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THE SUITABILITY LEVEL OF CSI FACTORS AND PROBLEMATIC CONDITIONS IN CRIME SCENE INVESTIGATION OF INQUIRY OFFICERS UNDER THAILAND'S PROVINCIAL POLICE REGION 7

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Abstract

This research aims to study the suitability level of CSI factors from problematic conditions and limitations of CSI factors based on the opinions of inquiry officers affiliated with the Thailand's Provincial Police Region 7 who were on duty between October 2018 and March 2020, quantitative data were collected by questionnaires from a sample of 300 inquiry officers selected by purposive sampling from the population of 664 inquiry officers under Provincial Police Region 7, and analyzed using descriptive statistics, including frequency, percentage, mean and standard deviation and collecting qualitative data through in-depth interviews with 18 inquiry officers as deputy superintendent, inspector and deputy inspectors. Studies have shown that CSI factors had a moderate average level of suitability. The personnel factor with the highest level of suitability was forensic police and the lowest level of suitability was the inquiry officer. For the CSI supporting factors and legal and regulatory factors, there are average levels of suitability at a fair and moderate level respectively. Major problems and limitations of crime scene investigations in current condition include a shortage of personnel, especially inquiry officers, shortage of supplied and equipment to investigate crime scene and inconsistency of relevant laws and regulations. There are guidelines for the development of crime scene investigations, as follows; increase the number of personnel who have sufficient competence to perform the crime scene investigation tasks. Tackling sustainable personnel shortages solve the problem of the shortage of personnel sustainably, develop investigative work at the police station level to the Royal Thai Police. And review relevant laws and regulations to be consistent and enforced effectively and appropriately.

Keywords: Crime Scene Investigation, Problematic Conditions, Inquiry Officers

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Introduction

Crime scenes are critical to solving cases because crime scenes are the source of three important information. First, indicates that an offense has been committed based on evidence or traces that lead to the belief that an offence has already occurred, such as a murder case should be found with a body or parts of corpse, a burglary case should find evidence that the property actually existed and that it was loss (Corpus Delicti). Secondly, indicates that the offensive behavior of the perpetrator at the crime scene, witness objects or traces indicating how the attacker was used to commit the offense, such as gunshot wounds should be found on the body, which indicates that the attacker used a firearm in the offense (Modus Operandi), and thirdly, the attacker was found in the offense. Indications of crime scene offenders are usually traced or evidence that can be used to link a person to a person, a person with a witness object, and a person with a crime scene. Possibly traces or evidence that the offender left at the scene, such as weapons, latent fingerprints, blood, hair (Linkage of persons to persons, object or scene) (Suebongsiri, 2008). Evidence found at the crime scene plays an important role in the process of investigation and judicial review in which the evidence must be valuable and credible. At the stage of the investigation of the main witnesses, the law of witnesses must be taken into account. As follows: there must be protection to maintain the crime scene, investigate the evidence lawfully, Therefore, the collection of evidence from the crime scene must be carried out by a person who is legally obligated and competent enough to effectively investigate the crime scene. There is a good protection of the crime scene. And there are essentials for investigating the crime scene such as materials, equipment, tools and vehicles with sufficient quality and quantity to operate effectively.

Crime Scene Investigation Factors (CSI Factors)

The effectiveness of crime scene investigation will depend on three key factors. 1) Personnel factors refer to individuals who are legally obliged to investigate crime scenes and collect evidence, as well as individuals who support crime scene investigation at the request of inquiry officer: inquiry officers, assistant inquiry officers, police officers, forensic police, autopsy doctor and specialists. The person on duty at the crime scene, should have knowledge and understanding of the prevention and treatment of crime scenes so that the evidence is not destroyed, lost or added to the crime scene. For crime scene investigators should have the knowledge to investigate and collect evidence in the best quality and can be used to prove the facts of the crime case. In addition, for effective operation, there must be a sufficient number of personnel and suitable for the workload. 2) Material, equipment, tools and equipment and crime scene investigation necessities, referred to as "crime scene investigation supporting", should be appropriate for both quality and quantity. 3) Related legal and regulatory factors. It is comprehensive and suitable for the efficient operation of the investigation and evidence collection at the crime scene. In this study, all three factors were referred to as "crime scene investigation factors".

