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**MANAGING EFFECTIVE COLLABORATION AMONG LAW ENFORCEMENT,  
INTELLIGENCE SERVICES, AND MILITARY FORCES IN FIGHT AGAINST  
TERRORISM AND ORGANIZED CRIME**

by

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A dissertation submitted in partial fulfillment of the requirements  
for the degree of Doctor of Philosophy  
in the College of Health and Public Affairs  
at the University of Central Florida  
Orlando, Florida

Fall Term  
2014

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## **ABSTRACT**

The fight against terrorism and organized crime require strong collaboration between public security organizations. Public security networks include several agencies that are not bound to each other with strong hierarchical ties. Because of a lack of the strong hierarchical structure, managing public networks is not similar to managing a single government agency. This study aims to examine the factors influencing network effectiveness in the public security sector. The main research questions of the study are: Which factors are important for effectiveness in public security networks? What is the role of inter-organizational trust among partner agencies? Which kind of leadership style will achieve the highest performance in public security networks? What is the relative importance of goal convergence and organizational culture in network effectiveness? How does the relationship between inter-organizational trust, leadership style, goal convergence and organizational culture impact network effectiveness? In order to find these relations, a self-reported survey was sent to 2,095 current and previous Turkish public security network managers. The study found that inter-organizational trust and goal convergence have a positive relationship with network effectiveness. Although facilitator leadership is found to be the most common leadership style in Turkish public security networks, it is found as inappropriate to achieve higher network effectiveness. According to the results, the co-producer network leadership is the most convenient leadership style in terms of network effectiveness. While the results of the descriptive statistics confirm that six specific features of organizational culture in public security sector have negative influence on network effectiveness, the hypothesis testing with the covariance structure model only support the negative impact of

competition among partner organization. This study contributes to the literature on network effectiveness with particular proposals for the public security managers and practitioners.

I dedicate this study to my parents, wife, children and my dear friends.

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## **LIST OF ACRONYMS/ABBREVIATIONS**

AGFI	Adjusted Goodness of Fit Index
CFA	Confirmatory Factor Analysis
CFI	Comparative Fit Index
CMIN	Minimum Chi-square
Corr	Correlation
d	Measurement Error
DF	Degree of Freedom
DHKP/C	Devrimci Halk Kurtuluş Partisi-Cephesi
e	Error Term (Disturbance)
GC	Goal Convergence
GFI	Goodness of Fit Index
H	Hypothesis
IFI	Incremental Fit Index
IOT	Inter-Organizational Trust
IRB	Institutional Review Board
MIT	Milli İstihbarat Teşkilatı (Turkish National Intelligence Agency)
MLKP	Marksist Lenninist Komunist Partisi

NE	Network Effectiveness
NFI	Normed Fit Index
NL	Network Leadership
NGO	Non-Governmental Organization
OC	Organizational Culture
OCRL	Organized Crime Risk Level
P	Significance Level
PKK	Partiya Karkeren Kürdistan
POP	Population
POSDCORB	Planning, Organizing, Staffing Directing Coordinating, Reporting and Budgeting
RFI	Relative Fit Index
RMSEA	Root Mean Square Error of Approximation
SE	Standard Error
SEM	Structural Equation Modeling
SRMR	Standardized Root Mean Square Residual
SPSS	Statistical Package for the Social Sciences
SRW	Standardized Regression Weight
T	Trust (Inter-Organizational Trust)

TIKKO	Türkiye İşçi Köylü Kurtuluş Ordusu
TLI	Tucker-Lewis Index
TGNAHRIC	Turkish Grand National Assembly Human Rights Inquiry Committee
TRL	Terror Risk Level
UCF	University of Central Florida
URW	Unstandardized Regression Weight
US	United States
$\chi^2$	Chi-Square
$\chi^2/df$	Chi-square / Degree of Freedom

## **CHAPTER 1- INTRODUCTION**

Because of increasing challenges of terrorism and organized crime, governments establish various new organizations to fight against different aspects of these problems. This enlargement generates a complex public security network system. Managing this complicated network is different from managing and leading any single public organization. This study looks at the network effectiveness in the public security sector. An effective collaboration is recognized as one of the most important requirements of the successful struggle against terrorist and organized crime networks.

The main goal of the study is to examine the impacts of latent variables, which are inter-organizational trust, network leadership style, organizational culture, and goal convergence on network effectiveness in public security networks. The study contributes to the existing literature on network effectiveness in general, and public security networks in particular. The study uses network theory, resource dependency, and inter-organizational social capital perspectives as theoretical constructs and aims to create a conceptual framework among the study variables. Local public security networks in Turkey are selected as the case of the research to analyze relations between the variables.

This introductory section provides overall information about the statement of the research problem and its significance, research questions, background of the study, and theoretical concepts.

## **1.1 Statement of the Problem**

Terrorism and organized crime are challenging problems for governments in today's world. In order to overcome increasing difficulties in public security areas, governments are trying to find alternative solutions. Numerous agencies are tasked to fight against these "wicked problems" in different countries. In this complicated public security system, it is crucial to set a mutual goal among responsible agencies, to make a precise evaluation of risk, to establish a technical infrastructure, and to create organizational policies and processes that provide flexibility and conformity to continuous incidents. It is also important to establish "a culture that accepts inquiry and information sharing" for better coordination, and to develop "a systematic program to increase adaptiveness and capacity for learning between governmental agencies" (Comfort, 2002, p. 100).

Turkey has been suffering from terrorism and organized crime for the last three decades. Because of its location, Turkey has a vital point for transnational criminal organizations. In Turkey, five main public agencies are working to prevent and fight against terrorism and organized crime. These are the Police Forces, the Gendarmerie, the Coast Guard, the national intelligence, and the armed forces. In addition, many other agencies are needed to be involved in this network at different stages. An effective resistance to these problems requires a continuous collaboration among these intuitions.

Security has been a "problematic and contentious area in the Turkish administrative and political system, due to the structural, functional, and organizational significance of the security sector within this system and to the autonomous and leading role that the security sector plays" (Akay, 2010, p. 5). When we look at the Turkish recent history, big failures, conflicts and sometimes clashes can be seen among Turkish security organizations.

In recent years, two significant failures can be given as examples of a lack of robust collaboration. Two car bomb explosions killed 51 people in the Reyhanli district of Hatay province on 11 May 2013. Turkish Prime Minister Tayyip Erdogan indicated the problem of disconnection between police forces and national intelligence service Milli Istihbarat Teskilati [MIT] as the reason of the incident three days after the explosion (Radikal, 2013). The problems in the collaboration among security agencies have caused some tragic mistakes as well. In 2011, a military air operation killed 34 smugglers who were allegedly mistaken for terrorist organization the PKK members. This incident occurred across the Turkish-Iraqi border near Uludere district in Sirnak Province. The Turkish Parliamentary Human Rights Committee report claimed that the main reason behind the Uludere incident was the lack of coordination between military and security officials (Turkish Grand National Assembly Human Rights Inquiry Committee [TGNAHRIC], 2013).

This research aims to identify the factors that affect the success of collaboration among agencies in local public security networks. A robust collaboration between security agencies is a significant prerequisite of the effective struggle against terrorism and organized crime. Trust among network partners, effective network leadership, organizational culture and goal convergence are identified as the factors that affect the success of collaboration and network effectiveness.

## **1.2 Purpose of the Study**

Current public administration literature emphasizes the significance of trust in the public sector, but there are a few empirical studies that investigate the function and conditions of trust in collaborative public management. Trust has an important role as a cohesion element that ensures the maintenance of a fruitful partnership among dissimilar members in a network

(Agranof & McGuire, 2001). Trust can reduce transaction costs and facilitates collaboration (Isett, Mergel, LeRoux, & Mischen, 2011). Trust also increases the performance and problem solving capacity of the public management networks (Edelenbos & Klijn, 2007).

It is impossible to prevent all problems, conflicts, and clashes among such big organizations having thousands of members that have to work together. Network leadership has two important functions in the public security sector related to building and sustaining trust and managing collaboration between agencies. First, leaders should facilitate sharing information and remove barriers from information flow. They are also supposed to develop the ability of the network to make successful joint operations against crime and terror groups. For effective information sharing, leaders should assign what needs to be shared, because this task needs to be accomplished by those who can see the broader picture. Leaders should be able to develop mutually shared criteria and design process rules about information sharing and joint operations. Healthy information flow and successful joint operations increase trust among partners, but they also require trust among partners.

Second, leadership provides accountability and transparency. Actions and operations of the security agencies should be monitored by the leadership. In this sensitive environment, it is important to establish an accountable structure among and within the agencies for building and sustaining a meaningful collaboration. Partners and their members should be sure that violation of the rules and misconducts will be dealt with severely and penalized. Agencies should demonstrate to each other that they will not try to cover mistakes of their members by conducting fair and transparent investigations. Performance measurement is also another important aspect of this function.

Organizations are social structures pursuing specific common goals which cannot be achieved by individual effort (Pfeffer, 1997). The open system perspective of the organizational theory emphasizes the organizations' interdependent structure, complexity, and environment. Dependence on resources, labor, external knowledge and information are important points that ensure different organizations work together (Scott & Davis, 2006).

Secrecy, self-protection, and competition among agencies are problematic features of the organizational culture of the public security sector that complicate information sharing (Christensen & Crank, 2001). Various studies indicate that police culture has significant impact on both performance and information sharing in policing (Fraser, 2004; Luen & Al-Hawamdeh, 2001; Glomseth, Gottschalk & Solli-Sæther, 2007). The general environment is important to understand and direct organizations. The characteristics of organizations' ecology should be known to provide a more proper response to demands and challenges (Scott & Davis, 2006). Without taking into account these features, it is impossible to introduce an effective network structure.

This study examines network effectiveness in the public security sector. Assessment of a single organization's effectiveness is not adequate, if the results cannot be easily ascribed to the facilities of the organization. When the outcomes are contingent on the joined and coordinated activities of various different organizations, the effectiveness should be evaluated at network level (Provan & Milward, 1995). Network effectiveness has come to be used to refer to the network level achievements which cannot be accomplished easily by individual organizations that are working alone (Provan & Kenis 2008).

An effective collaboration is recognized as one of the most important requirements of the success in wars on terror, and organized crime networks. Inter-organizational trust, network



leadership, goal convergence and organizational culture are identified as the key variables of network effectiveness. The following research questions are addressed in the study: Which factors are important for effectiveness in public security networks? What is the role of inter-organizational trust among partner agencies? Which kind of leadership style will achieve the highest performance in public security networks? What is the relative importance of goal convergence and organizational culture in network effectiveness? How does the relationship between inter-organizational trust, leadership style, goal convergence and organizational culture impact network effectiveness?

This study contributes to earlier studies on the network effectiveness in public security networks. Although earlier studies have examined network effectiveness in public service delivery networks, little attention has been paid to the effectiveness of networks in the public security sector. This study addresses this issue by studying the impacts of latent variables which are inter-organizational trust, network leadership style, organizational culture and goal convergence on network effectiveness in public security networks. The study uses network theory, resource dependency theory, and inter-organizational social capital perspectives as theoretical constructs and aims to create a conceptual framework among addressed variables. Turkish local public security networks are selected as the case of the research to analyze relations between the variables.

### **1.3 Context of the Study**

In this section, some necessary information related to the Turkish administrative system, governorship system, and public security system will be briefly presented to provide a better understanding of the subjects and the logic of the dissertation.

#### **1.3.1 Turkish Administrative System**

Turkey is ruled by parliamentary system of government in which the government derives its legitimacy from the parliament. The Turkish constitution is based on the principle of separation of powers. The three branches in Turkey are legislature, executive, and judiciary. While the legislative power is used by the elected Grand National Assembly, the judiciary power is attributed to the independent courts, and the executive power is held by the President of the Republic and the Cabinet. The Prime minister is the head of the cabinet and ministers in the cabinet are accountable to the Prime Minister.

Two main principles of the administration, central administration and decentralization, are implemented simultaneously in the Turkish Administrative system. Therefore, it is aimed to establish a balance between powerful integral unity and meeting the specific common needs of local inhabitants (Gözübüyük, 2005). Government institutions in Turkey can be separated into two types which are central administration and local administration institutions.

Local Administrations can be divided into two main categories, geographical local administrations, which are local governments, and functional local administrations. According to article 127 of Turkish Constitution, local governments are:

Public corporate bodies established to meet the common local needs of the inhabitants of provinces, municipal districts and villages, whose principles of constitution and decision-

making organs elected by the electorate are determined by law. The formation, duties, and powers of the local administrations shall be regulated by law in accordance with the principle of local administration.

Three types of local administrations are municipalities, special provincial administrations, and villages. The decision making bodies of local administrations are elected by the people and they have certain degree of financial and administrative autonomy. Functional local administrations are highly specialized public institutions that deliver specific public services, such as social security, highways or postal services outside the central administration. The hierarchical supervision of the central government on functional local administrations is limited (Tortop, 1994; Gunday, 2003; Keles,2000).

Public Security organizations are organized under the authority of central government. The central administration delivers public services across the nation. The central administration, which is also called general administration, involves the President of the Republic, the Prime Ministry, ministries, other related government institutions and local branches of these organizations in districts and provinces. According to the principal of central administration, public services are provided from the capital under a hierarchical structure. The central government makes all necessary political, administrative and economic decisions related to public services from planning to implementation. The capital administration manages revenues and expenditures of the public services (Kapucu & Palabiyik, 2008)

Centralization strengthens unity and integrity of public organizations, helps to deliver equal level of public services across the entire country, provides greater opportunities to overcome economic inequalities among different regions, and reduce the negative influence of local pressures on public officials (Gozubuyuk, 2003). However, the principal of centralization

cannot be implemented strictly in such a big country. Centralization often generates unnecessary complexity, bureaucracy, red tape, and inefficient public service. Determining local needs from the capital may not be appropriate to identify the real situation. It is also not encouraging for democratic participation (Gunday, 2003).

### **1.3.2 Governorship System**

In order to moderate the negative consequences of centralization, The Turkish Constitution embraced a specific type of centralization that is the principle of devolution of powers (Kapucu & Palabiyik, 2008). It is described in the Article 126 as follows:

In terms of central administrative structure, Turkey is divided into provinces on the basis of geographical situation, economic conditions, and public service requirements; provinces are further divided into lower levels of administrative districts.

The administration of the provinces is based on the principle of devolution of Powers.

In the Turkish administrative system, there are 81 provinces in Turkey and each province is then subdivided into smaller districts. Province governors are the head of the province administration and responsible for the proper functioning and coordination of the public services, security, and well-being of their jurisdiction.

The principle of devolution of powers empowers province governors to make and execute decisions on certain issues on behalf of central government. The province governorship is the only official position that has the privilege to take advantages of the principle of devolution of powers. Each ministry and other public agencies in the capital administration can devolve their authorization, tasks, financial resources and responsibilities to the province governors. Provincial branches of each central government agency work under the direct command, supervision and

responsibility of the province governors. The budget of public services provided by the governorships on behalf of central government agencies are met by the central government and income obtained from these services goes to the central government.

The current reference law for the governorship system is “The Law on Provincial Administration” (No. 5442). Province governors are appointed by the central government and accepted as the central government’s highest agents in their jurisdictions. Province governors are selected, upon a proposal from the Ministry of Interior, by a decree of the Cabinet and the approval by the President (Article 6). The province governors are accepted as the representative of the state and the government in the province, the agent of each minister, and their administrative and political execution instrument. They are accountable to each minister for organizing and supervising the general administration of the province. The ministers can give orders and instructions to governors related to the works of their ministries. The governor has authority to supervise and inspect all state offices, establishments and enterprises, private businesses, special administration, municipality and village administrations with the exception of the judicial and military organizations (Article 9).

The governors are also the superior of all general and special law enforcement agencies in their provinces. They are supposed to take necessary steps to create a safe environment in their jurisdictions, protect public order and security and to prevent crime. Law enforcement agencies are obliged to immediately fulfill the orders issued by the governor (Article 10).

The provinces are subdivided into districts and district administrations are run by the district governors. As opposed to province governorships, district governorship is a career job. The central government can appoint anyone who is graduated from elementary school as a province governor. On the other hand, in order to be a district governor, people are required to

graduate from certain faculties of the universities, such as public administration, law or business administration. Eligible applicants are chosen from a competitive elimination process that involves written and verbal exams. Since the province governorship is recognized as a type of exceptional public servants, the law did not seek a long list of qualifications for the province governors. However, the province governors are usually appointed among the district governors. A district governor can also be appointed as a province deputy governor, administrative senior inspector and Interior Ministry high and middle level bureaucrat after working for a specific time period as district governor.

The district governors are accepted as the representatives of the government. They are responsible from the general administration of the district. The district governors are also the superior of all general and special law enforcement agencies within the boundaries of the district (Article 32).

### **1.3.3 Public Security System in Turkey**

Turkish public security networks involve five main public agencies. Three of those organizations are law enforcement agencies. Now we are going to look at important members of the public security network.

#### **1.3.3.1 Law Enforcement Structure in Turkey**

There are three main public organizations: the Police Forces, the Gendarmerie and the Coast Guard that constitutes law enforcement in Turkey. All these agencies are headquartered in Ankara and work under responsibility of the Ministry of Interior. Law enforcement agencies are recognized as central government bodies and receive their funding from the general budget through the Ministry of Interior. Law enforcement agencies have two main types of duties. The

administrative duties involve activities to ensure and maintain the public order and security, and prevent crime facilities. Administrative duties can be defined as proactive and preventive measures. Governors have a strong authority to direct and supervise the administrative duties of law enforcement. Law enforcement agencies carry out judicial duties when a crime is committed. Judicial duties are related to execution of judicial services to investigate crimes, to collect and keep evidences and catch offenders. Law enforcement agencies work with the public prosecutors with regards to their judicial duties.

The Turkish Police Force (the General Directorate of Security) with more than 200,000 employees is the largest law enforcement agency that is responsible for urban areas, and organized under the Ministry of Interior. The general director is the highest rank in the national police and usually selected among province governors. The local branches of police forces, which are province and districts police departments, work under direct authority of province and district governors. The police departments work under a subordinating chain of command. There are various functional divisions of departments such as terrorism, narcotics, organized crime, patrol or traffic departments (Caglar, 2004).

The Gendarmerie is a military law enforcement agency and works in rural areas. Similarly, the Coast Guard is a military law enforcement agency and responsible for maritime security. Theoretically, the Gendarmerie and the Coast Guard also perform under the control of governors and district governors, but civilian authorities have limited power on both military agencies. They operate under the Ministry of Interior in peace times, but in practice they operate under the directives of the Armed Forces General Staff. Civilian oversight and control mechanisms on the Gendarmerie and the Coast Guard are weak. While governors and district governors are authorized to discipline police officers who violated the administrative rules, they

have limited direct authority over the Gendarmerie and the Coast Guard. Civil authorities have limited power on appointment, promotion and relocation of the Gendarmerie and the Coast Guard officers.

#### 1.3.3.2 The Turkish National Intelligence Organization [MIT]

The Turkish National Intelligence Organization [MIT] is Turkey's main intelligence agency. Differing from numerous other intelligence agencies, the MIT has authority to perform external and internal intelligence activities. The MIT works under the direct control of the Prime Minister and province and district governors have almost no official power on it. The MIT has local offices in the provinces and in some big districts. In current structure Governors have almost no formal power on the provincial offices of the National Intelligence Service. Law enforcement agencies and military forces have their intelligence departments as well.

#### 1.3.3.3 The Turkish Armed Forces

The Turkish Armed Forces consists of the Land Forces, Naval Forces, Air Force working under the General Staff. The Gendarmerie and the Coast Guard Command, which operate under the Ministry of Internal Affairs in times of peace, is a part of the Turkish Armed Forces. It has direct and indirect influence on domestic security.

The most important task of the armed forces related to terrorism and organized crime is about border protection. Since the army is responsible for borders, military units need to inhibit illegal entry of all kind of materials and members of crime groups. Because the Gendarmerie and the Coast Guard are also military organizations, the army has an indirect effect on law enforcement facilities. Military units also involve fighting against terror groups in some mountainous regions, and also through cross border operations and air patrols.



Governors' power on local armed forces units is weak. Governors do not have a hierarchical power on military units. However, according to the Law on Provincial Administration (No 54442), if governors see that existing law enforcement forces are not adequate to protect public security and order and prevent crime, they can call for help from the nearest military unit. Military units have to immediately fulfill the request from the governor. The commander of the military unit decides the size and the placement period of the requested force in coordination with the governor according to the characteristics of the incidents. In this situation; governors make necessary cooperation and coordination between the law enforcement agencies and the military units after taking the views of the commander of the supporting military unit (Article: 11).

#### **1.4. Terrorism and Organized Crime**

Terrorism and organized crime are two significant safety problems of Turkish Government. Turkey has been suffering from various terror groups from left wing to right wing that have various purposes. Separatist terrorist organization, the PKK, left wing terrorist organizations such as the DHKP/C, MLPK TIKKO, and Hezbollah –not Lebanon based but Turkish Hezbollah- that has been exploiting religion are main terrorist organizations in Turkey. The PKK has been the most challenging problem of Turkey for more than 30 years.

Turkey also has a critical location for organized crime groups, since it is a vital transit line between Europe and Asia. Narcotics trafficking, human trafficking, trafficking in illicit goods, counterfeiting, and money laundering are the main activities of organized crime groups. Terrorist organizations also perform these illegal activities, or act together with organized crime groups to find economic resources. The profit of these organized crime activities is the main

financial source of the PKK and other terrorist organizations. The instability in Turkey's neighbor countries, Iraq and Syria, provide permanent bases for crime groups.

In order to fight these problems a strong collaboration is necessary among different agencies in the security sector.

This chapter provided the statement of the problem, the purpose of the study and a brief background about the Turkish security system. The following chapter examines existing literature about the study constructs.

## **CHAPTER 2- LITERATURE REVIEW**

This section provides a review of literature on previous research studies with regards to the variables selected for the study. First, the concept of public security network is examined. Second, theoretical background and relations between the study variables which are network effectiveness, inter-organizational trust, network leadership, organizational culture and goal convergence are summarized. Finally, network perspective, resource dependency theory and inter-organizational social capital are introduced, since they are used as the key theories to inform the research study. Finally a conceptual framework of the study is presented in this section.

### **2.1 Public Security Networks**

Terrorism and organized crime are intricate and challenging problems for governments especially for the last three decades. Although terrorism is a concept difficult to define precisely, it refers to “a campaign of violence designed to inspire fear, carried out by an organization, and devoted to political ends” (Jenkins, 1974, p. 2). It is frequently considered as violence directed against civilian targets in a method to get more attention for certain objectives (Jenkins, 1974). Organized crime is defined in the Omnibus Crime Control and Safe Streets Act of 1968 as “the unlawful activities of the members of a highly organized, disciplined association engaged in supplying illegal goods and services.”

The rise of globalization, increasing information sharing, communication opportunities, and more open borders provide crime structures to perform illegal activities in easier ways (Cronin, 2002; Wagelly, 2006). Illegal networks have benefited from weaker government

agencies, and the reappearance of ethnic and regional conflicts. Expanding financial markets, rapidly advancing technology, and other improved global opportunities have also been exploited by transnational criminal organizations (Wagley, 2006).

In addition, terror and crime groups shift their traditional frameworks into dark networks. Some of those organizations “expanded the size and importance of networks already imbedded in their traditional hierarchical organizations, whereas others evolved from a networked group into a more complex horizontal design” (Dishman, 2005, p. 238). Dark networks need flexible organizational frameworks that provide ability to adjust rapidly to altering pressures from governments and other rivals to stay alive (Miliward & Raab, 2003; Demiroz & Kapucu, 2013). The transformation of hierarchical organizations to illegal networks causes a special challenge for public security agencies. Decentralized structures increase illicit organizations’ independence and complexity. Public security institutions need to follow numerous small cells of various kinds of crime networks. Cells of these networks usually work autonomous from the core of the network, and members do not know other cells’ members and support systems. This sophisticated system obstructs law enforcement agencies and intelligence services to find evidence of relations between core of the network and cells, and between different cells of the illegal network (Dishman, 2005).

Kenney (2007) examines how drug trafficking and terrorist networks constantly adapt to the counter-narcotics and counter-terrorism programs. Because of continuous competitive adaptation in clandestine networks, apparent success of government forces is not usually long-lived. Illicit networks improve “their activities in response to practical experience and technical information, store this knowledge in practices and procedures, and select and retain routines that produce satisfactory results” (p. 3). Continuous organizational learning and building skills in

trafficking and terrorist systems make it more challenging for security organizations to eliminate their illicit adversaries (Kenney, 2007). Terrorist and organized crime networks are also thought to increasingly support each other for financial resources and improving activity capability. Transnational criminals participate in a range of illegal events, such as human, drug and arm trafficking, forgery, money laundering, and corporate fraud and other fiscal crimes (Wagley, 2006).

Governments need to focus on many issues to deal with those complicated dark networks. Because of increasing challenges in this sophisticated environment, governments establish various new organizations to fight against different aspects of the problem. This challenging struggle has caused an increase in the number of responsible public institutions and organizations as well as international organizations. This enlargement generates a complex public safety network system. An effective struggle with this wicked problem requires using multi-jurisdictional task forces from different public security organizations. Managing this complicated network is different from managing any single public organization. Although its power and ability is higher (Finckenauer, 2007), network structure requires special knowledge for effective management.

In order to achieve an effective struggle in this complicated environment, it is important to establish “a shared goal among the participating units; an accurate assessment of threats to the system; a technical infrastructure that effectively supports system operations; organizational policies and procedures that enable flexible adaptation to dynamic events by the participating units; and a culture that accepts inquiry and information sharing” (Comfort, 2002, p. 100). Without an effective collaboration, organizations in the public security sector may duplicate their limited resources. Uncertainty may lead potentially dangerous conflicts between organizations.

Collaboration increases organizations' legitimacy that enables people to think that they are entitled to be deferred to and obeyed (Sunshine & Tyler, 2003). An effective struggle against complicated dark networks necessitates promoting strong collaboration.

Collaboration among law enforcement officials and between other public security agencies is not an easy issue. A high competition between public security organizations negatively affects competition. Agencies and their members compete among each other to gain credit for successful investigations. One of the leading reasons why security agencies and their members keep information within their own jurisdiction is this competition. Another reason is the necessity to suggest evidence of successful investigations for justifying bigger budgets for future assignments. Differences or disputes between law enforcement, prosecutors and investigating magistrates also take place frequently. A key factor for achievement in investigating complex criminal cases is learning to work together in agencies' respective spheres of jurisdiction. Therefore, the management of every law enforcement organization and other public security intuitions should accept the necessity of a process of collaboration with other agencies, whether in the same country or abroad. This process is required to be established starting from high level officials and spreading to lower levels of the agencies, as well as across sectors (Buscaglia & González, 2006). Establishing such an effective collaboration requires a high level of trust and intense effort for building and sustaining collaboration among these organizations.

## **2.2 Network Effectiveness**

This part of the study discusses network effectiveness. It begins by providing a brief overview of the concepts of accountability and performance evaluation in public administration. It then focuses on performance evaluation in networks, and in particular for public security networks.

### **2.2.1 Accountability and Performance Evaluation**

Accountability can be “defined as the obligation to give an account of one’s action to someone else, often balanced by a responsibility of that other to seek an account” (Scott & Davis, 2006, p. 242). The traditional model of accountability in the public sector generally focused on bureaucratic and political accountability and is based on politics administration dichotomy. However, the traditional model is too narrow to meet the requirements of modern public administration and the dichotomy is usually accepted as unrealistic. Its emphasis on errors rather than achievements has been increasingly criticized for not being very efficient and effective (Hughes, 2012).

Behn (2001) classifies accountability based on the reasons of accountability and identifies three types of accountability: “Accountability for finances,” accountability for fairness,” and “accountability for performance.” Behn indicates “accountability dilemma” that refers to a trade-off between those accountability types. Providing accountability for finance and fairness require compliance with rules. These attempts may usually hinder accountability for performance, or accountability for performance may lead to an omission of accountability for fairness and finance. Therefore, it is very difficult to provide all three types of accountability simultaneously (Hill & Lynn, 2009; Hughes, 2012).

Romzek and Dubnic (1987) made a different classification “based on source of control over an agency’s action: whether it originates within or outside the organization and the extent of that control” (Hill & Lynn, 2009, p. 291). They delineated four types of accountability that are legal, political, bureaucratic, and professional accountability. Bureaucratic accountability is based on hierarchical relations in which expectations are built on organizational directives. Legal accountability focuses on the rule of law and expectations are managed through obedience to external commandments. Professional accountability promotes expertise. Expectations are based on respect for specific judgment and expertise. Finally, responsiveness is the fundamental value emphasized in political accountability. Expectations are required to be reactive to other stakeholders (Romzek & Dubnic, 1987; Romzek & Wallace, 2000).

Result-oriented public service is a key issue that represents the transition from traditional public administration to public management approach (Hughes, 2012). Today, performance accountability and performance management are key topics for not only scholars but also for public service practitioners. Organizations need to identify their successes and failures and develop new ways that make public service programs perform better. The main challenge in performance based management is performance measurement. Organizations have different performance perspectives related to their targets and goals. Introducing a fair measurement system that successfully measures all different aspects of public agencies, programs, or employees is not an easy issue. Although performance evaluation is a critical concept in administrative science, the numbers of empirical research studies related to network performance evaluation are few in the public administration literature.



### **2.2.2 Performance Evaluation in Networks**

Network effectiveness can be defined “as the attainment of positive network level outcomes that could not normally be achieved by individual organizational participants acting independently” (Provan & Kenis 2008, p. 230). Managing accountability is one of the most significant and challenging aspects of the network theory. Network management must work hard to achieve that each partner in the network would complete their responsibilities. Otherwise, free riders would damage the collaboration in the network (Milward & Provan, 2006).

On the other hand, performance evaluation in a network is not an easy task. There are various challenges. Consensus among partners to decide about performance criteria may not always be possible. Some partners may not be eager to be evaluated, since they have doubts about their performance and their capacity. Partners may be reluctant on performance evaluation, since they think that circumstances beyond their control may negatively affect their performance. Focusing some specific points may lead to neglecting some other significant goals which are more difficult to evaluate. Lastly, it is necessary to be clear about “who should be accountable to whom and for what results” (Page, 2004, p. 592).

Provan, Fish, and Sydow (2007) argue that each network and each field in which a network perform have exclusive performance evaluation measures. These measures differ according to the purpose of the network. However, the network literature discusses some significant factors that may contribute the network effectiveness. Some of those factors are goal convergence among network partners, network structure, network resources, leadership style, internal and external legitimacy, the strength of the ties among members, inter-organizational trust, power differentiation, balance between stability, and flexibility (Popp et al., 2013).

Mandell and Keast (2007) categorize networks as cooperative, coordinative, or collaborative networks. Traditional measurement methods can be suitable to evaluate performance of cooperative and coordinative networks, since members of those kinds of networks preserve their independent entity. However, one of the most important characteristics of collaborative networks is partners' interdependence to achieve common goals. Traditional measurement instruments are insufficient and incorrect to evaluate the collaborative activities among partners in the network.

In the United States, intelligence activities are conducted by numerous organizations: The Central Intelligence Agency, Air Force Intelligence, Army Intelligence, Coast Guard Intelligence, Defense Intelligence Agency, Department of Energy, Department of Homeland Security, Department of State, Department of the Treasury, Drug Enforcement Administration, Federal Bureau of Investigation, Marine Corps Intelligence, National Geospatial-Intelligence Agency, National Reconnaissance Office, National Security Agency, and Navy Intelligence consist of the intelligence community (Intelligence Community, 2012). In addition to these agencies, local and state police departments carry out intelligence activities. As the number of the intelligence agencies increases, the need for cooperation between these agencies also increases (Odabasi, 2010).

The 9/11 Commission reported that the main reasons of failure on September 11 were the lack of collaboration, "limited capacity to share information among agencies", and "perceived legal barriers to sharing information" (National Commission on Terrorist Attacks upon the United States, 2004, p.18). The 9/11 Commission emphasized the need to institutionalize information-sharing. Fusion centers were developed to ease information-sharing across agencies.

The national government pressured agencies “within fusion centers to work together and share information to prevent future large-scale terrorist attacks” (Lewandowski, 2012, p. 44).

Lewandowski argues that in addition to building the physical structure and placing everyone under a new roof, establishing a new culture and environment to encourage the free exchange of information are important for effective information- sharing in fusion centers. A shorter distance between the employees of different agencies facilitates to share information, but more importantly this helps to break down the wall of secrecy among agencies. Working in the same workplace eliminates the physical separation among the employees of fusion centers. It also helps to keep “everyone on an equal power status, regardless of the agency they represent. By allowing all of the members of fusion centers to experience their workspace as one of seemingly equal status for all, the flow of information becomes primarily horizontal, rather than vertical” (Lewandowski, 2012, p. 45).

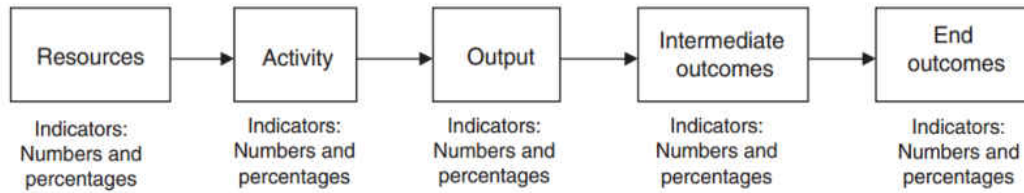
There has been no empirical assessment about the accountability and performance assessment of fusion centers in Criminal Justice research (Carter & Carter, 2009). However, Carter and Carter (2009) suggest four measures to evaluate the effectiveness of fusion centers. According to them, the first measure of the achievement in fusion centers is “whether more information is being shared among law enforcement agencies at all levels of government” (p.1336). The second measure is “the ability to collect, retain, and disseminate information while protecting civil rights and privacy” (p. 1336). The third measure suggested by Carter and Carter is “whether the information and intelligence disseminated by the fusion centers have resulted in the prevention, mitigation, and control of crime and terrorism” (p. 1337). The last measure is “whether a fusion center is cost-effective, which is extremely difficult to measure and so involves some value judgments” (p. 1337).

Although it is generally accepted that traditional performance evaluation and accountability tools are not appropriate for especially collaborative networks, there is not a generally agreed upon method for evaluating network performance. The logic model and social network analysis are briefly introduced in this paper. While the logic model emphasizes the relations between network processes and outcomes, network analysis focuses on the effectiveness of a network as a whole by examining inter-organizational relations and networking.

### **2.2.3 The Logic Model for Network Performance Evaluation**

Logic model can be used to evaluate the effectiveness of public security networks. Herranz (2010) introduces a logic model framework in order to conceptualize network coordination and performance. A logic model includes “identifying key elements and indicators in four areas: (a) inputs (e.g., resources, investments), (b) activities (e.g., services, processes, strategies, methods), (c) outputs (e.g., tangible products delivered by a program), and (d) outcomes (e.g., expected changes in the short, medium, and long term)” (p. 62).

According to Herranz (2010), a logic model may be helpful to assess network effectiveness. It conceptually simplifies complex interrelationships, develops measurable performance indicators, and identifies the intermediate outcomes of inter-organizational processes. By making hypothesized relations between network processes and outcomes, a logic model may delineate how a network initiative will achieve end outcomes explicitly. He presents the logic model framework as a stepping stone toward relating coordination and performance in the planning, implementation, and evaluative reporting of networks.



*Figure 1.* Logic Model: Outcomes Sequence Chart with Indicators. Adapted from Herranz, 2010.

Figure 2 depicts a logic model to evaluate performance of public security networks. The number of agencies' employees, their equipment, the budget and other costs are indicators of resources. The number of documented meetings among the representatives of the participant organizations, the programs and services employed by the network, and the informal meetings are indicators of the network activities. The short term output indicator of a public security network is the amount of shared information among member agencies. If the network has been successful in increasing the information being shared, the short term goals would be met. If the expected increase is not found, the reason behind the issue should be examined. The ability to collect and use information and the number of joint operations carried out with the cooperation of the member agencies are intermediate outcomes of the network. The long term success indicators of the network are the amount of terrorist attacks or criminal activities prevented as a result of the collaboration, the number of cleared unsolved crime and terrorist cases, and the number of terrorist or criminals captured or killed by means of the collaboration. Each step should be separately examined, the reasons of the failure should be identified, and necessary updates in terms of network structure, process strategies, programs or other settings should be applied.

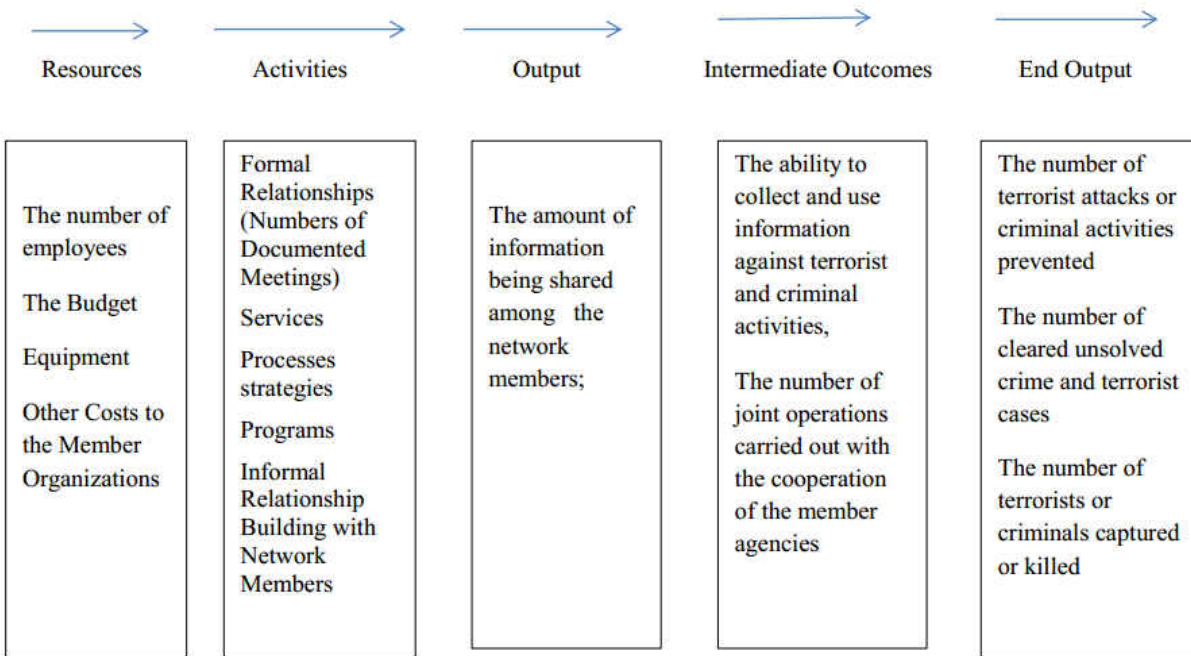


Figure 2: Logic model of performance measures for the public security network

### 2.2.4 Inter-organizational Relationships in Networks

A collaborative network usually involves partners from different areas and different backgrounds with various interests. Trust and relationships among partners are significant indicators of the effectiveness of the collaborative network. Inter-organizational relations can be used to measure network performance. Individual organizations constitute collaborative networks, but the effectiveness of any one organization in a network cannot indicate the effectiveness of the network. Although individual successes may be significant to the head of an organization represented in the network, these successes do not by themselves illustrate success of the network. Mandel and Keast (2007) emphasize distinguishing characteristics of collaborative networks. According to them, measures of performance should involve the degree to which linkages among members are tight or loose, the degree to which members are

committed to the collective goals rather than to just their own organizations, the degree to which all relevant parties are included in the network, the type of formal and informal rules agreed upon, the degree to which participants are open in their communications with each other, and the degree to which the network is supported by key actors both inside and outside the network (Mandel & Keast,2007). In this perspective, they conclude that building trust and taking risk have critical importance for effective collaborative networks. Social Network analysis can be used to examine the inter-organizational relations in a collaborative network (Kapucu & Demiroz, 2011; Hu, Knox & Kapucu 2014; Kapucu, & Hu, 2014; Kapucu, & Garayev, 2014)

### **2.3 Inter-organizational Trust**

This part of the study discusses inter-organizational trust in networks. Before proceeding to examine inter-organizational trust, it will be necessary to provide a brief overview of the concept of trust in general.

