

# The Cooperation for Development of Forensic Science: A Cause Study of Quality Development According to the International Standard

*Amornthap Phonrasuek*

Faculty of Science, Silpakorn University, Thailand

E-mail: fss.cifs@gmail.com

*Sarit Suebpongsiri*

Faculty of Science, Silpakorn University, Thailand

E-mail: saritsu2003@yahoo.com

*Chaichan Chairangsinant*

Faculty of Science, Silpakorn University, Thailand

E-mail: jigchou0907@gmail.com

## Abstract

This research purports to examine the structure of cooperation towards the development of Thailand's forensic science, to explore possible problems and difficulties that may affect the nation's attempt to make the current practice up to international standards, and to establish international cooperation framework that is consistent with the existing provisions postulated within the 2016 Forensic Act. This study employs mixed research methodology comprising of (i) the gathering of quantitative data through questionnaires and interviews with 174 forensic personnel and (ii) the assembling of qualitative information via in-depth interviews and group discussions with the total of 30 staffs from the Ministry of Justice (MOJ) and the Central Institute of Forensic Sciences (CIFS), employing the analytical assessment methods based on statistics and content analysis. The findings reveal that: (1) it is deemed that all relevant forensic sciences should be brought up to international standards as much as possible; (2) establishing international standard upon forensic examination so that its credibility will be ensured and delivered is recognised as of utmost paramount; (3) Accessibility and availability of information concerning the setting up of international standards on forensic examination are considered of great necessity; (4) The framework outlining Thailand's forensic science cooperation development should encourage and foster 3 aspects, namely, standardisation, management, and human resource development; and (5) the movement to push forward the country's forensic sciences up to global standard requires the management that aims towards organisation achievement whilst recognising the importance of relevant factors such as capital and human resources, fiscal budget, and relating tools, all of which nourishes and facilities effective human resources development.

**Keywords:** Development of Cooperation, Forensic Sciences, International Standard

## Introduction

Forensic sciences are considered of great importance as a part of the criminal justice system (Bara Scientific, 2004) due to the fact that they stand as a process of gathering and examining relevant evidences connecting to the crime scene, including reporting and presenting such evidences in the court of law. Accordingly, should there be any mistake arising out of such forensic examination process, this would render the evidences without credibility (National Commission for Justice Administration Development, 2016) which will adversely affect the

credibility of the witness and evidences presented in court, directly casting certain doubts with respect to the witnesses and evidence connecting the suspects or the perpetrators to the stipulated crimes (Sinloyma, 2017). Also, considering several past occasions, there have been a number of complaints issuing against the lack of credibility of the evidences in question (Secretary Office, Division of Policy and Planning, Central Institute of Forensic Sciences, Ministry of Justice, 2017). Such complaints and allegations submitted by the public and private sectors also include both the forensic examination process and the gathering of concerning evidence (Phanthong, 2017), leading to grievous losses of public confidence against the state. That being said, the forensic examining standards are of great significance and necessity towards boosting the public confidence and increasing the government credibility (Committee on the drafting of Digital Forensic Science Blueprint, n.d.), particularly upon the criminal justice system and its positive and transparent image as perceived by the public at large.

Respectively, forensic examination standards act as an important mechanism that steers forward the criminal justice system towards greater goods of public interests, according to the true liberty, freedom, and fundamental rights (CIFS, 2014). Establishing greater credibility with respect to the process of forensic examinations and investigations can potentially produce effective and concrete desirable effects, especially when the process is being recognised and certified by renowned international organisations across the globe. For instance, international organisations in the United States, France, and the United Kingdom (Chaiyarangsinan, 2016) have established their forensic examination standards by prescribing practices and protocols concerning medical examining procedures and forensic examinations. Moreover, they have laid down and unified working standards across all relevant criminal justice agencies, including stipulating the work ethics of those involved in the criminal justice system. What is more, these organisations also provide quality services and help facilitating such services to be up to the set standards e.g. autopsy, crime scene investigation, other relating laboratory work, as well as improve and develop quality management system of the ISO 9001:2000, of which is regarded as a fundamental step towards standardising procedures that all organisations should undertake. Plus, the organisation also make its laboratory work up to the ISO/IEC 17025 standards, a recognisable international standard that has been carried out and certified under the ASCLD/LAB - a world renowned standard approved and employed by the US FBI (CIFS, 2014).