Related Research

Due to the importance of the crime scene and the evidence, studies have been conducted on crime scene investigation and a large collection of evidence. Specifically, improving the effectiveness of crime scene investigation and collecting evidence related to personal factors, such as Rajagopal et al. (2014), found that a lack of understanding of witness objects of crime scene investigators was a major reason why the collection of evidence was incomplete, Julian et al. (2012), found that the professionalism of crime scene investigators will be able to collect the highest quality and valuable evidence. Macamo (2018), found that investigators with no forensic knowledge were unable to link the witness's relationship with the suspect or use the evidence in the investigation to determine the facts of the case. There are also studies on the knowledge of crime scene investigation and the collection of evidence of investigators (Saenkaew, 2019) and forensic officers. Knowledge of the prevention and treatment of the

crime scene of the inquiry officers (Sawasdee, 2009), patrol police officers (Dechrattanasuwan & Witchuvanit, 2016), volunteer rescue (Sawai, 2018), also have studies on various problems and obstacles found in crime scene investigations to be used as information to improve effective crime scene investigations and to build confidence in the justice of police officers (Sopaboon et al., 2020).

Therefore, this research has three objectives as follows: 1) Study the suitability level of CSI factors based on the opinions of inquiry officers under the Provincial Police Region 7. 2) Study the problematic conditions and limitations in the crime scene investigation of the inquiry officers that affect the efficiency of collecting evidence at the crime scene. 3) Finding way to enhance the investigations of the crime scene.

Research Methods

The study was a mix of quantitative research in which the researchers used questionnaires to collect data from inquiry officers operating in police stations under the Provincial Police region 7 and qualitative research.

Quantitative Research

The population and samples include 664 inquiry officers working in police stations under the Provincial Police of Kanchanaburi, Nakhon Pathom, Phetchaburi, Ratchaburi, Samut Sakhon and Suphanburi, who worked between October 2018 and March 2020. The sample was determined using Taro Yamane's relationship at a 95% confidence level and how to compare the size proportion of the sample from the target population in the Provincial Police and use the purposive sampling method.

Research tools include questionnaires that contain information about the general status of inquiry officers, including age, position, duration of interrogation work, and training in crime scene investigation or forensics science, the suitability level of personnel factors in knowledge and adequacy of the number of personnel working at the scene. The suitability level of legal and regulatory factors related to crime scene investigation and the suitability level of CSI supporting factors of the premises in terms of modernity and the sufficient amount to effectively investigate the crime scene.

Determining the quality of the tools used to store data by finding content validity by bringing questionnaires to three inquiry luminaries check the accuracy of the content of the inquiry in accordance with the objectives of the study and revision until the three inquiry luminaries qualified have consistent opinions. The questionnaire was conducted for reliability by tryout with inquiry officers affiliated with the Provincial Police of Prachuap Khiri Khan and the Provincial Police of Samut Songkhram , 35 inquiry officers, and obtained confidence from Cronbach's Alpha Coefficient at a confidence level of 0.939, indicating that the questionnaires was highly reliable and could be applied to the sample.

Data analysis using descriptive statistics includes frequency, percentage, mode, average and standard deviation.

Qualitative Research

Data were studied from documents, research, statistics, reports and in-depth interviews, a total of 18 inquiry officers in the position of Deputy Superintendent, Inspector, Deputy Inspector of the Police Station with very high, medium and low volume of crime cases were studied to obtain information. Concerning the CSI factors affecting the efficiency of the crime scene investigation. Problems and restrictions encountered in CSI operations and guidelines for improving the efficiency of crime scene investigations. The researcher checked the accuracy and reliability of the data using a triangular data validation method of consistent information of inquiry officers performing their duties in the same position.

Research Results

To collect information from documents, questionnaires and in-depth interviews, inquiry officers at all levels to obtain information about the CSI factors, as well as problems and restrictions on crime scene investigations of police officers. To guide the development of CSI work to be acceptable and to build public and social confidence in the justice of the Royal Thai Police. The results of the study are as follows:

General Information of the Sample

The results of the sample's general information were illustrated in Table 1.