#### **2.3.1 Trust**

Collective actions in a group create social capital that improves “the ability to work together for mutual productive gain” (Fountain, 1998, p. 104). Inter-organizational social capital is necessary for disparate groups to work together with sharing resources seized by individual organizations. Trust is an important element of social capital together with “norms”, and “operations of the network” that are closely linked to the values and purposes of the individual members (Agranof & McGuire, 2001).

Ostrom and Ahn (2002) identify trust as an independent and non-reducible factor that determines the achievement or failure of collective action within a community and a main tie between social capital and collective action. It is not a type of social capital, but it is an output of

social capital. They define trust as “a particular level of subjective probability with which an agent assesses that another agent or group of agents will perform a particular action” ( p. xvi). So it can be said that the trustor takes a risk of loss in a collective action since there is a probability that the trustee may not perform the anticipated action. However, trust provides an enhanced opportunity for trustor and trustee to reach their shared goals. While this is a significant incentive for even selfish individuals, networks that have natural intentions to behave cooperatively with others need trust as a precondition for expected outcomes (Ostrom & Ahn, 2002).

Apart from the risk, other dominant characteristics of trust are vulnerability and expectations. When someone trusts another, “he or she is willing to assume an open and vulnerable position. He or she expects the other actor to refrain from opportunistic behavior even if there is the possibility to show this behavior” (Edelenbos & Klijn, 2007, p. 29). The notion of trust involves a constant expectation about others that they have coherent purposes and motivations to his or her objectives (Lane & Bachmann, 1998). Trust diminishes volatility, sophistication, and vagueness in teamwork, since a partner can assume the other’s conducts, actions and performances (Zucker, 1986).

### **2.3.2 Inter-Organizational Trust in Networks**

Networks need cohesion elements that enable separate organizations to work together, because of the absence of direct and powerful authority and hierarchy (Agranoff, 2007). Trust is one of the most crucial elements that hold a network together. Other cohesion factors suggested by the literature are ‘common purpose,’ ‘mutual dependency,’ ‘resource availability,’ ‘catalytic actors,’ and ‘managerial ability’ (Agranof & McGuire, 2001).



Another important function of trust is reducing transaction costs and facilitating collaboration. Informal relationships among individual organizations help to reinforce network bonds and allow some new joint actions (Isett et al., 2011). The power of those links enables transactions, since trustworthiness facilitates for both buyers and sellers the decision to trade. When these links are absent, both parties would need to use complicated and costly bonding and insurance procedures, or they will give up the transaction (Coleman, 1988).

Trust also helps to enhance the performance of collaboration via increasing innovation and problem-solving capacity. Organizations must exchange their specialist information and capabilities in order to learn and create new solutions for complex problems (Fukuyama, 1995). If they have a high level of trust and confidence in each other, this situation provides a continuous flow of information and enthusiasm to exchange knowledge. Consequently, the performance of collaboration is enlarged (Edelenbos & Klijn, 2007).

Although the significance of trust is generally accepted in constructing networks among different actors, it is not easy to evaluate its effect on inter-organizational cooperation. Individual trust among two boundary spanners is different from “inter-organizational trust where a boundary spanner in one organization trusts the other organization (but not a particular individual)” (Brass et al., 2004, p. 803). Even though ties may be initiated by interpersonal trust, the success of collaboration depends on the inter-organizational trust (Zaheer, McEvily, & Perrone, 1998).

Interestingly, prior networking and close ties may lead to an adverse risk. Organizations can get excessively entrenched in a specific network they have participated in, and endure the relation with others due to the solid links between boundary spanners. Over embedded partners may lose fruitful opportunities with other organizations (Brass et al., 2004). Too much trust may

lead to unhealthy situations in a network. For example partners may think that all partners consider themselves to be similar. This leads to a kind of “blind trust” in which partners have a lack of concentration and checks and balances. This blurred situation causes misunderstandings about what the parties agreed on and distrust may unexpectedly flourish. Hence, a specific amount of distrust may be better for ensuring a continuous motivation in a network environment (Edelenbos & Klijn, 2007).

### **2.3.3 Building and Sustaining Trust in Networks**

Trust is generally accepted as a prerequisite for productive collaboration. But in practice, the presence of trust among partners in a network could possibly be an ideal condition. The prevalent exercise seems to be that often partners do not have the luxury to select other partners to collaborate with. Instead, enacted (e.g. government) policies and sometimes the pragmatics of the conditions force partners to collaborate, even though trust is weak. Hence, trust building between partners should be carefully taken into consideration (Huxam, 2003).

The starting point conditions of collaboration can either simplify or make difficult cooperation among organizations in a network. For example, organizations may have an earlier history of bitter division or damaging competition, problems of disbelief, disregard, and outright abhorrence. These problems must be defeated for a fruitful collaboration. On the other hand, if organizations have a history of an earlier partnership and reciprocal esteem, cooperation may still be challenging, but it would be easier than the first case. Ansell and Gash (2008) discuss important initial conditions: power or resource imbalances of participants, different incentives of participants for collaboration and the past history of conflict or collaboration. If participants have important power/resource imbalances, effective network collaboration can succeed through “a positive strategy of empowerment and representation of weaker or disadvantaged stakeholders”

(p. 553). If participants have different alternatives to realize their goals, their perception of interdependence is a critical condition of successful collaboration. Past history of conflict is a significant barrier “unless (a) there is a high degree of interdependence among the stakeholders or (b) positive steps are taken to remediate the low levels of trust and social capital among the stakeholders” (p. 555).

Vangen and Huxham (2003) find a pragmatic way to answer the question of “how trust can be built and sustained.” They suggest the following themes as to be the practitioners’ approach to deal with the problem: “Have clarity of purpose and objectives; deal with power differences; have leadership but do not allow anyone to take over; allow time to build up understanding; share workload fairly; resolve different levels of commitment; have equal ownership and no point scoring; accept that partnerships evolve over time” (p. 15). The significance of communication and information sharing are emphasized as core elements in building trust (Hu & Kapucu, 2014). But these themes are not very helpful in practice, since each of them carries its own problems in the application phase (Vangen & Huxham, 2003).

Trust has a significant relation with obligation and expectation in social capital (Coleman, 1998). Fiduciary obligations are necessary in keeping networks together since common belief is not enough for trust. Trust requires obligation and expectation. According to Ferguson and Stoudand (1999) such expectation is related to four trust dimensions: “participant motives, not exploiting or betraying purposes; competency, possessing the knowledge and skills to do what is expected; dependability, holding the necessary resources; and collegiality, showing respect and fairness” (p. 44).

Individual organizations are held together by mutual dependence such as technical knowledge, information, equipment, and human or financial resources. The obligations and

expectations related to trust among partners are established after a reasonable time period. This is even true for competitor partners (Agranof & McGuire, 2001). Vangen and Huxham (2003) argue that trust is built through a cyclical trust-building loop. Although partners do not have a history of ties, they need to take a risk and initiate the collaboration. Reach a sufficient level of trust to take the act of faith requires starting the cycle. In this way, expectations about the intended outcome are formed. After this first small step, some modest level of achievement reinforces trust among partners. Such success becomes part of the history of the relationship and improves the collaboration. The enhancing trust also increases a possibility that partners will have more ambitious expectations and undertakings from the network in further steps. The improved trust decreases a perception of risk for the next phases of the collaboration. Although collaboration may start with the absence of trust, ultimately trust becomes an essential piece of future achievement (Vangen & Huxham, 2003).

Similarly, Ansell and Gash (2008) argue that intermediate outcomes are important for trust building in a network. Even if partners would not recognize themselves to be essentially interdependent, achievement of successful intermediate outcomes encourage an effective cycle of trust building and commitment. These small wins are crucial for constructing the motivation that can lead to effective collaboration. However, if more ambitious goals of stakeholders are not easily compatible with intermediate outcomes, small wins may not be an applicable policy in trust building (Ansell & Gash, 2008).

Another problem in the small-wins approach is about time. Since election systems require clear and quick outcomes, politicians frequently make pressure for big reforms. This pressure forces organizations to work together, even if they had a past history of distrust or conflicts. In this situation, organizations need to develop new ways to deal with lack of trust, because they do

not have the sufficient pace to construct trust through the small-wins approach. Then, in managing trust it is required to evaluate the characteristics of each collaborative network in terms of “level of associated risk, level of trust existing between the partners, and whether trust can be built incrementally via a small-wins approach or whether a more rapid and comprehensive approach to trust development is required to pursue collaborative advantage. Each situation dictates different implications for initiating and sustaining the trust-building loop” (Vangen & Huxham, 2003, p. 16).

The practical assumption is that organizations that have intentions to make collaboration should understand the complexity. They should be ready to nurture the process, and this nurturing process must be constant and perpetual (Huxam, 2003). Influencing and managing trust is a delicate job and takes time since partners have to work in an already existing established environment that can hinder the improvement of trust. Trust may also be easily broken and can transform into distrust. If partners are greedy for obtaining a larger portion of the profits and escaping risks, trust may lessen in the implementation phase. Furthermore, if partners do not have conflict rules in advance to deal with problematic circumstances and disputes, trust may also diminish. The higher level of trust between partners necessitates reciprocity in relationships and high density and frequency of interactions. Stabilizing interactions and expectations is important to prevent disruptions and frequent renegotiations of contracts. Uncertainties in cooperation and partners’ opportunistic behaviors should be regulated and limited by creating processing rules. Network leaders have a critical role in dealing with members’ intentions, and building trust. They should be able to facilitate and mediate conflicts for network sustainability (Edelenbos & Klijn, 2007).

## **2.4 Network Leadership**

This part of the study describes and discusses collaborative leadership perspectives in networks. Before proceeding to examine network leadership, it is necessary to review the literature on leadership theories in general.

### **2.4.1 Leadership Theories**

In literature, some scholars view leadership and management as different concepts. Northouse (2007) argues that “to manage means to accomplish activities and master routines, whereas to lead means to influence others and create visions for change” (p. 11). On the other hand, some others reject the dichotomy. Frederickson, Smith, Larimer, and Licari (2011) argue that “there is not much convincing evidence that there is an important distinction between leadership and management, aside from labeling some things as leadership and therefore important and other things as management and therefore less important” (p. 118). According to those who do not see any difference argue that “leadership and management studies often use the same independent variables to explain the same dependent variables. The only difference being that the leadership scholar calls his or her variable of interest ‘leadership’, while the management scholar calls it ‘management” (Silvia, 2010, p. 18). In this paper both terms are used as synonyms.

Gullick’s POSDCORB principles represent the classic view of public administration about good management. Planning, organizing, staffing directing coordinating, reporting and budgeting are the elements of rational and scientific management (Stilman, 2008). Although, POSTCORB has received intensive criticism and were “hardly seemed heroic, but rather full of contradictions- unscientific, value laden, time-bound, and rigid, and hardly the best means to

meet the needs of post-war era” by further generations, it had great impact on the development of the study of public administration ( p. 21).

Leadership has been the subject of huge amount of studies, and a plentiful number of leadership theories were suggested in different fields. According to Yukl (1989), leadership theories can be classified into four main categories in terms of “whether the primary focus is on power-influence, leader-behavior, leader traits, or situational factors that interact with behavior, traits, or power” (p. 254)

The power- Influence approach emphasizes the amount and the type of the leader’s power. Power is accepted as the most important element to explain the effectiveness of the leadership. The level of power is determined by the target group’s perceptions related “attributes, resources, and credibility” of the leader. This approach addresses some critical questions to evaluate the effectiveness of the leadership such as “How is power acquired and lost by leaders?”, “How is power exercised by effective leaders?”, and “How much power should a leader have?” (Yukl, 1989)

Behavioral approach focuses on the behaviors of effective leaders that differentiate them from other people. Although behavioral research studies emerged as a result of trait approach’s failure, they use similar methods with trait approach (Tombul, 2011). Classification of leadership behaviors and their impacts are the major issues for this approach (Yukl,1989).

Burke, Stagl, Klein, Goodwin, and Salas (2006) classify leadership behaviors into two categories. The first one is task-focused leadership behavior that is characterized by transactional, initiating structure and boundary spanning leadership behaviors. Providing praise, rewards, and withholding punishment are typical features of transactional leadership. Initiating

structure behaviors focus the completion of task objectives through the “minimization of role ambiguity and conflict” (2006, p. 292). Boundary spanning behaviors emphasize facilitator role and collaboration with others in order to increase resources and needed information of the organization.

The second category of behaviors defined by Burke et al. (2006) is person-focused leadership, which involves transformational, consideration, empowerment, and motivational leadership (Burke et al., 2006). Vision driven change is the main dynamic of transformational leadership. Group cohesion and maintaining close social relationships are the basic goals of consideration behaviors that “reflect two-way open communication, mutual respect and trust, and an emphasis on satisfying employee needs” (Burke et al., 2006, p. 293). Empowerment leadership behaviors seek “the development of follower self-management or self-leadership skills. Specifically, coaching, monitoring, and feedback behaviors are included, along with those indicative of participative, facilitative, and consultative leadership styles” (Pearce et al., 2003 as cited in Burke et al., 2006). Motivational behaviors promote employee’s positive actions and efforts. This is particularly important for difficult times (Burke et al., 2006).

Transformational leadership has been the subject of many leadership studies since the end of 1970’s. According to Burns (1978) a transformational leader motivates and encourages his followers and enhances their morale to achieve specific goals. Transformational leadership aims to create positive change and increases the performance of the group. In order to enhance the motivation, a leader considers people’s interests and expectations and spends efforts to meet them. Furthermore, transformational leader has ability to shape and change followers’ perceptions and expectations (Tombul, 2011). Bass (1985) focuses the influence of transformational leaders on followers and argues that “leaders transform followers by making



them more aware of the importance and values of task outcomes; by activating their higher-order needs, and by inducing them to transcend self-interest for the sake of the organization” (Yukl, 1989, p. 272).

The trait approach focuses on the personal traits and characteristics of leaders. Early studies about leadership in the first half of the twentieth century, tried to find common, extraordinary, and inherited traits such as psychical appearance, intelligence, tireless energy or tolerance to stress that guarantees to be an effective leader. The followers of trait approach also examine the interactions, and balance means the traits for successful leadership, but they failed to find those specific major traits of leadership and direction of the studies changed to examine managerial motivation and skills such as technical or inter-personal skills (Yukl, 1989).

Contingency or situational approach emphasizes that there is no best way to manage an organization (Van Wart, 2011). According to Fiedler’s contingency theory, leadership style may vary according to situation and environment. Different “contextual factors such as the leader’s authority and discretion, the nature of work performed by the leader’s unit, the attributes of subordinates, and the nature of environment” may require different types of leadership (Yukl, 1989, p. 261). Ecological approach suggests similar arguments to the situational approach. Gaus argues that general environment is important to understand and direct change in public administration. Ecology “deals with all interrelationships of living organisms and their environment” (Gaus, 2010, p. 80). Public administrators should know the characteristics of institutions’ ecology to provide a more proper response to demands and challenges both within and outside the organization (Gaus, 2010).

## 2.4.2 Collaborative Leadership Perspectives

Leadership is a more challenging concept in networks compared to other single groups or organizations. Traditional leadership theories are mainly focused on formal leaders in a team or in an organization. In order to accomplish their goals those leaders try to be effective or transform their organizations. However, because of networks' peculiar structure, formal leader models are not easily applicable to networks. Two key issues prevent the use of traditional leadership models to the networks. The first difference is the structure of the participants. They come from different organizations and do not have strong hierarchical relations. The second difference is related to the vagueness of collaborative goals. Each participant has their individual program and objectives. This situation makes it very difficult for network leaders to establish agreed collaborative goals among network partners (Huxham & Vangen, 2000).

Authority and power distribution among network members should be analyzed in order to get a better understanding of the network leadership. Consensus is the most important concept of decision making in collaborative structures. Usually, administrators and members are not superiors or subordinates to each other, but they are partners. However, networks still need a manager who helps to provide cohesion and unity (Agranoff, 2006). Network structures must be fully understood by the decision makers; otherwise they will have wrong outcomes and expectations that are consistent with the traditional ways (Keast, Mandell, Brown & Woolcock, 2004; Kapucu, N. & Garayev, 2014).

Provan and Kenis (2007) identifies three basic forms of network governance. These are: participant-governed (shared governed) networks which have a highly decentralized governance model based on the organizational compromising, lead organization-governed networks which are governed by a single network participant, and network administrative organization (NAO)

governed networks which are governed externally by a specific administrative organization. One governance form is not better than the other for the effectiveness of the network. But they propose that four key structural and relational contingencies are important for the successful adoption of a particular form of governance. These are trust, size (number of participants), goal consensus, and the nature of the task.

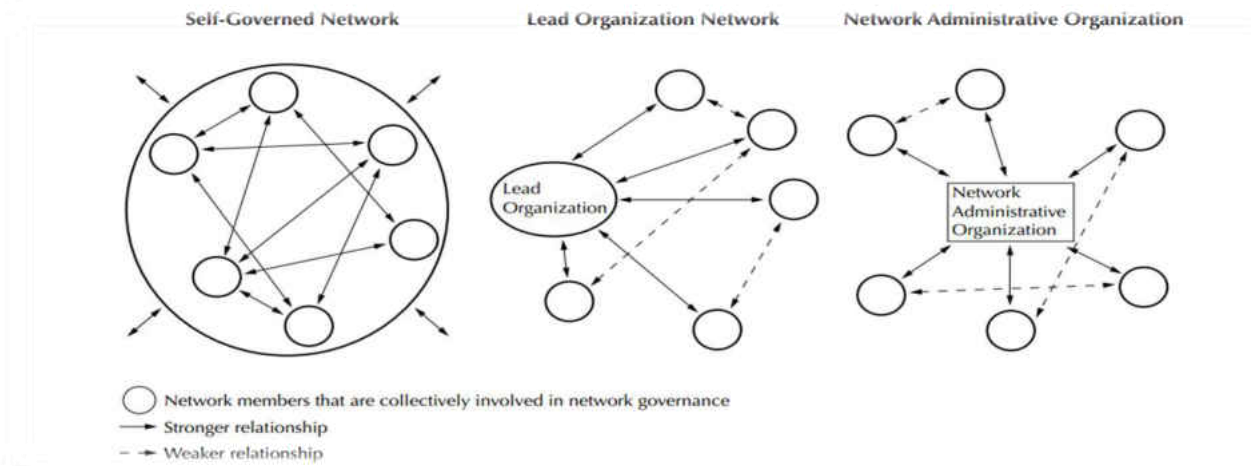


Figure 3. Modes of Network Governance (Provan & Kenis, 2005)

Network management requires some special administrative tools and skill sets. Some of those tools and skills are also accepted as important notions by the classical administration paradigm. “Command” and “control” are the “main administrative dynamics” of classical public administration, whereas new public management focuses on “competition,” “concession,” and “compromise.” “Oversight and mandating” and “providing resources” that have significant roles in classical paradigm are also recognized as key strategies for network management (Koliba et al., 2010). However, varieties of governance strategies are essential for network management. For an effective network management, network leaders should employ all kinds of administrative strategies consisting of “command and control,” “facilitation,” “competition,” “negotiating,”

“barraging,” “mediation,” “brokering,” “collaboration,” and “cooperation”, “participatory governance,” “boundary spanning,” and “system thinking” (Koliba et al., 2010).

Eglene, Dawes and Schneider (2007) suggest three hypotheses about the relation between leadership communication strategies, leadership styles, and networking success. According to them “leadership communication strategies focused on inspirational values, consultation, and coalition are positive associated with voluntary participation and networking success...A consistent, charismatic leadership style is positively associated with networking success. Adaptive leadership based on learning promotes both substantive and networking success” (Eglene et al., 2007, p. 109).

Ansell and Gash (2008) make two assumptions about the role of leadership related to the level of trust in a network. If there is a high conflict and low trust between partners, “but power distribution is relatively equal and stakeholders have an incentive to participate, then collaborative governance can successfully proceed by relying on the services of an honest broker that the respective stakeholders accept and trust” (Ansell & Gash, 2008, p. 555). This honest broker facilitates the collaboration through encouraging participants to listen to each other. The honest broker remains above the disputes and sustains the transparency and integrity of the process to improve trust among partners. However, if power distribution is not symmetric or participant incentives are weak or asymmetric, a strong “organic” leader who emerges from within the community of stakeholder is more likely to succeed. By contrast to the first assumption, interdependence is weaker in this assumption. So building trust will be challenging. Since “the availability of such leaders is likely to be highly contingent upon local circumstances... the possibility for effective collaboration may be seriously constrained by a lack of leadership in this second assumption” (Ansell & Gash, 2008, p. 555).

## 2.5 Organizational Culture

Organizational culture highlights informal aspects of organizations and institutionalized values. Hill & Lynn (2009) explain institutionalized values as “norms, beliefs, and standards of conduct that provide meaning, purpose, and a source of motivation to individuals working within an organizational unit and, therefore, may contribute in both positive and negative ways to an organization's capacity to carry out its lawful responsibilities” (p. 52). When defining organizational culture, Schein (1992) emphasizes shared basic assumptions. Those shared basic assumptions are thought to be useful by group members in dealing with problems related to external adaptation and internal integration. Since those assumptions are considered as valid and functional, they are taught to new members as the main approaches and perceptions in addressing the problems. Trice and Beyer (1993) proposed a definition that has two parts which are substance and forms. While substance involves shared and consistent beliefs, values, and norms, forms are observable entities that members of an organization demonstrate the substance of their culture.

Values, professional judgments, ethics, and motives of employees are significant elements of an organization's culture. These factors have also peculiar impacts on operations and works of organizations. Organizational culture is not a static concept. Members of an organization have important influence in a constant development of organizational culture. They bring their unique values and beliefs (Hill & Lynn, 2009). Jorgensen & Bozemen recognize 72 public values in their meta-analysis of 230 articles of public administration (Hill & Lynn, 2009).

Culture clashes among network members and organizational goal convergence divergence are significant determiners of network effectiveness. Network management must focus on dealing with culture clashes and turf/ power problems (O'Leary & Bingham, 2007). Although,

networks provide greater opportunities to deal with complex problems, the members' different approaches of doing things usually make effective collaboration difficult (Provan & Lemaire, 2012). Network leaders need to provide harmony among contradicting organizational cultures and must have capability to uphold dueling cultures simultaneously (McPherson, Popp, & Lindstrom, 2006).

## **2.6 Theoretical Framework**

This study employs network theory perspective, resource dependency theory, and inter-organizational social capital as the key theoretical framework. This part presents a brief overview of these theories in terms of the study.

### **2.6.1 Network Theory Perspective**

Network theory can be used to examine the relationships among participating organizations of the public security network. It helps to understand how public networks form, function, sustain their survival, and can be managed effectively. Network theory provides a great deal of insight about effective collaboration in network structures, and this information can be used to analyze public security networks.

Public management networks have been increasingly used for the last decades which are defined as the "age of network" by Lipnack and Stamps (1994). This trend has arisen out of the collective acknowledgement of the wickedness of prevailing social, political, and economic problems. Networks are essential structures to cope with wicked social, political, and economic problems that cannot be solved by any single organization by acting solely (Provan & Kenis, 2007). Wicked is a term that has been applied to various problems which are essentially unique, lack a definitive formulation, and rarely have immediate and ultimate tests of a solution (Koliba,

Meek, & Zia, 2010). Wicked problems do not have certain definitions. The definition chosen by the decision maker determines the formulation of the solution. The actions to solve the wicked problems cannot be labeled as accurate and wrong, but they can be defined as better or worse, and cannot generally be transferred to other situations. The wicked problems are usually symptoms of other problems and their existence can be explained in different ways (Rittel & Webber, 1984).

Networks theory mainly examines inter-organizational relations from the individual, group, and organization perspectives (Provan, Fish & Sydow, 2007). While organizational theories had great impacts on early network research in public administration, the raising trend towards public management networks leads numerous researches on the network theory in the last twenty years (Lecy, Mergel & Hans, 2012). Network theory literature emphasizes seven features of networks operating across public administration.

1) Networks facilitate the coordination of actions of resources between actors with in network. 2) Network membership can be drawn from some combination of public, private, and nonprofit sector actors. 3) Networks may carry out one or more policy functions. 4) Networks exist across virtually all policy domains. 5) Although networks are mostly defined at the inter-organizational level, they also described in the context of the individual, groups, and organizations that comprise them. 6) Networks form as the result of the selection of particular policy tools. 7) Network structures allow for government agencies to serve in roles other than lead organizations (Koliba et al., 2010, p. 47).

Various purposes of inter-organizational cooperation are discussed in network theory literature: Organizations have multiple interests to join network structures. Acquire re-sources,

gaining legitimacy, providing more effective and efficient service, reducing the ambiguities, achieving collective goals and addressing complex problems are the main motives for organizations to participate in a network (Brass, Galaskiewicz, Greve, & Tsai, 2004; Provan & Kenis, 2008). Networks save organizations which have similar goals to duplicate their efforts and limited resources (Sunshine & Tyler, 2003). Organizations also want to share or reduce risk through involving a network (Kapucu & Demiroz, 2011). Networks are “flexible structures that are inclusive, information rich, and outside the scope of direct bureaucratic control. These structures allow public agencies to manage public problems by leveraging expertise held outside its scope of authority” (Isett et al., 2011, p. 159).

Network theory is an umbrella perspective rather than a single solid theory. Network approach is used by a set of theories to explain interactions among different organizations. This paper also addresses resource dependence theory and inter-organizational social capital as a theoretical guide for this research.

### **2.6.2 Resource Dependency Theory**

Resource dependency theory (Pfeffer & Salancik, 1978) is an open system theory. No organization is self-sufficient, and they have to contact, work, and exchange resources with other organizations in their environment. This is considered as a condition of survival. The necessity to attain resources generates dependencies for organizations. However, resource dependence theory does not view organizations as passive entities in determining their fate. They control external influence by mitigating their dependence to other organizations. Organizations that need essential resources will pursue to create relations with other organizations to acquire required assets. Creating networks not only provide alternative resources for organizations but also reduce the number of exchange alternatives for others. Organizations aim to obtain resources



without generating dependencies. In addition organizations try to adjust their dependence relations. They want to diminish their own dependence and raise the dependence of others on their organizations (Hillman, Withers, & Collins, 2009; Pfeffer & Salancik, 1978). Resource dependency theory considers organizations as coalitions altering their structure and pattern of behavior to gain and keep necessary resources. Organizations have the capability to change and respond to their surroundings. There are three factors affecting the level of resource dependence of organizations: first, the general significance of the resource for the organization; second, scarcer resources increase the dependence of the organization; finally, the struggle between organizations for control of that resource influences the level of dependency (Scott & Davis, 2006).

Organizations in public security are dependent upon their environment to fight against terrorism and organized crime. They must realize the necessity of collaboration and understand their interdependence to achieve their goals. They need to share resources, information, and knowledge to deal with this big problem. Although the main goal of the organizations in the public security network is similar, participating organizations have different priorities and motives. The management of the public security network functions as a broker among participating organizations. Network management coordinates the resources which are significant motives for members to involve dynamic participation of the network activities.

### **2.6.3 Inter-organizational Social Capital**

Social capital is defined by different researchers from different aspects. While some of the definitions mainly focus on the general framework of relationships in a social organization among various partners, others focus on external relationships of an entity with other entities (Adler & Kwon, 2002). According to Fukuyama, social capital is “the ability of people to work

together for common purposes in groups and organizations” (Fukuyama, 1995, p. 10). Putnam addresses social capital as a characteristic of “social organization such as networks, norms, and social trust that facilitate coordination and cooperation for mutual benefit” (Putnam 1995, p. 67). Coleman defines social capital in terms of its function. “It is not a single entity, but a variety of different entities having two characteristics in common: They all consist of some aspect of social structure, and they facilitate certain actions of individuals who are within the structure” ( p. 302). Knoke’s definition (1999) centers on external relations and accepts social capital as “the process by which social actors create and mobilize their network connections within and between organizations to gain access to other social actors’ resources” (p. 18). Burt (1997) also focuses on external relations and describes it as “brokerage opportunities in a network” (p. 355)

The construct of organizational social capital is identified as “a resource reflecting the character of social relations within the organization, realized through members' levels of collective goal orientation and shared trust” (Leanna & van Burren, 1999, p. 540) .

Organizational social capital is not run by a single person or an actor, but rather it is collectively controlled by all participants. Leanna and Van Burren (1999) address two key issues of organizational social capital. The first one is associability. Associability can be explained as the combination of sociability which refers to the ability to reach agreement about common objectives, and enthusiasm about giving preference to these organizational goals over personal interest. The second component is trust which will be examined in further sections in this paper.

Organizational social capital brings four main benefits to social entities. It provides a justification for group members to subordinate their own desires in favor of organizational goals. Social capital assists to create more flexible work practices and improve groups’ intellectual human capacity as well. Finally, it provides a more productive instrument to manage collective

actions compared to hierarchical tools. However, organizational social capital has several costs. Maintaining the social capital for ongoing and new relations necessitates spending time and resources. Long-run relations and feeling safe due to intensive trust may reduce the organization's risk taking willingness for innovative actions. Strong relations may also constrain seeking alternatives for existing policies (Leanna & Van Burren, 1999).

The concept of organizational capital can be applied to network level relations. Inter-organizational social capital is a significant asset for the public security networks that brings to successful collaboration among network partners. Inter-organizational social capital is directly or indirectly related to five variables of this research, which are inter-organizational trust, network leadership style, goal convergence, organizational culture, and network effectiveness. As mentioned before trust is one of the two main components of organizational social capital. The management style of network leaders may increase or reduce the stock of organizational social capital. Social capital can help to reduce the gap between goals of member organizations. It can also facilitate to reduce negative effects of organizational culture that prevents healthy information flow among participant agencies. Stated benefits of inter-organizational social capital can improve the network effectiveness in local public security networks.

## **2.7 Conceptual Framework**

Figure 4 demonstrates the conceptual framework of the research. The model involves four main exogenous variables and one endogenous variable. Trust among network members, the leadership style of the network, organizational culture and goal convergence are exogenous variables and network effectiveness is the dependent variable. Top-down leadership (commissioner style), co-producer style, and bottom-up leadership (facilitator style) are latent

sub-categories for network leadership style. Populations of the jurisdictions, jurisdictions' risk level in terms of terrorism, and organized crime are the control variables.

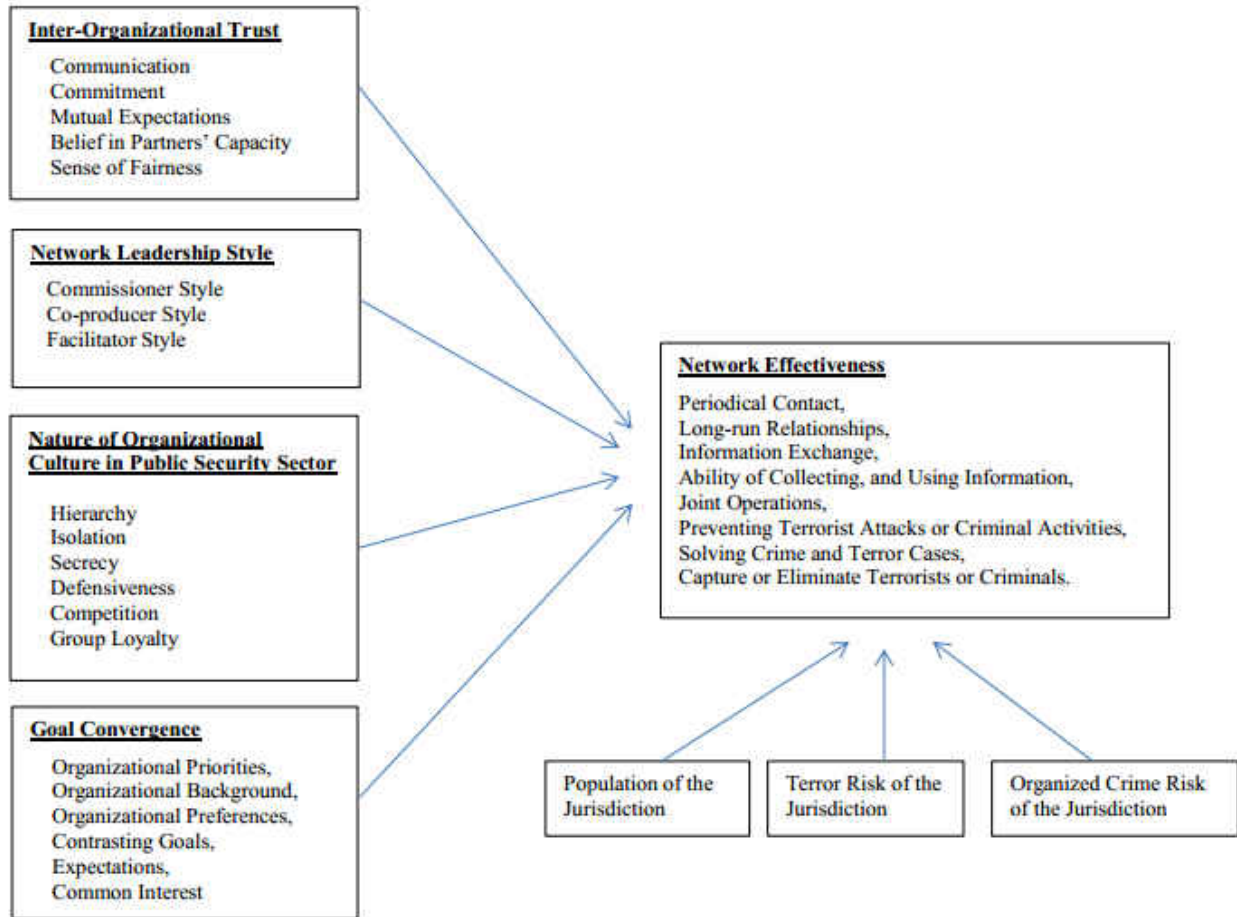


Figure 4: Conceptual Framework: The Role of Trust, Network Leadership, Organizational Culture, and Goal Convergence in Network Effectiveness

## 2.8 Statement of the Hypotheses

This research examines the influence of four independent variables on network effectiveness. In accordance with the theoretical perspective, inter-organizational trust, nature of organizational culture in public security network, and goal convergence are three latent exogenous constructs in the framework. Network leadership style is represented by three other latent exogenous constructs, which are commissioner style network leadership, co-producer style

of network leadership, and facilitator style of network leadership. Network effectiveness is the endogenous latent construct.

### **2.8.1 Inter-organizational Trust**

Hierarchy and administration's dominant authority are significant factors in managing traditional public agencies. However, these factors are not valid for public management networks. In the absence of both factors, inter-organizational trust among partner agencies is a significant cohesion element that ensures different partners to work together (Agranoff, 2007; Agranof & McGuire, 2001). Trust also lessens transaction costs and eases collaboration. Informal relations between participants facilitate to strengthen network ties and enable some new joint actions (Isett et al., 2011). A high level of trust in networks allows member organizations to increase their information collecting and using capacity. Better flow of information enhances participants' innovation and problem solving capacity and increase the performance of collaboration (Edelenbos & Klijn, 2007).

This study assumes that trust has a significant impact on successful collaboration in public security networks. Trust is considered as a factor that positively contributes network effectiveness. Managing reciprocal trust among partner organizations is an important part of a network managers' job. As discussed before, communication (Vangen & Huxham, 2003), belief in partners' capacity (Ostrom & Ahn, 2002; Ferguson & Stoudand, 1999), mutual expectations (Edelenbos & Klijn, 2007), commitment to the network (Ferguson & Stoudand, 1999), and a sense of fairness (Ferguson & Stoudand, 1999) are some important indicators of trust.

In light of the literature, the study derives following hypothesis is to be tested:

*Hypothesis 1: There is a positive relationship between inter-organizational trust and network effectiveness in public security networks.*

### **2.8.2 Network Leadership Styles**

Three leadership styles have been discussed in the literature for network management. These roles are top-down (the commissioner) leadership style (Hill & Lynn, 2005), bottom-up (the facilitator) leadership style (Lee, 2006), and intermediate area (the co-producer) leadership style (Bogason, 2000). Span, Schalk, Luijkx and Schols (2009) introduced an outline for governance roles after examining various network researches. They explained the features of three governance roles (the commissioner, the co-producer, and the facilitator) through nine dimensions: “Who is the main actor, what is the steering mechanism, who sets the boundary conditions, who is dependent, who aligns, who sets goals, who is responsible, who develops the vision, and who monitors results?” (p. 22).

Top down leadership is characterized by hierarchy and authority. Although new administrative tools are useful, command and control are still the primary means for network management. The main goal for top-down leadership in a network is to control the activities of network participants to accomplish the highest performance. As parallel to its power, management takes the main responsibility for the activities (Span, 2012). The co-producer leadership style has a middle position between top-down and bottom up leadership. Network management in the co-producer style is seen as a partner. Partners identify network goals together. Network management aims to encourage the involvement of each actor to network activities. Agreement is the most important concept for the co-producer style. Network members share the responsibility for network facilities. The facilitator style of leadership can be labeled as initiator. Management does not impose any goals to the partners. Each partner identifies their

own goals, and implements its policies. Management seeks possible collective actions and tries to facilitate. Each partner is responsible for its own activities (Span et al., 2009).

There are conflicting views related to appropriate leadership style for effective network management. McGuire (2006), Agranoff (2007), and Whetten (1978) found that the commissioner style ensures better collaboration. On the other hand, Andrews, Boyne, Law, and Walker (2009) and Korssen-van Raaij (2006) found that the facilitator style leads higher performance. McGuire (2006) argues that top-down governance provides better results since it ensures quick decision ability, robust management, clear goals, and less conflicts among network members. Warren, Rose, and Bergunder (1974) found that organizations under bottom-up governance model usually do not want to exchange information, time, and other resources. In addition, bottom-up governance causes a constant and useless struggle for authority among participants. However, Andrews et al., (2000) argues that top-down management may reduce performance of the network, since hierarchical relations inhibit participants from taking independent decisions. Top down leadership may also cause strict rules and guidelines which decrease responsiveness to altering circumstances (Andrews et al., 2009).

Span, Luijkx, Schols, and Schalk (2012) explain this contradiction by suggesting that each governance roles will leave different performance results in different conditions. They examine four contingency factors which are network age, network size, network diversity, and customization of services. They found that these contingencies have significant impact on the relationship between governance roles and network performance. Span et al. (2012) expand their propositions by adding two independent dimensions, stability and complexity of a public network. They suggest that the commissioner style is more effective for simple and stable public networks; and the facilitator style is more effective for complex and dynamic public networks,

while the co-producer style is better for simple and dynamic public networks and complex and stable public networks.

As a consequence, most of the research in network literature suggests that in different contingencies, different leadership styles would be more effective. Situational approach seems to be generally accepted as the best model for network leadership. Each network has unique characteristics that differentiate them from other network settings. The appropriate leadership style should be identified according to those features.

In the light of these discussions the following hypotheses were tested in the study

*Hypothesis 2: There is a relationship between network leadership style and network effectiveness in public security networks.*

*Hypothesis 2<sub>a</sub>: Top down leadership style (the commissioner role) will achieve the highest network effectiveness in public security networks.*

*Hypothesis 2<sub>b</sub>: The co-producer style of leadership will achieve the highest network effectiveness in public security networks*

*Hypothesis 2<sub>c</sub>: Bottom up leadership style (the facilitator role) will achieve the highest network effectiveness in public security networks.*

### **2.8.3 Goal Convergence**

Although networks have common goals, participants usually have multiple interest and priorities. Estimating network goals may not be always possible through watching actions of single organizations. Similarity in goals, missions and expectations contribute to accomplish more effective collaboration (Rivera, Soderstrom & Uzzi, 2010). Kapucu and Garayev (2012)



found that organizational goal convergence is positively associated with network sustainability in emergency management networks. When network members bring their own objectives to the table with different policies, tactics, and attempts, collaboration in the network could face conflict of interest. Bryson, Crosby, and Stone (2006) argue that goal convergence facilitates collaboration in network structures. To increase goal convergence planning may be helpful. Deliberate and emergent planning increases the chance of successful collaboration. While deliberate planning is more appropriate for mandated collaborations, emergent planning is more suitable than non-mandated collaborations

Accordingly, the following hypothesizes are tested in this study:

*Hypothesis 3: There is a positive relationship between the organizational goal convergence and network effectiveness in public security networks.*

#### **2.8.4 Nature of Organizational Culture in Public Security Sector**

Numerous researches argue that police culture has substantial influence on both performance and information sharing in the public security sector (Fraser, 2004; Luen & Al-Hawamdeh, 2001; Glomseth, Gottschalk & Solli-Sæther, 2007). Organizations dealing with gathering and analysis of intelligence have some common features that differentiate them from other private and government agencies. Although intelligence service and law enforcement agencies have some ideological variances, they have plentiful common cultural attributes. Those shared assumptions and values in public safety network usually may be source of security failures and weakness (Mouton, 2002).