In Thailand, the drive for the international standardisation of forensic practices have been continuously carried out. The main provisions of such attempts can be concluded into 3 aspects as follow:

1. In the past, Thai government and other MOJ agencies had tried to pass the 2007 Forensic Bill, unfortunately, such attempt was dismissed due to the fact that the provisions laid down the the proposed bill were claimed to be inconsistent and against the fundamental principles of the existing forensic examining practices, plus, there were also certain discrepancies with regards to the overlapping authorities between different divisions and agencies. Accordingly, this demonstrates that the proposed standardisation is highly essential towards achieving collaboration between concerning parties in order to push forward and achieve the desired international standardised practices.
2. Different operating abilities and divergent forensic technologies across various government forensic agencies also present itself as another pressing concern that obstructs the standardisation process, which is considered highly essential in the near future as it could prevent and resolve any possible disputes that may have risen out of conflicting criminal justice procedures experienced by the public.
3. The support towards standardising forensic examining procedures, as laid down in the 2016 Forensic Act, requires common and collaborative operating framework throughout all

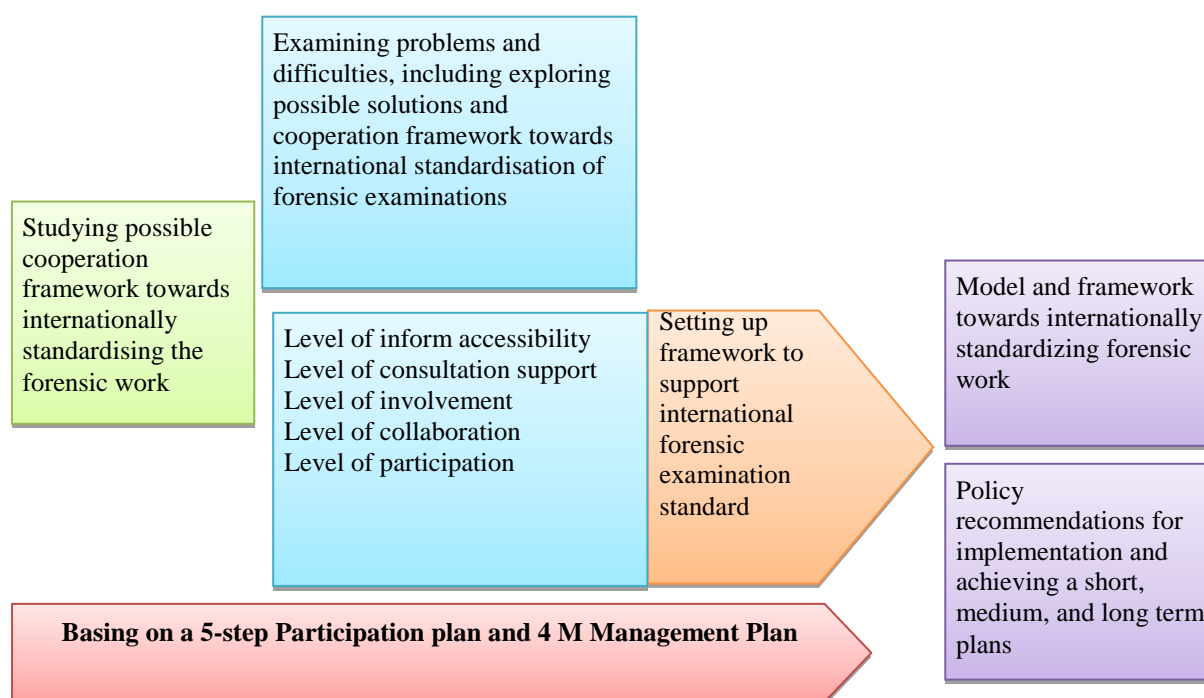
relevant agencies. This also demands a suitable and proper plan, that is to say, it must be fair and just for those who seek forensic services within Thailand criminal justice system, allowing the people to be able to access and cross-check the delivered results. Respectively, this research purports to examine the structure of cooperation towards the development of Thailand's forensic science, to explore possible problems and difficulties that may affect the nation's attempt to make the current practice up to international standards, and to establish international cooperation framework that is consistent with the existing provisions postulated within the 2016 Forensic Act. Essentially, this research is hoped to act as a model blueprint that could lead way for the international acceptance and standardising of Thailand's forensic examining framework (Standard on Medical Operation Room, 2011).