Table 1 General information of the sample

Information of Sample		Frequency	Percentage
Age	Less than 30 years	32	10.7
	30-39 years	54	18
	40-49 years	74	24.7
	More than 50 years	140	46.7
Work Position	Deputy Inspector	187	62.3
	Inspector	96	32
	Deputy Superintendent	17	5.7
Experience in Criminal investigation	Less than 6 years	43	14.3
	6-10 years	136	45.3
	11-15 years	86	28.7
	16-20 years	28	9.3
	more than 20 years	7	2.3
Period after training in CSI or FS	Never	38	12.7
	Less than 2 years	81	27.0
	2-5 years	49	16.3
	More than 5 years	132	44.0
Number of cases per year	Less than 70 cases	17	5.7
	71-100 cases	134	44.7
	101-130 cases	114	38.0
	131-160 cases	30	10.0
	More than 160 cases	5	1.7

The study found that most of the inquiry officers under the Provincial Police Region 7 were quite old (more than 50 years) but had relatively little experience in the field of crime investigation (6 to 10 years), which affected their knowledge and expertise in investigation and collection of evidence at the crime scene. In terms of potential development in crime scene investigation course or forensic science course, most inquiry officers have not been developed continuously for more than 5 years. It may cause inquiry officers to forget the methods of collecting various types of witness objects with different collection principles.

This includes learning in modern forensic techniques and methods that can be applied to the knowledge obtained to find information or prove the facts of a case. It was also found that most of the inquiry officers were responsible for criminal cases, an average of 111.23 cases per year, of which inquiry officers under the Provincial Police Region 7 have a high level of workload.

Analysis of the Suitability Level of CSI Factors

The study of the suitability level of 10 factors of CSI, the opinions of inquiry officers under the Provincial Police Region 7 can be shown in Table 2.

Table 2 The suitability level of CSI supporting factors, including 10 factors

Factors	Percentage					\bar{x}	SD	Level of suitability
	Very good	Good	Moderate	Fair	Poor			
1) Inquiry officer	0.00	2.67	21.33	67.67	8.33	2.19	0.612	Fair
2) CSI driver	0.00	3.00	36.00	59.33	1.67	2.24	0.500	Fair
3) Patrol police	0.00	2.33	28.67	68.00	1.00	2.29	0.525	Fair
4) Detective police	0.00	10.67	48.00	40.67	0.67	2.55	0.585	Moderate
5) Forensic police	1.00	35.67	49.67	13.33	0.33	3.24	0.696	Moderate
6) Autopsy doctor	0.67	31.33	53.33	13.67	1.00	3.17	0.696	Moderate
7) Specialists	1.00	9.33	74.00	14.33	1.33	2.95	0.573	Moderate
8) Legal	0.00	3.00	76.67	20.00	0.33	2.93	0.456	Moderate
9) Regulations	0.00	2.33	55.67	41.00	1.00	2.60	0.555	Moderate
10) Materials/ Equipment/ Tools/Vehicles	0.00	2.33	20.67	73.67	3.33	2.22	0.537	Fair
Total						2.69	0.350	Moderate

From Table 2, consider the suitability level of CSI factors in three areas as follows:

1) The factors of personnel consists of personnel with legal authority to investigate crime scenes, including inquiry officer and the autopsy doctors with fair and moderate suitability levels, respectively. And personnel who are on duty to support crime scene investigations, including CSI driver and patrol police have fair suitability levels, detective police and specialists have moderate suitability levels and forensic police have a moderate suitability level (highest). The details are as follows:

Inquiry officers found that most had moderate knowledge of crime scene investigations. But the number of inquiry officers working at the police station is not enough to meet the increasing workload of investigating cases. This is a critical limitation that affects the performance of crime scene collections and investigation operations, so, the suitability level is fair.