Different researchers found that some specific features of organizational cultures in the public sector such as isolation, secrecy, solidarity, defensiveness, and competition often prevent

healthy information sharing and collaboration (Fraser, 2004; Christensen & Crank, 2001; Luen & Al-Hawamdeh, 2001; Glomseth, Gottschalk & Solli-Sæther, 2007). Isolation is a physical and emotional situation which inhibits employees of an agency from communicating and creating relations with other people who are not members of their organizations. They tend to see other people as a potential danger to their organizational missions and goals (Kappeler, Sluder, & Alpert, 1998).

Military culture is also needed to be taken into account when assessing public security networks. Group allegiance and small unit loyalty are significant and essential elements of military culture. A strong tie in a military unit is a necessary feature to combat with enemy forces. However, this loyalty may undermine the overall goal and mission cohesion of larger units (Winslow, 1998). Similarly, law enforcement agencies and intelligence services emphasize the significance of loyalty and solidarity. These cultural elements are beneficial, since they increase employees' commitment to missions of organizations and provide the basis for teamwork (Rashid, Sambasivan & Rahman, 2004; Harrison, 1998). However, they frequently hinder employees of the organizations from reporting the problematic conducts or poor performance of peers (Mouton, 2002).

Another important shared characteristic of organizations in public security networks is high level of hierarchy and authority. In hierarchy driven organizations, to act within the chain of command is an administrative obligation as well as a cultural commitment. Subordinates are expected to perform and follow their chiefs' order without questioning its basis (Souryal, 1995). According to Scott (1998), "authoritarian system is subject to abuse precisely because its controls are internalized and individual participants are unconstrained in the demands that they place on themselves and their colleagues" (p. 313).

One reason that law enforcement and intelligence agencies keep information within their jurisdiction is competition. A high competition between organizations can exist even at national and sub-national levels. Agencies and their members compete among each other to gain credit for successful investigations (Buscaglia & González, 2006).

It is necessary here to clarify exactly what is meant by the nature of organizational culture in the public security sector. In this study, the term is used to refer common cultural attributes of public security organizations such as hierarchy, isolation, secrecy, self-protection, competition, and group loyalty.

Accordingly, the following hypothesizes are tested in this study:

*Hypothesis 4: There is a relationship between the nature of organizational culture in the public security and network effectiveness in public security networks.*

*Hypothesis 4<sub>a</sub>: There is a negative relationship between the level of defensiveness in the member organizations and network effectiveness in public security networks*

*Hypothesis 4<sub>b</sub>: There is a negative relationship between the level of perception of the organizational secrecy in the member organizations and network effectiveness in public security networks*

*Hypothesis 4<sub>c</sub>: There is a negative relationship between the level of hierarchy in the member organizations and network effectiveness in public security networks.*

*Hypothesis 4<sub>d</sub>: There is a negative relationship between the level of sense of isolation among employees of the member organizations and network effectiveness in public security networks.*

*Hypothesis 4<sub>e</sub>: There is a negative relationship between the level of group loyalty among employees of the member organizations and network effectiveness in public security networks.*

*Hypothesis 4<sub>f</sub>: There is a negative relationship between the level of competition among member organizations and network effectiveness in public security networks.*

### **2.8.5 Control Variables**

There are three control variables in the model which are population of the jurisdictions in which public security networks perform, the risk level of jurisdictions in terms of terrorism, and risk level of jurisdiction in terms of organized crime.

Population of the jurisdictions is selected as a control variable since it is a significant indicator of the size of the networks, number of personnel, budget, and technical capacity of the participating organizations. These characteristics of the networks greatly vary according to jurisdiction population. There are significant differences between a province public security network serving a population of more than 2,000,000 and a province public security network serving a population of about 100,000. Size, the number of personnel, and budget are not examined separately because the data was collected via an online survey questionnaire from governors. Since governors have limited or no direct authority on military units and intelligence services, they usually do not have exact information about their number of personnel, budget or other issues. Also, some of that information is secret and they would not be enthusiastic about sharing it in the survey. Therefore, the population of the jurisdiction is designed as a control variable to identify the general characteristics of the local public security networks.

The jurisdictions' risk level in terms of terrorism and organized crime are also selected as control variables in order to recognize the environment in which public security networks

perform. The risk levels lead different approaches and different kinds of behaviors among partners in the network. The number of employees and the budget of the member organizations also differ according to risk levels.

The following hypotheses are proposed to test the structural relationships between these variables.

*Hypothesis 1: There is a positive relationship between high level of inter-organizational trust and network effectiveness in public security networks.*

*Hypothesis 2: There is a relationship between network leadership style and network effectiveness in public security networks.*

*Hypothesis 2<sub>a</sub>: Top down leadership style (the commissioner role) will achieve the highest network effectiveness in public security networks.*

*Hypothesis 2<sub>b</sub>: The co-producer style of leadership will achieve the highest network effectiveness in public security networks*

*Hypothesis 2<sub>c</sub>: Bottom up leadership style (the facilitator role) will achieve the highest network effectiveness in public security networks.*

*Hypothesis 3: There is a positive relationship between the organizational goal convergence and network effectiveness in public security networks.*

*Hypothesis 4: There is a relationship between the nature of organizational culture in the public security and network effectiveness in public security networks.*

*Hypothesis 4<sub>a</sub>: There is a negative relationship between the level of defensiveness in the member organizations and network effectiveness in public security networks*

*Hypothesis 4<sub>b</sub>: There is a negative relationship between the level of perception of the organizational secrecy in the member organizations and network effectiveness in public security networks*

*Hypothesis 4<sub>c</sub>: There is a negative relationship between the level of hierarchy in the member organizations and network effectiveness in public security networks.*

*Hypothesis 4<sub>d</sub>: There is a negative relationship between the level of sense of isolation among employees of the member organizations and network effectiveness in public security networks.*

*Hypothesis 4<sub>e</sub>: There is a negative relationship between the level of group loyalty among employees of the member organizations and network effectiveness in public security networks.*

*Hypothesis 4<sub>f</sub>: There is a negative relationship between the level of competition among member organizations and network effectiveness in public security networks.*

This study expects to find a direct positive relationship between inter-organizational trust, goal convergence, and network effectiveness. This study also expects to find a negative relationship between the nature of organizational culture in public security sector and network effectiveness. Finally, network leadership style is expected to either positively or negatively influence the network effectiveness. The next chapter will introduce the methodology of this research.

## **CHAPTER-3 METHODOLOGY**

This chapter provides the methodology of the study addressing the study design, study samples, data collection, sampling, power analysis, sample size justification, operational definitions of the study variables, statistical analysis, and the model validation.

### **3.1 Research Design**

This study uses quantitative research methods (Structural Equation Model) to analyze empirical data which was gathered by a survey. Cross-sectional surveys gather data at one point in time and can be labeled as snapshots of the population. Non-experimental single group design was used in this research. Random assignment was not performed since it was not possible to control and manipulate our exogenous variables.

### **3.2 Subjects for the Study**

Province security networks in Turkey are selected as the unit of analysis. Turkey is administratively divided into 81 provinces. The provinces are further subdivided into districts. There are 919 districts in Turkey. The study population consists of province and district governors, deputy province governors, administrative senior inspectors and Interior Ministry high and middle level bureaucrats. They are selected as the study population since province and district governors are thought as to be the leader of the local public security networks. Province deputy governors, administrative senior inspectors and Interior Ministry high and middle level bureaucrats are appointed among district governors after working for a specific time period as a district governor. Hence, they also have deep knowledge and experience related to public security networks.

This study used human subjects, and all human subject research must receive Institutional Review Board (IRB) approval. Before applying the survey, survey instruments were submitted to IRB for approval. The survey question was designed in a way that would not cause any harm to respondents. Completing the survey was voluntary and data will be confidential. Only aggregate data was collected, performed, and reported. Respondents might skip any question or stop taking the survey at any time. Personal information was not asked to ensure confidentiality.

### **3.3 Data Collection Method**

A self-administered online survey (Appendix A) was performed to collect data. The survey was conducted to evaluate perceptions of public security network managers about network effectiveness, network leadership style, inter-organizational trust, organizational culture and goal convergence. The survey was built and distributed through the web-based survey tool Qualtrics. The links of the survey questionnaire electronically mailed to all province and district governors, deputy province governors, middle and high managers of the Turkish Interior Ministry, and administrative senior inspectors. In the survey, respondents were asked to identify a province public safety network that they had the opportunity to observe closely, and evaluate the study variables in terms of this province public safety network.

The survey questions were prepared in English, and were translated into Turkish. In order provide reliability and validity of the measurement, the Turkish version of the survey was reviewed by Sedat Eliuz, Yusuf Ustun, and Mehmet Yesilbas who are native speakers of Turkish and administrative senior inspectors of the Turkish Interior Ministry as well as Ph.D. candidates in the Public Affairs Doctoral Program at the University of Central Florida.



### 3.4 Sampling

The study population of the research is province and district public security networks in Turkey and their governors. Surveys were sent online to all province and district governors, deputy province governors, administrative senior inspectors, and the Interior Ministry middle and high level bureaucrats. Thus, any sampling method was not performed. According to the Turkish Interior Ministry data, total number of province governors, district governors, deputy district governors, administrative senior inspectors and, Interior Ministry high and middle level bureaucrats is 2,095.

The frequency distribution of this study population with regards to their professional positions indicates that district governors are the largest group with 866 people (41.3%). The second largest group is deputy province governors with 498 people (11. %). 236 candidate district governors constitute 11.2 % of study population. The number of administrative senior inspectors is 191 (9.2%). There are 171 province governors (8.2 %) and 134 Interior Ministry high or middle level bureaucrats (6.4%)

The first indicator is about periodical contacts among network members to discuss public security issues. Seven out of ten respondents either agreed (63.4%) or strongly agreed (7.0%) with the statements. While the number of respondents who did not support the statement was 37 (12.7%), 48 respondents (16.7 %) specified that they were not sure about this indicator. The second indicator asked respondents whether “the organizations constantly develop long-term relationships among each other”. A majority of respondents reported disagreement (disagree, 58.7%; strongly disagree, 9.0%) with the statement. Only 27 (9.0%) people supported, whereas 66 respondents (22.9) were not sure. The third indicator is designed to evaluate the constant exchange of information among member organizations. Almost 4 out of 10 respondents (38.9%)

did not agree with the statement, while around a quarter of the respondents support the indicator. 34.4 % of the respondents neither agreed nor disagreed with the constant exchange of information.

The following two indicators were designed to evaluate whether the network provides member organizations to improve the ability of collecting and using information against terrorist and criminal activities. For both indicators, respondents mostly supported (59.3 % and 64.7% respectively) the statements. Again for both questions, almost equal numbers of the respondents stated that the network does not provide organizations to improve their information collecting capacity (11.3%), information using capacity (10.4%). The sixth indicator asked respondents whether the public security network is successful in carrying out joint operations. While 36.3% of respondents found the network successful, 27.1% of the respondents stated that it is not successful in joint operations. Almost four out of ten respondents (38.5%) are not sure about this indicator. The next two indicators ask respondents whether the public security network is successful in preventing terrorist attacks and organized crime activities. Both questions had similar results. 33.2% of the respondents either agreed or strongly agreed that the network is successful in preventing terrorist attacks and 34.4% of them accepted the network is successful in preventing organized crime activities. The percentage of respondents who do not find the network successful in preventing terrorist attack was 25.2%, while disagreement responses accounted for 23.2% in preventing organized crime activities. An almost equal percentage of respondents (41.6% and 42.5% respectively) in both questions neither agreed nor disagreed with the statement.

The tenth and eleventh indicators aim to measure the success of the network in solving terror and organized crime cases. 102 respondents (35.2%) found their network successful in

solving terror case and 111 respondents (39.4%) found their network successful in solving organized crime cases. The same numbers of respondents (58) in both questions did not support the statements. The last two questions in this section were designed to evaluate the success of the network in capturing or eliminating the terrorists and members of organized crime groups. 92 respondents either agreed (31.2%) or strongly agreed (1.1%) while 70 respondents either disagreed (22.5%) or strongly disagreed (2.1%) with the statement related to capturing or eliminating the terrorists. The statement related to capturing or eliminating members of organized crime groups was either agreed (34.3%) or strongly agreed (1%) by 92 respondents, whereas 66 respondents either disagreed (20.6%) or strongly disagreed (2.4%). More than four out of ten respondents were not sure about the indicators in the last four questions (44.3%, 40.1%, 43.2 and 41.6 respectively).

### **3.5 Power Analysis and Sample Size Justification**

Before performing to statistical analysis, power analysis is necessary to determine the highest possibility to reject the null hypothesis when it is false (Zhang & Wang, 2009). Researchers determine confidence level according to their judgments about the level of preciseness. This study uses the alpha level of 0.05 which ensures a confidence interval of 95%. Thus, the results are 95% confident that any sample drawn from the target population will give the same result.

Sample size is also important for the power of the study. This study use structural equation modeling (SEM) to analyze the data. There are different arguments related to required sample sizes for SEM. Kline (2005) argues that the minimum 10 case is necessary for each unknown parameter in the covariance structure model. Bentler and Chou (1987) propose rule of thumb which argues that 5 observations are adequate for each parameter when the unit of the

analysis is organizations. The final revised covariance structure model of the study has 86 unknown parameters. Hence, 430 respondents would provide a perfect sample size for the study. On the other hand, Boomsma and Hoogland (2001) suggest that 200 cases are enough to make a reliable SEM analysis. This means that just about a 9.5 % response rate would be adequate for the study.

### **3.6 Measurement**

This research aims to find relations between endogenous variables of network effectiveness and five latent exogenous variables (inter-organizational trust, 3 network leadership styles, and goal convergence), and six observable exogenous variables in public security networks. Population of the jurisdictions, the risk level of the jurisdiction in terms of terrorism, and risk level of the jurisdiction in terms of organized crime are used as control variables. These three factors are indicators of jurisdictions' characteristic that affect the organizational environment of public security networks. In order to find real impact of independent variables on the network effectiveness, these factors were controlled.

The survey questionnaire (Appendix A) was created based on previously performed surveys by Wang and Kapucu (2006), Kapucu (2008), Kapucu (2012), Garayev and Kapucu (2013), Garayev (2011), and Demiroz (2012). Some of these research studies were federally funded. The lowest Cronbach's Alpha reliability coefficient for latent constructs in these studies was .709, which shows the reliability of the survey questionnaire. The entire inter-organizational trust and the goal convergence sections and some questions of the network effectiveness section of the survey questionnaire were directly taken from these surveys with small changes. The network leadership, the organizational culture sections and most of the questions in the network effectiveness section were built through network theory literature. In accordance with the

literature, Table 1 is generated to illustrate latent exogenous and endogenous variables and their indicators. The table also consists of the control variables of the study.

Table 1 *Operational Definition of Variables*

<b>Variable</b>	<b>Indicator</b>	<b>Type of Variable</b>	<b>Data Source</b>
Inter-Organizational Trust (Latent Exogenous)	The organizations involving the public security network have open communication	Ordinal	Survey
	The organizations in the public security network are reliable partners	Ordinal	Survey
	Honesty is the basis of inter-organizational collaboration in the public security network	Ordinal	Survey
	Inter-organizational relations in the network are characterized by mutual understanding	Ordinal	Survey
	Organizations in the network keep their commitment	Ordinal	Survey
	Mutual acceptance is the important part of inter-organizational collaboration in the network	Ordinal	Survey
	There is a common belief across the network that each actor is capable of contributing to the overall picture	Ordinal	Survey
	Inter-organizational collaboration is characterized by mutual respect in the network	Ordinal	Survey
	Organizations in the network collaborate with a sense of fairness towards each other	Ordinal	Survey
Commissioner Style of Network Leadership (Latent Exogenous)	Public security network goals are formulated solely by the governors	Ordinal	Survey
	Public security network vision is formulated solely by the governors	Ordinal	Survey
	Governors act as executors	Ordinal	Survey

<b>Variable</b>	<b>Indicator</b>	<b>Type of Variable</b>	<b>Data Source</b>
	Network activities are steered by the governors	Ordinal	Survey
	Decisions in the network are made solely by the governors	Ordinal	Survey
	Governors take full responsibility for the public security network		
Co-producer Style of Network Leadership (Latent Exogenous)	Network goals are formulated by all partners jointly	Ordinal	Survey
	Network vision is formulated by all partners jointly	Ordinal	Survey
	Governors act as a partners	Ordinal	Survey
	Network activities are steered jointly	Ordinal	Survey
	Decisions in the network are made jointly	Ordinal	Survey
	All partners are jointly responsible for network activities	Ordinal	Survey
Facilitator Style of Network Leadership (Latent Exogenous)	Each organization formulates their own goals separately in the network	Ordinal	Survey
	Each organization formulates their vision separately in the network	Ordinal	Survey
	Governors act as an initiators to facilitate the collaboration	Ordinal	Survey
	Network activities are steered by each organization	Ordinal	Survey
	Decisions in the network are made by each organization	Ordinal	Survey
	Each partners is responsible for their own activities	Ordinal	Survey

<b>Variable</b>	<b>Indicator</b>	<b>Type of Variable</b>	<b>Data Source</b>
Organizational Culture	Organizations in the public security network do not confront problems without becoming defensive (REVERSED)	Ordinal	Survey
	Collaboration in the public security network is challenging due to the organizational secrecy perceptions (REVERSED)	Ordinal	Survey
	Collaboration in the public security network is challenging due to high level of hierarchy in the organizations (REVERSED)	Ordinal	Survey
	When an employee of an organization in the network make a mistake, fellows feel responsibility to protect him/her (REVERSED)	Ordinal	Survey
	Collaboration in the public security network is challenging due to competition among organizations (REVERSED)	Ordinal	Survey
	Collaboration in the public security network is challenging due to a sense of isolation among employees of the member organizations (REVERSED)	Ordinal	Survey
Organizational Goal Convergence (Latent Exogenous)	Organizations in the public security network have different organizational priorities (REVERSED)	Ordinal	Survey
	There is a gap between organizational goals in the network (REVERSED)	Ordinal	Survey
	Organizations working together have little in common (REVERSED)	Ordinal	Survey
	Collaboration in the public security is challenging due to multiplicity of differing organizational backgrounds (REVERSED)	Ordinal	Survey
	Diverging organizational expectations is the reality of public security networks	Ordinal	Survey



Variable	Indicator	Type of Variable	Data Source
	(REVERSED)		
	Organizations are hardly related in terms of their organizational missions (REVERSED)	Ordinal	Survey
Network Effectiveness (Latent Endogenous)	Organizations in the network periodically contact each other to discuss issues pertaining to public security	Ordinal	Survey
	Organizations constantly develop long-term relationships among each other	Ordinal	Survey
	Organizations in the network constantly communicate and exchange information	Ordinal	Survey
	The public security network provide organizations to improve the ability of collecting and using information against terrorist and organized crime activities	Ordinal	Survey
	The public security network is successful in carrying out joint operations	Ordinal	Survey
	The public security network is successful in preventing terrorist attacks	Ordinal	Survey
	The public security network is successful in preventing organized crime activities		
	The public security network is successful in solving organized crime cases	Ordinal	Survey
	The public security network is successful in solving terror cases		
	The public security network is successful in capturing or eliminating the criminals	Ordinal	Survey

<b>Variable</b>	<b>Indicator</b>	<b>Type of Variable</b>	<b>Data Source</b>
	The public security network is successful in capturing or eliminating members of organized crime gangs		
Population of Jurisdictions (Control)	The population of the network jurisdiction	Ordinal	Survey
Risk Level of Terrorism (Control)	The risk level of the network jurisdiction in terms of terrorism	Ordinal	Survey
Risk Level of Organized Crime (Control)	The risk level of the network jurisdiction in terms of organized crime	Ordinal	Survey

### **3.7 Statistical Analysis**

This research uses three main statistical analysis methods to evaluate the relationships between independent and dependent variables. Those analyses are descriptive statistics, confirmatory factor analysis, and covariance structure modeling.

#### **3.7.1 Descriptive Statistics**

Descriptive statistics were performed through SPSS to understand general characteristics of the data, and evaluate the general picture. Frequency tables and distribution of exogenous, endogenous and control variables were presented in the descriptive analysis. Correlation analysis were used to detect relations among study variables and the possible multicollinearity problem between indicators of each latent construct. Multicollinearity is a common problem, which occurs when two or more variables are highly correlated.

#### **3.7.2 Confirmatory Factor Analysis**

The study used confirmatory factor analysis to confirm the validity of measurement models and validate the model fit of collected data. Building measurement models are necessary, since latent constructs cannot be directly observed. Confirmatory factor analysis is used to decide the capability of a hypothesized model based on the obtained data. It seeks to determine if the number of factors and their regression weights are suitable to indicate latent constructs. It is a significant method to test construct validity of the study variables (Wan, 2002).

AMOS software was used to perform confirmatory factor analysis. Indicators of each latent variable constitute the generic measurement model of each single factor. Wan's (2002) three step method used for the confirmatory factor analysis. First, p value and critical ratio were examined to determine if the specific indicator has a statistically significant effect on the latent

construct. If the critical value is equal or greater than 1.96, it can be considered that influence of a particular indicator on the latent variable is statistically significant at the 0.05 level. If the factor loading is not statistically significant, it shows that this indicator is not a suitable measure for the latent construct. The factor loadings among the indicators and the latent construct can be between 0 and 1. While 1 indicates the highest correlation, 0 means that the indicator is not relevant to the latent construct. The stronger factor loading means the stronger influence of that indicator on the latent construct (Byrne, 2010; Wan, 2002; Bickel, 2007).

In the second step, several statistical indexes are used to assess how well over all model fits the data. AMOS software produces those indexes that include chi-square value ( $\chi^2$ ), degrees of freedom (df), the goodness-of-fit index (GFI), the adjusted GFI (AGFI), the Tucker-Lewis index (TLI), the normed fit index (NFI), and root mean squared error of approximation (RMSEA), comparative fit Index, and Hoelter's critical N. At the final stage, modification index are checked to detect the possible causes of the lack of fit. Modification indices help to determine which correlated measurement errors should be freely estimated to reduce the chi-square value and fit the model better. Nested measurement models of latent constructs were developed according to modification indices figures,

### 3.7.2.1 Measurement Model for Network Effectiveness in Public Security Networks

Network effectiveness in public security networks is the endogenous variable of the study. Network effectiveness can be defined as the accomplishments which could not be realized by a single organization without participating in a network (Provan & Kenis 2008). Various indicators suggested to measure effectiveness of public security networks. This paper used 12 indicators: Regular communication among participants; long term relations, the amount of shared information, information using and collecting capacity, success in joint operations, success in

preventing terror and organized crime cases, success in solving terror and organized crime cases, and success in capturing and eliminating terrorists and members of organized crime gangs (Demirhan, 2013). Figure 5 demonstrates the measurement model of network effectiveness.

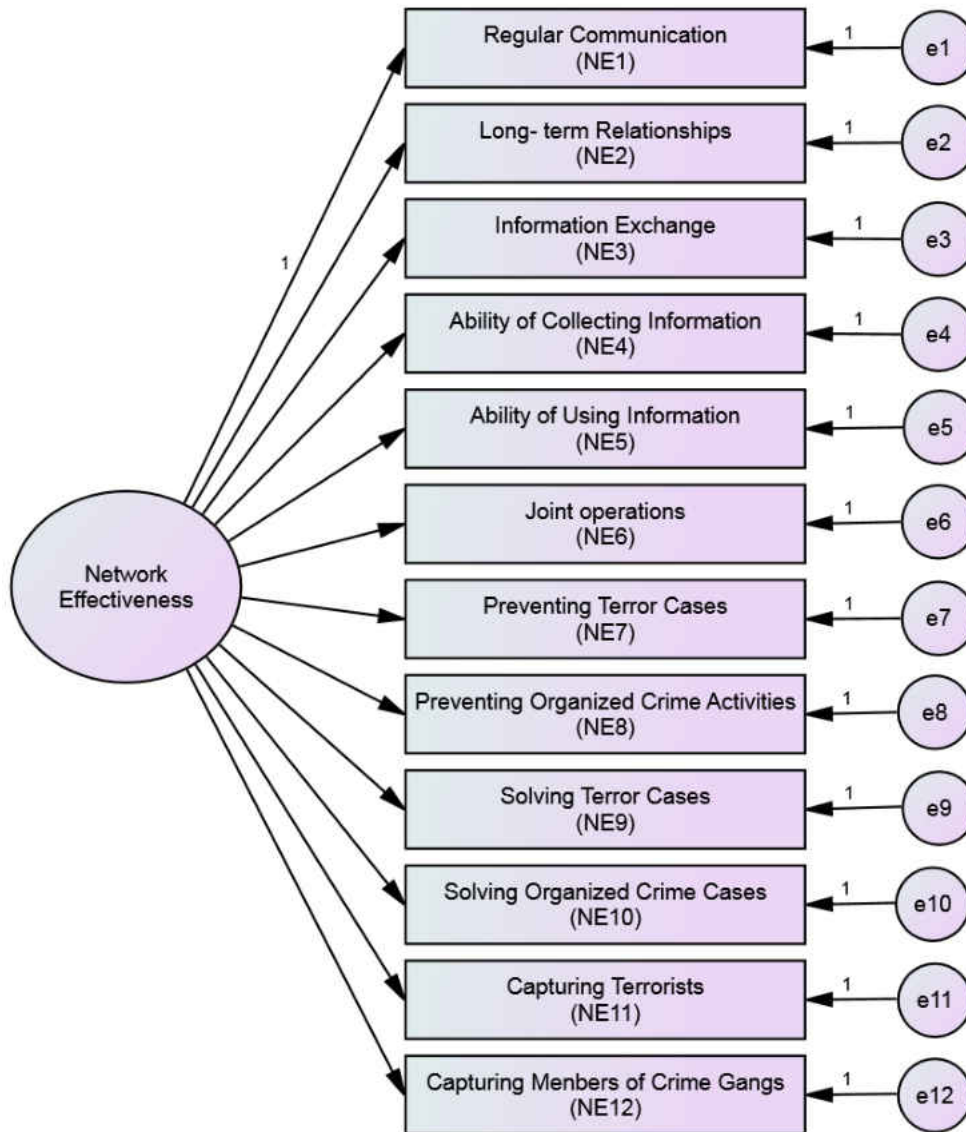


Figure 5. Measurement Model for Network Effectiveness

### 3.7.2.2 Measurement Model for Inter-organizational Trust in Public Security Networks

The first exogenous variable of the study is inter-organizational trust. Trust can be examined under three main heading. First, companion trust is based on mutual communication and friendship. The main focus of competence trust is reciprocal opinions about other partners' capability in collaborative activities. Lastly, commitment trust is based on expectations from other parties to commit contract conditions (Newell & Swan, 2000). Various studies (Wang & Kapucu; 2006; Kapucu, 2008; Garayev, 2011; Kapucu, Garayev & Wang, 2013) used open communication among partner agencies, perception about reliability, honesty, mutual understanding, keeping commitment in collaborative process, mutual acceptance, perceptions about commitment, mutual respect among members, and sense of fairness as the indicators of trust. This study also used those items to measure the level of trust among member agencies.

Figure 6 depicts measurement model for trust.

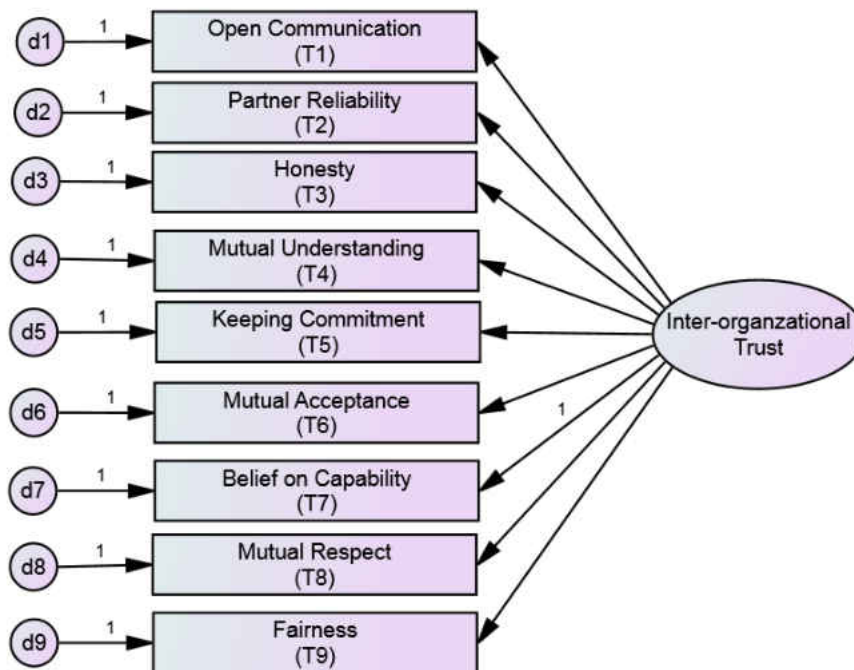


Figure 6. Measurement Model for Inter-organizational Trust

### 3.7.2.3 Measurement Model for Network Leadership Styles in Public Security Networks

Network leadership style is represented by three latent exogenous constructs, which are the commissioner style network leadership, the co-producer style of network leadership, and the facilitator style of network leadership. This study compares impacts of these three leadership styles on network effectiveness. In the commissioner role; network leader acts as an executer; network vision, goals and decisions made by solely network leader; leader steers network activities; and they undertakes full responsibility. The co-producer style network leader act as a network partner; network members jointly made network decisions, vision and goals; network responsibility is shared by all members. The facilitator network leader acts as an initiator. Network vision, goals and decisions are made by each partner solely; each partner is responsible for their own activities (Span, Schalk, Luijkx & Schols, 2009). Each first order latent indicator was measured by six indicators. Figure 7, Figure 8, and Figure 9 demonstrates measurement model for those three types of network leadership styles.

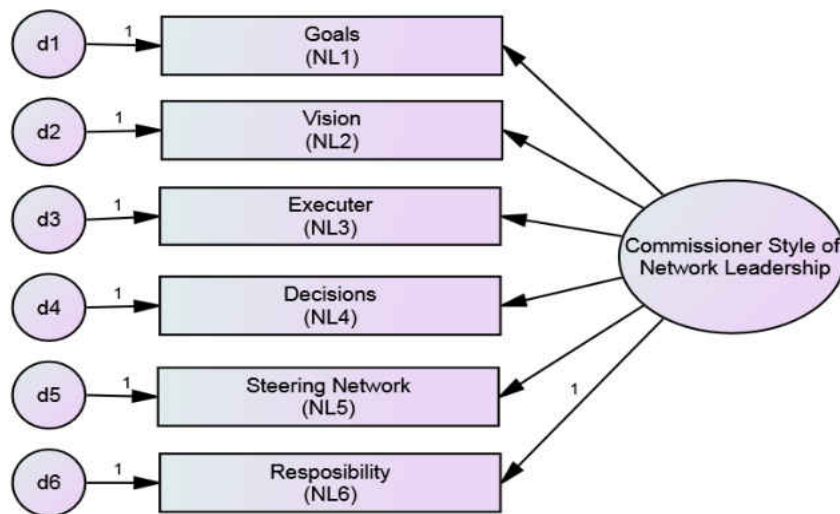


Figure 7. Measurement Model for Commissioner Style of Network Leadership

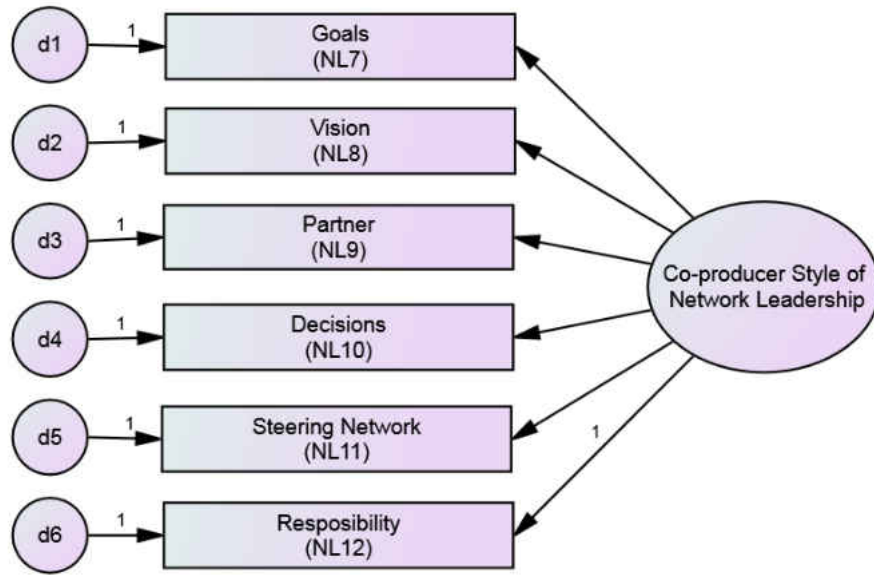


Figure 8. Measurement Model for Co-producer Style of Network Leadership

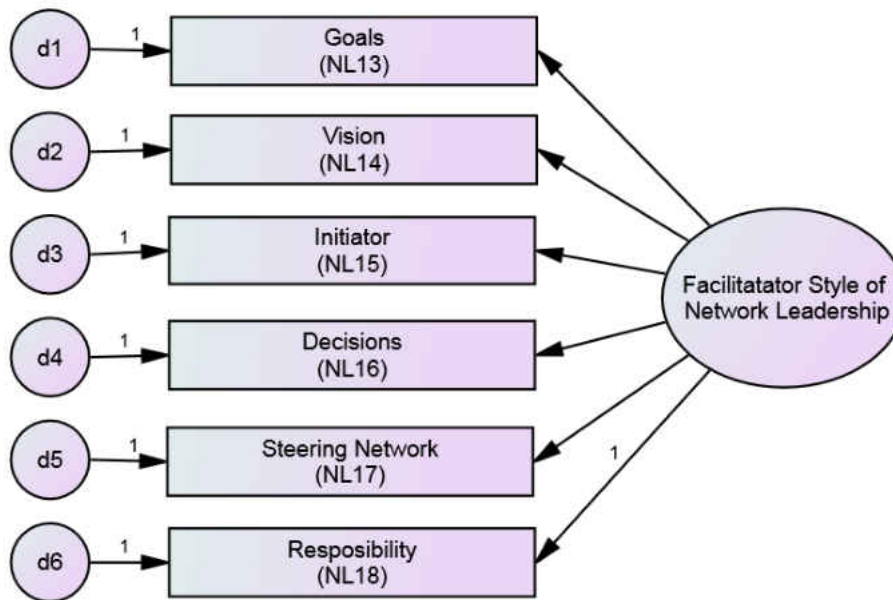


Figure 9. Measurement Model for Facilitator Style of Network Leadership

3.7.2.4 Measurement Model for Goal Convergence in Public Security Networks

Another exogenous variable of the study is goal convergence, which can be defined as “the extent to which organizations have common goals and mission” (Kapucu, Garayev & Wang,



2013, p. 106). Difference in organizational priorities, organizational goals, expectations and mission, diverging goals, and common points were used to measure goal convergence among member organizations in public security networks (Wang & Kapucu; 2006; Kapucu, 2008; Garayev, 2011). Figure-10 demonstrates the measurement model for goal convergence.



Figure 10. Measurement Model for Goal Convergence

### 3.7.2.5 Measurement Model for Organizational Culture in Public Security Networks

Organizational culture is defined as institutionalized values that “refer to those norms, beliefs, and standards of conduct that provide meaning, purpose, and a source of motivation to individuals working within an organizational unit and, therefore, may contribute in both positive and negative ways to an organization's capacity to carry out its lawful responsibilities” (Hill & Lynn, 2009, p. 52). Public security organizations have some unique cultural characteristics that differentiate them from other public organizations. Various specific features are argued in the literature (Mouton, 2002; Kappeler, Sluder & Alpert, 1998; Fraser, 2004; Christensen & Crank, 2001; Luen & Al-Hawamdeh, 2001). Confronting problems without becoming defensive,

organizational secrecy, organizational isolation, and the level of hierarchy, organizational solidarity, and competition among agencies were measured by single questions in the survey as separate characteristics of organizational culture in public security networks.

### **3.7.3 Covariance Structure Model**

Covariance structure model were used to assess relations between our latent constructs and confounding factors. The model includes both exogenous and endogenous latent variables. CSM can also simultaneously estimate latent variables from observed variables. CSM combines confirmatory factor analysis and structural equation modeling into one method. Covariance structure analysis or model offers a simple way to portray the complex relationships among the study variables with latent variables (Wan, 2002). Figure 11 demonstrates covariance structure model of network effectiveness, trust, network leadership, goal convergence, and organizational culture.

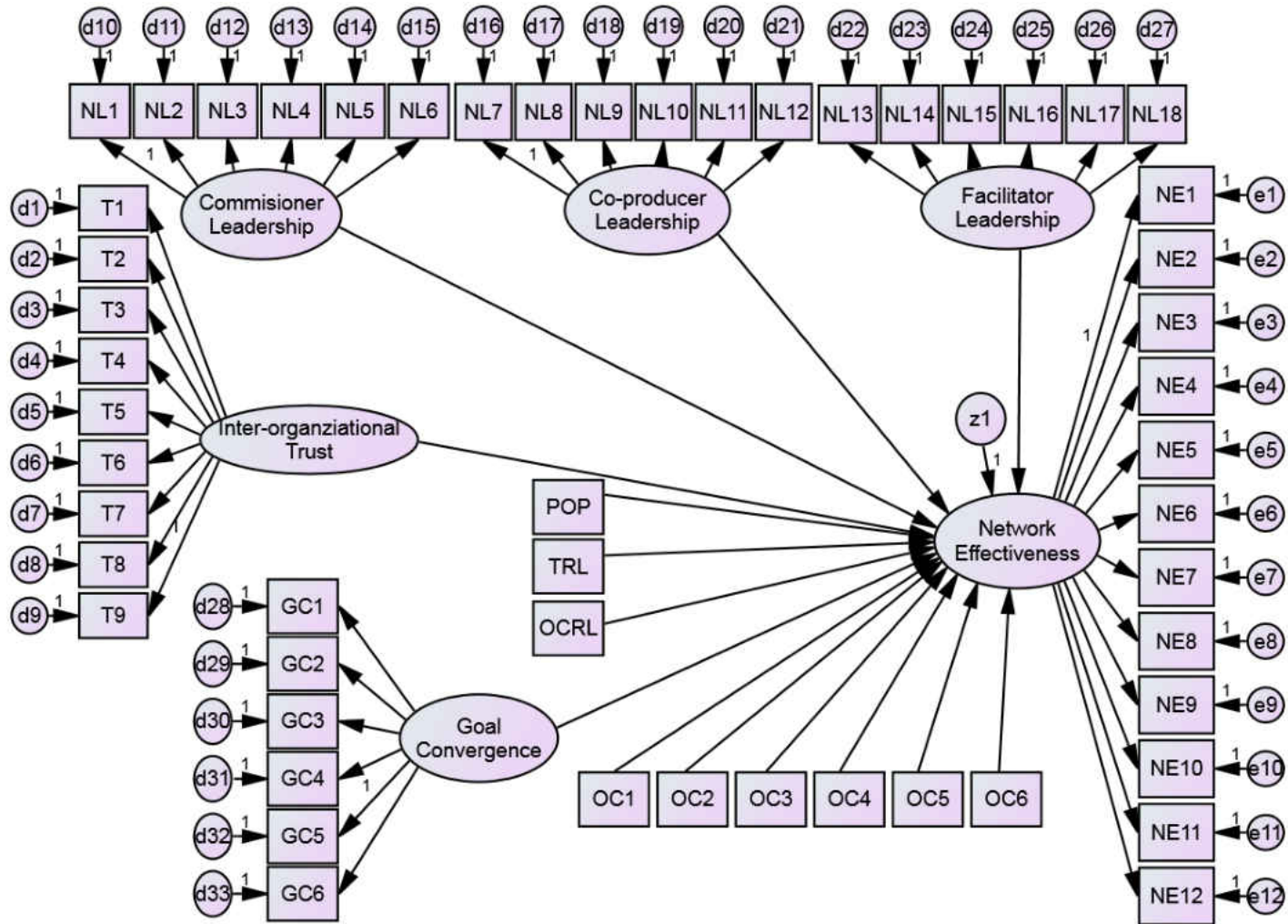


Figure 11. Generic Covariance Structure Model

### **3.8 Model Validation**

This study uses various criteria to reach a valid model for the hypotheses. These criteria are reliability threshold, multicollinearity threshold, statistical significance level, criteria for factor loadings, and goodness of fit statistics.

