the military has to exert efforts in understanding the prejudices and sense of distance that can happen when North Korean defectors and their second generation join the army. Moreover, measures to mitigate such situations are needed as well.

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