Autopsy doctors are forensic physician who are legally required to perform autopsies in cases of unnatural death with inquiry officers and if the forensic doctor is unable to perform the autopsy, have a provincial health doctor or a doctor at the health station or a doctor at the hospital take action instead. The study found that doctors who perform autopsies together with inquiry officers are mostly hospital doctors, whose main task is to treat patients. Therefore, the lack of experience in investigating evidence from corpses affects the opinions of doctors in the autopsy report, which is the preliminary information that is important to be used in the investigative process to solve the case, the suitability is moderate and quite high level.

CSI driver is a police officer assigned to act as a driver to investigate a crime scene and sometimes will perform duties to assist inquiry officers to investigate the crime scene due to the fact that inquiry officers do not have assistants, most CSI drivers have never been trained in crime scene investigations and therefore do not have sufficient knowledge to be an assistant of inquiry officers in investigation the crime scene, so the suitability is at fair level.

Patrol police are police officers assigned to the duties of preventing and securing at the crime scene. Most patrol police are trained to prevent and secure the scene but have no knowledge in crime scene investigation. Thus, while blocking the crime scene, it may destroy the scene from trampling or moving or destroying evidence with ignorance and inadvertently. In addition,

patrol police have personnel restrictions and therefore cannot prevent crime scene until the investigation of crime scene is complete. The suitability level is at the fair level.

Detective police are police officers who work together with inquiry officers in investigations to solve crime cases and bring offenders to justice. In crime scene investigations, detective police often work with inquiry officers to seek evidence that can be used to link to the perpetrators and crime scene. The study found that most of the detective police were knowledgeable in seeking evidence and various types of witness objects, but lacking knowledge in methods for collecting and maintaining accurate and appropriate evidence. Therefore, the suitability is at moderate level.

Specialists is a person with specific expertise that inquiry officers consider seeking support for a crime scene investigation or to assist in facilitating the operation of the crime scene investigation such as bomb squad personnel, chemists, firefighters electrician, etc. From the study, it was found that most specialists do not have the knowledge to investigate the crime scene. Therefore, evidence may be destroyed, removed or added to the crime scene while working on the scene. The suitability is at moderate level.

Forensic police are experts trained in crime scene investigations and forensics to support investigative work. Therefore, forensic police are equipped with materials, equipment and tools for crime scene investigations. Studies have shown that most forensic police are competent in investigating crime scenes. But there is still insufficient number of personnel to support the investigation of the crime scene in all cases. There are guidelines to support only in certain groups of cases that are stipulated in the police regulations regarding cases only. As a result, in some cases where the inquiry officers examine the crime scene alone, it may not be as effective as it should be. Therefore, the inquiry officers were of the opinion that the forensic police is quite moderately of suitability level.

2) The factor of CSI supporting includes materials, chemicals, equipment, tools, vehicles and more necessary for investigating the crime scene and collecting witness objects. Studies have shown that most police stations only have basic equipment for crime scene investigations, which are not ready for use due to chemical deterioration and partial loss of equipment making it unable to be used to collect evidence. In addition, there is a shortage of vehicles at the crime scene investigation work, making the journey to investigate the crime scene inconvenient and unable to be carried out in a short time. Therefore, the suitability is at fair level.

3) The factors of legal and regulations. It is a requirement and practice in criminal justice administration related to police officer's crime scene investigation. Studies have shown that in criminal procedural law and others. There were no laws relating to the prevention and security of the crime scene. And there is no law to support the operation of the forensic police, which has the highest level of suitability in the investigation of the crime scene, and in the police regulations on the case, there is a guideline for inquiry officers to consider seeking support from the forensic police to investigate the crime scene can only be done in certain groups of cases. The inquiry officer is of the opinion that the relevant laws and regulations should have a moderate level of suitability.

Problems and Restrictions in Crime Scene Investigation of Inquiry Officers

The crime scene investigation of the inquiry officers under the Provincial Police Region 7 found problems and restrictions, in summary as follows.

1) There is shortage of inquiry officers, assistant inquiry officers, forensic doctors, crime scene investigation team and crime scene prevention and security officers.

2) Most inquiry officers have limited experience in collecting evidence of certain groups and types only. Therefore, it may make mistakes in collecting evidence in inexperienced groups of evidence.