Reliability of measures, which is related to internal consistency and reproducibility, is an important criterion for a good research. In order to evaluate internal consistency, Cronbach's alpha score was used. George and Mallery (2006) suggest that an excellent study must have alpha coefficient above .90, while above .80 is good and above .70 is acceptable. Kline (2005) discusses that an alpha coefficient above .70 is satisfactory for the internal consistency. This study uses .70 as an acceptable threshold for the Cronbach's alpha score of the measures

There are different arguments related to thresholds for multicollinearity. Kline (2005) suggests that below .90 is an acceptable threshold for the multicollinearity while Garson (2012) argues that multicollinearity is a problem when correlation is higher than .85, and Meyers, Gamst and Guarino (2006) accept a stricter threshold of .70. This study uses .85 for the multicollinearity threshold.

In order to check the fitness of indicators in CFA, the critical ratio of factor loadings are examined. If factor loading of an indicator is higher than +1.96 or lower than -1.96, it can be regarded as statistically significant at the .05 confidence level (Byrne, 2006). Then, insignificant indicators are excluded from the model.

Another criterion is the threshold for factor loadings in confirmatory factor analysis (Hoe, 2008). The literature argues different standardized regression weights for this criterion. Chin (1998) suggests that standardized regression weight of .30 is adequate to consider a meaningful indicator for a latent construct. Hair et al. (1998) argues that very important indicators should have greater than .50 factor loading, above .40 indicates important indicators and .30 is an acceptable threshold. This study uses .40 as the threshold for factor loadings; therefore indicators having standardized weights lower than .40 are removed from the measurement models.

In order to validate measurement models, goodness of fit statistics (which can be obtained through AMOS software) are used. Goodness of fit statistics describes whether the measurement models represent the observed values in the data set. There are various tests to evaluate consistency of the obtained data with a measurement model and there is not a consensus in literature about which goodness of fit statistics should be utilized (Schermele-Engel et al. 2003; Garson 2012).

Kline (1998) suggests chi-square, Standardized Root Mean Square Residual (SRMR), Tucker-Lewis index (TLI), and one of the following fit index: Normed Fit Index (NFI) or Comparative Fit Index (CFI). Garson (2012) offers three goodness of fit statistics that are chi-square, Root Mean Square Error of Approximation (RMSEA), and one of the following criteria: NFI, Relative Fit Index (RFI), Incremental Fit Index (IFI), Tucker-Lewis index (TLI) and Comparative Fit Index (CFI). Garver and Mentzer (1999) suggest Tucker-Lewis index (TLI), Comparative Fit Index (CFI), and Root Mean Square Error of Approximation (RMSEA).

Goodness of Fit Index (GFI), and Adjusted Goodness of Fit Index (AGFI) are no longer considered to evaluate model fit, because they are not suitable for complicated models with smaller sample size (Hu & Bentler, 1999; Garson, 2012). In addition to these indexes, Hoelter's Index is used to assess the sufficiency of the sample size for the model fit (Wan, 2002; Garson, 2012)

This study uses chi square, chi-square / degree of freedom, Tucker Lewis Index, Comparative Fit Index (CFA), Root Mean Square Error of Approximation (RMSEA) and Hoelter's Critical N value to evaluate model fit. Table 2 indicates the expected values of goodness of statistics to consider that the model fits reasonably well.

If an acceptable goodness of fit statistics results cannot be achieved, some revisions would be necessary to find a better fitting model. In order to improve the model by decreasing chi square value, modification index should be examined. Modification indices are utilized to add correlation paths among measurement errors of indicators that provide better improvement in the measurement model. Similar to confirmatory factor analysis, overall goodness of fit of covariance structure model is analyzed through goodness of fit statistics.

Table 2 *Goodness of Fit Statistics Thresholds. Adapted from Kula (2011).*

Fit Index	Shorthand	Criteria	Source
Chi-Square	$\chi^2$	Smaller the better	Schermelleh-Engel et al. (2003); Wan (2002); Garson (2012); Kline (2005)
Chi-square / Degree of Freedom	$\chi^2/df$	for moderate <.05 for conservative <.03 for more conservative <.02	Ullman (2001); Kline (1998); Wan (2002); Kline (2005)
Tucker Lewis Index	TLI	.90 ≤ value < .95; acceptable ≥ .95 ; good	Hoe (2003); Hu & Bentler (1999); Schumacker & Lomax (2004)
Root Mean Square Error of Approximation	RMSEA	05 < value ≤ .08; acceptable ≤ .05; good	Browne & Cudeck (1993); Wan (2002); Schumacker & Lomax (2004); Garson (2012); Schermelleh-Engel et al. (2003)
Comparative Fit Index	CFI	90 ≤ value < .95; acceptable ≥ .95 ; good	Hu & Bentler (1999); Schreiber et al. (2006)
Hoelter's Critical N	Hoelter Index	75 ≤ value < 200; acceptable ≥ 200 ; good	Wan (2002); Garson (2012)

## **CHAPTER 4- FINDINGS**

This chapter introduces the data analysis of the study. The data analysis methods include descriptive analysis of each study variable; correlation analysis of the latent constructs to detect relationships between indicators of latent variables and multicollinearity; confirmatory factor analysis of measurement models to validate measurement models of each latent variable; reliability analysis to evaluate the internal consistency of the measurement before and after the revision of measurement models; and covariance structure analysis to test study hypotheses.

### **4.1 Descriptive Statistics**

The email with the survey link was sent to 2,095 province governors, district governors, deputy province governors, administrative senior inspectors, and the Interior Ministry high and middle level bureaucrats. In total, 335 people responded to the survey, but thirty respondents did not answer more than 50% of the survey questions. These responses are removed from the dataset. The final data set for the statistical analysis comprised of 305 responses. As mentioned in the previous section, this is an adequate sample size for analysis.

The frequency distribution of respondents in terms of their professional positions indicates that % 44 of respondents are district governors. Administrative senior inspectors represent 25 % of respondents and deputy province governors constitute 14 % of total respondents. 12 % of respondents are Interior Ministry high or middle level bureaucrats and 5% of respondents are candidate district governors. The province governors represent only 1 % of total responses.



Some respondents replied to the majority of the survey questions but had some answers missing. Their missing responses were imputed by obtaining maximum likelihood estimators which is named as Expectation-Maximization in SPSS (Statistic Pack for Social science). This section presents descriptive analyses of endogenous latent variable, exogenous variables and control variables.

#### **4.1.1 Endogenous Variable (Network Effectiveness)**

The only endogenous variable of the study is network effectiveness. Network effectiveness was measured by a five-point Likert response scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree). The survey used twelve items to measure the level of network effectiveness in a province public security network. These items indicate different attributes of network effectiveness. Respondents were asked to evaluate statements related to: periodical contacts, developing long-term relationship, exchanging information, ability of collecting and using information against terrorist and criminal activities, joint operations, success in preventing terrorist attacks and organized crime activities, success in solving terror and organized crime cases, and success in capturing or eliminating the terrorists and members of organized crime gangs.

Indicators of network effectiveness have a relatively diverse distribution of responses. Agreement responses exceed disagreement responses for 10 indicators, and vice versa for other two indicators. For the last 7 items, neither agree nor disagree responses had the highest share. Table 3 summarizes the answers of the indicators of network effectiveness in the form of frequency distributions. Missing values were not replaced to illustrate the raw format of the

dataset. The items have around 6% missing values. The categories were provided in ascending order from highest to lowest.

Table 3 *Frequency Distribution of Items for Network Effectiveness*

		Frequency	Percent	Valid Percent	Cumulative Percent
The organizations in the network periodically contact each other to discuss issues pertaining to public security (NE1)	Valid	Agree	182	59.7	63.4
		Neither Disagree or Agree	48	15.7	16.7
		Disagree	32	10.5	11.1
		Strongly Agree	20	6.6	7.0
		Strongly Disagree	5	1.6	1.7
		Total	287	94.1	100.0
	Missing	18	5.9		
	Total	305	100.0		
The organizations constantly develop long-term relationships among each other. (NE2)	Valid	Disagree	169	55.4	58.7
		Neither Disagree or Agree	66	21.6	22.9
		Strongly Disagree	26	8.5	9.0
		Agree	26	8.5	9.0
		Strongly Agree	1	.3	.3
		Total	288	94.4	100.0
	Missing	17	5.6		
	Total	305	100.0		
The organizations in the network constantly exchange	Valid	Disagree	99	32.5	34.4
		Neither Disagree or Agree	99	32.5	34.4

		Frequency	Percent	Valid Percent	Cumulative Percent
information (NE3)	Agree	72	23.6	25.0	93.8
	Strongly Disagree	13	4.3	4.5	98.3
	Strongly Agree	5	1.6	1.7	100.0
	Total	288	94.4	100.0	
	Missing	17	5.6		
Total		305	100.0		
The public security network provides participant organizations to improve the ability of collecting information against terrorist and criminal activities (NE4)	Valid				
	Agree	149	48.9	51.7	51.7
	Neither Disagree or Agree	84	27.5	29.2	80.9
	Disagree	28	9.2	9.7	90.6
	Strongly Agree	22	7.2	7.6	98.3
	Strongly Disagree	5	1.6	1.7	100.0
Total		288	94.4	100.0	
Missing		17	5.6		
Total		305	100.0		
The public security network provides participant organizations to improve the ability of using information against terrorist and criminal activities (NE5)	Valid				
	Agree	165	54.1	57.7	57.7
	Neither Disagree or Agree	71	23.3	24.8	82.5
	Disagree	27	8.9	9.4	92.0
	Strongly Agree	20	6.6	7.0	99.0
	Strongly Disagree	3	1.0	1.0	100.0
Total		286	93.8	100.0	
Missing		19	6.2		
Total		305	100.0		

			Frequency	Percent	Valid Percent	Cumulative Percent
The public security network is successful in carrying out joint operations (NE6)	Valid	Neither Disagree or Agree	111	36.4	38.5	38.5
		Agree	90	29.5	31.3	69.8
		Disagree	69	22.6	24.0	93.8
		Strongly Disagree	9	3.0	3.1	96.9
		Strongly Agree	9	3.0	3.1	100.0
		Total	288	94.4	100.0	
		Missing	17	5.6		
	Total	305	100.0			
The public security network is successful in preventing terrorist attacks (NE7)	Valid	Neither Disagree or Agree	119	39.0	41.6	41.6
		Agree	90	29.5	31.5	73.1
		Disagree	64	21.0	22.4	95.5
		Strongly Disagree	8	2.6	2.8	98.3
		Strongly Agree	5	1.6	1.7	100.0
		Total	286	93.8	100.0	
		Missing	19	6.2		
	Total	305	100.0			
The public security network is successful in preventing organized crime activities (NE8)	Valid	Neither Disagree or Agree	121	39.7	42.5	42.5
		Agree	95	31.1	33.3	75.8
		Disagree	58	19.0	20.4	96.1
		Strongly Disagree	8	2.6	2.8	98.9
		Strongly Agree	3	1.0	1.1	100.0

		Frequency	Percent	Valid Percent	Cumulative Percent	
Total		285	93.4	100.0		
Missing		20	6.6			
Total		305	100.0			
The public security network is successful in solving terror cases (NE9)	Valid	Neither Disagree or Agree	127	41.6	44.3	44.3
		Agree	100	32.8	34.8	79.1
		Disagree	51	16.7	17.8	96.9
		Strongly Disagree	7	2.3	2.4	99.3
		Strongly Agree	2	.7	.7	100.0
		Total	287	94.1	100.0	
Missing		18	5.9			
Total		305	100.0			
The public security network is successful in solving organized crime cases (NE10)	Valid	Neither Disagree or Agree	113	37.0	40.1	40.1
		Agree	109	35.7	38.7	78.7
		Disagree	52	17.0	18.4	97.2
		Strongly Disagree	6	2.0	2.1	99.3
		Strongly Agree	2	.7	.7	100.0
		Total	282	92.5	100.0	
Missing		23	7.5			
Total		305	100.0			
The public security network is successful	Valid	Neither Disagree or Agree	123	40.3	43.2	43.2
		Agree	89	29.2	31.2	74.4

		Frequency	Percent	Valid Percent	Cumulative Percent	
in capturing or eliminating the terrorists (NE11)	Disagree	64	21.0	22.5	96.8	
	Strongly Disagree	6	2.0	2.1	98.9	
	Strongly Agree	3	1.0	1.1	100.0	
	Total	285	93.4	100.0		
	Missing	20	6.6			
Total		305	100.0			
The public security network is successful in capturing or eliminating members of organized crime gangs (NE12)	Valid	Neither Disagree or Agree	119	39.0	41.6	41.6
		Agree	98	32.1	34.3	75.9
		Disagree	59	19.3	20.6	96.5
		Strongly Disagree	7	2.3	2.4	99.0
		Strongly Agree	3	1.0	1.0	100.0
		Total	286	93.8	100.0	
Missing		19	6.2			
Total		305	100.0			

The first indicator is about periodical contacts among network members to discuss public security issues. Seven out of ten respondents either agreed (63.4%) or strongly agreed (7.0%) with the statements. While the number of respondents who did not support the statement was 37 (12.7%), 48 respondents (16.7 %) specified that they were not sure about this indicator. The second indicator asked respondents whether “the organizations constantly develop long-term relationships among each other”. A majority of respondents reported disagreement (disagree, 58.7%; strongly disagree, 9.0%) with the statement. Only 27 (9.0%) people supported, whereas

66 respondents (22.9) were not sure. The third indicator is designed to evaluate the constant exchange of information among member organizations. Almost 4 out of 10 respondents (38.9%) did not agree with the statement, while around a quarter of the respondents support the indicator. 34.4 % of the respondents neither agreed nor disagreed with the constant exchange of information.

The following two indicators were designed to evaluate whether the network provides member organizations to improve the ability of collecting and using information against terrorist and criminal activities. For both indicators, respondents mostly supported (59.3 % and 64.7% respectively) the statements. Again for both questions, almost equal numbers of the respondents stated that the network does not provide organizations to improve their information collecting capacity (11.3%), information using capacity (10.4%). The sixth indicator asked respondents whether the public security network is successful in carrying out joint operations. While 36.3% of respondents found the network successful, 27.1% of the respondents stated that it is not successful in joint operations. Almost four out of ten respondents (38.5%) are not sure about this indicator. The next two indicators ask respondents whether the public security network is successful in preventing terrorist attacks and organized crime activities. Both questions had similar results. 33.2% of the respondents either agreed or strongly agreed that the network is successful in preventing terrorist attacks and 34.4% of them accepted the network is successful in preventing organized crime activities. The percentage of respondents who do not find the network successful in preventing terrorist attack was 25.2%, while disagreement responses accounted for 23.2% in preventing organized crime activities. An almost equal percentage of

respondents (41.6% and 42.5% respectively) in both questions neither agreed nor disagreed with the statement.

The tenth and eleventh indicators aim to measure the success of the network in solving terror and organized crime cases. 102 respondents (35.2%) found their network successful in solving terror case and 111 respondents (39.4%) found their network successful in solving organized crime cases. The same numbers of respondents (58) in both questions did not support the statements. The last two questions in this section were designed to evaluate the success of the network in capturing or eliminating the terrorists and members of organized crime groups. 92 respondents either agreed (31.2%) or strongly agreed (1.1%) while 70 respondents either disagreed (22.5%) or strongly disagreed (2.1%) with the statement related to capturing or eliminating the terrorists. The statement related to capturing or eliminating members of organized crime groups was either agreed (34.3%) or strongly agreed (1%) by 92 respondents, whereas 66 respondents either disagreed (20.6%) or strongly disagreed (2.4%). More than four out of ten respondents were not sure about the indicators in the last four questions (44.3%, 40.1%, 43.2 and 41.6 respectively).

#### **4.1.2 Exogenous Variables**

The study analyzed the effects of inter-organizational trust, three network leadership styles (commissioner, co-producer, and facilitator), goal convergence, and 6 unique characteristics of security agencies' organizational culture on network effectiveness. Since each of these characteristics of organizational culture was measured by one separate question in the survey, organizational culture is not a latent variable. Therefore, there are 5 latent and 6



observable exogenous variables. Indicators of each of the five latent constructs and 6 observable variables' frequency analysis were conducted separately to understand the general characteristics of the dataset and evaluate the general picture. All of the exogenous variables were measured by a five-point Likert response scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree). Respondents were asked to identify a province public security network that they had an opportunity to observe closely, and rate each of the statements in regard to this province's public security network.

#### 4.1.2.1 Inter-organizational Trust

The survey used nine items to measure the level of trust among member agencies in a province public security network. These nine items indicate different attributes of inter-organizational trust. Respondents were asked to evaluate the level of open communication among member agencies, perception about reliability, honesty, mutual understanding, mutual acceptance, perceptions about keeping commitment in the collaborative process, perceptions about other actors' capability, mutual respect among members, and sense of fairness in the selected province security network. Indicators of inter-organizational trust have the most diverse distribution of responses in the entire survey. The results indicate a relatively variant distribution compared to the other latent constructs. Table 4 summarizes answers of the indicators of inter-organizational trust in the form of frequency distributions. Missing values were not replaced to illustrate the raw format of the dataset. The items have around 1% missing values. The categories were provided in ascending order from highest to lowest.

Table 4 *Frequency Distribution of Items for Inter-organizational Trust*

Indicator		Frequency	Percent	Valid Percent	Cumulative Percent	
Organizations involving the province public security network have an open communication (T1)	Valid	Disagree	108	35.4	35.5	35.5
		Neither Disagree or Agree	91	29.8	29.9	65.5
		Agree	78	25.6	25.7	91.1
		Strongly Disagree	22	7.2	7.2	98.4
		Strongly Agree	5	1.6	1.6	100.0
		Total	304	99.7	100.0	
	Missing	1	.3			
	Total	305	100.0			
Organizations in this public security network are reliable partners (T2)	Valid	Agree	116	38.0	38.2	38.2
		Neither Disagree or Agree	99	32.5	32.6	70.7
		Disagree	72	23.6	23.7	94.4
		Strongly Disagree	10	3.3	3.3	97.7
		Strongly Agree	7	2.3	2.3	100.0
		Total	304	99.7	100.0	
	Missing	1	.3			
	Total	305	100.0			
Honesty is the basis of inter-organizational collaboration in the public security network (T3)	Valid	Neither Disagree or Agree	109	35.7	36.1	36.1
		Agree	92	30.2	30.5	66.6
		Disagree	68	22.3	22.5	89.1
		Strongly Agree	17	5.6	5.6	94.7
		Strongly Disagree	16	5.2	5.3	100.0

Indicator			Frequency	Percent	Valid Percent	Cumulative Percent
		Total	302	99.0	100.0	
		Missing	3	1.0		
		Total	305	100.0		
Inter-organizational relations in the network are characterized by mutual understanding (T4)	Valid	Neither Disagree or Agree	105	34.4	34.7	34.7
		Agree	92	30.2	30.4	65.0
		Disagree	90	29.5	29.7	94.7
		Strongly Disagree	8	2.6	2.6	97.4
		Strongly Agree	8	2.6	2.6	100.0
		Total	303	99.3	100.0	
	Missing		2	.7		
	Total		305	100.0		
Mutual acceptance is the important part of inter-organizational collaboration in the network (T5)	Valid	Agree	146	47.9	48.3	48.3
		Neither Disagree or Agree	63	20.7	20.9	69.2
		Disagree	45	14.8	14.9	84.1
		Strongly Agree	42	13.8	13.9	98.0
		Strongly Disagree	6	2.0	2.0	100.0
		Total	302	99.0	100.0	
	Missing		3	1.0		
	Total		305	100.0		
The organizations in the network keep their	Valid	Neither Disagree or Agree	121	39.7	40.2	40.2
		Agree	115	37.7	38.2	78.4

Indicator		Frequency	Percent	Valid Percent	Cumulative Percent	
commitment (T6)	Disagree	48	15.7	15.9	94.4	
	Strongly Disagree	10	3.3	3.3	97.7	
	Strongly Agree	7	2.3	2.3	100.0	
	Total	301	98.7	100.0		
	Missing	4	1.3			
	Total	305	100.0			
There is a common belief across the network that each actor is capable of contributing to the overall picture (T7)	Valid	Agree	141	46.2	46.8	46.8
		Neither Disagree or Agree	80	26.2	26.6	73.4
		Disagree	63	20.7	20.9	94.4
		Strongly Agree	10	3.3	3.3	97.7
		Strongly Disagree	7	2.3	2.3	100.0
		Total	301	98.7	100.0	
	Missing	4	1.3			
	Total	305	100.0			
Inter-organizational collaboration is characterized by mutual respect in the network (T8)	Valid	Agree	141	46.2	46.5	46.5
		Neither Disagree or Agree	92	30.2	30.4	76.9
		Disagree	57	18.7	18.8	95.7
		Strongly Disagree	7	2.3	2.3	98.0
		Strongly Agree	6	2.0	2.0	100.0
		Total	303	99.3	100.0	
	Missing	2	.7			
	Total	305	100.0			

Indicator		Frequency	Percent	Valid Percent	Cumulative Percent
The organizations in the network collaborate with a sense of fairness towards each other (T9)	Valid				
	Neither Disagree or Agree	122	40.0	40.7	40.7
	Disagree	98	32.1	32.7	73.3
	Agree	64	21.0	21.3	94.7
	Strongly Disagree	14	4.6	4.7	99.3
	Strongly Agree	2	.7	.7	100.0
	Total	300	98.4	100.0	
	Missing	5	1.6		
	Total	305	100.0		

The first indicator of inter-organizational trust is related to open communication. Most of the respondents stated that they either disagree (35.5%) or strongly disagree (7.2%) that organizations in their security network have an open communication. Open communication was either agreed or strongly agreed with by 83 respondents, with a cumulative percentage of 27.2%. Ninety-one respondents (29.8%) neither disagree nor agree about this indicator. The second indicator asked the reliability of partner agencies. Reliability was either agreed or strongly agreed with by 123 respondents. Thus, 40.3% of the cumulative percentage of the respondents either agreed or strongly agreed with the indicator. 99 respondents (32.5%) were not sure about this indicator, while 82 respondents either disagree (23.6) or strongly disagree (3.3) about the reliability of partners. A great number of respondents (35.7%) were not sure that honesty is the basis of the collaboration in the network. Honesty was either agreed (30.2%) or strongly agreed

(5.6%) with by 109 respondents, with a cumulative percentage of 35.8%. 84 respondents either disagreed (22.3%) or strongly disagreed (5.2%) with the statement.

The fourth question reflected the mutual understanding in the network. 100 respondents either agreed (30.2%) or strongly agreed (2.6%) with the statement. An almost equal number of respondents stated that they either disagree (29.55) or strongly disagree (2.6%) with the statement in this is question. 34.4% of respondents neither disagree nor agree with the statement of the fourth indicator. The following indicator addressed mutual acceptance in the network. The majority of the respondents agreed (47.9%) or strongly agreed (13.8%) with the statement. While 20.7% of the respondents were not sure, only 16.8% disagree or strongly disagree with the indicator. The sixth indicator was designed to evaluate organizations' keeping commitment to the network. Most of the respondents (39.7%) were not sure or clear about the item. The cumulative percentage of the respondents who either reported agreement or strong agreement was 40%, while only 19% of the respondents either disagreed (15.7%) or strongly disagreed (3.3%) with the statement.

The following indicator is designed to evaluate the actors' capability in the network. Respondents mostly stated that they either agree (46.2%) or strongly agree (3.3 %) with the statement that there is a common belief across the network about each actors' capability of contributing to the overall picture. Only 23% of the respondents did not support the statement. The remaining 80 respondents (26.2 %) were not sure about the indicator. The next indicator is about mutual respect in the network. Frequency distribution of answers to mutual respect indicator is on similar lines with the previous indicator. While 48.2% of the respondents reported

agreement (46.2%) or strong agreement (2.0%), 20.7% did not support the statement. The last indicator addressed sense of fairness. The great number of respondents neither disagreed nor agreed (40.0%) with the statement. Respondents who either disagreed (32.1%) or strongly disagreed (4.6%) account for 36.7% of total responses. Only 68 people responded that they agree (21.0%) or strongly agree (0.7%) with the statement.

#### 4.1.2.2 Network Leadership Styles

Three types of leadership styles, which are commissioner, co-producer, and facilitator leadership styles, represent the network leadership in this study. The survey used 18 items to evaluate the existing situation with regards to the leadership styles. For each three leadership styles six items were used. These six items indicate different attributes leadership styles. Respondents were asked to evaluate; who formulates network goals and visions; what is the role of the governor in the network; who steers the network activities; who makes the decisions; and who takes responsibility from the network activities.

##### 4.1.2.2.1 Commissioner Style of Leadership

A great majority of the respondents did not support the statements related to the commissioner leadership style. More than half of the respondents disagreed or strongly disagreed with all of the statements of this latent construct. Table 5 summarizes answers of the indicators of commissioner style of leadership in the form of frequency distributions. Missing values were not replaced to illustrate the raw format of the dataset. Most of the indicators have less than 1% missing values. The categories were provided in ascending order from highest to lowest.

Table 5 *Frequency Distribution of Items for Commissioner Style of Leadership*

			Frequency	Percent	Valid Percent	Cumulative Percent
Network goals are formulated solely by the governor in the network. (NL1)	Valid	Disagree	151	49.5	49.7	49.7
		Agree	52	17.0	17.1	66.8
		Neither Disagree or Agree	49	16.1	16.1	82.9
		Strongly Disagree	44	14.4	14.5	97.4
		Strongly Agree	8	2.6	2.6	100.0
		Total	304	99.7	100.0	
	Missing		1	.3		
	Total		305	100.0		
Network vision is formulated solely by the governor in the network. (NL2)	Valid	Disagree	153	50.2	50.2	50.2
		Neither Disagree or Agree	64	21.0	21.0	71.1
		Strongly Disagree	45	14.8	14.8	85.9
		Agree	37	12.1	12.1	98.0
		Strongly Agree	6	2.0	2.0	100.0
		Total	305	100.0	100.0	
	Missing		1	.3		
	Total		305	100.0		
The governor acts as an executor (NL3)	Valid	Disagree	134	43.9	44.1	44.1
		Neither Disagree or Agree	74	24.3	24.3	68.4
		Agree	65	21.3	21.4	89.8
		Strongly Disagree	28	9.2	9.2	99.0



		Frequency	Percent	Valid Percent	Cumulative Percent
	Strongly Agree	3	1.0	1.0	100.0
	Total	304	99.7	100.0	
	Missing	1	.3		
	Total	305	100.0		
Network activities are steered by the governor (NL4)	Valid Disagree	141	46.2	46.5	46.5
	Neither Disagree or Agree	87	28.5	28.7	75.2
	Agree	44	14.4	14.5	89.8
	Strongly Disagree	28	9.2	9.2	99.0
	Strongly Agree	3	1.0	1.0	100.0
	Total	303	99.3	100.0	
	Missing	2	.7		
Total	305	100.0			
Decisions in the network are made solely by the governor (NL5)	Valid Disagree	155	50.8	51.2	51.2
	Neither Disagree or Agree	72	23.6	23.8	74.9
	Strongly Disagree	55	18.0	18.2	93.1
	Agree	20	6.6	6.6	99.7
	Strongly Agree	1	.3	.3	100.0
	Total	303	99.3	100.0	
	Missing	2	.7		
Total	305	100.0			
Valid	Disagree	123	40.3	40.7	40.7

		Frequency	Percent	Valid Percent	Cumulative Percent
The governor takes full responsibility for the public security network activities (NL6)	Neither Disagree or Agree	71	23.3	23.5	64.2
	Agree	67	22.0	22.2	86.4
	Strongly Disagree	36	11.8	11.9	98.3
	Strongly Agree	5	1.6	1.7	100.0
	Total	302	99.0	100.0	
	Missing	3	1.0		
	Total	305	100.0		

The first two items asked to evaluate the statement that network goals and vision are formulated solely by the governor in the network. Of the total 305 respondents, 195 respondents reported disagreement (49.5%) or strong disagreement (14.4%) with the first statement, for a cumulative percentage of 63.9 %. Only 19.6% of the respondents agreed or disagreed with the first statement. Similarly, 65% of the respondents either disagreed (50.2%) or strongly disagreed (14.4%) for the second statement which was related to the vision of the network. Only 43 respondents (16.9%) reported agreement or strong agreement about the fact that network vision is formulated solely by the governor. The third item asked to evaluate the statement that “network activities are steered by the governor.” While 198 respondents either disagreed (43.9%) or strongly disagreed (14.8%), only 68 respondents (22.3%) supported the statement. Almost a quarter of respondents (24.3%) neither agreed nor disagreed with this statement.

The fourth item asked to assess the sentences that “network activities are steered by the governor.” The total number of people who either agreed (14.4%) or strongly agreed (1.0%) with the fourth item was 47. On the other hand, the total number of respondents who either disagreed (46.2%) or strongly disagreed (9.2%) with the statement is 196 at the cumulative percentage of 55.4%. 87 people (28.8%) stated that they neither agree nor disagree, and 210 respondents out of 303 either disagreed (50.8%) or strongly disagreed (18%) with the statement that “decisions in the network are made solely by the governor”, whereas only 6.9% reported agreement. 72 respondents neither disagreed nor agreed (23.6%) with the indicator. According to the results of the sixth indicator, 52.1% of respondents did not think that the governor takes full responsibility for network activities. Instead, 23.6 % of the responses either agree strongly agree with the statement. 23.3% of the responses account for neither agree nor disagree choice.

#### 4.1.2.2.2 Co-producer Style of Leadership

The responses to the statements in the survey related to the co-producer leadership style presents a relatively variant distribution compared to commissioner leadership style. However, most answers to the indicators accumulate in disagree responses. Except the fourth item (NL10), the numbers of disagreements are more than agreements responses. Table 6 summarizes answers of the indicators of co-producer style of leadership in the form of frequency distributions. Most of the indicators have less than 1% missing values. They were not replaced to illustrate the raw format of the dataset. The categories were provided in ascending order from highest to lowest.

Table 6 *Frequency Distribution of Items for Co-producer Style of Leadership*

		Frequency	Percent	Valid Percent	Cumulative Percent	
Goals are Formulated by all partners jointly (NL7)	Valid	Disagree	115	37.7	38.0	38.0
		Neither Disagree or Agree	85	27.9	28.1	66.0
		Agree	74	24.3	24.4	90.4
		Strongly Disagree	26	8.5	8.6	99.0
		Strongly Agree	3	1.0	1.0	100.0
		Total	303	99.3	100.0	
		Missing	2	.7		
	Total	305	100.0			
Network vision is formulated by all partners jointly (NL8)	Valid	Disagree	112	36.7	37.3	37.3
		Neither Disagree or Agree	96	31.5	32.0	69.3
		Agree	66	21.6	22.0	91.3
		Strongly Disagree	24	7.9	8.0	99.3
		Strongly Agree	2	.7	.7	100.0
		Total	300	98.4	100.0	
		Missing	5	1.6		
	Total	305	100.0			
The Governor acts as a partner in the network instead of a hierarchical superior (NL9)	Valid	Disagree	131	43.0	43.2	43.2
		Agree	75	24.6	24.8	68.0
		Neither Disagree or Agree	66	21.6	21.8	89.8
		Strongly Disagree	25	8.2	8.3	98.0
		Strongly Agree	6	2.0	2.0	100.0

			Frequency	Percent	Valid Percent	Cumulative Percent
Total			303	99.3	100.0	
Missing			2	.7		
Total			305	100.0		
Network activities are steered jointly (NL10)	Valid	Agree	111	36.4	36.6	36.6
		Disagree	88	28.9	29.0	65.7
		Neither Disagree or Agree	86	28.2	28.4	94.1
		Strongly Disagree	15	4.9	5.0	99.0
		Strongly Agree	3	1.0	1.0	100.0
		Total	303	99.3	100.0	
		Missing	2	.7		
Total			305	100.0		
Decisions in the network are made by all partners jointly (NL11)	Valid	Disagree	111	36.4	36.8	36.8
		Neither Disagree or Agree	92	30.2	30.5	67.2
		Agree	78	25.6	25.8	93.0
		Strongly Disagree	20	6.6	6.6	99.7
		Strongly Agree	1	.3	.3	100.0
		Total	302	99.0	100.0	
	Missing	3	1.0			
Total			305	100.0		
All partners are jointly responsible from network activities (NL12)	Valid	Disagree	130	42.6	42.9	42.9
		Agree	79	25.9	26.1	69.0
		Neither Disagree or Agree	68	22.3	22.4	91.4

	Frequency	Percent	Valid Percent	Cumulative Percent
Strongly Disagree	22	7.2	7.3	98.7
Strongly Agree	4	1.3	1.3	100.0
Total	303	99.3	100.0	
Missing	2	.7		
Total	305	100.0		

A majority of the respondents did not support that network goals and vision are formulated by all partners jointly. The number of respondents who either disagreed (38 %) or strongly disagreed (8.6 %) with the first statement is 141 out of 303. The numbers of people who think the goals are formulated by all partners jointly are 77 (Agree, 24.4%; Strongly Agree, 1.0%). 85 respondents (28.1 %) indicated that they were not sure or clear about this indicator. The cumulative percentage of those who either disagreed or strongly agreed that network vision is formulated by all partners jointly is 45.3 (37.3 % and 8.0% respectively). 96 respondents (32%) neither disagreed nor agreed with the indicator, while the number of people who supported was 68 (22.7%). For the third indicator respondents were asked to evaluate to the statement that ‘the governor acts as a partner in the network instead of a hierarchical superior.’ 131 respondents disagreed (43.2) and 25 respondents strongly disagreed (8.2%). The cumulative percentage of those who reported agreement for this item is 26.8%. Around one fifth of the respondents (21.6%) were not sure about this statement.

The fourth indicator is the only item that the agreement responses exceed the disagreement responses in co-producer style of leadership indicators. This item asks respondents

to evaluate the statement that “network activities are steered jointly.” For this statement, 114 respondents either agreed or strongly agreed, constituting a cumulative percentage of 37.6%, and 34.0% percent of the respondents indicated disagreement with this item. The number of people who were not sure or clear about this item is 86 (28.4 %). The last statement in this latent construct was related to joint decisions and joint responsibilities. While the statement related to joint decisions was either disagreed (36.4) or strongly disagreed (6.6%) with by 131 people, for a cumulative percentage of 43.4%, the cumulative number of people who either disagreed (42.9%) or strongly disagreed (7.3%) with the statement is 152. The number of people who either agreed or strongly agreed with the joint decisions statement is 80 (26.1%), and the number of people who supported the joint responsibility statement is 83 (27.4%).

#### 4.1.2.2.3 Facilitator Style of Leadership

Overall responses to the indicators of facilitator style of leadership accumulate within strongly agree and agree responses. The results clearly indicate that that facilitator leadership style is the most common leadership style in Turkish province public security networks, compared to commissioner and co-producer leadership styles. Table 7 summarizes answers of the indicators of facilitator style of leadership in the form of frequency distributions. Similar to previous constructs, the indicators have a very low number of missing values. The categories were provided in ascending order from highest to lowest.

Table 7 *Frequency Distribution of Items for Facilitator Style of Leadership*

		Frequency	Percent	Valid Percent	Cumulative Percent	
Each organization is formulating their own goals separately (NL13)	Valid	Agree	155	50.8	51.5	51.5
		Disagree	62	20.3	20.6	72.1
		Neither Disagree or Agree	52	17.0	17.3	89.4
		Strongly Agree	26	8.5	8.6	98.0
		Strongly Disagree	6	2.0	2.0	100.0
		Total	301	98.7	100.0	
		Missing	4	1.3		
	Total	305	100.0			
Each organization is formulating their own visions separately in the network. (NL14)	Valid	Agree	172	56.4	56.6	56.6
		Neither Disagree or Agree	54	17.7	17.8	74.3
		Disagree	51	16.7	16.8	91.1
		Strongly Agree	24	7.9	7.9	99.0
		Strongly Disagree	3	1.0	1.0	100.0
		Total	304	99.7	100.0	
		Missing	1	.3		
	Total	305	100.0			
The governor acts as an initiator to facilitate the collaboration (NL15)	Valid	Agree	209	68.5	69.0	69.0
		Neither Disagree or Agree	48	15.7	15.8	84.8
		Disagree	28	9.2	9.2	94.1
		Strongly Agree	18	5.9	5.9	100.0
		Total	303	99.3	100.0	



			Frequency	Percent	Valid Percent	Cumulative Percent
Missing			2	.7		
Total			305	100.0		
Network activities are steered by each organization (NL16)	Valid	Agree	182	59.7	60.5	60.5
		Disagree	54	17.7	17.9	78.4
		Neither Disagree or Agree	50	16.4	16.6	95.0
		Strongly Agree	14	4.6	4.7	99.7
		Strongly Disagree	1	.3	.3	100.0
		Total	301	98.7	100.0	
Missing			4	1.3		
Total			305	100.0		
Decisions in the network are made by each organization (NL17)	Valid	Agree	131	43.0	43.5	43.5
		Disagree	84	27.5	27.9	71.4
		Neither Disagree or Agree	78	25.6	25.9	97.3
		Strongly Agree	6	2.0	2.0	99.3
		Strongly Disagree	2	.7	.7	100.0
		Total	301	98.7	100.0	
Missing			4	1.3		
Total			305	100.0		
Each partner is responsible for their own activities (NL18)	Valid	Agree	224	73.4	74.2	74.2
		Neither Disagree or Agree	40	13.1	13.2	87.4
		Disagree	22	7.2	7.3	94.7

	Frequency	Percent	Valid Percent	Cumulative Percent
Strongly Agree	13	4.3	4.3	99.0
Strongly Disagree	3	1.0	1.0	100.0
Total	302	99.0	100.0	
Missing	3	1.0		
Total	305	100.0		

Slightly more than half of the respondents (51.5%) agreed and 8.5% strongly agreed with the first statement of “each organization is formulating their own goals separately in the network.” While 22.6 percent did not support, a total of 17.3% have stated that they are not sure about this statement. The second item evaluates the statement of “each organization is formulating their own visions separately in the network.” Of the total 304 respondents, 196 (64.5 %) agreed or agreed strongly and only 54 respondents (17.8 %) either disagreed or strongly disagreed with this statement. 17.7% share belongs to respondents that neither agreed nor disagreed with the item. More than seven out of ten respondents stated that they either agreed (69.0%) or strongly agreed (5.9%) with the statement that the governor acts as an initiator to facilitate the collaboration. There are only 28 respondents (9.2 %) who reported disagreement and 48 respondents who were not sure about the statement.

For the fourth indicator, which is “network activities are steered by each organization,” 196 respondents either agreed or strongly agreed with a cumulative percentage of 65.2. 55 respondents either disagreed or strongly disagreed with this, for a cumulative percentage of 18.2.

The fifth item stating that “decisions in the network are made by each organization” has the lowest percentage of agreement responses in this latent construct (Agree, 43.5%; Strongly Agree, 2.0%). While 28.9% percent of respondents reported disagreement, 25.9 percent of the respondents were not sure or clear about the statement. The last item stating that “each partner is responsible for their own activities” has the highest number (224) and percentage of agreement responses (74.2 %) among all other questions in this construct. The respondents who agreed or strongly agreed with the statement account for 78.5% of total responses while neither agree nor disagree responses have 13.1 % share and disagreement responses have only 5.3% share.

#### 4.1.2.3 Goal Convergence

The survey used six items to measure the level of organizational goal convergence in a province public security network. These six items indicate different attributes of goal convergence. Respondents were asked to evaluate the difference in organizational priorities, organizational goals, expectations and mission, diverging goals, and common points among member organizations in an identified public security network. As opposed to the previous constructs, statements in the goal convergence section of the survey were reversed. Therefore, agreement responses represent goal divergence and disagreement responses represent goal convergence. Overall responses to the statements of organizational goal convergence except the GC4 accumulate within agree and strongly agree choices. The results indicate that respondents think there is a low level of organizational goal convergence in province public security networks. Table 8 summarizes answers of the indicators of organizational goal convergence in the form of frequency distributions. Missing values were not replaced to illustrate the raw

format of the dataset. The items have around 5% missing values. The categories were provided in ascending order from highest to lowest.