### **Research Objectives**

1. To examine the structure of cooperation towards the development of Thailand's forensic science
2. To explore possible problems and difficulties that may affect the nation's attempt to make the current practice up to international standards
3. To establish international cooperation framework which is consistent with the existing provisions postulated within the 2016 Forensic Act

### **Research Methodology and Relevant Literature Reviews**

In this research, the researchers have based the study on Deming Cycle Theory, proposed by Dr. William Edwards Deming, which concerns the ideas of the Japanese Industrial Quality Control (Technology Promotion Association (Thailand - Japan), 2009). The researchers are of the opinion that quality of forensic work can be improved through the quality improving of ground work and prescribing processing necessary steps towards achieving and delivery greater quality of goods and services as well as attaining a systematic and functional work process. The Deming Cycle or also known as PDCA Quality Control Cycle is derived from a Plan-Do-Check-Act i.e. Plan - Execute - Check - Improve programme, a cycle which concerns and revolves around the matter of work quality assurance. Hence, the conceptual framework of this study has been laid down as follow.



### Research Methodology

This study employs a mixed research methodology using the Leyland's qualitative and quantitative research method (1991). To elaborate, the study depends on desk research of relevant studies vis-à-vis the standard practice of forensic sciences in order to lay out the framework upon utilising the examined literatures together with the tailoring of interview questions, questionnaires, and discussion topics for the planned group discussion, collecting quantitative data from those involved with the forensic work within the MOJ, and gathering qualitative information from expert staffs, as well as organising a group discussion so as to analyse the data attained from the MOJ personnel towards carrying out and completing this study.

The total of 277 subjects of this study are drawn from the working staffs who work in forensic examination from no.1-10 forensic examination centres across the country. The sampling groups are divided into 2 groups namely: 1) a quantitative research, relying on Taro Yamane's sampling method and stratified random sampling (Yamane, 1973), that comprises of forensic staffs i.e. 174 commissioned forensic scientists; and 2) a qualitative research on MOJ personnel and those involved with relevant forensic science agencies, of which can be categorised into 3 groups, namely: (i) 10 forensic staffs from CIFS; (ii) 6 of those working within the criminal justice system i.e. lawyers from the Lawyers Council, prosecutors from the Office of the Attorney General, and judges; and (iii) 14 MOJ staffs whose work are in connection with forensic sciences. The study subjects under the qualitative research respectively amount to the total of 30 subjects, all of which are selected using the Snowball Sampling method.

### Research Tools

The quantitative research employs the questionnaires that ask the targeted group about factors affecting the establishment of standardisation framework, of which can be grouped into 4 parts namely: Part 1 - personal traits (opt-in); Part 2 - forensic science working knowledge and understanding; Part 3 - personnel's opinions towards establishing the standardised forensic examination framework for the criminal justice system; Part 4 - the support on the establishment of standardised forensic framework. Accordingly, the questions presented between Part 2 and Part 4 are drafted using a 5-level evaluation scale, approved directly by

relevant experts, using the IOC determinant and individual accuracy assessment with the value of 0.73 -0.97, and 0.9765 of the overall credibility value. On the other hand, with respect to the qualitative research, the study is conducted using a semi-structure framework which has been directly quality-approved by relevant experts.

### **Data Analysis**

With respect to the quantitative research, the assembled data is analysed through the uses of statistical analysis, Average Mean, Standard Deviation, and One-way ANOVA, including a comparative examination using Scheffe method and a qualitative research upon content analysis.