- 3) The CSI supporting staff did not have the knowledge to protect the crime scene and the knowledge in preliminary examination of crime scene. Therefore, evidence may be destroyed or added to the crime scene while working.
- 4) There is a shortage of materials, equipment, chemicals, tools, as well as vehicles used to investigate the crime scene.
- 5) There is a shortage of budget for the crime scene investigation.
- 6) Legal and regulations related to crime scene investigation. Including the police regulations on the case of the Royal Thai Police, that does not cover the operations of the officers to investigate the crime scene and law enforcement to protect the crime scene.
- 7) Lack of coordination between agencies involved in crime scene investigations, especially in working together at the crime scene, such as a hospital, the forensic office, the Provincial Electricity Authority, the communications and telecommunication agency, causing delays and inefficient investigation of the crime scene.

Conclusion & Discussion

Evidence collected from the crime scene is strong on criminal justice. From the investigation process to the resolution of the crime case to the process of proving the facts of the case in court, the success of the crime scene investigation depends on four main factors: Man, Materials, Money and Management, popularly referred to as "4M Management Theory". The study of the problems and limitations of crime scene investigation of inquiry officers under the Provincial Police Region 7 and the suitability level of CSI factors are consistent, and the suitability level can reflect the severity of the problem or the limitations that affect the quality of the operation of the crime scene investigation. The results of the study can be discussed as follows:

Personnel factors are important factors in performing effective crime scene investigation and achieving good results. Key human resources include investigators who are legally obliged to collect evidence, inquiry officers and autopsy doctors as human resources with expertise that can encourage crime scene investigation and collection of quality witnesses, and crime scene protection officers as human resources, which encourages evidence collected from crime scenes to be credible without a doubt to the source. Therefore, the human resources performing the work of investigating the crime scene must have sufficient competency to perform the work quality, and also have a sufficient amount to perform the work efficiently. Studies have shown that in crime scene investigation, there are inadequate number of human resources problems or replacement human resources but lack of knowledge or expertise, that is to say, "unprofessional". Details are as follows:

- 1) Shortage of inquiry officers. This increases the workload of inquiry officers and directly affects the performance of all stages of justice from the investigation phase. The submission of the investigation in the prosecutor's office and the testimony in court, which requires the inquiry to spend a lot of time in each case, but the Royal Thai Police has required inquiry officers to conduct each stage of the investigation in accordance with the specified time frame. As a result, inquiry officers have limited operating times and have to rush each step, resulting in inefficiencies in each stage of operations. This includes investigating and collecting evidence from crime scenes, prompting inquiry officers to request support for crime scene investigation from forensic police with expertise in crime scene investigation (with a relatively moderate level of suitability). It is equipped with equipment and tools. However, there are some cases that are not supported by forensic police and inquiry officers cannot proceed alone. Inquiry officers then enlisted the help of other police officers or drivers who had no knowledge or experience in investigating crime scenes (with fair level of suitability), directly affecting the quality of the evidence collected. As a result of time constraints, inquiry officers lack the opportunity to develop their potential. From the study of Supalaknari et al. (2021) and

Wainiphithapong et al. (2022) found that the knowledge and skills of seeking witnesses at crime scenes and collecting evidence of inquiry officers based on experience in the field of investigation work and ongoing forensic science and crime scene investigations training. For the shortage of inquiry officers, this is a chronic problem that still cannot solve the problem of job relocation and the resignation of inquiry officers, which approaches to solving specific problems including recruiting a new inquiry officers to replace the lost rate. And let the forensic police to support the investigation of the crime scene in every case, it will make the crime scene investigation quality and reliable. In addition, incentives for compensation career advancement and adequate support of operational resources should be a way to reduce the rate of transfer and resignation of inquiry officers.

2) Shortage of crime scene protection and security officers. Patrol police will be assigned to perform crime scene protection and security duties in the area of responsibility. Most patrol police perform their duties based on their knowledge and experience, which may not be principled and may cause damage to the evidence. In addition, supporting personnel investigate the premises. Others, such as rescue volunteers who are not government officials and most have no understanding of crime scene protection and security, may submit evidence collected from crime scenes as unreliable and could be dismissed as arguments in court.