Table 8 *Frequency* Distribution of Items for Goal Convergence

		Frequency	Percent	Valid Percent	Cumulative Percent
Organizations in the public security network have different organizational priorities (GC1)	Valid	Agree	191	62.6	66.1
		Strongly Agree	56	18.4	19.4
		Neither Disagree or Agree	25	8.2	8.7
		Disagree	15	4.9	5.2
		Strongly Disagree	2	.7	.7
		Total	289	94.8	100.0
	Missing	16	5.2		
	Total	305	100.0		
Collaboration in the public security is challenging due to a multiplicity of differing organizational backgrounds (GC2)	Valid	Agree	197	64.6	68.4
		Strongly Agree	56	18.4	19.4
		Neither Disagree or Agree	25	8.2	8.7
		Disagree	7	2.3	2.4
		Strongly Disagree	3	1.0	1.0
		Total	288	94.4	100.0
	Missing	17	5.6		
	Total	305	100.0		
There is a gap between organizational goals	Valid	Agree	142	46.6	49.7
		Neither Disagree or Agree	64	21.0	22.4

		Frequency	Percent	Valid Percent	Cumulative Percent
in the network (GC3)	Disagree	52	17.0	18.2	90.2
	Strongly Agree	22	7.2	7.7	97.9
	Strongly Disagree	6	2.0	2.1	100.0
	Total	286	93.8	100.0	
	Missing	19	6.2		
	Total	305	100.0		
Organizations working together have little in common (GC4)	Valid Disagree	136	44.6	46.9	46.9
	Agree	81	26.6	27.9	74.8
	Neither Disagree or Agree	61	20.0	21.0	95.9
	Strongly Agree	7	2.3	2.4	98.3
	Strongly Disagree	5	1.6	1.7	100.0
	Total	290	95.1	100.0	
	Missing	15	4.9		
	Total	305	100.0		
Diverging organizational expectations is the reality of public security networks (GC5)	Valid Agree	188	61.6	65.3	65.3
	Neither Disagree or Agree	51	16.7	17.7	83.0
	Disagree	31	10.2	10.8	93.8
	Strongly Agree	17	5.6	5.9	99.7
	Strongly Disagree	1	.3	.3	100.0
	Total	288	94.4	100.0	
	Missing	17	5.6		
	Total	305	100.0		

		Frequency	Percent	Valid Percent	Cumulative Percent
Organizations are hardly related in terms of their organizational missions (GC6)	Valid Agree	142	46.6	49.3	49.3
	Neither Disagree or Agree	71	23.3	24.7	74.0
	Disagree	64	21.0	22.2	96.2
	Strongly Agree	9	3.0	3.1	99.3
	Strongly Disagree	2	.7	.7	100.0
	Total	288	94.4	100.0	
Missing	17	5.6			
Total	305	100.0			

The first indicator was developed to assess the difference in organizational priorities. A great majority of the respondents (247 out of 289) selected that they either agree (66.1%) or strongly agree (18.4%) that organizations in the network have different organizational priorities. Only seventeen respondents (5.9%) stated that he/she disagrees with the statement, whereas 8.7% of the respondents neither agreed nor disagreed with it . The second item reflected the difference in organizational backgrounds. This indicator has the highest percentage of agreement responses in this latent construct. 253 out of 288 respondents (87.8%) either agreed (68.4%) or strongly agreed (19.4%) with that collaboration is challenging due to a multiplicity of differing organizational backgrounds. Only ten respondents (3.4%) stated that they either disagree or strongly disagree with the statement. The frequency distribution of answers for organizational goals is more diverse than the previous two items. More than half of the respondents either agreed (49.7%) or strongly agreed (7.7 %) with the statement. 58 respondents either disagreed

(18.2%) or strongly disagreed (2.1%) and 64 of them neither agreed nor disagreed (22.4%) with this question.

The fourth statement is the only indicator that reported disagreement reports exceed agreement responses in this latent construct. 141 respondents either disagreed (46.9%) or strongly disagreed (1.7%) that organizations working together have little in common. 88 respondents either agreed (27.9%) or strongly agreed (2.4%) and 61 respondents (21%) were not sure with the statement. The total number of respondents who either agreed (65.3%) or strongly agreed (5.9) with the fifth item that states diverging organizational expectations is the reality of the network was 205. While 51 respondents (17.7%) were not sure about this statement, 32 people responded (11.2%) that they do not agree with the statement. The last indicator of goal convergence asks to evaluate the statement of “organizations are hardly related in terms of their organizational missions.” This statement was either agreed or strongly agreed with by 151 respondents. Thus, 52.4% of the cumulative percentage of the respondents either agreed or strongly agreed with the indicator. 71 respondents (24.7%) were not sure about this indicator, while 66 respondents (22.9) either disagree or strongly disagree with the statement.

#### 4.1.2.4 Organizational Culture

Organizational culture refers to common cultural attributes of public security organizations. The study focused on six unique characteristics of security organizations, which are defensiveness, secrecy, hierarchy, isolation, group loyalty, and competition. Organizational culture is not designed as a latent construct in this study. The survey used a single specific item to measure for each six characteristic of security organizations. Respondents were asked to

evaluate a specific statement for each variable. Thus, variables of organizational culture were designed as observable variables. Similar to organizational goal convergence, statements in organizational culture of the survey were reversed. Therefore, agreement responses represent a problematic situation for collaboration in the network. Overall responses to the statements of organizational culture intensively accumulate within agree and strongly agree choices. The results indicate that respondents think attributes of organizational culture in public security lead to difficulties for collaboration in local public security networks. Table 9 summarizes responses of the statements related to organizational culture in the form of frequency distributions. Missing values were not replaced to illustrate the raw format of the dataset. The items have around 5% missing values. The categories were provided in ascending order from highest to lowest.

Table 9 *Frequency Distribution of Items for Organizational Culture*

		Frequency	Percent	Valid Percent	Cumulative Percent
The organizations involving the public security network do not confront problems without becoming defensive (OC1)	Valid	Agree	168	55.1	58.3
		Neither Disagree or Agree	45	14.8	15.6
		Strongly Agree	44	14.4	15.3
		Disagree	26	8.5	9.0
		Strongly Disagree	5	1.6	1.7
		Total	288	94.4	100.0
	Missing	17	5.6		
	Total	305	100.0		
<u>Collaboration in the</u>	Valid	Agree	174	57.0	60.4



		Frequency	Percent	Valid Percent	Cumulative Percent
public security network is challenging due to organizational secrecy perceptions of the network members (OC2)	Strongly Agree	90	29.5	31.3	91.7
	Disagree	12	3.9	4.2	95.8
	Neither Disagree or Agree	10	3.3	3.5	99.3
	Strongly Disagree	2	.7	.7	100.0
	Total	288	94.4	100.0	
	Missing	17	5.6		
	Total	305	100.0		
Collaboration in the public security network is challenging due to a strict hierarchy in the organizations. (OC3)	Valid Agree	180	59.0	62.9	62.9
	Strongly Agree	64	21.0	22.4	85.3
	Neither Disagree or Agree	21	6.9	7.3	92.7
	Disagree	19	6.2	6.6	99.3
	Strongly Disagree	2	.7	.7	100.0
	Total	286	93.8	100.0	
	Missing	19	6.2		
	Total	305	100.0		
Collaboration in the public security network is challenging due to a sense of isolation among employees of the member organizations (OC4)	Valid Agree	182	59.7	63.2	63.2
	Strongly Agree	55	18.0	19.1	82.3
	Neither Disagree or Agree	40	13.1	13.9	96.2
	Disagree	10	3.3	3.5	99.7
	Strongly Disagree	1	.3	.3	100.0
	Total	288	94.4	100.0	
	Missing	17	5.6		

		Frequency	Percent	Valid Percent	Cumulative Percent
Total		305	100.0		
When an employee of an organization in the network makes a mistake, fellows feel responsibility to protect him/her. (OC5)	Valid				
	Agree	167	54.8	57.8	57.8
	Strongly Agree	53	17.4	18.3	76.1
	Neither Disagree or Agree	45	14.8	15.6	91.7
	Disagree	23	7.5	8.0	99.7
	Strongly Disagree	1	.3	.3	100.0
	Total	289	94.8	100.0	
	Missing	16	5.2		
Total		305	100.0		
Collaboration in the public security is challenging due to competition among organizations (OC6)	Valid				
	Agree	170	55.7	58.6	58.6
	Strongly Agree	63	20.7	21.7	80.3
	Neither Disagree or Agree	36	11.8	12.4	92.8
	Disagree	20	6.6	6.9	99.7
	Strongly Disagree	1	.3	.3	100.0
	Total	290	95.1	100.0	
	Missing	15	4.9		
Total		305	100.0		

The first question in this section is designed to evaluate the characteristics of defensiveness in member organizations in the network. Respondents mostly stated that they either agree (58.3%) or strongly agree (31.3 %) with the statement that organizations involving the network do not confront problems without becoming defensive. Only 31 (10.7%) respondents

did not support the statement. The remaining 45 respondents (15.6 %) were not sure about the item. The next indicator is about organizational secrecy. This statement had the highest agreement responses of the entire survey. Of the total 288 responses, 264 respondents (91.7%) either agreed (60.4%) or strongly agreed (31.3%) with that “collaboration in the public security network is challenging due to organizational secrecy perceptions of the network members.” Only 14 respondents (4.9%) stated that they either disagree or strongly disagree, and 10 respondents (3.5%) were not sure about the statement. The third statement is related to hierarchy. Most of the respondents (83.3%) stated that they either agree (62.9%) or strongly agree (22.4%) with that collaboration in the network is challenging due to a strict hierarchy in the organizations. The statement was either disagreed or strongly disagreed with by 21 respondents, with a cumulative percentage of 7.3%. Similarly, 21 respondents neither disagree nor agree with this statement.

Frequency distribution of answers to the statement about the sense of isolation among employees of the member organizations is on similar lines with previous statements. While 82.3% of the respondents reported agreement (63.2%) or strong agreement (19.1%), 8.3% did not support the statement. The fifth indicator addressed group loyalty. A great number of respondents either agreed (57.8) or strongly agreed (18.3%) with the statement of, “when an employee of an organization in the network makes a mistake, fellows feel responsibility to protect him/her”. Respondents who either disagreed or strongly disagreed account for 8.3% of total responses. The last items asked respondents to evaluate the statement of “collaboration in the public security is challenging due to competition among organizations.” Again respondents mostly stated that they either agree (58.6%) or strongly agree (21.7%) with the statement. Only

7.2% of the respondents did not support the statement. The remaining 36 respondents (12.4 %) were not sure about the indicator.

### 4.1.3 Control Variables

The study has three control variables: The population of the jurisdictions in which public security networks perform, the risk level of jurisdictions in terms of terrorism, and risk level of jurisdiction in terms of organized crime were selected as control variables. All of these three variables were grouped as ordinal level variables. Table 10 presents frequency distribution of the control variables of the study.

Table 10 *Frequency Distribution of Control Variables*

		Frequency Percent		Valid Percent	Cumulative Percent	
Population POP	Valid	Over 2.000.000	31	10.2	10.8	100.0
		1.000,000- 2.000.000	44	14.4	15.4	89.2
		500.000-1.000.000	66	21.6	23.1	73.8
		250.000- 500.000	79	25.9	27.6	27.6
		Under 250.000	66	21.6	23.1	50.7
		Total	286	93.8	100.0	
	Missing		19	6.2		
	Total		305	100.0		
Terror Risk Level	Valid	Very High	56	18.4	19.6	47.0
		High	53	17.4	18.6	65.6
		Medium	78	25.6	27.4	27.4
		Low	47	15.4	16.5	100.0
		Very Low	51	16.7	17.9	83.5

		Frequency	Percent	Valid Percent	Cumulative Percent
(TRL)	Total	285	93.4	100.0	
	Missing	20	6.6		
	Total	305	100.0		
Organized Crime Risk Level	Valid				
	Very High	33	10.8	11.7	95.4
	High	79	25.9	28.0	66.3
	Medium	108	35.4	38.3	38.3
	Low	49	16.1	17.4	83.7
	Very Low	13	4.3	4.6	100.0
	Total	282	92.5	100.0	
	Missing	23	7.5		
	Total	305	100.0		

According to Table 10, 79 respondents selected provinces serving a population between 250,000 and 500,000; 66 respondents selected provinces serving a population less than 250,000 ; Again 66 respondents evaluated provinces serving a population between 500,000 and 1,000,000; 44 respondents selected provinces serving a population between 1,000,000 and 2,000,000; and 31 respondents evaluated provinces serving a population more than 2,000,000.

With regards to the jurisdictions' risk level in terms of terrorism: 78 respondents think that his/her province is in medium risk category; 56 respondents think that his/her province is in very high risk category; 53 respondents think that his/her province is in high risk category; 51 respondents think that his/her province is in low risk category, and 47 respondents think that his/her province is in a very low risk category.

With regards to the jurisdictions' risk level in terms of organized crime: 108 respondents think that his/her province is in a medium risk category; 79 respondents think that his/her province is in high risk category; 49 respondents think that his/her province is in low risk category; 33 respondents think that his/her province is in very high risk category, and 13 respondents think that his/her province is in very low risk category.

In general, the descriptive statistics analysis results show that the indicators of network effectiveness and inter-organizational trust have relatively diverse distribution of responses. The most common leadership style is facilitator leadership style, whereas commissioner leadership style is not usually preferred by Turkish province governors for public security networks. A great majority of responses indicate that inter-organizational goal convergence is not high, and specific characteristics of organizational culture in the public security sector make collaboration difficult in public security networks. The numbers of missing responses are in acceptable ranges to be handled by expectation maximization method.

## **4.2 Correlation Analyses**

After examining the frequency distributions of the latent construct, correlation analysis was performed to identify relationships among study variables and the possible multicollinearity problem. Multicollinearity is a common problem, which occurs when two or more variables are highly correlated. Multicollinearity “generates biased estimates of the parameters” (Wan, 2002, p. 76). There are different arguments related to the threshold for multicollinearity. Kline (2005) suggests that below .90 is an acceptable threshold for the multicollinearity while Garson (2012) argues that multicollinearity is a problem when correlation is higher than .85, and Meyers, Gamst

and Guarino (2006) accept a stricter threshold of .70. This study uses .85 for the multicollinearity threshold.

Table 11 shows inter-item correlations for indicators of the only endogenous variable of network effectiveness. The table shows that all 12 indicators of network effectiveness are correlated with each other at .01 significance level. There are several correlations having the value of greater than .85, which are between: NE7 and NE8 (.861); NE9 and NE10 (.859); NE10 and NE12 (.877); and final NE11 and NE12 (.860). In confirmatory factor analysis, the multicollinearity among these indicators will be dealt with by removing NE8, NE10 and NE11 from the measurement model.

Table 11 *Correlation Matrix for Network Effectiveness*

		NE1	NE2	NE3	NE4	NE5	NE6	NE7	NE8	NE9	NE10	NE11	NE12
NE1	Corr. C.	1.000											
	Sig. (2-T)	.											
	N	305											
NE2	Corr. C.	.183**	1.000										
	Sig. (2-T)	.001	.										
	N	305	305										
NE3	Corr. C.	.454**	.403**	1.000									
	Sig. (2-T)	.000	.000	.									
	N	305	305	305									
NE4	Corr. C.	.230**	.244**	.307**	1.000								
	Sig. (2-T)	.000	.000	.000	.								
	N	305	305	305	305								
NE5	Corr. C.	.159**	.171**	.295**	.753**	1.000							

		NE1	NE2	NE3	NE4	NE5	NE6	NE7	NE8	NE9	NE10	NE11	NE12
	Sig. (2-T)	.005	.003	.000	.000	.							
	N	305	305	305	305	305							
NE6	Corr. C.	.163**	.374**	.297**	.444**	.425**	1.000						
	Sig. (2-T)	.004	.000	.000	.000	.000	.						
	N	305	305	305	305	305	305						
NE7	Corr. C.	.150**	.383**	.291**	.399**	.410**	.706**	1.000					
	Sig. (2-T)	.008	.000	.000	.000	.000	.000	.					
	N	305	305	305	305	305	305	305					
NE8	Corr. C.	.168**	.333**	.302**	.388**	.419**	.689**	.861**	1.000				
	Sig. (2-T)	.003	.000	.000	.000	.000	.000	.000	.				
	N	305	305	305	305	305	305	305	305				
NE9	Corr. C.	.211**	.355**	.310**	.366**	.382**	.614**	.756**	.700**	1.000			
	Sig. (2-T)	.000	.000	.000	.000	.000	.000	.000	.000	.			
	N	305	305	305	305	305	305	305	305	305			
NE10	Corr. C.	.202**	.333**	.332**	.352**	.355**	.625**	.694**	.742**	.859**	1.000		
	Sig. (2-T)	.000	.000	.000	.000	.000	.000	.000	.000	.000	.		
	N	305	305	305	305	305	305	305	305	305	305		
NE11	Corr. C.	.185**	.350**	.288**	.351**	.362**	.620**	.709**	.685**	.851**	.823**	1.000	
	Sig. (2-T)	.001	.000	.000	.000	.000	.000	.000	.000	.000	.000	.	
	N	305	305	305	305	305	305	305	305	305	305	305	
NE12	Corr. C.	.199**	.363**	.333**	.310**	.354**	.628**	.725**	.754**	.782**	.877**	.860**	1.000
	Sig. (2-T)	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.
	N	305	305	305	305	305	305	305	305	305	305	305	305

\*\* . Correlation is significant at the 0.01 level (2-tailed).



Table 12 shows inter-item correlations for indicators of inter-organizational trust. The table indicates that all indicators of inter-organizational trust are correlated with each other at the .01 significance level. The correlations between the indicators vary between .237 (T1/T5) and .733(T2/T3). Therefore, any multicollinearity problem is not detected, and all indicators of inter-organizational trust will be kept in the measurement model.

Table 12 *Correlation Matrix for Inter-organizational Trust*

		T1	T2	T3	T4	T5	T6	T7	T8	T9
T1	Correlation Coefficient	1.000								
	Sig. (2-tailed)	.								
	N	305								
T2	Correlation Coefficient	.563**	1.000							
	Sig. (2-tailed)	.000	.							
	N	305	305							
T3	Correlation Coefficient	.558**	.733**	1.000						
	Sig. (2-tailed)	.000	.000	.						
	N	305	305	305						
T4	Correlation Coefficient	.528**	.605**	.698**	1.000					
	Sig. (2-tailed)	.000	.000	.000	.					
	N	305	305	305	305					
T5	Correlation Coefficient	.237**	.357**	.501**	.432**	1.000				
	Sig. (2-tailed)	.000	.000	.000	.000	.				
	N	305	305	305	305	305				

		T1	T2	T3	T4	T5	T6	T7	T8	T9
T6	Correlation Coefficient	.427**	.465**	.502**	.527**	.346**	1.000			
	Sig. (2-tailed)	.000	.000	.000	.000	.000				
	N	305	305	305	305	305	305			
T7	Correlation Coefficient	.365**	.395**	.356**	.335**	.299**	.316**	1.000		
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000			
	N	305	305	305	305	305	305	305		
T8	Correlation Coefficient	.478**	.489**	.486**	.548**	.295**	.515**	.440**	1.000	
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.000		
	N	305	305	305	305	305	305	305	305	
T9	Correlation Coefficient	.509**	.496**	.573**	.645**	.357**	.539**	.459**	.594**	1.000
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.000	.000	
	N	305	305	305	305	305	305	305	305	305

\*\* . Correlation is significant at the 0.01 level (2-tailed).

Table 13 shows inter-item correlations for indicators of commissioner leadership style. According to the table, all indicators of this latent construct are also correlated with each other at the .01 significance level. The highest correlation is between NL1 and NL2 with the score of .851. This indicates a multicollinearity problem, which will be handled in confirmatory analysis by either excluding one of those highly correlated indicators from the measurement model or combining those indicators. There is not any other high correlation, which is greater than .85, between indicators.

Table 13 *Correlation Matrix for Commissioner Leadership Style*

		NL1	NL2	NL3	NL4	NL5	NL6
NL1	Correlation Coefficient	1.000					
	Sig. (2-tailed)	.					
	N	305					
NL2	Correlation Coefficient	.851**	1.000				
	Sig. (2-tailed)	.000	.				
	N	305	305				
NL3	Correlation Coefficient	.494**	.498**	1.000			
	Sig. (2-tailed)	.000	.000	.			
	N	305	305	305			
NL4	Correlation Coefficient	.543**	.565**	.593**	1.000		
	Sig. (2-tailed)	.000	.000	.000	.		
	N	305	305	305	305		
NL5	Correlation Coefficient	.551**	.571**	.505**	.661**	1.000	
	Sig. (2-tailed)	.000	.000	.000	.000	.	
	N	305	305	305	305	305	
NL6	Correlation Coefficient	.342**	.333**	.361**	.427**	.411**	1.000
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.
	N	305	305	305	305	305	305

\*\* . Correlation is significant at the 0.01 level (2-tailed).

Table 14 *Correlation Matrix for Co-producer Leadership Style*

	NL7	NL8	NL9	NL10	NL11	NL12
NL7 Correlation Coefficient	1.000					
Sig. (2-tailed)	.					
N	305					
NL8 Correlation Coefficient	.865**	1.000				
Sig. (2-tailed)	.000	.				
N	305	305				
NL9 Correlation Coefficient	-.064	-.098	1.000			
Sig. (2-tailed)	.265	.088	.			
N	305	305	305			
NL10 Correlation Coefficient	.532**	.542**	-.113*	1.000		
Sig. (2-tailed)	.000	.000	.049	.		
N	305	305	305	305		
NL11 Correlation Coefficient	.627**	.643**	.014	.610**	1.000	
Sig. (2-tailed)	.000	.000	.811	.000	.	
N	305	305	305	305	305	
NL12 Correlation Coefficient	.360**	.443**	-.081	.454**	.509**	1.000
Sig. (2-tailed)	.000	.000	.156	.000	.000	.
N	305	305	305	305	305	305

\*\* . Correlation is significant at the 0.01 level (2-tailed).

\* . Correlation is significant at the 0.05 level (2-tailed).

Table 14 shows inter-item correlations for indicators of co-producer leadership style. The table shows that all indicators of this latent construct except NL9 are correlated with each other at

.01 significance level. NL9 has only one significant correlation (-.113) with NL10 among other indicators. This is a signal of low factor loadings in confirmatory factor analysis. The highest correlation among indicators of co-producer leadership model is between NL7 and NL8 with a score of .865. In confirmatory factor analysis, the multicollinearity among these indicators will be dealt with by dropping one of these indicators or combining them.

Table 15 shows inter-item correlations for indicators of facilitator leadership style. The table shows that all indicators of this latent construct are correlated with each other at least at .05 significance level. The lowest correlation score is .131, which is between NL17 and NL 18. The highest correlation in this latent construct is between NL13 and NL14 with the value of .818. This score does not indicate a multicollinearity threat, being lower than .85. Thus, no indicator will be removed from the measurement model because of the multicollinearity in confirmatory factor analysis.

Table 15 *Correlation Matrix for Facilitator Leadership Style*

	NL13	NL14	NL15	NL16	NL17	NL18
NL13 Correlation Coefficient	1.000					
Sig. (2-tailed)	.					
N	305					
NL14 Correlation Coefficient	.818**	1.000				
Sig. (2-tailed)	.000	.				
N	305	305				
NL15 Correlation Coefficient	.234**	.278**	1.000			
Sig. (2-tailed)	.000	.000	.			
N	305	305	305			
NL16 Correlation Coefficient	.465**	.501**	.281**	1.000		
Sig. (2-tailed)	.000	.000	.000	.		
N	305	305	305	305		
NL17 Correlation Coefficient	.395**	.459**	.132*	.538**	1.000	
Sig. (2-tailed)	.000	.000	.021	.000	.	
N	305	305	305	305	305	
NL18 Correlation Coefficient	.097	.096	.196**	.203**	.131*	1.000
Sig. (2-tailed)	.091	.093	.001	.000	.022	.
N	305	305	305	305	305	305

\*\* . Correlation is significant at the 0.01 level (2-tailed).

\* . Correlation is significant at the 0.05 level (2-tailed).

Tables 16 shows inter-item correlations for indicators of organizational goal convergence. The table indicates that all indicators are correlated with each other at the .01 significance level.

The correlations between these indicators vary between .216 (GC1/GC6) and .487(GC1/GC2). Since the values are below .85, there is no sign of multicollinearity and no indicator will be removed from the generic measurement model in confirmatory factor analysis.

Table 16 *Correlation Matrix for Organizational Goal Convergence*

		GC1	GC2	GC3	GC4	GC5	GC6
GC1	Correlation Coefficient	1.000					
	Sig. (2-tailed)	.					
	N	305					
GC2	Correlation Coefficient	.487**	1.000				
	Sig. (2-tailed)	.000	.				
	N	305	305				
GC3	Correlation Coefficient	.423**	.438**	1.000			
	Sig. (2-tailed)	.000	.000	.			
	N	305	305	305			
GC4	Correlation Coefficient	.284**	.253**	.513**	1.000		
	Sig. (2-tailed)	.000	.000	.000	.		
	N	305	305	305	305		
GC5	Correlation Coefficient	.426**	.348**	.405**	.256**	1.000	
	Sig. (2-tailed)	.000	.000	.000	.000	.	
	N	305	305	305	305	305	
GC6	Correlation Coefficient	.216**	.214**	.307**	.415**	.289**	1.000
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.
	N	305	305	305	305	305	305

Table 17 *Correlation Matrix for Organizational Culture*

		OC1	OC2	OC3	OC4	OC5	OC6
OC1	Correlation Coefficient	1.000					
	Sig. (2-tailed)	.					
	N	305					
OC2	Correlation Coefficient	.268**	1.000				
	Sig. (2-tailed)	.000	.				
	N	305	305				
OC3	Correlation Coefficient	.334**	.521**	1.000			
	Sig. (2-tailed)	.000	.000	.			
	N	305	305	305			
OC4	Correlation Coefficient	.340**	.499**	.675**	1.000		
	Sig. (2-tailed)	.000	.000	.000	.		
	N	305	305	305	305		
OC5	Correlation Coefficient	.317**	.329**	.370**	.474**	1.000	
	Sig. (2-tailed)	.000	.000	.000	.000	.	
	N	305	305	305	305	305	
OC6	Correlation Coefficient	.387**	.418**	.559**	.595**	.445**	1.000
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.
	N	305	305	305	305	305	305

\*\* . Correlation is significant at the 0.01 level (2-tailed)

The values of inter-item correlations for organizational culture are shown in Table 17.

The variables are significantly correlated with each other at the .01 level. The highest correlation



appears to be between GC3 and GC4 with the score of .513, indicating no concern of multicollinearity. Table 34 in Appendix D shows the correlation matrix for exogenous and endogenous variables with control variables. The control variable of population of the jurisdictions failed to demonstrate any significant relationship with network effectiveness. The control variable of risk level of terrorism has very low but statistically significant negative correlation with three indicators of network effectiveness (NE 10, NE 11 and NE 12), while risk level of organized crime has also statistically significant but a low negative correlation with 7 indicators (NE5,NE6, NE7, NE8, NE9, NE10, NE 11, NE12). According to the Table, five indicators of inter-organizational trust (T1, T2, T3, T5, and T6) and control variable of organized crime risk level have statistically significant and negative correlations. The control variable of terrorism risk level was negatively correlated with only two indicators (T2, and T5). No significant correlation was detected between population and indicators of inter organizational trust.

Similar to previous constructs, organized crime risk level was negatively correlated with four indicators of commissioner leadership style (NL1, NL2, NL3, and NL5). Three indicators (NL1, NL2, and NL5) were negatively correlated with terror risk level and no correlation was found between population and the indicators of commissioner leadership style. Five indicators of co-producer leadership style (NL7, NL8, NL10, NL11 and NL12) had a statistically significant negative correlation with organized crime risk level. The results did not find any significant correlation between indicators of co-producer leadership style and the control variables of population and terror risk level. The last leadership style of facilitator leadership did not have any statistically significant correlation between the three control variables of the study.

In terms of goal convergence, three indicators (GC1, GC3 and GC5) were negatively correlated with control variable of the population, whereas just one indicator (GC6) was negatively correlated with terror risk level. Any other statistically significant correlation was detected between indicators of goal convergence and control variables. The table shows that among the six variables of organizational culture, three of them (OC1, OC3, and OC6) had statistically significant negative correlation with the control variable of population. The analyses did not find any other significant correlation between the variables of organizational culture and control variables.

In sum, almost all of the indicators in each constructs are correlated with each other at least .05 significance level. Six multicollinearity problems were detected. In order to handle these problems, five indicators will be removed from the measurement models. Among the three control variables, population of jurisdiction does not have any statistically significant correlation with indicators of endogenous and exogenous variables, whereas risk level of terrorism and risk level of organized crime demonstrate some low negative correlations with some indicators of those variables.

### **4.3 Confirmatory Factor Analysis**

Confirmatory factor analysis confirms measurement models of latent constructs' validity (Byrne, 2010) and validate the model fit of collected data. Confirmatory factor analysis is used to decide the capability of a hypothesized model based on obtained data (Wan, 2002) and to find shared common variance of indicators of latent constructs (Schumacker & Lomax, 2004). It is a helpful tool to decide if the number of factors and their regression weights are suitable to define

latent variables. It is an important technique to evaluate construct validity of the study variables (Wan, 2002).

Confirmatory factor analyses were performed through AMOS (Analysis of Moment Structures) software. The study used Wan's (2002) three stage approach to determine the finest measurement model for each latent variable in terms of obtained data. In the first step, the appropriateness of indicators in a generic measurement model was tested by examining the factor loading of indicators. P value and critical ratio were used to determine if a specific indicator has a statistically significant effect on the latent construct. If the critical value is either: equal or greater than 1.96; or equal and lower than -1.96 it can be considered that influence of a particular indicator on the latent variable is statistically significant at the .05 level. If the factor loading is not statistically significant, it shows that this indicator is not a suitable measure for the latent construct. The stronger factor loading means the stronger influence of that indicator on the latent construct (Byrne, 2010; Wan, 2002; Bickel, 2007).

In the second step, various statistical indexes, produced by AMOS software were used to evaluate how well over all model fits the data. At the final stage, model respecification is made by examining modification index. Modification index is used to detect the possible causes of the lack of fit. Modification indices determine which correlated measurement errors should be freely estimated to reduce the chi-square value and fit the model better. Nested measurement models of latent constructs were developed according to these modification indices values.

### **4.3.1 Network Effectiveness**

Network effectiveness is the only endogenous latent construct in the study. The generic measurement model consists of 12 indicators. The Figure 12 shows the initial CFA analysis results for the generic measurement model of network effectiveness.

For the first step of CFA, critical ratios and p values were checked to identify whether the indicators are statistically significant predictors. Table 18 indicates the parameter estimates of network effectiveness. The table shows that all items are statically significant even at .01 level. Then factor loadings of indicators were examined to identify the strength of indicators in predicting the latent construct of network effectiveness. The coefficient values were between lowest .304 (NE1) and highest .930 (NE10). Therefore, NE1 should be removed from the model because of having low factor loading.

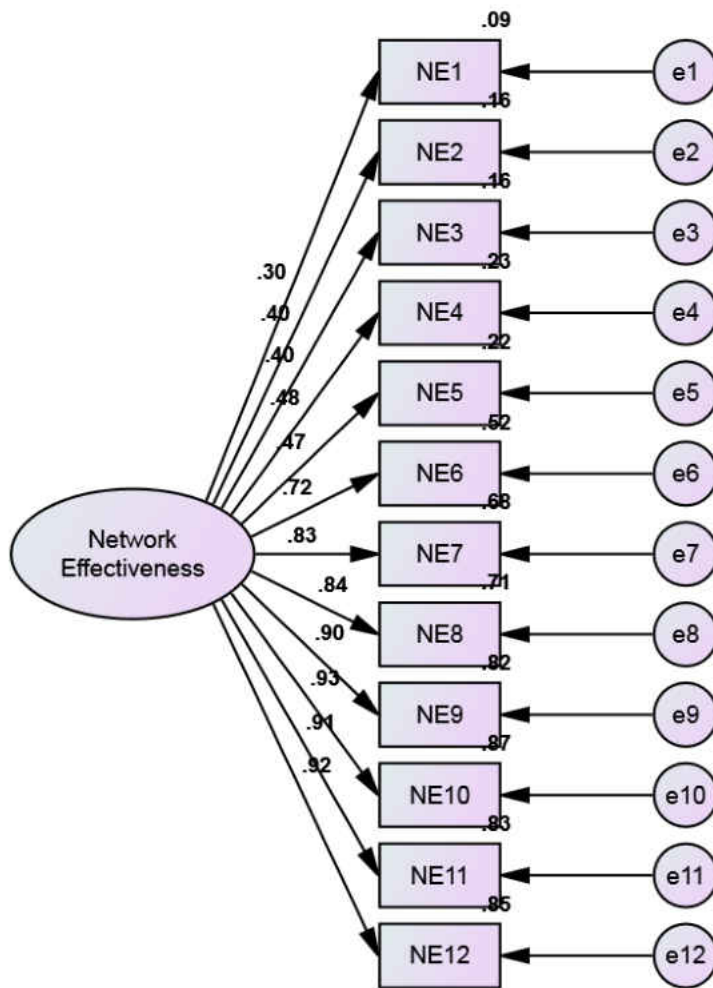


Figure 12. Generic Measurement Model for Network Effectiveness

Table 18 *Parameter Estimates of Network Effectiveness*

Indicator	Generic Model					Revised Model				
	U.R.W.	R.W.	SE	C.R.	P	U.R.W.	R.W.	S.E.	C.R.	P.
NE1	1.000	.304								
NE 2	1.234	.405	.278	4.439	***	.442	.435	.057	7.715	***
NE 3	1.421	.399	.322	4.415	***	.483	.407	.067	7.161	***
NE 4	1.586	.483	.335	4.737	***	.577	.528	.060	9.700	***
NE 5	1.454	.467	.310	4.686	***	.535	.516	.057	9.440	***
NE 6	2.516	.718	.481	5.231	***	.915	.784	.055	16.768	***
NE 7	2.754	.827	.515	5.352	***	1.000	.902			
NE 8	2.716	.840	.506	5.363	***					
NE 9	2.850	.905	.526	5.415	***	.856	.816	.049	17.476	***
NE 10	2.974	.930	.547	5.433	***					
NE 11	2.887	.910	.533	5.419	***					
NE12	2.987	.924	.550	5.429	***	.873	.811	.051	17.263	***
e3<-->e4						.309	.679	.033	9.342	***
e1<-->e2						.184	.338	.034	5.421	***
e7<-->e8						.087	.411	.019	4.591	***

Note: U. R.W. = Unstandardized Regression Weights; S.R. W. = Standardized Regression Weights; S. E. = Standard Error; C. R. = Critical Ratio

For the second step of the CFA, the appropriateness of the generic measurement model was checked by examining the goodness of fit statistics (Table 19). The selected goodness of fit statistics criteria indicated a very poor model fit for the generic measurement model. All selected criteria were far from the accepted limits. Some revisions are necessary to increase model fit of the measurement model of network effectiveness.

Table 19 *Goodness-of-Fit Statistics for the Network Effectiveness*

Fit Index	Shorthand	Criteria	Generic Model	Revised Model
Chi-Square	$\chi^2$	Smaller the better	699.297	27.333
Chi-square / Degree of Freedom	$\chi^2/df$	$\leq 2$ ; $\leq 3$ ; $\leq 4$	12.950	1.608
Tucker Lewis Index	TLI	$.90 \leq \text{value} < .95$ ; acceptable $\geq .95$ ; good	.745	.987
Root Mean Square Error of Approximation	RMSEA	$.05 < \text{value} \leq .08$ ; acceptable $\leq .05$ ; good	.198	.045
Comparative Fit Index	CFI	$.90 \leq \text{value} < .95$ ; acceptable $\geq .95$ ; good	.791	.992
Hoelter's Critical N	Hoelter Index	$75 \leq \text{value} < 200$ ; acceptable $\geq 200$ ; good	32	307

The third step is model respecification. Correlation analysis indicated some multicollinearity among the indicators. NE8, NE10 and NE11 were excluded from the measurement model to eliminate multicollinearity. Then NE1 was dropped from the measurement model, since its factor loading was lower than the selected threshold of .40. Although dropping these indicators improved goodness of fit statistics, this revision was not enough get a good model fit. Then modification index was examined to reduce the chi-square value and fit the model. According to the modification indices, 4 error terms which are: e1 and e2; e3 and e4; and e7 and e8 were correlated with each other. This revision increased the model

fit to recommended level. All selected goodness of fit statistic criteria were met to consider a perfect measurement model. After the respecification, NE7, NE9 and NE12 became the indicators in the network effectiveness measurement model having the highest coefficient values with scores of .902, .816, and .811 respectively.

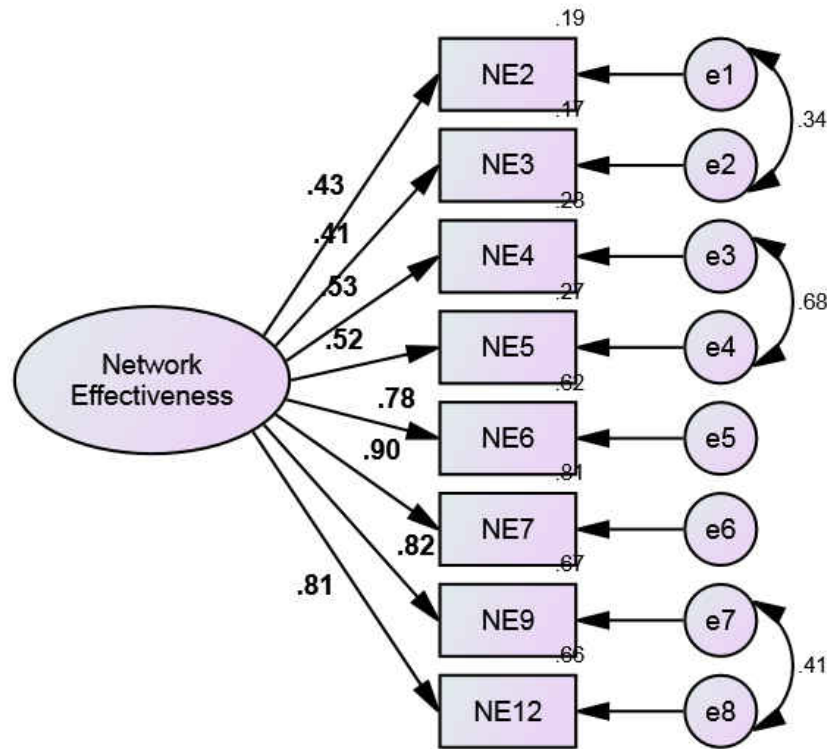


Figure 13. Revised Measurement Model for Network Effectiveness

### 4.3.2 Inter-Organizational Trust

Inter-organizational trust is the first exogenous latent variable of the study. Inter-organizational trust has 9 indicators. In the first step, the initial confirmatory factor analysis is



performed to the generic measurement model of inter-organizational trust to test the validity of the model. The results are indicated in Figure 14.

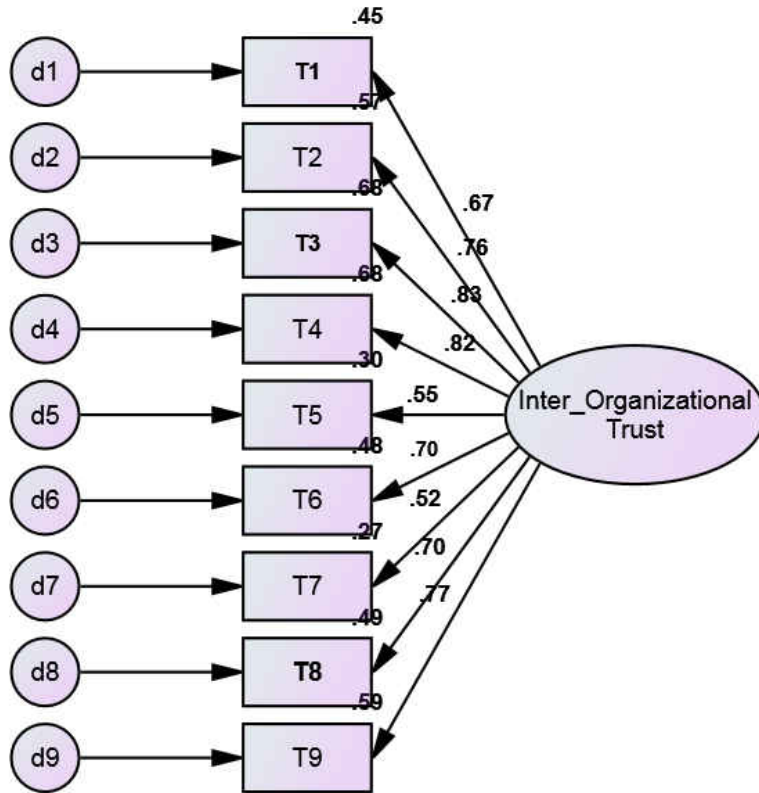


Figure 14. Generic Measurement Model for Inter-organizational Trust

Table 20 presents parameter estimates for both generic and revised models. The critical values of all the nine indicators are greater than 1.96, and the p values are lower than .05. Therefore, all indicators are statistically significant at the .05 level. In order to determine the strength of an indicator in the model, standardized regression weights should be examined. T3 is the strongest indicator with the standardized regression weight of .826. Other indicators in the

model are also very strong predictors. The weakest indicator in the generic model is T7 with the value of .524.

Table 20 *Parameter Estimates of Inter-organizational Trust*

Indicator	Generic Model					Revised Model				
	URW	RW	SE	CR	P	URW	RW	SE	CR	P
T9	1.000	.765				1.000	.825			
T8	.939	.700	.075	12.458	***	.879	.706	.066	13.299	***
T7	.736	.524	.081	9.044	***	.695	.533	.073	9.535	***
T6	.918	.696	.074	12.373	***	.848	.692	.065	12.976	***
T5	.820	.548	.086	9.498	***	.748	.538	.078	9.639	***
T4	1.145	.822	.076	14.987	***	1.051	.813	.066	15.890	***
T3	1.256	.826	.083	15.057	***	1.154	.818	.081	14.244	***
T2	1.064	.756	.078	13.603	***	.972	.744	.078	12.433	***
T1	.997	.670	.084	11.859	***	.915	.663	.074	12.298	***
d3<-->d2						.098	.286	.028	3.467	***
d9<-->d3						-.084	-.311	.022	-3.843	***
d9<-->d2						-.090	-.313	.022	-4.107	***

Note: U. R. W. = Unstandardized Regression Weights; S. R. W. = Standardized Regression Weights; S. E. = Standard Error; C. R. = Critical Ratio

For the second step, selected goodness of fit statistics, which were discussed in the methodology section, were used. Table 21 demonstrates goodness of fit statistics of both generic and revised measurement model of inter-organizational trust. Even though TLI, CFI and Hoelter's Critical N were in acceptable limits, other goodness of fit statistics does not indicate a valid measurement model.

Table 21 *Goodness-of-Fit Statistics for Inter-Organizational Trust*

Fit Index	Shorthand	Criteria	Generic Model	Revised Model
Chi-Square	$\chi^2$	Smaller the better	119.880	69.644
Chi-square / Degree of Freedom	$\chi^2/df$	$\leq 2$ ; $\leq 3$ ; $\leq 4$	4.440	2.902
Tucker Lewis Index	TLI	$.90 \leq \text{value} < .95$ ; acceptable $\geq .95$ ; good	.908	.949
Root Mean Square Error of Approximation	RMSEA	$.05 < \text{value} \leq .08$ ; acceptable $\leq .05$ ; good	.106	.079
Comparative Fit Index	CFI	$.90 \leq \text{value} < .95$ ; acceptable $\geq .95$ ; good	.931	.966
Hoelter's Critical N	Hoelter Index	$75 \leq \text{value} < 200$ ; acceptable $\geq 200$ ; good	102	159

Therefore, specification search was performed to increase the model fit of the measurement model. Since there is not any concern of multicollinearity as discussed in the correlation analysis and all factor loadings are statistically significant, no indicators were removed from the measurement model. The only way to revise the measurement model is examining the modification index. Based on the modification indices, d2 and d3, d2 and d9, and d3 and d9 were correlated. Figure 15 illustrates the revised measurement model of inter-organizational trust. The results of goodness of statistics of the revised measurement model indicate a valid model for this latent construct. The lowest standardized regression weight in the

revised model is .533 that shows all indicators are powerful predictors of the inter-organizational trust. T9, T3 and T4 have the strongest factor loadings on inter-organizational trust, with standardized regression weights of .825, .818, and .813 respectively.

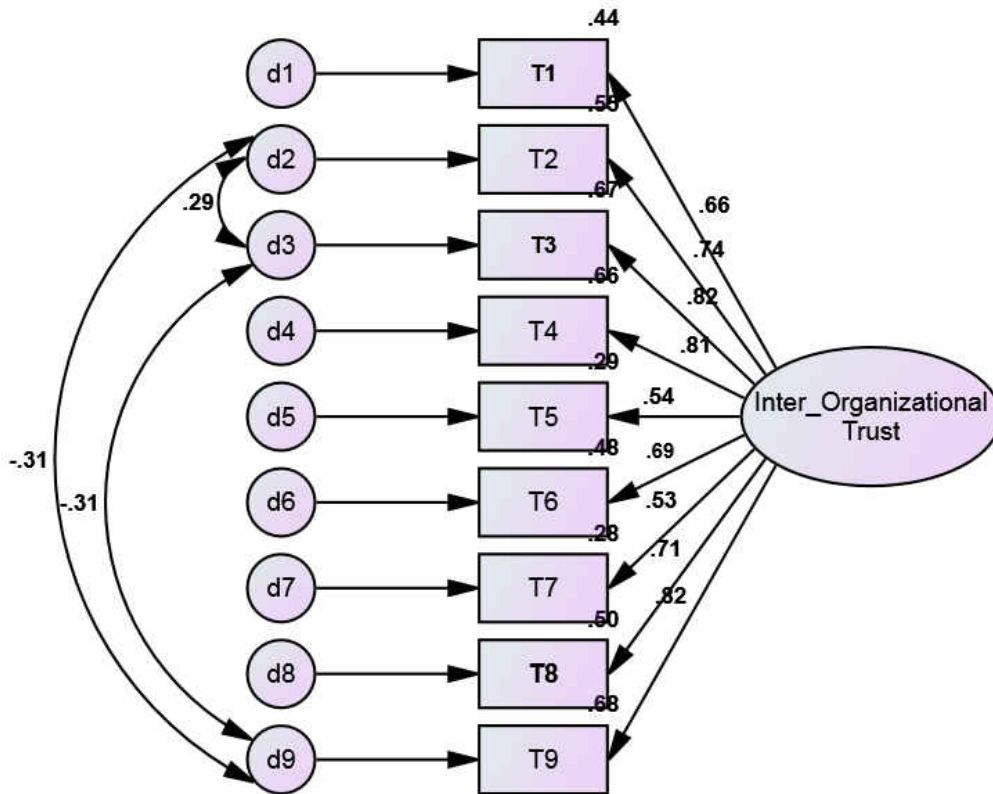


Figure 15. Revised Measurement Model for Inter-organizational Trust

### 4.3.3 Commissioner Style of Network Leadership

Commissioner Style of Network Leadership is the second exogenous latent variable of the study. It was measured by six indicators. The results of initial confirmatory analysis for the generic measurement model of the commissioner style of leadership are presented in Figure 16.

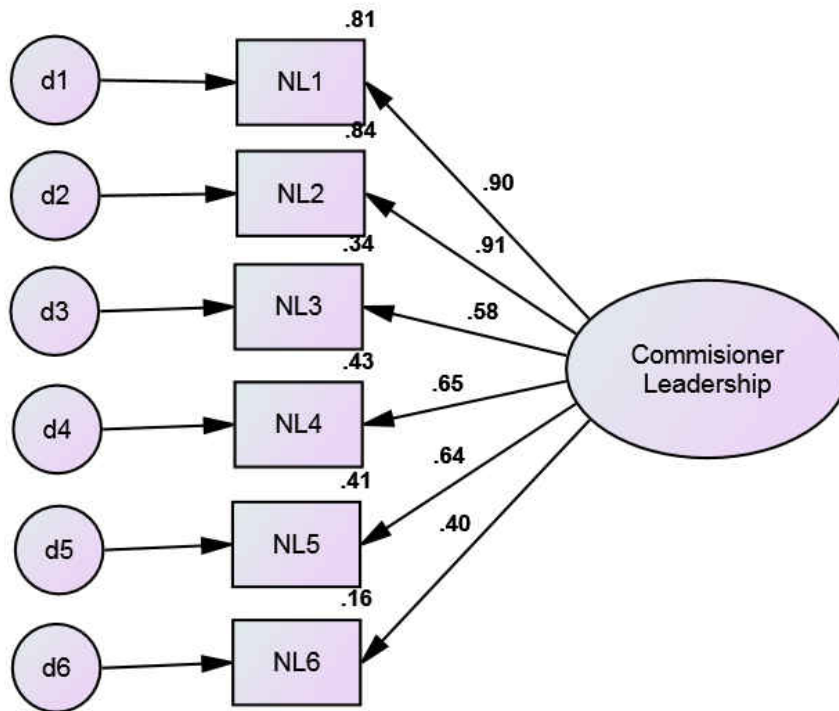


Figure 16. Generic Measurement Model for Commissioner Style of Network Leadership

Parameter estimates for the hypothesized model of the commissioner leadership style is shown in Table 21. All critical ratios of the indicators of the model were higher than 1.96 and p values are lower than .05 which shows statistically significant relationships at .05 level. All factor loadings of indicators (Table 22) in the generic measurement model are high enough to predict the latent construct varying from the lowest .403 to the highest .914.

Table 22 *Parameter Estimates of Commissioner Style of Network Leadership*

Indicator	Generic Model					Revised Model				
	U.R.W.	R.W.	S.E.	C.R.	P	U.R.W.	R.W.	S.E.	C.R.	P
NL1	1.581	.901	.121	13.075	***	1.061	.659	.096	11.004	***
NL2	1.488	.914	.113	13.165	***					
NL3	.960	.583	.104	9.193	***	1.027	.681	.090	11.387	***
NL4	1.000	.653				1.182	.842	.087	13.658	***
NL5	.902	.638	.107	6.547	***	1.000	.771			
NL6	.701	.403	.091	9.939	***	.827	.518	.097	8.548	***

Note: U. R.W. = Unstandardized Regression Weights; S.R. W. = Standardized Regression Weights; S. E. = Standard Error; C. R. = Critical Ratio

Analysis of goodness-of-fit statistics (Table 23) indicated a poor model fit for the initial run of CFA analysis. The model did not meet any criteria of goodness of fit statistics. Therefore, model respecification is necessary to get better model fit. According to the correlation analysis results, NL2 was removed because of the high correlation between NL1.

Table 23 *Goodness-of-Fit Statistics for Commissioner Style of Network Leadership*

Fit Index	Shorthand	Criteria	Generic Model	Revised Model
Chi-Square	$\chi^2$	Smaller the better	150.384	5.706
Chi-square / Degree of Freedom	$\chi^2/df$	$\leq 2$ ; $\leq 3$ ; $\leq 4$	16.709	1.141
Tucker Lewis Index	TLI	$.90 \leq \text{value} < .95$ ; acceptable $\geq .95$ ; good	.747	.997
Root Mean Square Error of Approximation	RMSEA	$.05 < \text{value} \leq .08$ ; acceptable $\leq .05$ ; good	.227	.022
Comparative Fit Index	CFI	$.90 \leq \text{value} < .95$ ; acceptable $\geq .95$ ; good	.848	.999
Hoelter's Critical N	Hoelter Index	$75 \leq \text{value} < 200$ ; acceptable $\geq 200$ ; good	35	590

After excluding NL2 from the model, the revised model had a perfect model fit. Since all goodness of fit statistics were within the recommended limits, examining the modification indices were not necessary. A significant improvement in goodness of fit statistics can be seen from the generic measurement model to the revised model at Table 23. The figure 17 presents the revised measurement model of commissioner leadership style. The lowest factor loading in the revised model increased from .403 to .518. The high factor loading values show strength of indicators in predicting this latent construct. NL4 and NL5 have the highest factor loadings on

the construct of commissioner leadership style, with standardized coefficient values of .841 and .771 respectively.

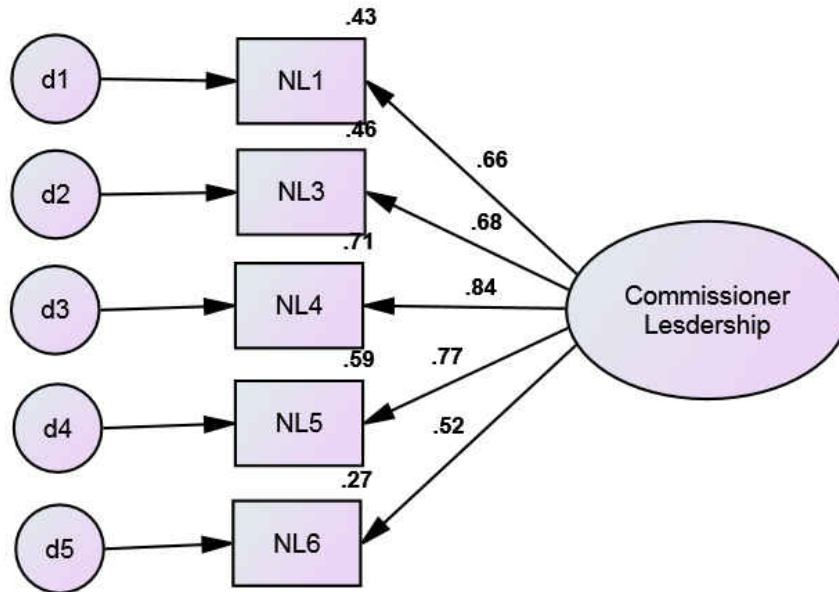


Figure 17. Revised Measurement Model for Commissioner Style of Network Leadership

#### 4.3.4 Co-producer Style of Network Leadership

The generic measurement model of co-producer style of network leadership style had six indicators. Figure 18 demonstrates factor loadings of coproduce style leadership measurement model.



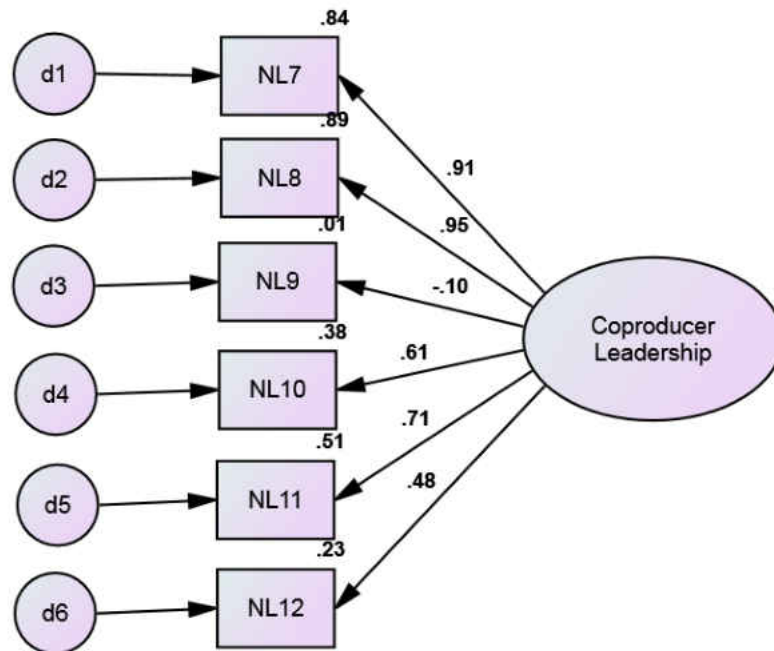


Figure 18. Generic Measurement Model for Co-producer Style of Network Leadership

Critical rate scores and p values shown in the Table 24 indicate that all of the factor loadings except NL9 were statistically significant. Standardized regression weights demonstrate the relative significance of the factor loadings. The lowest factor loading score after NL9 is NL12 with a score of .475.

Table 24 *Parameter Estimates of Co-producer Style of Network Leadership*

Indicator	Generic Model					Revised Model				
	URW	RW	SE	CR	P	URW	RW	SE	CR	P
NL7	1.518	.914	.123	12.290 ***		1.203	.716	.129	9.351 ***	
NL8	1.505	.945	.121	12.432 ***						
NL9	-.165	-.096	.102	-1.619	.106					
NL10	1.000	.613				1.203	.729	.127	9.456 ***	
NL11	1.139	.713	.110	10.394 ***		1.415	.876	.140	10.084 ***	
NL12	.799	.475	.107	7.479 ***		1.000	.588			

Note: U. R. W. = Unstandardized Regression Weights; S. R. W. = Standardized Regression Weights; S. E. = Standard Error; C. R. = Critical Ratio

Table 25 shows the goodness of fit statistics of both generic and revised measurement model of the co-producer network leadership style. Only TLI is within the acceptable limits for a valid measurement model. Because the generic model did not meet other criteria based on the goodness of fit values, some revision was required.

First NL8 was excluded from the model due to high correlation between NL7. Multicollinearity is a significant problem which reduces the model fit. Then NL9 was excluded from the model since its critical rate (-1619) is lower than 1.96 and p value (.106) is greater than .05. These scores indicate that NL9 is an insignificant predictor of co-producer style of network leadership. Figure 19 depicts the revised measurement model of the latent variable. After those necessary revisions, the goodness of fit statistics shows substantial improvement. All selected criteria were met to conclude a valid measurement model. Regression weight scores of items in the revised measurement model vary from the lowest .588 (NL12) to the highest .876 (NL11).

These values mean that all indicators are strong predictors of the latent construct of co-producer style of network leadership style.

Table 25 *Goodness of Fit Statistics of Co-producer Style of Network Leadership*

Fit Index	Shorthand	Criteria	Generic Model	Revised Model
Chi-Square	$\chi^2$	Smaller the better	102.554	5.588
Chi-square / Degree of Freedom	$\chi^2/df$	$\leq 2$ ; $\leq 3$ ; $\leq 4$	11.395	2.794
Tucker Lewis Index	TLI	$.90 \leq \text{value} < .95$ ; acceptable $\geq .95$ ; good	.952	.975
Root Mean Square Error of Approximation	RMSEA	$.05 < \text{value} \leq .08$ ; acceptable $\leq .05$ ; good	.083	.077
Comparative Fit Index	CFI	$.90 \leq \text{value} < .95$ ; acceptable $\geq .95$ ; good	.185	.992
Hoelter's Critical N	Hoelter Index	$75 \leq \text{value} < 200$ ; acceptable $\geq 200$ ; good	51	326

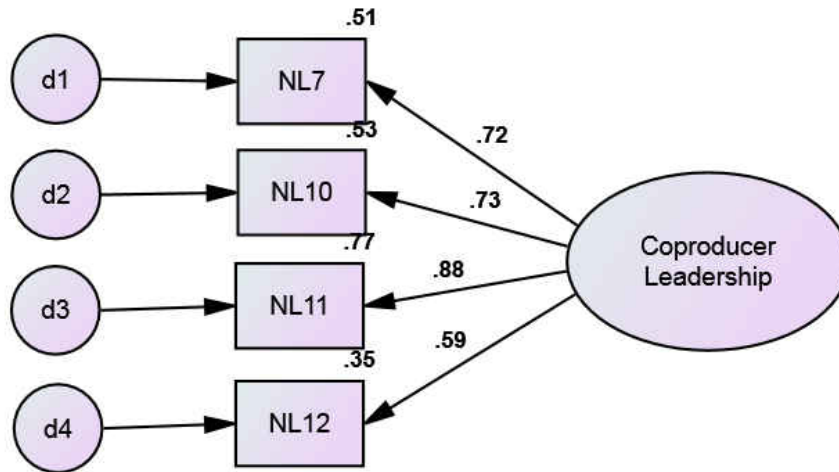


Figure 19. Revised Measurement Model for Co-producer Style of Network Leadership

#### 4.3.5 Facilitator Style of Network Leadership

Facilitator Leadership style is the last latent construct related to network leadership styles. The generic measurement model of facilitator leadership style consisted of 6 indicators. The Figure 20 shows the generic measurement of this latent construct.

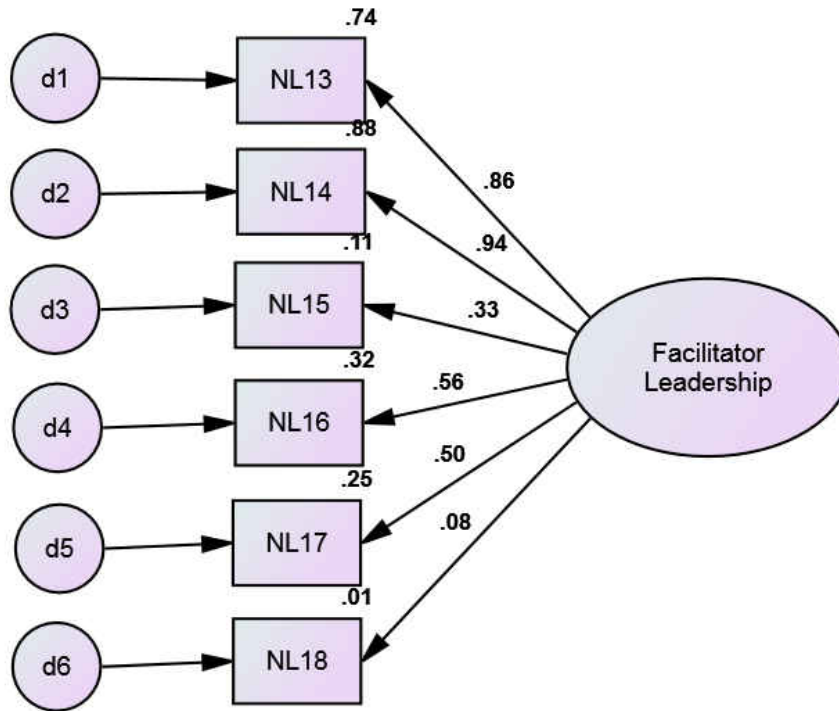


Figure 20. Generic Measurement Model for Facilitator Style of Network Leadership

Table 26 presents parameter estimates of facilitator style of network leadership style. Critical ratios of six indicators and p values were examined to determine the significance of the indicators in the measurement model. The only indicator, having a p value greater than .05 and critical rate lower than 1.96, is NL 18. Other five indicators are statistically significant predictors at .05 level. Their standardized regression weights were varying from lowest .330 to the highest .937.

Table 26 *Parameter Estimates of Facilitator Style of Network Leadership*

Indicator	Generic Model					Revised Model				
	URW	SRW	SE	CR	P	URW	SRW	SE	CR	P
NL13	1.752	.862	.167	10.465	***	1.815	.850	.183	9.934	***
NL14	1.756	.937	.167	10.484	***	1.886	.958	.195	9.672	***
NL15	.491	.330	.095	5.195	***	.507	.324	.100	5.088	***
NL16	1.000	.565				1.000	.538			
NL17	.921	.497	.126	7.310	***	.913	.469	.103	8.887	***
NL18	.113	.078	.087	1.294	.196					
d5<-->d4						.227	.408	.036	6.310	***

Note: U. R. W. = Unstandardized Regression Weights; S. R. W. = Standardized Regression Weights; S. E. = Standard Error; C. R. = Critical Ratio

Goodness-of-fit statistics for both the generic and the revised models of facilitator style of network leadership were demonstrated in Table 27. Goodness-of-fit statistics indicate that the final generic model of the latent variable has not a good fit to the gathered data. All scores of selected goodness of fit statistics were found out of the acceptable limits. Therefore, a revision in the model is necessary to get better model fit.

In the revision phase, first the insignificant indicator NL18 was dropped from the model. Then NL 15 was excluded from the model because its regression weight is lower than the threshold of .40. However, these modifications were not enough to obtain acceptable goodness of fit values. Then modification index was examined to make necessary revision. Modification indices provide to find which correlated measurement errors should be freely estimated in order to decrease the chi-square value and fit the model better. According to the modification error terms of NL16 and NL17 were correlated with each other. However, this revision decreased the

chi square value less than 1.00 (.220) that indicates poor model fit (Garson, 2012). In order to obtain a valid model, factor loading threshold was omitted for this model, and NL 15 was kept in the model.

Table 27 *Goodness of Fit Statistics of Facilitator Style of Network Leadership*

Fit Index	Shorthand	Criteria	Generic Model	Revised Model
Chi-Square	$\chi^2$	Smaller the better	74.932	8.372
Chi-square / Degree of Freedom	$\chi^2/df$	$\leq 2$ ; $\leq 3$ ; $\leq 4$	8.372	2.093
Tucker Lewis Index	TLI	$.90 \leq \text{value} < .95$ ; acceptable $\geq .95$ ; good	.816	.981
Root Mean Square Error of Approximation	RMSEA	$.05 < \text{value} \leq .08$ ; acceptable $\leq .05$ ; good	.155	.060
Comparative Fit Index	CFI	$.90 \leq \text{value} < .95$ ; acceptable $\geq .95$ ; good	.890	.993
Hoelter's Critical N	Hoelter Index	$75 \leq \text{value} < 200$ ; acceptable $\geq 200$ ; good	69	345

The final-revised measurement model is presented in Figure 21. A substantial improvement is observed in goodness of fit statistics (Table 27) of the final-revised measurement model. All selected criteria were met that indicates the appropriateness of the revised measurement model of facilitator style of network leadership. Factor loading of indicators in the revised model varies from .324 to .957 indicating strong predicting capability. NL14 and NL13 are the strongest predictors having the coefficient values of .957 and .852 respectively.

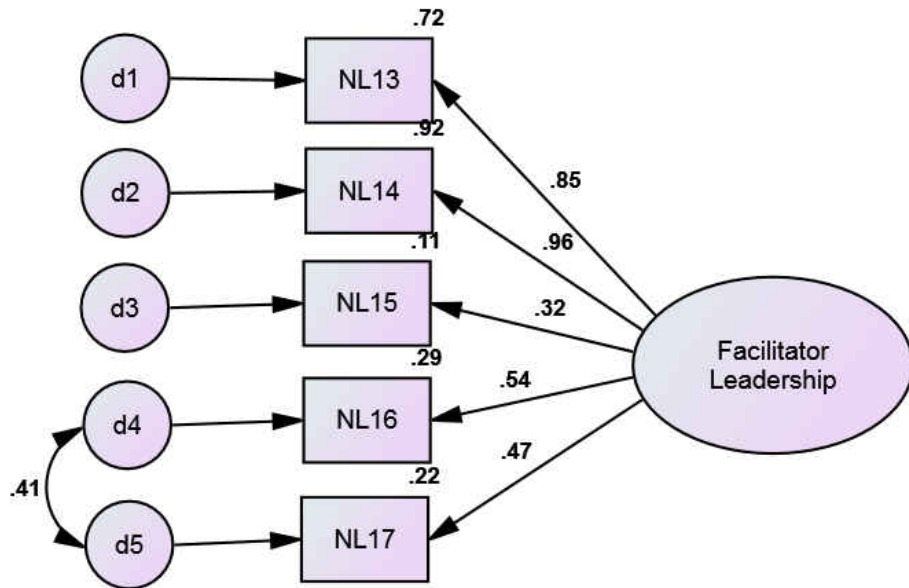


Figure 21. Revised Measurement Model for Facilitator Style of Network Leadership

#### 4.3.6 Organizational Goal Convergence

Organizational goal convergence is the last exogenous latent construct in the study. Six indicators represent the generic measurement model of goal convergence. Figure 22 shows the generic measurement model.



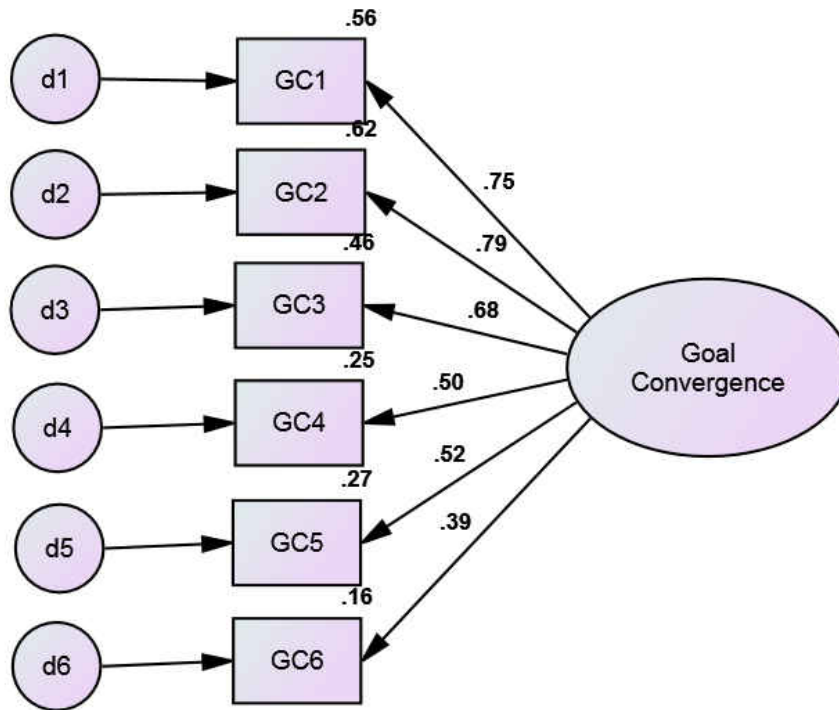


Figure 22. Generic Measurement Model for Organizational Goal Convergence

Table 28 demonstrates the parameter estimates for the generic model. All factor loadings of indicators were found to be significant at .05 level ( $CR > 1.96$ ). The coefficient estimates of indicators in the generic measurement model vary from lowest .394 to highest .789.

Table 28 *Parameter Estimates of Organizational Goal Convergence*

Indicator	Generic Model					Revised Model				
	URW	RW	SE	CR	P	URW	RW	SE	CR	P
GC1	1.000	.775				1.000	.775			
GC2	.971	.789	.082	11.812	***	1.010	.847	.086	11.807	***
GC3	1.141	.676	.108	10.557	***	.997	.611	.101	9.852	***
GC4	.848	.502	.107	7.915	***	.618	.378	.103	6.000	***
GC5	.710	.520	.087	8.199	***	.650	.492	.082	7.914	***
GC6	.619	.394	.099	6.231	***					
d4<-->d3						.234	.381	.042	5.611	***

Note: U. R.W. = Unstandardized Regression Weights; S.R. W. = Standardized Regression Weights; S. E. = Standard Error; C. R. = Critical Ratio

After examining the appropriateness of indicators, goodness-of-fit statistics was performed to check the validity of the generic measurement model. The goodness of fit statistics in Table 29 indicated a poor model for the initial run of CFA analysis. No criteria were met to consider a valid measurement model for obtained data. The model should be respecified to achieve good model fit.

All indicators were statistically significant predictors of goal convergence and no multicollinearity was detected in the correlation analysis, but factor loading of GC6 is lower than our threshold of .40. Therefore GC6 is removed from the model. Since this change was not enough to get required model fit, modification index was examined. Based on suggestions by

modification index scores, two pairs of measurement errors which are d3 and d4 were correlated to increase the model fit. After making this revision, the goodness of fit statistics greatly improved compared to generic model and all selected criteria were met. Figure 23 shows the revised measurement model of goal convergence. GC2 and GC1 are the strongest predictors of goal convergence in the revised model having coefficient values of .847 and .775.

Table 29 *Goodness of Fit Statistics of Organizational Goal Convergence*

Fit Index	Shorthan	Criteria	Generic Model	Revised Model
Chi-Square	$\chi^2$	Smaller the better	85.480	7.860
Chi-square / Degree of Freedom	$\chi^2/df$	$\leq 2$ ; $\leq 3$ ; $\leq 4$	9.498	1.965
Tucker Lewis Index	TLI	$.90 \leq \text{value} < .95$ ; acceptable $\geq .95$ ; good	.751	.978
Root Mean Square Error of Approximation	RMSEA	$05 < \text{value} \leq .08$ ; acceptable $\leq .05$ ; good	.167	.056
Comparative Fit Index	CFI	$90 \leq \text{value} < .95$ ; acceptable $\geq .95$ ; good	.850	.991
Hoelter's Critical N	Hoelter Index	$75 \leq \text{value} < 200$ ; acceptable $\geq 200$ ; good	61	367

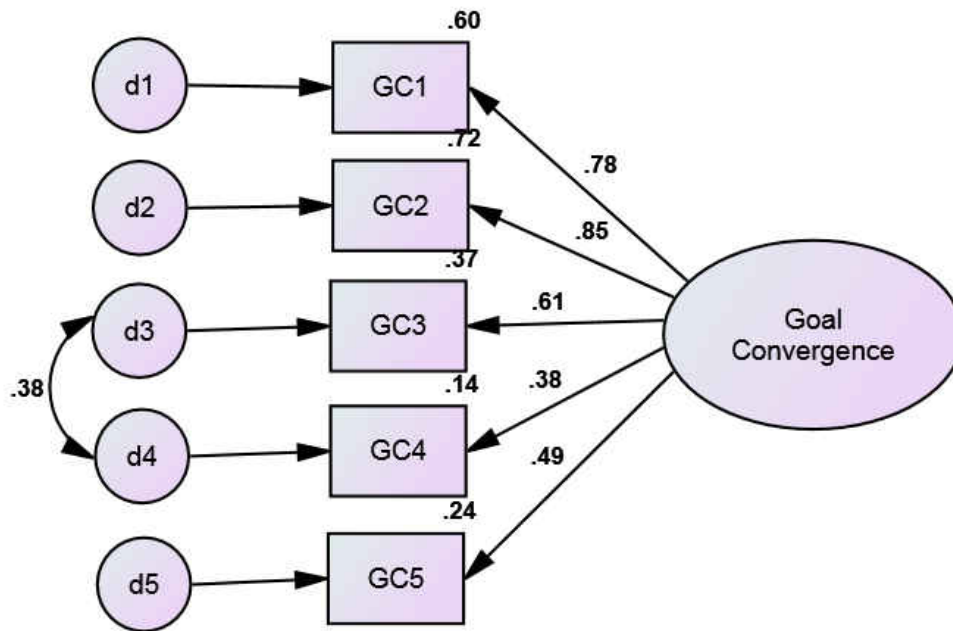


Figure 22. Revised Measurement Model for Organizational Goal Convergence

After validating measurement models of latent constructs through CFA, reliability of measurement were examined. The following section is focused to evaluate the internal consistency of each latent construct.

#### 4.4 Reliability

Reliability or internal consistency of a measurement is a significant indicator of the quality of survey instruments for survey studies. This study evaluated internal consistency by using Cronbach’s Alpha score which is one of the most extensively used analyses for the reliability. As discussed in the methodology section, there are different arguments related to the threshold for Cronbach’s Alpha score. This study used .70 as an acceptable threshold for the Cronbach’s alpha score of the measures.

Some items of constructs were removed from the measurement model in confirmatory factor analysis because of multicollinearity and low factor loadings. Cronbach's Alpha was performed before and after confirmatory factor analysis for endogenous and exogenous variables by using SPSS. The Table demonstrates the Cronbach's Alpha scores of measurement models of the latent constructs. Organizational goal convergence has the lowest score with the value of .771. Having greater than .70, the results indicate that all measurement models have good internal consistency before and after confirmatory factor analysis.

Table 30 *Cronbach's Alphas Scores of Measurement Models*

Measurement Model	Number of Items		Cronbach's Alpha Score	
	Before	After	Before	After
Inter-organizational Trust	9	9	.896	.896
Commissioner Leadership Style	6	5	.856	.815
Co-produce Leadership Style	6	4	.760	.814
Facilitator Leadership Style	6	4	.752	.819
Organizational Goal Convergence	6	5	.777	.771
Organizational Culture	6	6	.801	.801
Network Effectiveness	12	8	.917	.871

After making the final measurements model for each latent construct through CFA and testing the reliability of measurement, the next step is building a covariance structure model to test the hypotheses of the study.

#### 4.5 Covariance Structure Model

After validating the measurement models for each latent construct, Covariance structure model was used to evaluate causal relationships between our exogenous and endogenous variables and confounding factors. Covariance structure model can simultaneously test study hypotheses and estimate latent variables from observed variables (Wan, 2002). The covariance structure model does not only illustrate the significance of the hypothesis paths, but also indicates the explanatory power of the model by calculating the  $R^2$  value for the endogenous latent construct.  $R^2$  indicates the total variation in the endogenous variable that is accounted by the exogenous variables (Kaplan, 2000; Bates, 2005)

According to results of confirmatory factor analyses, the generic covariance structure model, presented in Figure 11, was revised. The new generic model is presented in Figure 23.

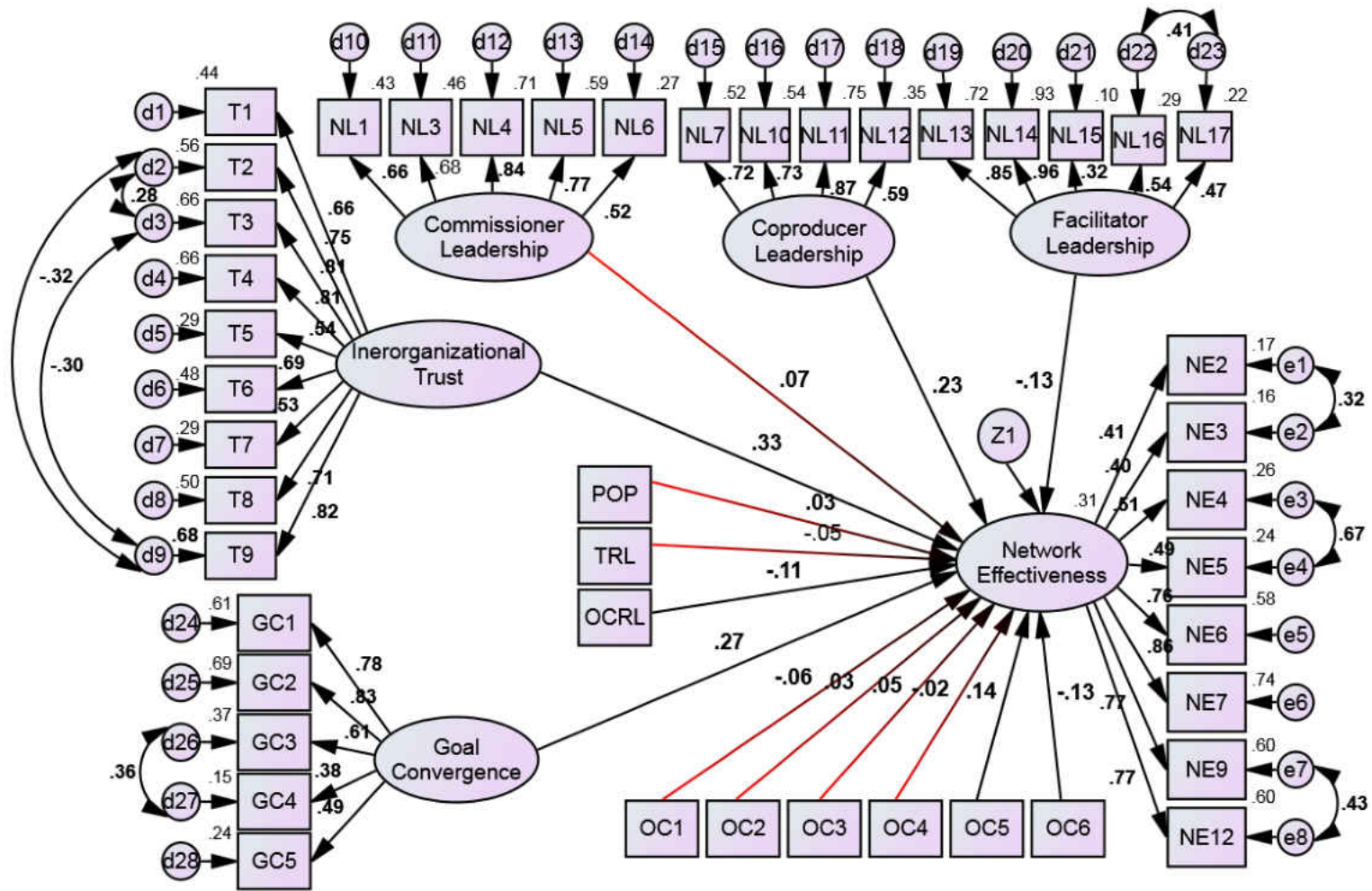


Figure 23. First Revised Generic Covariance Model

In this generic covariance structure model, single arrowed lines between variables represent hypothesized causal relationships between exogenous and endogenous variables. Single arrowed lines between indicators and variables represent the predictive capability of each indicator for each latent construct. Insignificant paths in the model are shown with red colored arrows. Table 31 introduces coefficient weights between variables and also factor loadings between variables and their predictors in detail.