3) A shortage of forensic doctors, who specialize in autopsies to detect traces and store witness objects that can be used to identify the cause of death or use it as information to track down the perpetrator, as well as to provide useful comments on the resolution of the case.

4) The number of forensic police is insufficient to support crime scene investigation in all crime cases. Forensic police are experts at crime scene and verifying the identity of forensic evidence, as well as having appropriate crime scene materials, equipment and tools (with the highest level of suitability to investigate crime scenes). At present, forensic police are the main personnel supporting crime scene investigations and forensic evidence collection, in addition to the increasing trend of crime. As a result, the workload of forensic police is also higher. Therefore, there are still a limitations of personnel in supporting the crime scene investigation. And from the police regulations on cases, inquiry officers can request support for only certain groups of cases. This limitation is a major hurdle affecting crime scene investigations by expert forensic police.

5) Lack of knowledge in crime scene investigation and crime scene prevention of CSI supporting officers such as detective police and specialists, which may cause evidence to be destroyed, being moved or added to the scene. Therefore, CSI supporting officers should be trained on crime scene investigation and crime scene prevention. To ensure the highest quality and efficiency of the operations in the crime scene.

CSI supporting factors are the secondary priority factors of personnel factors, as quality and sufficient quantity to support crime scene investigation will affect the quality of the evidence collected. Studies have shown that in the investigation's crime scene, there was a shortage of materials, equipment and tools used to investigate crime scenes, budget shortages and vehicles for crime scene investigation work, which inquiry officers had fair level of suitability. As a result, evidence collected from the crime scene is not sufficient quality to be used in the crime case.

The legal and regulations factors, the Criminal Procedure Law and the Police Regulations regarding the case have established the authority and guidelines for the performance of the criminal justice system in order to ensure that the operation is carried out in order. Transparent and fair, which is the fair management of the relevant authorities. Studies have shown that inquiry officers have an opinion that there is a moderate level of suitability because the law does not impose the authority and duty to protect and maintain crime scenes, or to give authorities the power to block crime scenes in order to investigate and collect evidence. And according to the police regulations regarding cases that have authorized inquiry officers to

exercise discretion, requesting forensic police to support crime scene investigation, this requirement does not require inquiry officers or forensic police to comply with that requirement, it is only the practice of inquiry officers and forensic police to participate in crime scene investigation.

The suitability level of CSI factors is a study to analyze factors that affect the effectiveness of crime scene investigation of inquiry officers in order to lead to guidelines for improving crime scene investigation in accordance with 4M Management guidelines.

Guidelines for the Development of Crime Scene Investigation

The analysis of the suitability level of CSI factors and the problem and limitations on crime scene investigation. The inquiry officers proposed ways to develop crime scene investigation of inquiry officers to propose to the Royal Thai Police and related agencies, as follows.

- 1) Formulate a plan to increase the manpower rate of personnel with sufficient and appropriate knowledge and expertise in crime scene investigation operations. In particular, inquiry officers, medical professionals specializing in autopsies and forensic police to support effective crime scene investigation.
- 2) Formulate a plan to systematically and continuously improve the performance of inquiry officers and crime scene investigators by covering knowledge of crime scene investigation, examination of witness, autopsy and forensic evidence. Relevant laws and regulations, including testifying in court, may be classified as a training course or a system of consultation by knowledgeable and experienced persons. In addition, research and development of crime scene investigation in all dimensions should be encouraged continuously.
- 3) Develop a compensation system for workers who are suitable for knowledge, competence and experience, as well as have a career progression path to retain potential personnel.
- 4) Develop a coordination and collaboration system between agencies related to crime scene investigation and forensic examination to ensure systematic and convenient operation of inquiries.
- 5) Develop a sufficient number of materials, equipment, tools and chemicals management systems to effectively operate, such as establishing the online police station's material, equipment, tools and chemicals holding systems to monitor current operating conditions. And manage resources to the best of their advantage.
- 6) Develop laws or regulations related to crime scene investigation in accordance with the limitations of operations. In order for evidence collected from the crime scene to effectively ensure justice.

It can be summarized as a crime scene investigation development map in Figure 1.