In the initial covariance model, factor loadings between all indicators and their latent constructs are statistically significant. This result verifies the results of confirmatory factor analyses for each latent construct. The regression weights between the endogenous variable of network effectiveness, and exogenous variables of inter-organizational trust, goal convergence, co-producer network leadership style, facilitator network leadership style, OC5 (group loyalty) and OC6 (competition) are statistically significant. P values of these variables are lower than .05 and critical values are higher than 1.96. A higher regression weight represents a stronger relationship with network effectiveness. Therefore inter-organizational trust (.326) goal convergence (.271) and co-producer leadership styles (.229) are the strongest exogenous variables on network effectiveness.

Regression weights between endogenous variable of network effectiveness and exogenous variables of commissioner network leadership style, OC1 (defensiveness), OC2 (organizational secrecy perceptions), OC3 (strict hierarchy), and OC4 (sense of isolation) are not statistically significant. Except OC5, the relationships have significantly low regression weights (.066, -.057, -.034, .052, .023 respectively) high P values (.254, .281, .529, .326, .663 respectively), and inadequate critical rates (1.142, -1.079, .630, .981, .436 respectively). Among



the three control variables POP (population) and TRL (terror risk level) have low regression weights (.032, -.050), high P values (.546, .347) and inadequate critical rates that show the insignificant relationship between network effectiveness.

Table 31 *Parameter Estimates of Covariance Structure Model*

Indicator	Generic Model					Revised Model				
	URW	SRW	SE	CR	P	URW	SRW	SE	CR	P
N. Effectiveness <--- I. Trust	.304	.326	.054	5.638	***	.311	.304	.085	3.651	***
N. Effectiveness <--- Comm. L.	.057	.066	.050	1.142	.254					
N. Effectiveness <--- Co-pr. L.	.185	.229	.048	3.879	***	.235	.238	.081	2.892	.004
N. Effectiveness<---Facilitator L.	-.095	-.126	.042	-2.285	.022	-.094	-.119	.046	-2.057	.040
N. Effectiveness <--- Goal C.	.315	.271	.070	4.465	***	.441	.357	.098	4.487	***
N. Effectiveness <---OC1	-.043	-.057	.040	-	.281					
N. Effectiveness <--- OC2	.030	.034	.048	.630	.529					
N. Effectiveness <--- OC3	.044	.052	.045	.982	.326					
N. Effectiveness <--- OC4	-.022	-.023	.050	-.436	.663					
N. Effectiveness <---OC5	.111	.137	.043	2.558	.011					
N. Effectiveness <--- OC6	-.111	-.134	.044	-	.012	-.133	-.153	.062	-2.163	.031
N. Effectiveness <--- POP	.017	.032	.028	.604	.546					
N. Effectiveness <--- TRL	-.025	-.050	.026	-.943	.346					
N. Effectiveness <--- OCRL	-.071	-.108	.035	-2.033	.042	-.084	-.121	.036	-2.350	.019
NE2 <--- N. Effectiveness	.469	.412	.067	7.044	***	.465	.425	.063	7.395	***
NE3 <--- N. Effectiveness	.529	.397	.078	6.764	***	.529	.414	.074	7.173	***
NE4 <--- N. Effectiveness	.619	.509	.069	8.948	***	.619	.529	.065	9.502	***
NE5 <--- N. Effectiveness	.563	.488	.066	8.518	***	.564	.508	.062	9.064	***
NE6 <--- N. Effectiveness	.948	.760	.065	14.654	***	.948	.776	.061	15.634	***
NE7 <--- N. Effectiveness	1.000	.859				1.000	.871			

Indicator	Generic Model					Revised Model				
	URW	SRW	SE	CR	P	URW	SRW	SE	CR	P
NE9 <--- N. Effectiveness	.865	.774	.059	14.740	***	.865	.789	.055	15.744	***
NE12 <--- N. Effectiveness	.888	.773	.060	14.735	***	.886	.787	.056	15.698	***
T1 <--- I. Trust	.915	.663	.074	12.334	***	.923	.655	.077	12.026	***
T2 <--- I. Trust	.975	.747	.078	12.483	***	.951	.717	.081	11.810	***
T3 <--- I. Trust	1.150	.815	.081	14.245	***	1.092	.764	.082	13.325	***
T4 <--- I. Trust	1.050	.813	.066	15.941	***	1.036	.793	.068	15.265	***
T5 <--- I. Trust	.746	.537	.077	9.629	***	.695	.485	.082	8.492	***
T6 <--- I. Trust	.846	.692	.065	12.980	***	.850	.682	.067	12.629	***
T7 <--- I. Trust	.697	.534	.073	9.574	***	.703	.524	.076	9.278	***
T8 <--- I. Trust	.880	.701	.066	13.351	***	.887	.700	.068	13.046	***
T9 <--- I. Trust	1.000	.825				1.000	.818			
NL1 <--- Commissioner L.	.898	.659	.078	11.54 0	***					
NL3 <--- Commissioner L.	.869	.681	.073	11.97 5	***					
NL4 <--- Commissioner L.	1.000	.842								
NL5 <--- Commissioner L.	.847	.771	.062	13.66 7	***					
NL6 <--- Commissioner L.	.700	.518	.079	8.801	***					
NL7 <--- Co-producer L.	.866	.722	.069	12.58 9	***	.908	.743	.067	13.531	***
NL10 <--- Co-producer L.	.862	.731	.068	12.75 6	***	.877	.731	.066	13.275	***
NL11 <--- Co-producer L.	1.000	.867				1.000	.851			
NL12 <--- Co-producer L.	.720	.592	.071	10.17 2	***	.729	.589	.071	10.310	***
NL13 <--- Facilitator L.	.955	.847	.060	15.808	***	.952	.845	.058	16.536	***
NL14 <--- Facilitator L.	1.000	.962				1.00	.963			
NL15 <--- Facilitator L.	.267	.323	.048	5.593	***	.266	.322	.047	5.605	***

Indicator	Generic Model					Revised Model				
	URW	SRW	SE	CR	P	URW	SRW	SE	CR	P
NL16 <--- Facilitator L.	.527	.537	.055	9.668	***	.526	.336	.054	9.780	***
NL17 <--- Facilitator L.	.482	.469	.058	8.321	***	.482	.470	.057	8.422	***
GC1 <--- Goal Convergence	1.018	.783	.085	11.94 6	***	1.023	.781	.077	13.248	***
GC2 <--- Goal Convergence	1.000	.832				1.000	.825			
GC3 <--- Goal Convergence	.999	.605	.102	9.837	***	1.011	.608	.098	10.278	***
GC4 <--- Goal Convergence	.634	.383	.104	6.099	***	.669	.401	.102	6.536	***
GC5 <--- Goal Convergence	.660	.493	.083	7.981	***	.683	.506	.081	8.439	***
Facilitator L. <--> I. Trust						-.149	-.260	.031	-4.768	***
Co-producer L. <--> I. Trust						.292	.636	.039	7.510	***
Goal C. <--> OC6						.271	.626	.033	8.230	***
e3 <--> e4	.295	.669	.032	9.185	***	.294	.668	.032	9.179	***
e1 <--> e2	.171	.320	.033	5.148	***	.172	.322	.033	5.167	***
e7 <--> e8	.092	.425	.019	4.910	***	.093	.428	.019	4.968	***
d3 <--> d2	.098	.285	.028	3.487	***	.131	.346	.028	4.705	***
d5 <--> d3						.124	.242	.031	3.994	***
d9 <--> d2	-.092	-.320	.022	- 4.229	***	-.088	-.304	.021	-4.152	***
d9 <--> d3	-.082	-.303	.022	- 3.776	***	-.059	-.206	.021	-2.856	.004
d22 <--> d23 (d17 <--> d18)	.227	.409	.036	6.321	***	.227	.214	.036	6.334	***
d26 <--> d27 (d21 <--> d22)	.223	.358	.042	5.317	***	.214	.346	.041	5.209	***

Note: U. R. W. = Unstandardized Regression Weights; S. R. W. = Standardized Regression Weights; S. E. = Standard Error; C. R. = Critical Ratio

Similar to confirmatory factor analysis, covariance structure modelling also uses the three-step method to validate the model. In the first step insignificant exogenous and control variables should be excluded from the generic model. Therefore, insignificant variables:

commissioner network leadership style, OC1, OC2, OC3, OC4, POP and TRL were excluded from the covariance structure model. When these variables were excluded, critical value of OC5 decreased to 1.802, which is less than the threshold of 1.876, and its P value increased to .072, which indicates statistically insignificant variable. Therefore OC5 was also removed from the revised covariance structure model.

Table 32 *Goodness of Fit Statistics of Covariance Structure Model*

Fit Index	Shorthand	Criteria	Generic Model	Final Revised Model
Chi-Square	$\chi^2$	Smaller the better	2703.043	884.666
Chi-square / Degree of Freedom	$\chi^2/df$	$\leq 2$ ; $\leq 3$ ; $\leq 4$	2.900	1.847
Tucker Lewis Index	TLI	$.90 \leq \text{value} < .95$ ; acceptable $\geq .95$ ; good	.710	.909
Root Mean Square Error of Approximation	RMSEA	$.05 < \text{value} \leq .08$ ; acceptable $\leq .05$ ; good	.079	.053
Comparative Fit Index	CFI	$.90 \leq \text{value} < .95$ ; acceptable $\geq .95$ ; good	.727	.917
Hoelter's Critical N	Hoelter Index	$75 \leq \text{value} < 200$ ; acceptable $\geq 200$ ; good	113	183

For the second step, goodness of fit statistics was evaluated. Table 32 indicates the goodness of fit statistics for the initial and final revised covariance structure model. Although excluding insignificant exogenous and control variables substantially increased model fit,

goodness of fit statistics are not enough to consider a valid covariance model. No criteria were met to consider a valid measurement model for obtained data. The model should be respecified to achieve good model fit.

For the third step, modification index was examined to make necessary revisions. According to the modification indices, inter-organizational trust and co-producer network leadership style, inter-organizational trust and facilitator leadership style, goal convergence and OC6, and error terms of d3 and d5 were correlated to each other. After the respecification, all selected criteria were met to conclude a valid covariance structure model. Figure 24 presents the final-revised covariance structure model.

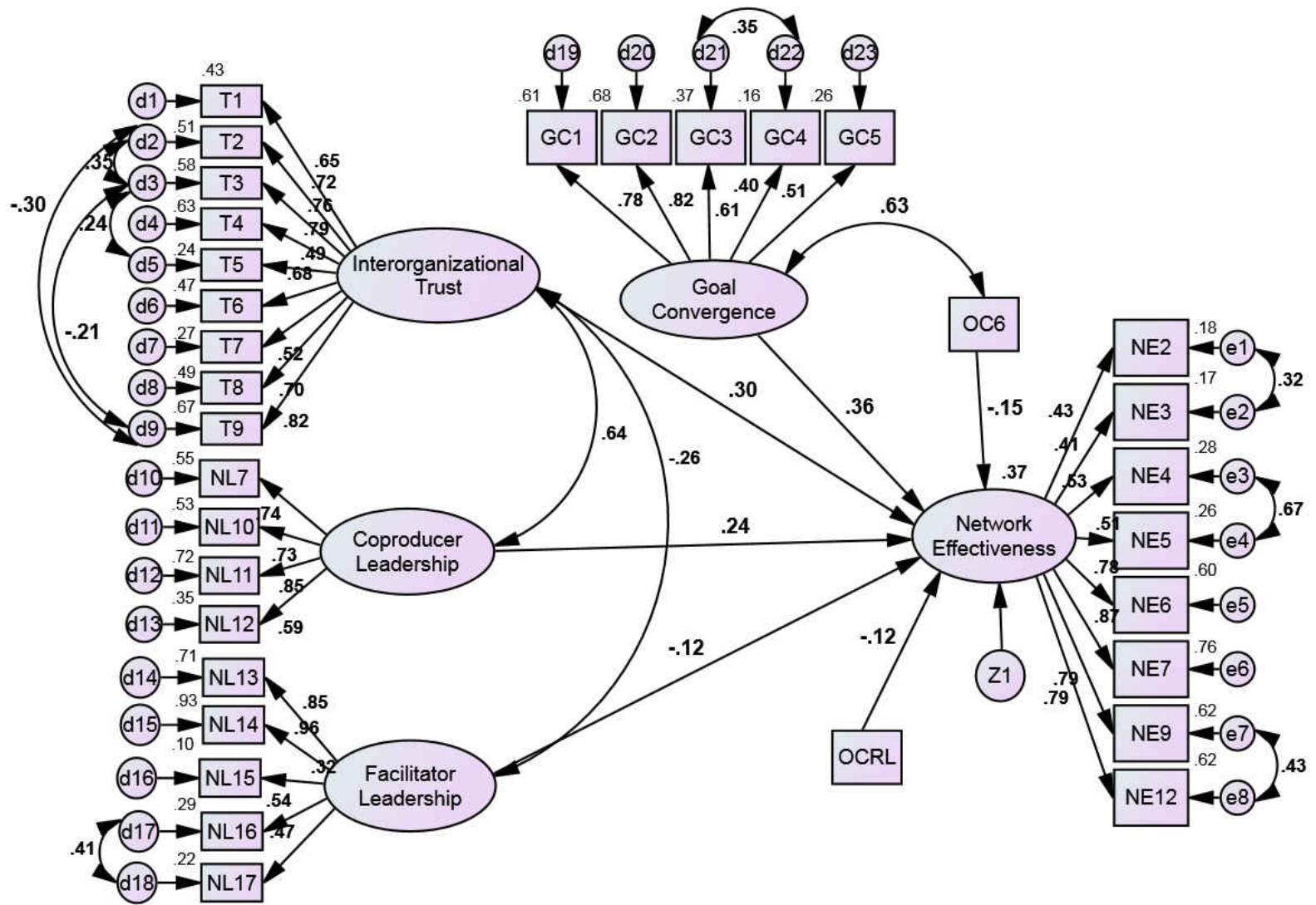


Figure 24. Final Revised Covariance Structure Model

All factor loadings in the final-revised covariance structure model are statistically significant at .05 level, varying from the lowest .322 to the highest .963. Inter-organizational trust, goal convergence, co-producer network leadership style, and OC6 are statistically significant hypothesized exogenous variables. The only significant control variable is the risk levels of network jurisdictions in terms of organized crime.

The strongest impact on network effectiveness comes from latent constructs of goal convergence and inter-organizational trust. More specifically, goal convergence is positively correlated with network effectiveness with a standardized regression weight of .357 ( $p \leq .001$ ). Inter-organizational trust is positively correlated with network effectiveness with a standardized regression weight of .304 ( $p \leq .001$ ). Co-producer style of network leadership has also significant prediction power on network effectiveness. Co-producer leadership is positively correlated with network effectiveness with standardized regression weight of .227 ( $p = .006$ ). These three positive correlation coefficient paths mean that growth in these variables would cause an increase in network effectiveness. On the other hand, facilitator style of network leadership is negatively correlated with network effectiveness with standardized regression weight of  $-.119$  ( $p = .040$ ) and high competition (OC6) is negatively correlated with network effectiveness with standardized regression weight of  $-.153$  ( $p = .031$ ). These two negative correlation coefficients paths indicate that growth in these variables would cause a decrease in network effectiveness.

The final covariance structure model also indicates some correlation relationships between some exogenous variables. Inter-organizational trust is positively correlated with co-

producer style of network leadership with a correlation coefficient of .636. Inter-organizational trust is negatively correlated with facilitator style of network leadership with a correlation coefficient of -.260. Finally, Goal Convergence is positively correlated with OC 6 (strict competition) with a correlation coefficient of .626.

The overall model identifies that four of six exogenous latent variables (inter-organizational trust, goal convergence, co-producer style of network leadership, and facilitator style of network leadership), and one exogenous observable variables ( high competition), along with the control variable of risk level of organized crime (OCRL) account for 37 % of variation in network effectiveness.

#### **4.6 Hypotheses Testing**

This study aims to analyze the relationships between inter-organizational trust, network leadership style, goal convergence, organizational culture and network effectiveness in public security networks. Moreover, the impacts of control variables that are population of the jurisdictions in which public security networks perform, the risk level of jurisdictions in terms of terrorism, and risk level of jurisdiction in terms of organized crime were analyzed. Based on the theoretical framework and literature review, the following hypotheses were tested in this study through the results provided in the findings section:

*Hypothesis 1: There is a positive relationship between inter-organizational trust and network effectiveness in public security networks.*

The first hypothesis addresses a positive relationship between inter-organizational trust and network effectiveness. The results of the analysis supported this hypothesis. With a standardized regression coefficient of .304, inter-organizational trust is the one of the two most



significant exogenous variable of the study, determining network effectiveness in a public security network. The unstandardized regression weight of .311 indicates that one raw unit increase in inter-organizational trust accounts for a .311 decrease in network effectiveness.

*Hypothesis 2: There is a relationship between network leadership style and network effectiveness in public security networks.*

*Hypothesis 2<sub>a</sub>: Top down leadership style (the commissioner role) will achieve the highest network effectiveness in public security networks.*

*Hypothesis 2<sub>b</sub>: The co-producer style of leadership will achieve the highest network effectiveness in public security networks*

*Hypothesis 2<sub>c</sub>: Bottom up leadership style (the facilitator role) will achieve the highest network effectiveness in public security networks*

The second hypothesis addresses a relationship between network leadership styles and network effectiveness. This hypothesis was tested with three alternative sub hypotheses. This set of hypotheses aims to find the most appropriate leadership style to achieve the highest network effectiveness in a public security network. The results of the analysis supported the association between network leadership style and network effectiveness. The results indicate that co-producer style has positive impact on network effectiveness, whereas facilitator leadership style negatively influences network effectiveness. The study did not find a relationship between commissioner style and the endogenous variable.

More specifically, the covariance structure model found no statistical relationship at  $p \leq .05$  about Hypothesis 2<sub>a</sub>, suggesting a positive relationship between top down leadership style (the commissioner role) and network effectiveness ( $\beta = 0.066$ ). However, the study result supports Hypothesis 2<sub>b</sub>, suggesting a positive relationship between co-producer style of

leadership and network effectiveness. The unstandardized regression weight of .235 represents that for a one-row-unit increment on co-producer style of network leadership style leads to an increase of .235 in network effectiveness. According to analysis results, facilitator style of network leadership style has a negative impact on network effectiveness; therefore, Hypothesis 2<sub>c</sub> was not supported. The unstandardized regression weight of -.94 indicate that one-row-unit increase in facilitator network leadership style accounts for a .94 decrease in network effectiveness.

*Hypothesis 3: There is a positive relationship between the organizational goal convergence and network effectiveness in public security networks.*

The results of the final-revised covariance structure model show that goal convergence has a significant and positive relationship with network effectiveness with a standardized regression weight of .357 at  $p \leq .05$ . Goal converge is the most important variable to influence network effectiveness. The unstandardized regression weight of .441 indicates that a one-row-unit increase on goal convergence leads to a .441 increase in network effectiveness. Therefore, the hypothesis was supported.

*Hypothesis 4: There is a relationship between the nature of organizational culture in the public security and network effectiveness in public security networks.*

*Hypothesis 4<sub>a</sub>: There is a negative relationship between the level of defensiveness in the member organizations and network effectiveness in public security networks*

*Hypothesis 4<sub>b</sub>: There is a negative relationship between the level of perception of the organizational secrecy in the member organizations and network effectiveness in public security networks*

*Hypothesis 4<sub>c</sub>: There is a negative relationship between the level of hierarchy in the member organizations and network effectiveness in public security networks.*

*Hypothesis 4<sub>d</sub>: There is a negative relationship between the level of sense of isolation among employees of the member organizations and network effectiveness in public security networks.*

*Hypothesis 4<sub>e</sub>: There is a negative relationship between the level of group loyalty among employees of the member organizations and network effectiveness in public security networks.*

*Hypothesis 4<sub>f</sub>: There is a negative relationship between the level of competition among member organizations and network effectiveness in public security networks.*

Hypothesis 4 addresses the relationship between the nature of organizational culture in the public security sector and network effectiveness. In order to test this hypothesis, six sub-hypotheses were examined. Common cultural attributes of public security organizations such as hierarchy, isolation, secrecy, self-protection, competition, and group loyalty were tested with specific sub hypotheses. The study results partially supported the Hypotheses 4. Although descriptive statistics supports the negative impacts for all these cultural attributes of public security organizations on network effectiveness, the covariance structure model could not find statistically strong relationships for the Hypotheses 4<sub>a</sub>, 4<sub>b</sub>, 4<sub>c</sub>, 4<sub>d</sub> and 4<sub>e</sub>. The Hypothesis 4<sub>f</sub> was supported by the covariance structure model.

When we examine the sub-hypotheses in detail, Hypotheses 4<sub>a</sub> assumed a negative relationship between the level of defensiveness in member organizations and network effectiveness. However, the relationship between defensiveness and network effectiveness was not found to be significant at .05 significance level ( $\beta = -0.057$ ). Although the direction of the

association was negative as assumed, null hypothesis was failed to reject because of a weak relationship. Hypotheses 4<sub>b</sub> predicted a negative relationship between the level of perception of the organizational secrecy in member organizations and network effectiveness. The revised covariance structure model did not find any statistically significant evidence in the relationship at .05 significance level with the standardized regression weight of .034. Null hypothesis was also failed to reject for the hypotheses 4<sub>c</sub>, assuming a negative association between the level of hierarchy in member organizations and network effectiveness ( $\beta = .052$ ). Similarly, the hypotheses 4<sub>d</sub>, assuming a negative relationship between the level of sense of isolation among employees of the member organizations and network effectiveness, was not supported by the analysis ( $\beta = -.023$ )

Although a statistically insignificant relationship was found for the hypotheses 4<sub>e</sub> revised covariance structure model, the relationship was relatively stronger compared the first four variables. The hypotheses assumed a negative relationship between the level of group loyalty among employees of member organizations and network effectiveness, but the first covariance structure model indicates a positive relationship. The last sub hypothesis, which suggests a negative relationship between level of competition among member organizations and network effectiveness, was supported by the analysis with a standardized regression weight of  $-.153$ . The unstandardized regression weight of  $-.133$  indicates that a one-row-unit increment on competition accounts for a .133 decrease in network effectiveness. Table 33 shows the summary of hypothesis testing results.

Table 33 *Summary of Hypothesis Testing Results*

<b>Hypotheses</b>		<b>Results</b>
<i>H<sub>1</sub></i>	<i>There is a positive relationship between inter-organizational trust and network effectiveness in public security networks.</i>	<b>Supported</b>
<i>H2</i>	<i>There is a relationship between network leadership style and network effectiveness in public security networks.</i>	<b>Supported</b>
<i>H2<sub>a</sub></i>	Top down leadership style (the commissioner role) will achieve the highest network effectiveness in public security networks	Not Supported
<i>H2<sub>b</sub></i>	The co-producer style of leadership will achieve the highest network effectiveness in public security networks	Supported
<i>H2<sub>c</sub></i>	Bottom up leadership style (the facilitator role) will achieve the highest network effectiveness in public security networks.	Not Supported (Negative Relationship Found)
<i>H3</i>	<i>There is a positive relationship between the organizational goal convergence and network effectiveness in public security networks</i>	<b>Supported</b>
<i>H4</i>	<i>There is a relationship between the nature of organizational culture in the public security and network effectiveness in public security networks.</i>	<b>Partially Supported</b>
<i>H4<sub>a</sub></i>	There is a negative relationship between the level of defensiveness in the member organizations and network effectiveness in public security networks	Not Supported
<i>H4<sub>b</sub></i>	There is a negative relationship between the level of perception of the organizational secrecy in the member organizations and network effectiveness in public security networks	Not Supported
<i>H4<sub>c</sub></i>	There is a negative relationship between the level of hierarchy in the member organizations and network effectiveness in public security networks	Not Supported
<i>H4<sub>d</sub></i>	There is a negative relationship between the level of sense of isolation among employees of the member organizations and network effectiveness in public security networks.	Not Supported

<b>Hypotheses</b>		<b>Results</b>
<i>H4<sub>e</sub></i>	There is a negative relationship between the level of group loyalty among employees of the member organizations and network effectiveness in public security networks.	Not Supported
<i>H4<sub>f</sub></i>	There is a negative relationship between the level of competition among member organizations and network effectiveness in public security networks.	Supported

Consequently, the statistical analysis results supported three of the four main hypotheses. The fourth main hypothesis, which is related to organizational culture, is partially supported. The study found that inter-organizational trust and goal convergence have a positive relationship with network effectiveness. Although facilitator leadership is found to be the most common leadership style in Turkish public security networks, it is found as inappropriate to achieve higher network effectiveness. According to the results, the co-producer network leadership is the most convenient leadership style in terms of network effectiveness. While the results of the descriptive statistics confirm that six specific features of organizational culture in the public security sector have negative influence on network effectiveness, the hypothesis testing with the covariance structure model only support the negative impact of competition among partner organization. The next chapter will discuss the findings of the statistical analysis.

## CHAPTER 5- DISCUSSIONS, IMPLICATIONS, AND LIMITATIONS

In the light of study findings, this section focuses in detail on discussions on study variables and covariance structure model, theoretical methodological, managerial, and policy implications, limitations of the study, and possible future research topics.

### 5.1 Discussions

#### 5.1.1 Network Effectiveness

Network effectiveness is defined by Provan and Kenis (2008) “as the attainment of positive network level outcomes that could not normally be achieved by individual organizational participants acting independently” (p. 230). Determining appropriate performance evaluation measures in networks is more challenging compared to single organizations (Page, 2004). Each network has special performance evaluation measures that are more suitable to the field in which a network works, and the purpose of the network (Provan, Fish & Sydow, 2007)

Network effectiveness in public security networks is the endogenous variable of the study that originally consists of 12 indicators: *Regular communication among participants; long term relations, the amount of shared information, information using and collecting capacity, success in joint operations, success in preventing terror and organized crime cases, success in solving terror and organized crime cases, and success in capturing and eliminating terrorists and members of organized crime gangs.* Among these indicators: *success in preventing terror attacks and success in preventing organized crime incidents; success in solving terror cases and success in solving organized crime cases; and success in capturing or eliminating terrorists and success in capturing or eliminating members of organized crime gangs* were highly correlated. High correlation in these indicators can be justifiable, since they were addressing the same aspects of

similar problems. In confirmatory factor analysis, one of the highly correlated variables should be removed from the measurement model to prevent biased estimates of the parameters (Wan, 2002). Thus, three indicators, which are *success in preventing organized crime incidents*, *success in solving organized crime cases*, and *success in capturing or eliminating the terrorists*, were excluded from the model.

In the generic measurement model all indicators were found as statistically significant at .05 significance level. However, the factor loading of the indicator of *regular communication among participants* was lower than the factor loading threshold criterion of .40. This indicator was also excluded from the model to get better model fit. After examining the modification indices, three pairs of error terms in the model were correlated with each other to increase model fit.

The revised measurement model of network effectiveness consists of 8 indicators. Factor loading of indicators are ranging from .407 to .871. The highest factor loading is produced by the *success in preventing terror attacks* with a regression coefficient value of .871 followed by the indicators of *success in solving terror cases* and *success in capturing or eliminating members of organized crime gangs* which have standardized regression weights of .789 and .787 respectively. These scores make them the most important indicators of the construct. The Cronbach's Alpha score of the revised model is .871. Given factor loadings, Cronbach's Alpha score and goodness of fit statistics verify a valid and reliable latent construct for the network effectiveness.

Among three control variables, risk level of terrorism has low negative relationships with three indicators of network effectiveness, and risk level of organized crime has again a low negative relationship with seven indicators. Negative directions in correlations show that as



jurisdictions' risk level increase, network effectiveness decreases. The control variable of population of the jurisdictions failed to demonstrate any significant relationship with network effectiveness.

### **5.1.2 Inter-Organizational Trust**

Inter-organizational trust is the first exogenous latent variable of the study. It was designed to measure the level of trust among organizations in public security networks. Nine indicators of the variables which are *open communication among partner agencies, perception about reliability, honesty, mutual understanding, keeping commitment in collaborative process, mutual acceptance, belief on capability, mutual respect among members, and sense of fairness*, came from different studies in literature (Vangen & Huxham, 2003; Ostrom & Ahn, 2002; Ferguson & Stoudand, 1999; Edelenbos & Klijn, 2007). The survey questions were previously used by different studies (Wang & Kapucu, 2006; Kapucu, 2008; Garayev, 2011; Kapucu, Garayev & Wang, 2013).

No indicators were excluded from the measurement model because of high correlation. All indicators were found statistically significant at .05 significance level. Since all standardized regression weights of the indicators were higher than .40 (factor loading threshold) all of them were kept in the model. Modification indices were examined to make respecification and according to those scores, three error terms were correlated. In revised model factor loadings are between .485 and .818. Cronbach's alpha score for inter-organizational trust was .896 which indicates a very good level of reliability. The results of confirmatory factor analysis show that indicator *sense of fairness* has the highest factor loading (.818). *Mutual understanding* has the second highest factor loadings (.793), and *Honesty* takes the third place in terms of regression weight rankings (.764). While five indicators of inter-organizational trust are negatively

correlated with control variable of organized crime, only two indicators have significant negative correlation with terrorism risk level of network jurisdiction. Negative directions in correlations reveal that as jurisdictions' risk level increase, inter-organizational trust in networks decreases. No significant correlation was detected between population and indicators of inter organizational trust.

### **5.1.3 Network Leadership Styles**

In order to compare the impact of three alternative styles of network leadership on network effectiveness, three latent constructs, which are commissioner style, co-producer style, and facilitator style, were built for the study. In the generic measurement model each leadership style was measured with six indicators. These indicators were taken from the paper written by Span et al. (2009).

According to the indicators of commissioner network leadership style, network goals and network vision are formulated solely by governors. Governors act as an executor and steer network activities. Decisions in the network are made solely by the governor and they take full responsibility for public security network activities. The descriptive statistics demonstrated that the commissioner style is the least common leadership style for Turkish public security networks. The statements for this construct were mostly not supported. This is mainly because governors have very limited power on military forces and intelligence service departments. Their power on the Gendarmerie and the Coast Guard is even restricted, although they are a kind of law enforcement agency. Therefore, managing public security networks with commissioner leadership style is not very possible for governors.

Among these six indicators for commissioner style, the first two indicators were highly correlated with each other. This is a justifiable situation, being *goals of the network* and *visions of the network* are similar concepts. Therefore, the second indicator related to vision was excluded from the model. After this revision, the model had a perfect model fit, thus any other revision was not needed to validate the model. All other indicators were statistically significant, having factor loadings between .518 and .841. Indicators related to *steering network activities* and *decision making* had the highest standardized regression weights (.841, .771), specifying that they are the most important indicators of the commissioner leadership style. Even though, the Cronbach's Alpha score decreased from .856 to .815 after revision, this score still demonstrates a good reliability of measurement. Organized crime risk level was negatively correlated with four indicators of commissioner leadership style and three indicators were negatively correlated with terror risk level. No significant correlation was found between population and the indicators in this construct.

According to the indicators of co-producer network leadership style, network goals and network vision are formulated by all partners jointly. Governors act as a partner in the network instead of a hierarchical superior. Network activities are steered jointly and decisions in the network are made by all partners jointly. Finally, all partners are jointly responsible for network activities. According to the frequency distribution of the responses, co-producer style is also not a very common leadership style of province governors for managing public security networks. Although the responses to the statements get higher agreement responses compared to statements of commissioner leadership style, disagreement responses usually exceeded agreement responses except the indicator related to *steering network activities*.

Similar to the commissioner leadership style, the first two indicators were highly correlated with each other. They are related to *goals of the network* and *vision of the network*. This was an expectable result, after finding a similar high correlation between goals and vision in commissioner leadership style. The second indicator, related to vision, was also removed from this model. Another significant point in correlation analysis is related to the third indicator, which says governors act as a partner in the network instead of a hierarchical superior. This indicator had only one significant correlation with other indicators in this construct. In addition, the direction of this correlation was negative. This could be regarded as a signal of low factor loading in confirmatory factor analysis.

The results of confirmatory factor analysis confirmed this signal, finding a low factor regression weight with a P value of .106 that indicates an insignificant indicator. After excluding this indicator, the co-producer leadership style had a perfect model fit. Factor loadings of the indicators in the revised measurement model differed from the lowest .589 to the highest .851. Regression weights demonstrated that *decision making* is the most important indicator of this latent construct. Goodness of fit statistics, high factor loadings and Cronbach's Alpha score (.814) demonstrated the validity and reliability of the conceptualization of this latent variable of co-producer network leadership style. All indicators of co-producer leadership style except NL9 had statistically significant negative correlation with organized crime risk level. This result shows that as the risk level of organized crime risk increased, governors perform behaviors related co-producer leadership style less. The results did not find any significant correlation between indicators of co-producer leadership style and the control variables of population and terror risk level.

The third network leadership style is facilitator leadership. According to the original indicators, under management of facilitator leadership in a network, each organization formulates their own goals and visions separately. The governor acts as an initiator to facilitate the collaboration and each organization steers their own activities in the network. Decisions in the network are made by each organization and each partner is responsible for their own activities.

According to the frequency distributions, the facilitator style is the most common leadership style in Turkish public security networks. Responses for the statements of facilitator style of leadership accumulate within agreement responses. Governors' weak power on security agencies, the strong relationship between the provincial branches of security organizations and their headquarters, and the unwillingness of agencies to enter a deeper partnership in the network may direct governors to choose characteristics of facilitator leadership style.

Correlation analysis did not demonstrate any high correlation between indicators in this construct leading to a multicollinearity problem. The generic measurement model of facilitator network leadership style was examined through confirmatory factor analysis. Confirmatory factor analysis demonstrated that the last indicator, which says each organization and each partner is responsible for their own activities in the network, was found statistically insignificant at .05 significance level. All other indicators were statically significant. Although factor loading of the indicator that says the governor acts as an initiator to facilitate the collaboration was not higher than .40, it was not removed from the model. Because this revision would decrease the  $\chi^2/df$  value lower than 1.00 that leads poor model fit. All remaining indicators were ranging from .470 to .963 were satisfactory. The highest factor loading is produced by the indicator related to the *vision of the network*. According to the result of modification indices, two error terms are

correlated with each other. Cronbach's alpha coefficient (.819) of the revised model, factor loadings, and goodness of fit statistics demonstrate the validity and reliability of the conceptualization for the facilitator leadership style. The results of correlation analyses showed that any indicators of facilitator leadership did not have a significant correlation between three control variables of the study.

#### **5.1.4 Goal Convergence**

The last exogenous latent variable of goal convergence was designed to measure “the extent to which organizations have common goals and mission” (Kapucu, Garayev & Wang, 2013, p. 106). The generic measurement model originally consists of six measures, which are *difference in organizational priorities, multiplicity of differing organizational backgrounds, diverging organizational goals, expectations and mission, and common points*, were used to measure goal convergence among member organizations in public security networks. The survey questions were previously used by different studies (Wang & Kapucu; 2006; Kapucu, 2008; Kapucu, Garayev & Wang, 2013).

The frequency distributions of the responses indicate that respondents think there is a low level of organizational goal convergence in province public security networks. Most of the respondents agree or strongly agree that organizations in the public security network have different organizational priorities, goals, missions, and expectations, but they do not mostly agree with that organizations have little in common. Most of the respondents also think that collaboration in the network is challenging due to a multiplicity of differing organizational backgrounds. As correlation analysis results did not demonstrate any high correlation between indicators, no indicators were excluded from the measurement model because of multicollinearity. All indicators were found statistically significant at .05 significance level, but

the last indicator of missions were excluded from the model because of its factor loading (.394) is lower than .40. According to the modification indices, one pair of error terms of indicators was correlated with each other. The results of confirmatory factor analysis show that the indicator of *organizational backgrounds* has the highest factor loading (.825), and the indicator of *organizational priorities* takes the second place in terms of regression weight rankings (.781).

Among three control variables, three indicators were negatively correlated with control variable of population and just one indicator was negatively correlated with terror risk level. Any other statistically significant correlation was detected between indicators of goal convergence and control variables.

### **5.1.5 Organizational Culture**

Organizations in the public security sector have some unique cultural features that make them different from other public agencies. This study focuses on six characteristics of security agencies' organizational culture that were argued in the literature (Mouton, 2002; Kappeler, Sluder & Alpert, 1998; Fraser, 2004; Christensen & Crank, 2001; Luen & Al-Hawamdeh, 2001). *Defensiveness, organizational secrecy, strict hierarchy, sense of isolation among employees, group loyalty and competition* among agencies were measured by a single question in the survey as separate characteristics of organizational culture in public security networks. Since respondents were asked to evaluate a specific statement for each variable, organizational culture is not a latent variable and confirmatory factor analysis was not used to validate a measurement model.

Among the six questions, four questions directly asked respondents the influence of a specific cultural attribute on collaboration in networks. In these four questions, respondents were asked to evaluate the impact of organizational secrecy perceptions of network members, strict

hierarchy, a sense of isolation among employees of member organizations, and competition among agencies on network collaboration. The descriptive analysis of these questions shows that all of these four cultural attributes have a negative effect on network collaboration. Other two questions in the section were formulated to identify the level of defensiveness, and group loyalty. Most of the respondents agree or strongly agree that defensiveness and group loyalty are existing characteristics of member organizations in their network.

Among the six variables of organizational culture, *defensiveness*, *strict hierarchy* and *competition* had a statistically significant negative correlation with the control variable of population. Negative correlation reveals that, as the population of the jurisdiction increases, defensiveness, hierarchy in security organizations, and competition among members in networks decreases. The analyses did not find any other significant correlation between the variables of organizational culture and control variables.

#### **5.1.6 Covariance Structure Model**

Based on literature and the theoretical framework, the main research question of the study is, “Which factors are important for effectiveness in public security networks?” In order to address this question, the study aims to test the hypothesized relationships between exogenous variables of inter-organizational trust, network leadership style, goal convergence, and specific characteristics of organizational culture in the public security sector, and endogenous variable of network effectiveness.

The first hypothesis addressed the research question of, “What is the role of inter-organizational trust among partner agencies?” The analysis results find a positive relationship between inter-organizational trust and network effectiveness. Regression weights of the covariance structure analysis indicated that inter-organizational trust ( $\beta = 304$ ) is the one of the



most important variable along with goal convergence. Inter-organizational trust has a positive correlation (.64) with co-producer network leadership style and negative correlation with facilitator network leadership style (.26). The result is consistent with the literature that argues that trust facilitates collaboration, lessens transaction costs, strengthen network ties, increase information collecting and using capacity, and problem solving capacity (Agranoff, 2007; Agranof & McGuire, 2001; Isett et al., 2011; Edelenbos & Klijn, 2007).

The second hypothesis addressed the research question of, “Which kind of leadership style will achieve the highest performance in public security networks?” There are different arguments in network literature about the appropriate leadership style. While McGuire (2006), Agranoff (2007), and Whetten (1978) found that the top down leadership (commissioner style) provides higher collaboration in networks, Andrews, Boyne, Law, and Walker (2009) and Korssen-van Raaij (2006) found that the bottom-up leadership (the facilitator style) is more appropriate for networks.

In order to find the most suitable leadership style for public security networks, three alternative sub hypotheses were tested in this study. The study found that the co-producer leadership style ( $\beta = .238$ ) ensures higher network effectiveness, whereas facilitator leadership style ( $\beta = -.119$ ) decreases the network effectiveness. The study did not find a statistically significant relationship between commissioner leadership style and network effectiveness at .05 significance level.

The different results found by different researches related to the appropriate leadership style explained by Span et al. (2012) through different conditions in which examined networks perform. They suggested that the commissioner style is more effective for simple and stable public networks; and the facilitator style is more effective for complex and dynamic public

networks, while the co-producer style is better for simple and dynamic public networks and complex and stable public network. The results of the study are consistent with Span et al.'s argument, since Turkish local public security networks have a complex but stable structure.

An interesting point in the results of the study is the contradiction between prevalence of the leadership styles and their appropriateness in terms of network effectiveness. Although the facilitator style is found to be the most common leadership style in public security networks, it is found as inappropriate for network effectiveness. Facilitator style is preferred by the governors because of their weak power on some member organizations such as military units and intelligence departments. The unwillingness of organizations to work together and the high dependence of member organizations to their headquarters in capital city Ankara make it difficult for governors to implement commissioner style or co-producer style of network leadership. The positive correlation (.64) between the co-producer style and inter-organizational trust, and the negative correlation (-.26) between facilitator style and inter-organizational trust can be interpreted that the level of trust is an important determiner of the preferred leadership style for governors. However, this relationship can also be interpreted that the type of leadership style may positively or negatively influence the level of trust between organizations in the network.

The third hypothesis addresses the research question of, "What is the relative importance of goal convergence in network effectiveness?" The study found that goal convergence is one of the most important variables that have positive impact on network effectiveness. The result is also consistent with the literature (Rivera, Soderstrom & Uzzi, 2010; Kapucu and Garayev; 2013). The study also found a positive correlation between goal convergence and competition

among member organizations. This means that as the goals are more similar, the competition between agencies is getting higher.

The fourth hypothesis addresses the research question of, “What is the relative importance organizational culture in network effectiveness?” In order to address this research question, six sub hypotheses were tested in the study. As mentioned before, four questions directly asked respondents the impact of a specific cultural attribute on collaboration in their public security network, and other two questions in the section were formulated to identify the level of defensiveness and group loyalty. The frequency distribution of responses and the result of the covariance structure model are not consistent with each other for three questions which directly ask the impact of organizational secrecy perceptions of the network members, strict hierarchy in the organizations, and sense of isolation among employees of the member organizations.

According to the frequency distributions of the statements in these four questions, respondents think the examined cultural attributes make it difficult for collaboration in the public security networks. The statements in this section were reported the highest percentage of agreement responses. More specifically, 86.5 percent of the of the respondents agree or strongly agree that collaboration in the public security network is challenging due to organizational secrecy perceptions of the network members. 80 percent of respondents think that strict hierarchy in member organizations make collaboration challenging in their security networks. 77 percent of the respondents agree or strongly agree that collaboration is challenging in their networks because of a sense of isolation among employees of the member organizations. And finally, 76.4 percent of the respondents think that collaboration is challenging due to competition among organizations in their public security networks. However, the covariance structure model did not

find a statistically significant relationship between organizational secrecy perceptions, strict hierarchy, sense of isolation among employees of the member organizations, and network effectiveness. Although frequency distributions support the hypotheses that argue a negative relationship between these cultural attributes in the security sector and network effectiveness, the results of the covariance structure model did not support the hypotheses which are based on literature. On the other hand, competition among member organizations is found to be negatively associated with network effectiveness as consistent with the literature.

With regards to two questions that identify the level of defensiveness and group loyalty, 69.9 percent of the respondents agree or strongly agree with the organizations involving the public security network do not confront problems without becoming defensive, and 72.2 percent of respondents think that when an employee of an organization in the network makes a mistake, fellows feel responsibility to protect him/her. The covariance structure model did not find a statistically significant relationship between defensiveness and network effectiveness; therefore, the results were not be able to verify the hypothesis. The results of the covariance structure model related to group loyalty contradicts with the hypothesis. While the hypothesis assumes a negative relationship, the results indicate an insignificant positive relationship. This result can be interpreted that respondents think that group loyalty in member organizations is a sign of group loyalty in the network that may have positive impact on network effectiveness.

Among three control variables, the study only found a negative statistically significant relationship between the organized crime risk levels of network jurisdictions between network effectiveness. The standardized regression weight of  $-.153$  indicate that one-row-unit increase in the risk level accounts for a  $.153$  unit decrease in network effectiveness. Other control variables,

population of the jurisdiction and terror risk level, were not found to be statistically associated with network effectiveness.

## **5.2 Implications**

This study examined the dynamics of network effectiveness in the public safety sector. Local public security managers' perceptions about network effectiveness were examined. In the light of study results, the implications of the study can be discussed in theoretical, methodological, managerial and policy context.

### **5.2.1 Theoretical Implications**

The survey was designed to evaluate inter-organizational collaboration among local public security network members in Turkey, and understand which factors are important for network effectiveness in the public security networks. In this study, the network effectiveness concept was examined in the context of the public security sector. Therefore different studies in different sectors may indicate different consequences. In other words, the study contributes to the literature on the idea of network effectiveness, especially in the public security field.

The network theory literature discusses that some significant factors, such as inter-organizational goal convergence, network structure, network resources, leadership style, internal and external legitimacy, trust, power differentiation, may contribute the network effectiveness (Popp et al., 2013). The results of this study, which indicate a positive relationship between inter-organizational trust, goal convergence and network effectiveness, are consistent with the literature. Inter-organizational trust and goal convergence are found to be the most important factors affecting network effectiveness.

The results are also consistent with the inter-organizational social capital perspective. According to this perspective, social capital provides a more appropriate environment for collaboration. It creates a justification for organizations to subordinate their priorities in favor of organizational goals and also creates more flexible work practices. Finally, it provides a more productive instrument to manage collective actions compared to hierarchical tools. Trust is accepted as one of the two main components of social capital (Leanna and Van Burren 1999 & Puntham, 1995). Social capital can be realized “through members' levels of collective goal orientation and shared trust” (Leanna & van Burren, 1999, p. 540). The findings of the analysis indicate the importance of inter-organizational trust and goal convergence on network effectiveness, which were stressed as the two main mechanisms to realize social capital. The positive relation between the co-producer leadership style and inter-organizational trust is also a significant point in terms of social capital perspective. Therefore, co-producer leadership style is found as the most suitable leadership style for enhanced trust and social capital.

The results confirmed that different leadership styles have different consequences with regards to network effectiveness as well. The study has been the first study that compares the impacts of three alternative leadership styles in public security networks. According to the results, hierarchical methods which are represented by commissioner leadership style do not help for better collaboration in the network. Although facilitator leadership is the most common leadership style in the public security sector because of the specific difficulties to implement other leadership styles in network settings, it is found inappropriate to achieve higher network effectiveness. The co-producer network leadership is found as the most convenient leadership style in terms of network effectiveness. An important point found in the study is the positive correlation between inter-organizational trust and co-producer leadership style and negative

correlation between the inter-organizational trust and facilitator leadership style. This study did not focus on the causal relationship between the leadership style and inter-organizational trust. Therefore, it cannot be firmly said which one leads to another. Further studies may examine the causal relationship between trust and network leadership style

In terms of resource dependency theory, organizations in public security networks are dependent upon each other to fight against terrorism and organized crime. However, the findings show that they have different priorities and expectations which create a problematic situation for network effectiveness. According to the results, network management should encourage organizations to actively involve network activities by employing co-producer style behaviors. Network leaders should remind the necessity of collaboration and the organizations' interdependence to achieve their goals. Network leaders should embrace collaborative leadership skills that focus on productive interaction among network members (McGuire & Silvia, 2009)

While the results of the descriptive statistics confirm that six specific features of organizational culture in the public security sector have negative influence on network effectiveness, the hypothesis testing with the covariance structure model only support the negative impact of competition among partner organizations. Therefore, the covariance structure model did not support literature, which argue that features of organizational cultures in the public sector such as isolation, secrecy, hierarchy, group loyalty and defensiveness often prevent healthy information sharing and collaboration (Fraser, 2004; Christensen & Crank, 2001; Luen & Al-Hawamdeh, 2001; Glomseth, Gottschalk & Solli-Sæther, 2007). The only organizational culture attributes found as having negative impact on network effectiveness is competition between organizations. However, the conflicted results obtained by descriptive statistics and covariance structure model necessitate further research to examine the relationship between the

nature of organizational culture in the public security and network effectiveness in public security networks.

### **5.2.2 Methodological Implications**

The first methodological implication is related to operationalization of the variables. In terms of the reliability and validity of the latent constructs, the result of confirmatory factor analysis verified that inter-organizational trust, commissioner network leadership style, co-producer network leadership style, facilitator leadership style, goal convergence and network effectiveness are acceptable constructs. The survey questions can be used to measure the constructs in other studies. Especially, the network effectiveness section of the survey is unique, and it was developed in this study in the light of literature to evaluate the success of public security networks. However, operationalization of the variables in organizational culture should be revisited for potential problems.

The second implication is that perceptions of network managers can be used to evaluate the overall characteristics of public security network. This study surveyed province and district governors, deputy province governors, administrative senior inspectors and Interior Ministry high and middle level bureaucrats who have worked as public security managers. Since they have deep knowledge and experience related to public security networks, they are decent sources of information to evaluate different aspects of networks. This method can be replicated in further similar researches.

Finally, a self-reported online survey was used to collect data. The survey was built and distributed through a web-based survey tool. The links of the survey questionnaire was electronically mailed to the respondents. This is an easy, fast and low-cost method of information



gathering method and provides efficient and effective opportunities for sectorial studies. Survey questions in inter-organizational trust and goal convergence were taken from previously conducted surveys. They were originally prepared in English. Other sections were prepared in English as well by using existing literature. Then the survey questions were translated in to Turkish. When making translation, cultural differences were considered, and functional equivalence was targeted, rather than literal translation. In order provide reliability and validity of the measurement, the Turkish version of the survey was reviewed by Turkish native speakers. The reviewers of the translations were selected among professional managers of the Turkish Interior Ministry who know the context of the study. When conducting a survey for other countries using another language, these translation methods may be replicated to give interpretive and actual meaning of the study constructs.

### **5.2.3 Managerial and Policy Implications**

The study indicated the importance of the inter-organizational trust and goal convergence in network effectiveness. Government and network managers should focus on establishing relationships to promote trust and decrease the goal divergence between partner agencies. They should try to increase open communication in the network. This can be possible to encourage behaviors characterized by mutual understanding, acceptance and respect. When making decisions, sense of fairness is an important aspect of establishing trustful relationships. Creating such an environment would push network members to stay reliable and honest in network relationships. In order to create such an environment, the education phase of officers of member organizations should be focused. This set of behaviors should be identified as education objectives in training of military, law enforcement and intelligence service officers.

Central government should impose security agencies to work together and information sharing. A set of criteria related to inter-organizational collaboration should be identified as a performance measure for each agency. In addition to common objectives, unique criteria should be determined for specific jurisdictions, because of their different security priorities and problems. These criteria should be strictly observed and enforced by central government and governors with an effective performance measurement system.

Another significant policy and managerial implication that can be derived is related to network leadership style. The results indicate the facilitator leadership style is the most common practice, because it is easier to implement in network settings compared to other leadership styles. However, the study found that this is not suitable for network effectiveness. Facilitator style does not help to encourage member organizations to work together. Each organization focuses on their goals and their own actions. The network goals stay in the second row behind organizational priorities. This situation prevents to produce better results in terms of network effectiveness. The results also indicate that commissioner leadership style that uses hierarchical tools in network management does not generate positive outcomes. Networks have unique conditions that differ them from single organizations. The results confirmed that top-down leadership is not an appropriate style to manage public security networks.

According to the study results, co-producer style yields higher network effectiveness. The negative relationship between trust and facilitator style, and a positive relationship between trust and co-producer style verify the negative impacts of facilitator style and positive consequences of co-producer style. Encouraging joint relationships in formulating goals, vision, making decisions, actions, and taking responsibility are more fit to the spirit of the network.

Although governors have little tools to implement the co-producer style, they need to find ways to create such an environment that co-producer leadership can be employed.

Governors should focus on three main tasks to build an effective network. First, they should ensure an accountable system of public security in which member organizations fulfill their obligations to the network. Effective monitoring of network members and their activities is an important requirement of accountability. Secondly, governors need to manage conflicts between organizations appropriately and constructively (Milward & Provan, 2006). They should identify the boundaries of member organizations, network principles, and values (McGuire, 2002). Another requirement for co-producer leadership style is appropriately coordinating joint actions. Governors should ensure continuous communication during the preparation phase and operation phase of joint actions.

In the light of these consequences, central government should select governors between candidates who have communication skills, and influence and negotiation skills. Government should also aim to gain competencies in three types of leadership behaviors, which are: task oriented behaviors, organization oriented behaviors and people oriented behaviors, in education and training programs for governors (Van Wart, 2011). Competencies in task oriented behaviors are “monitoring and assessing work, planning, clarifying roles and objectives, informing, delegating, problem solving, and managing innovation and creativity”(p.347). Competencies in organization oriented behaviors are “scanning the environment, strategic planning, articulating the mission and vision of the organization, networking and partnering, performing general management functions such as human resource management and budgeting, decision making, and managing organizational change” (p. 392). Lastly, people oriented behaviors are important

to build inter-organizational trust, mutual respect, continuous communication, manage conflicts among member organization and motivate them for shared goals.

Finally, in order to promote governors to implement behaviors in co-producer leadership styles, the central government should strengthen the governor's authority and financial power on military units and intelligence departments. Central government should provide opportunities for governors to build local capacity in public security. The highly centralized structure in security agencies leads local branches to follow their headquarters rather than province governors. Organizations are more inclined to comply with orders from the capital city and omit the goals of province public security networks. The enhancing dependency to province resources would push organizations to work together.

### **5.3 Limitations**

The first limitation is related to the respondents. The survey was distributed to the professional public security network managers in Turkey who are current or previous province and district governors. The study population is the most knowledgeable group in Turkey about the study topic. However, participant agencies' employees might have different perceptions than the managers of the network. There is also a generalizability issue since the study was conducted in the context of the Turkish local public security networks. Being all respondents were from Turkey, the results may not be applicable to public security networks in other countries.

Second limitation is about the design. This study is a cross sectional survey based design. Cross-sectional surveys collect data at one point in time and indicate snapshots of the population. Cross sectional studies might be weak in terms of providing deeper understandings in complex problems. Another limitation of the study is about data gathering method. Self-administered

surveys might be weak to represent actual thoughts of individuals. Respondents may select more favorable choices rather than their actual behaviors.

Finally, the study did not test the causal relationships between exogenous variables, because of the design of the conceptual framework. Only correlations between exogenous variables were examined and possible mediation or moderation relationships between exogenous and endogenous variables were not focused.

#### **5.4 Future Research**

Future studies should examine the perceptions of participant agencies' employees related to latent construct of the study. The perceptions of the network manager may not entirely represent the general perceptions in the network. The same survey used in this study should be conducted to participant agencies' employees. Future studies should also examine the study constructs by using qualitative methods, which can overcome limitations of cross sectional designs. Additional interviews with some of the survey respondents may be conducted to reach better understandings about their perceptions.

Another suggestion is about the design of contextual framework. Future studies should examine the mediation and moderation effects between variables. The causal relationship between inter-organizational trust and leadership style should be examined. In addition, inter-organizational trust may be designed as the endogenous variable and the impacts of network success or network effectiveness on inter-organizational trust should be examined.

Finally, in order to increase the generalizability of the study findings, the study should be replicated in other countries' public security networks. Further studies should also replicate this study in other sectors.



**APPENDIX A: SURVEY**

This survey is conducted to examine local public security network managers' perceptions about the network effectiveness. Because of increasing challenges about terrorism and organized crime, governments establish various new organizational networks to fight against different aspects of these problems. This enlargement generates a complex public security network system involving law enforcement agencies, military units, and intelligence services. Managing complex network arrangements is different from managing and leading a single public organization. Governors have limited direct authority over military units and intelligence services. This study will look at the dynamics of the network effectiveness in the public security sector. The survey is designed to evaluate inter-organizational collaboration among local public security networks members across Turkey, and understand which factors are important for an effective collaboration in public safety networks. The survey takes about 15 minutes to complete. Your responses are confidential, and will not be revealed without your consent; only aggregate results will be made available. I appreciate your effort and time for participation.

Cihan Demirhan

Senior Administrative Inspector

PhD. Student at UCF



**Section 1:** In this study, the term of ‘province public security network’ is used to refer a province’s security structure, which works under the coordination of a governor, consisting of law enforcement agencies, military units, intelligence departments, and other organizations. Please identify a province public security network that you had opportunity to observe closely, and rate each of the following statements in regard to this province public security network.

Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
5	4	3	2	1

- The organizations involving this province public security network have an open communication.
- The organizations in this public security network are reliable partners.
- Honesty is the basis of inter-organizational collaboration in the public security network.
- Inter-organizational relations in the network are characterized by mutual understanding.
- The organizations in the network keep their commitment.
- Mutual acceptance is the important part of inter-organizational collaboration in the network.
- There is a common belief across the network that each actor is capable of contributing to the overall picture.
- Inter-organizational collaboration is characterized by mutual respect in the network.
- The organizations in the network collaborate with a sense of fairness towards each other.

**Section 2:** Please rate each of the following statements in regard to the province public security network that you identified based on the scale provided by considering that governors have limited direct authority over military units and intelligence services.

Strongly Agree	Agree	Neither Agree Nor Disagree	Disagree	Strongly Disagree
5	4	3	2	1

- Network goals are formulated solely by the governor in the network.
- Public security network vision is formulated solely by the governor in the network.
- The Governor acts as an executor.
- Network activities are steered by the governor.
- Decisions in the network are made solely by the governor.

- The governor takes full responsibility for the public security network activities.
- Network goals are formulated by all partners jointly.
- Network vision is formulated by all partners jointly.
- The Governor acts as a partner in the network instead of a hierarchical superior.
- Network activities are steered jointly.
- Decisions in the network are made by all partners jointly.
- All partners are jointly responsible for network activities.
- Each organization is formulating their own goals separately in the network.
- Each organization is formulating their own visions separately in the network.
- The governor acts as an initiator to facilitate the collaboration.
- Network activities are steered by each organization.
- Decisions in the network are made by each organization.
- Each partner is responsible for their own activities.

**Section 3: Please rate each of the following statements in regard to the province public security network consisting of law enforcement agencies, military units, intelligence departments, and other organizations that you identified based on the scale provided:**

**(Organizational Culture)**

Strongly Agree	Agree	Neither Agree Nor Disagree	Disagree	Strongly Disagree
5	4	3	2	1

- The organizations involving the public security network do not confront problems without becoming defensive.
- Collaboration in the public security network is challenging due to organizational secrecy perceptions of the network members.
- Collaboration in the public security network is challenging due to a strict hierarchy in the organizations.
- Collaboration in the public security network is challenging due to a sense of isolation among employees of the member organizations.
- When an employee of an organization in the network makes a mistake, fellows feel responsibility to protect him/her.
- Collaboration in the public security is challenging due to competition among organizations.

**Section 4: Please rate each of the following statements in regard to the province public security network consisting of law enforcement agencies, military units, intelligence departments, and other organizations that you identified based on the scale provided.**

Strongly Agree	Agree	Neither Agree Nor Disagree	Disagree	Strongly Disagree
5	4	3	2	1

- Organizations in the public security network have different organizational priorities.
- Collaboration in the public security is challenging due to a multiplicity of differing organizational backgrounds.
- There is a gap between organizational goals in the network.
- Organizations working together have little in common.
- Diverging organizational expectations is the reality of public security networks.
- Organizations are hardly related in terms of their organizational missions.

**Section 5: Please rate each of the following statements in regard to the province public security network consisting of law enforcement agencies, military units, intelligence departments, and other organizations that you identified based on the scale provided.**

Strongly Agree	Agree	Neither Agree Nor Disagree	Disagree	Strongly Disagree
5	4	3	2	1

- The organizations in the network periodically contact each other to discuss issues pertaining to public security.
- The organizations constantly develop long-term relationships among each other.
- The organizations in the network constantly exchange information.
- The public security network provides participant organizations to improve the ability of collecting information against terrorist and criminal activities.
- The public security network provides participant organizations to improve the ability of using information against terrorist and criminal activities.
- The public security network is successful in carrying out joint operations.
- The public security network is successful in preventing terrorist attacks.
- The public security network is successful in preventing organized crime activities
- The public security network is successful in solving terror cases.
- The public security network is successful in solving organized crime cases.
- The public security network is successful in capturing or eliminating the terrorists.
- The public security network is successful in capturing or eliminating members of organized crime gangs.

**Section 6:**

Are there additional elements that you think are important for an effective collaboration in public security networks?

**Section 7:**

What is the population of this network jurisdiction?

Under 250,000    250,000- 500,000    500,000-1.000,000    1.000,000- 2,000,000

Over 2,000,000

What is the risk level of the network jurisdiction in terms of terrorism?

Very Low    Low    Medium    High    Very High

What is the risk level of network jurisdiction in terms of organized crime?

Very Low    Low    Medium    High    Very High

## **APPENDIX B (SURVEY IN TURKISH)**

Terör ve organize suç örgütleri kullandıkları yöntemleri sürekli olarak yenilemekte ve geliştirmektedir. Bu durum, mücadele de farklı zorlukları ortaya çıkarmakta ve yeni kamu birimlerinin kurulmasını zorunlu kılmaktadır. Bu zorunluluk, karmaşık bir kamu güvenliği network yapısının ortaya çıkmasının temel nedenlerinden birisidir. Kolluk kuvvetleri, askeri birlikler, istihbarat birimleri ve gerektiğinde networke dâhil olan diğer kuruluşlardan oluşan bu güvenlik networku arasındaki işbirliğini yönetmek, hiyerarşik bir yapılanma içindeki her hangi bir kamu kurumunu yönetmekten farklıdır. Vali ve kaymakamların özellikle askeri birlikler ve istihbarat birimleri üzerindeki hiyerarşik yetkileri sınırlıdır. Bu anket, Türkiye’deki yerel güvenlik networklerinde yer alan güvenlik kuruluşları arasındaki işbirliğini ve bu işbirliğin artmasında hangi faktörlerin etkin olduğunu ölçmeyi hedeflemektedir. Anketi cevaplandırmanız yaklaşık 15 dakika sürecek olup, vermiş olduğunuz cevaplar gizli kalacak, ilgilinin rızası dışında hiç bir şekilde açıklanmayacaktır. Doldurulan anketlere ilişkin veriler yalnızca bir bütün olarak bilimsel amaçlı olarak kullanılacaktır. Araştırmaya değerli bilgi ve görüşlerinizle yapacağınız katkılar ve ayıracağınız zaman için teşekkürler.

Cihan Demirhan

Mülkiye Başmüfettişi

UCF Doktora Öğrencisi

**Bölüm 1:** Bu çalışmada kullanılan il kamu güvenlik networku ifadesi ile il valisinin koordinasyonu altında çalışan, kolluk kuvvetleri, askeri birlikler, istihbarat birimleri ve gerektiğinde diğer kuruluşlarında katıldığı il güvenlik sistemi kastedilmektedir. Lütfen yakından gözlemleme imkânı bulduğunuz bir ilin kamu güvenlik networkunu belirleyerek, bu il güvenlik networku açısından aşağıdaki ifadelere ne derece katıldığınızı cevap ölçeğini kullanarak belirtiniz.

Kesinlikle Katılıyorum	Katılıyorum	Emin Değilim	Katılmıyorum	Kesinlikle Katılmıyorum
5	4	3	2	1

- Bu il kamu güvenlik networkünde, birlikte çalışan güvenlik kuruluşları arasında açık bir iletişim mevcuttur.
- Networkteki güvenlik kuruluşları, güvenilir ortaklardır.
- Networkteki güvenlik kuruluşları arasındaki işbirliğinde dürüstlük temel esastır.
- Networkteki güvenlik kuruluşları arasındaki ilişkide karşılıklı anlayış hâkimdir.
- Networkteki güvenlik kuruluşları arasında karşılıklı kabul, networkteki işbirliğinin önemli bir parçasıdır.
- Networkteki güvenlik kuruluşları networke karşı taahhütlerini yerine getirirler.
- Networkteki güvenlik kuruluşlarının her birinin network faaliyetlerine pozitif katkıda bulunabilecek yeterlilikte olduğuna dair genel bir kanaat mevcuttur.
- Networkteki güvenlik kuruluşları arasındaki işbirliğinde karşılıklı saygı hakimdir.
- Networkteki güvenlik kuruluşları birbirlerine karşı adil bir yaklaşım gözeterek işbirliği yaparlar.

**Bölüm 2:** Lütfen belirlemiş olduğunuz il güvenlik networku açısından aşağıdaki ifadelere ne derece katıldığınızı, valilerin özellikle askeri birlikler ve istihbarat birimleri üzerindeki hiyerarşik yetkilerindeki kısıtları da göz önüne alarak, cevap ölçeğini kullanarak belirtiniz.

Kesinlikle Katılıyorum	Katılıyorum	Emin Değilim	Katılmıyorum	Kesinlikle Katılmıyorum
5	4	3	2	1

- Bu il kamu güvenliği networkünün amaçlarının belirlenmesinde vali müstakil belirleyicidir.
- Bu il kamu güvenlik networkünün vizyonunun belirlenmesinde vali müstakil belirleyicidir.
- Vali, networkün rutin işleyişine yönelik kararları bizzat uygulamaktadır.
- Network faaliyetleri vali tarafından bizzat yönetilmektedir.
- Networkte kararlar müstakil olarak vali tarafından alınmalıdır.
- Vali, güvenlik networkunun faaliyetleri ile ilgili bütün sorumluluğu üstlenmektedir.
- Networkün amaçları, tüm katılımcı kuruluşlarca birlikte belirlenmektedir.
- Networkün vizyonu, tüm katılımcı kuruluşlarca birlikte belirlenmektedir.

- [ ] Vali, güvenlik networku içerisinde hiyerarşik üst gibi değil eşit söz hakkına sahip ortak gibi hareket etmektedir.
- [ ] Network faaliyetleri, bütün katılımcı kuruluşlarla birlikte yürütülmektedir.
- [ ] Networkte kararlar bütün katılımcı kuruluşlarca hep birlikte alınmaktadır.
- [ ] Bütün katılımcı kuruluşlar network faaliyetlerinden hep birlikte sorumludur.
- [ ] Bu il kamu güvenliği networkündeki güvenlik kuruluşlarının her biri, kendi amaçlarını networkten bağımız olarak belirlemektedir.
- [ ] Networkteki güvenlik kuruluşlarının her biri, kendi vizyonunu networkten bağımız olarak belirlemektedir.
- [ ] Vali yalnızca networkte yer alan tarafları bir araya getirerek işbirliğini kolaylaştırmaktadır.
- [ ] Network faaliyetleri, networkteki güvenlik kuruluşlarının her birince müstakil olarak yürütülmektedir.
- [ ] Networkteki güvenlik kuruluşları, networku ilgilendiren konularda kararlarını kendileri alırlar.
- [ ] Networkteki güvenlik kuruluşları, her biri kendi yürüttüğü faaliyetlerden sorumludur.

**Bölüm 3: Lütfen yakından gözleme imkanı bulduğunuz, kolluk, askeri birlikler, istihbarat birimleri ve diğer kuruluşlardan müteşekkil bu il güvenlik networku açısından aşağıdaki ifadelere ne derece katıldığınızı cevap ölçeğini kullanarak belirtiniz.**

Kesinlikle Katılıyorum	Katılıyorum	Emin Değilim	Katılmıyorum	Kesinlikle Katılmıyorum
5	4	3	2	1

- [ ] Bu il kamu güvenlik networkünde yer alan güvenlik kuruluşları, karşılaştıkları problemlerle savunmacı bir yaklaşım göstermeksizin yüzleşmezler.
- [ ] Networkteki güvenlik kuruluşlarının kurumsal gizlilik anlayışları, networkte işbirliğini zorlaştırmaktadır.
- [ ] Networkteki güvenlik kuruluşlarındaki katı hiyerarşik yapı, networkte işbirliğini zorlaştırmaktadır.
- [ ] Networkteki güvenlik kuruluşlarının çalışanlarının kendilerini kurum dışındaki insanlardan izole etme eğilimleri, networkte işbirliğini zorlaştırmaktadır.
- [ ] Networkteki güvenlik kuruluşlarının bir çalışanı, kasten veya kusurlu olarak bir yanlış yaptığında diğer kurum çalışanları arkadaşlarını koruma ihtiyacı hissederler.
- [ ] Networkteki güvenlik kuruluşları arasındaki rekabet, networkteki işbirliğini zorlaştırmaktadır.



**Bölüm 4: Lütfen yakından gözleme imkanı bulduğunuz, kolluk, askeri birlikler, istihbarat birimleri ve diğer kuruluşlardan müteşekkil bu il güvenlik networku açısından aşağıdaki ifadelere ne derece katıldığınızı cevap ölçeğini kullanarak belirtiniz.**

Kesinlikle Katılıyorum	Katılıyorum	Emin Değilim	Katılmıyorum	Kesinlikle Katılmıyorum
5	4	3	2	1

- Bu il kamu güvenlik networkündeki güvenlik kuruluşlarının farklı kurumsal öncelikleri mevcuttur.
- Networkteki güvenlik kuruluşları arasındaki kurumsal anlayış farklılıkları, networkteki işbirliğini zorlaştırmaktadır.
- Bu networkteki güvenlik kuruluşlarının amaçları arasında önemli farklılıklar mevcuttur.
- Bu networkteki güvenlik kuruluşlarının müşterek noktaları azdır.
- Kurumsal beklentiler arasındaki ayrışma, bu güvenlik networkunun bir gerçeğidir.
- Bu networkteki güvenlik kuruluşlarının kurumsal görevleri arasındaki ilişki zayıftır.

**Bölüm 5: Lütfen yakından gözleme imkanı bulduğunuz, kolluk, askeri birlikler, istihbarat birimleri ve diğer kuruluşlardan müteşekkil bu il güvenlik networku açısından aşağıdaki ifadelere ne derece katıldığınızı cevap ölçeğini kullanarak belirtiniz.**

Kesinlikle Katılıyorum	Katılıyorum	Emin Değilim	Katılmıyorum	Kesinlikle Katılmıyorum
5	4	3	2	1

- Bu il kamu güvenlik networkünde birlikte çalışan güvenlik kuruluşları, periyodik aralıklarda kamu güvenliğini ilgilendiren konularda iletişim halindedir.
- Networkteki güvenlik kuruluşları, devamlı olarak birlikte çalışabilecekleri uzun süreli projeler geliştirirler.
- Networkteki güvenlik kuruluşları, düzenli olarak bilgi alışverişinde bulunurlar.
- Networkün faaliyetleri, katılımcı güvenlik kuruluşlarının terör ve organize suç gruplarına yönelik bilgi toplama kabiliyetlerini arttırabilmelerini sağlar.
- Networkün faaliyetleri, katılımcı güvenlik kuruluşlarının terör ve organize suç gruplarına yönelik elde ettikleri bilgileri kullanma kabiliyetlerinin gelişmesini sağlar.
- Bu network, ortak operasyonları gerçekleştirmekte başarılıdır.
- Bu network, muhtemel terör saldırılarını önlemekte başarılıdır.
- Bu network, muhtemel organize suç faaliyetlerini önlemekte başarılıdır.
- Bu network, işlenmiş olan terör suçlarının faillerinin tespitinde başarılıdır.
- Bu network, işlenmiş olan organize suçlarının faillerinin tespitinde başarılıdır.
- Bu network, işlenmiş olan terör suçlarının faillerinin yakalanmasında başarılıdır.

Bu network, işlenmiş olan organize suçlarının faillerinin yakalanmasında veya saf dışı edilmesinde başarılıdır

**Bölüm 6:**

İl kamu güvenlik networklerinde yer alan güvenlik kuruluşları arasındaki işbirliğinin etkinliğine ilişkin olarak, önemli olduğunu düşündüğünüz diğer faktörleri belirtiniz?

**Bölüm 7:**

Yakından gözlemlene imkanı bulduğunuz bu ilin nüfusu ne kadardır?

250.000' den az  250.000- 500.000  500.000-1.000.000  1.000,000- 2.000.000

2.000.000'dan fazla

Yakından gözlemlene imkanı bulduğunuz bu ilin, terör olayları açısından risk seviyesini nasıl değerlendirirsiniz?

Çok Az  Az  Orta  Yüksek  Çok Yüksek

Yakından gözlemlene imkanı bulduğunuz bu ilin organize suç olaylarına açısından risk seviyesini nasıl değerlendirirsiniz?

Çok Az  Az  Orta  Yüksek  Çok Yüksek

## **APPENDIX C: INSTITUTIONAL REVIEW BOARD (IRB) APPROVAL**



University of Central Florida Institutional Review Board  
Office of Research & Commercialization  
12201 Research Parkway, Suite 501  
Orlando, Florida 32826-3246  
Telephone: 407-823-2901 or 407-882-2276  
[www.research.ucf.edu/compliance/irb.html](http://www.research.ucf.edu/compliance/irb.html)

### Approval of Exempt Human Research

From: **UCF Institutional Review Board #1**  
**FWA00000351, IRB00001138**

To: **Cihan Demirhan**

Date: **April 21, 2014**

Dear Researcher:

On 4/21/2014, the IRB approved the following activity as human participant research that is exempt from regulation:

Type of Review: Exempt Determination  
Project Title: Managing Effective Collaboration in Public Security Networks in  
Fight against Terrorism and Organized Crime: The Role of Trust,  
Network Leadership, Organizational Culture, and Goal  
Convergence  
Investigator: Cihan Demirhan  
IRB Number: SBE-14-10260  
Funding Agency:  
Grant Title:  
Research ID: N/A

This determination applies only to the activities described in the IRB submission and does not apply should any changes be made. If changes are made and there are questions about whether these changes affect the exempt status of the human research, please contact the IRB. When you have completed your research, please submit a Study Closure request in iRIS so that IRB records will be accurate.

In the conduct of this research, you are responsible to follow the requirements of the Investigator Manual.

On behalf of Sophia Dziegielewski, Ph.D., L.C.S.W., UCF IRB Chair, this letter is signed by:

IRB Coordinator

## **APPENDIX D: TABLES**

Table 34 *Correlation Matrix for Exogenous and Endogenous Variables with Control Variables*

		Population	Terror Risk	Organized Crime Risk
T1	Correlation Coefficient	.091	-.107	-.130*
	Sig. (2-tailed)	.114	.063	.024
	N	305	305	305
T2	Correlation Coefficient	-.015	-.146*	-.193**
	Sig. (2-tailed)	.793	.011	.001
	N	305	305	305
T3	Correlation Coefficient	.012	-.101	-.186**
	Sig. (2-tailed)	.834	.077	.001
	N	305	305	305
T4	Correlation Coefficient	.096	-.040	-.127*
	Sig. (2-tailed)	.093	.488	.026
	N	305	305	305
T5	Correlation Coefficient	.064	-.122*	-.111
	Sig. (2-tailed)	.264	.033	.052
	N	305	305	305
T6	Correlation Coefficient	.043	-.061	-.137*
	Sig. (2-tailed)	.452	.289	.016
	N	305	305	305
T7	Correlation Coefficient	-.011	-.009	-.091
	Sig. (2-tailed)	.852	.873	.111
	N	305	305	305

		Population	Terror Risk	Organized Crime Risk
	Correlation Coefficient	.114*	-.019	-.032
T8	Sig. (2-tailed)	.047	.738	.573
	N	305	305	305
	Correlation Coefficient	.111	-.018	-.075
T9	Sig. (2-tailed)	.052	.756	.190
	N	305	305	305
	Correlation Coefficient	.076	-.128*	-.183**
NL1	Sig. (2-tailed)	.188	.026	.001
	N	305	305	305
	Correlation Coefficient	.076	-.130*	-.187**
NL2	Sig. (2-tailed)	.188	.023	.001
	N	305	305	305
	Correlation Coefficient	.010	-.055	-.142*
NL3	Sig. (2-tailed)	.856	.335	.013
	N	305	305	305
	Correlation Coefficient	.048	-.037	-.103
NL4	Sig. (2-tailed)	.401	.517	.073
	N	305	305	305
	Correlation Coefficient	.044	-.148**	-.184**
NL5	Sig. (2-tailed)	.440	.010	.001
	N	305	305	305
	Correlation Coefficient	-.008	-.069	-.086
NL6	Sig. (2-tailed)	.896	.232	.135
	N	305	305	305

		Population	Terror Risk	Organized Crime Risk
	Correlation Coefficient	.028	-.040	-.166**
NL7	Sig. (2-tailed)	.621	.487	.004
	N	305	305	305
	Correlation Coefficient	.056	-.012	-.128*
NL8	Sig. (2-tailed)	.332	.833	.026
	N	305	305	305
	Correlation Coefficient	.075	-.003	.033
NL9	Sig. (2-tailed)	.192	.953	.566
	N	305	305	305
	Correlation Coefficient	.018	-.008	-.126*
NL10	Sig. (2-tailed)	.755	.883	.028
	N	305	305	305
	Correlation Coefficient	.076	-.078	-.132*
NL11	Sig. (2-tailed)	.188	.172	.021
	N	305	305	305
	Correlation Coefficient	-.008	-.005	-.123*
NL12	Sig. (2-tailed)	.892	.936	.032
	N	305	305	305
	Correlation Coefficient	-.042	-.013	.041
NL13	Sig. (2-tailed)	.461	.816	.478
	N	305	305	305
	Correlation Coefficient	-.008	.012	.045
NL14	Sig. (2-tailed)	.890	.829	.439
	N	305	305	305



		Population	Terror Risk	Organized Crime Risk
	Correlation Coefficient	.032	-.045	-.021
NL15	Sig. (2-tailed)	.574	.435	.715
	N	305	305	305
	Correlation Coefficient	-.056	-.043	-.026
NL16	Sig. (2-tailed)	.326	.453	.650
	N	305	305	305
	Correlation Coefficient	.004	-.083	-.007
NL17	Sig. (2-tailed)	.946	.148	.899
	N	305	305	305
	Correlation Coefficient	.073	.076	-.020
NL18	Sig. (2-tailed)	.205	.184	.722
	N	305	305	305
	Correlation Coefficient	-.121*	-.043	.017
OC1	Sig. (2-tailed)	.035	.453	.765
	N	305	305	305
	Correlation Coefficient	-.087	-.022	.011
OC2	Sig. (2-tailed)	.132	.699	.847
	N	305	305	305
	Correlation Coefficient	-.116*	.024	.034
OC3	Sig. (2-tailed)	.043	.672	.556
	N	305	305	305
	Correlation Coefficient	-.056	.056	.047
OC4	Sig. (2-tailed)	.329	.326	.415
	N	305	305	305

		Population	Terror Risk	Organized Crime Risk
	Correlation Coefficient	-.101	.003	-.014
OC5	Sig. (2-tailed)	.080	.965	.805
	N	305	305	305
	Correlation Coefficient	-.126*	.078	-.002
OC6	Sig. (2-tailed)	.028	.173	.974
	N	305	305	305
	Correlation Coefficient	-.158**	.005	-.011
GC1	Sig. (2-tailed)	.006	.926	.846
	N	305	305	305
	Correlation Coefficient	-.088	.087	.072
GC2	Sig. (2-tailed)	.126	.131	.210
	N	305	305	305
	Correlation Coefficient	-.121*	-.010	.027
GC3	Sig. (2-tailed)	.035	.859	.634
	N	305	305	305
	Correlation Coefficient	-.055	.003	.072
GC4	Sig. (2-tailed)	.335	.952	.209
	N	305	305	305
	Correlation Coefficient	-.153**	-.006	-.020
GC5	Sig. (2-tailed)	.008	.918	.721
	N	305	305	305
	Correlation Coefficient	-.044	-.127*	-.017
GC6	Sig. (2-tailed)	.445	.026	.773
	N	305	305	305

		Population	Terror Risk	Organized Crime Risk
	Correlation Coefficient	-.070	-.027	-.055
NE1	Sig. (2-tailed)	.225	.643	.342
	N	305	305	305
	Correlation Coefficient	.059	-.022	-.032
NE2	Sig. (2-tailed)	.308	.700	.582
	N	305	305	305
	Correlation Coefficient	.051	.048	-.050
NE3	Sig. (2-tailed)	.378	.405	.387
	N	305	305	305
	Correlation Coefficient	.052	.048	-.104
NE4	Sig. (2-tailed)	.361	.400	.069
	N	305	305	305
	Correlation Coefficient	.032	.012	-.114*
NE5	Sig. (2-tailed)	.575	.841	.047
	N	305	305	305
	Correlation Coefficient	.064	-.066	-.153**
NE6	Sig. (2-tailed)	.262	.251	.007
	N	305	305	305
	Correlation Coefficient	.075	-.107	-.125*
NE7	Sig. (2-tailed)	.191	.061	.029
	N	305	305	305
	Correlation Coefficient	.066	-.095	-.151**
NE8	Sig. (2-tailed)	.250	.099	.008
	N	305	305	305

		Population	Terror Risk	Organized Crime Risk
	Correlation Coefficient	.027	-.108	-.147**
NE9	Sig. (2-tailed)	.634	.060	.010
	N	305	305	305
	Correlation Coefficient	.014	-.119*	-.162**
NE10	Sig. (2-tailed)	.809	.038	.005
	N	305	305	305
	Correlation Coefficient	.045	-.165**	-.140*
NE11	Sig. (2-tailed)	.432	.004	.014
	N	305	305	305
	Correlation Coefficient	.045	-.148**	-.165**
NE12	Sig. (2-tailed)	.433	.010	.004
	N	305	305	305

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