Performing tasks that require good results using valuable, efficient and efficient resources. Most importantly, the use of human resources to work in positions suitable for knowledge or if a person is not competent enough to develop a person with additional abilities, as well as provide budgetary support and provide adequate materials and tools to perform their work efficiently. Good resource management and quality of work to maximize productive work.

In the course of fair work, it is most important to provide justice to individuals who have been affected or damaged, as well as being able to prove the facts clearly. To prevent a person from being affected by the mismanagement of justice under a performance based on morality and ethics. Currently, crime scene investigation are increasingly important, respectively, from forensic evidence that can be used to effectively prove the facts of the case. Therefore, the development of crime scene investigation will support and encourage evidence collected from crime scenes to be reliable and valuable enough to be used for justice, and this research can be used as information in SWOT Analysis to improve crime scene investigation and other related work.

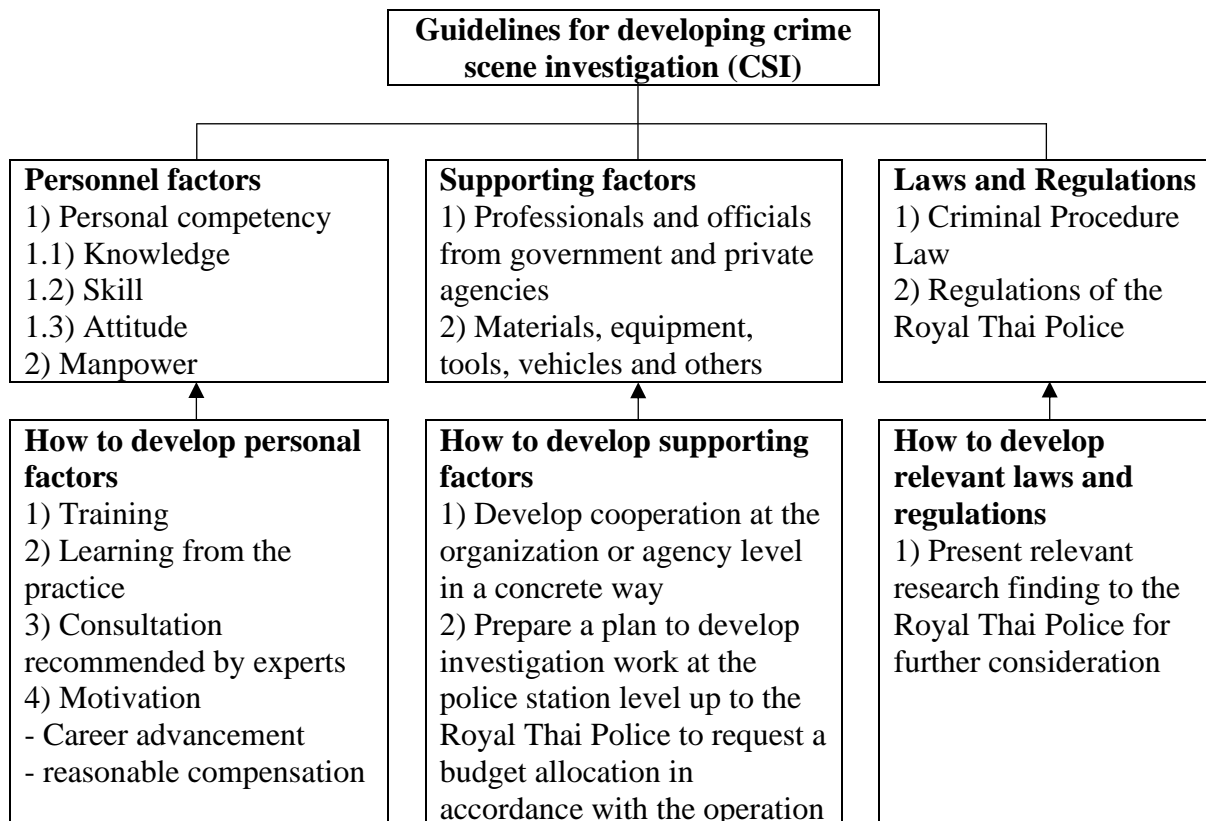


Figure 1 Crime Scene Investigation Development Guidelines Map

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