## **Research Findings and Conclusion**

### **General Information of the Respondents, their Opinions and Experiences Regarding International Standard on Forensic Examination**

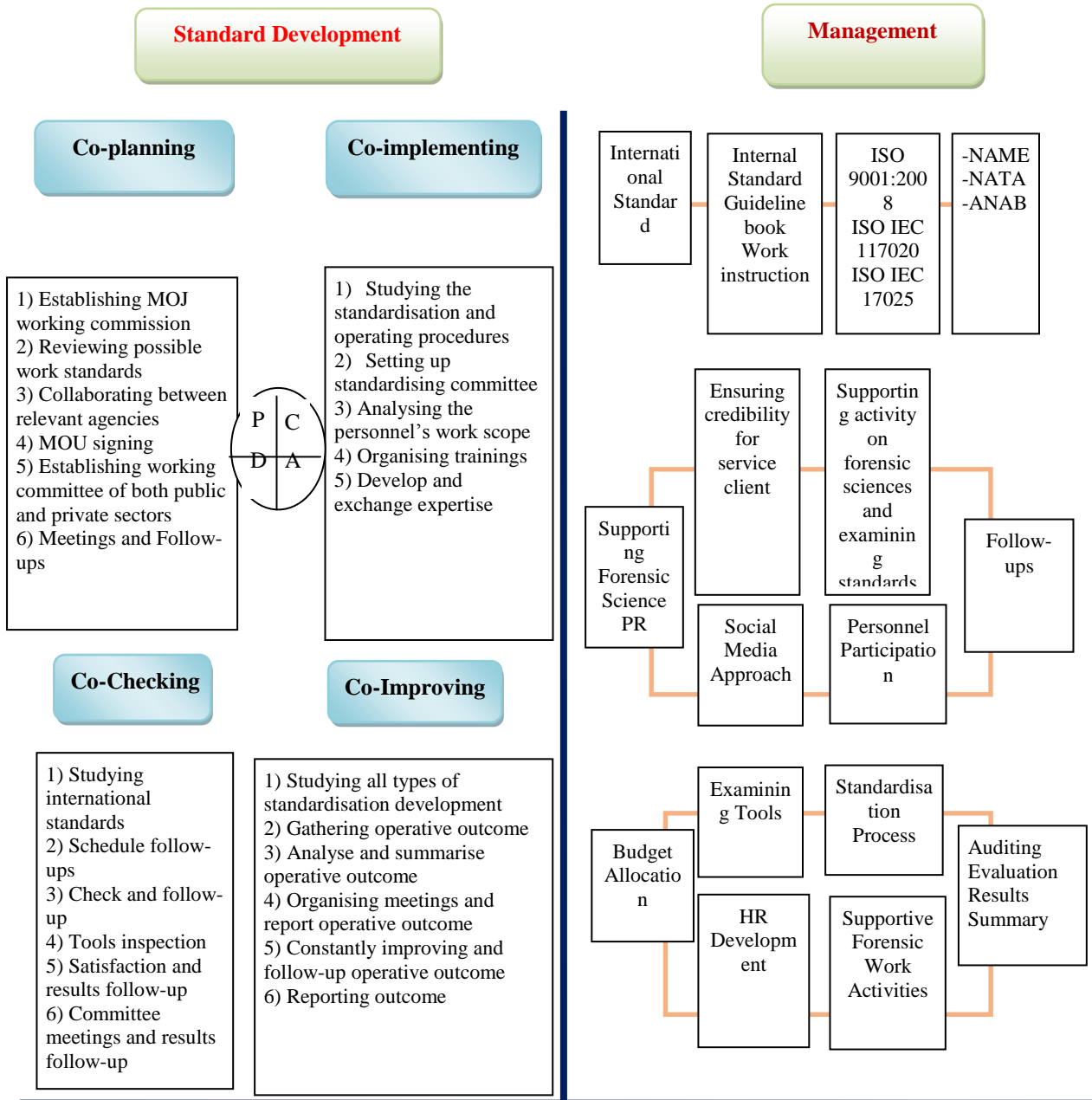
The respondents are mostly female averagely aged between 31-40 years old. The majority of the respondents holds an undergraduate degree, is identified as a Police Lieutenant, and has been in service for 1-5 years. They are observed to hold highest level of comprehensions and insights in 3 aspects, respectively, (1) all related forensic sciences should contain and be in accordance with international standards, (2) Thailand's laboratory operating standards are complied with ISO/IEC 17025, the standard asserted by Thai Industrial Standards Institute (TISI), and (3) Without regulating standards, the credibility and reliability of the witnesses and evidences will be devalued and dismissed.

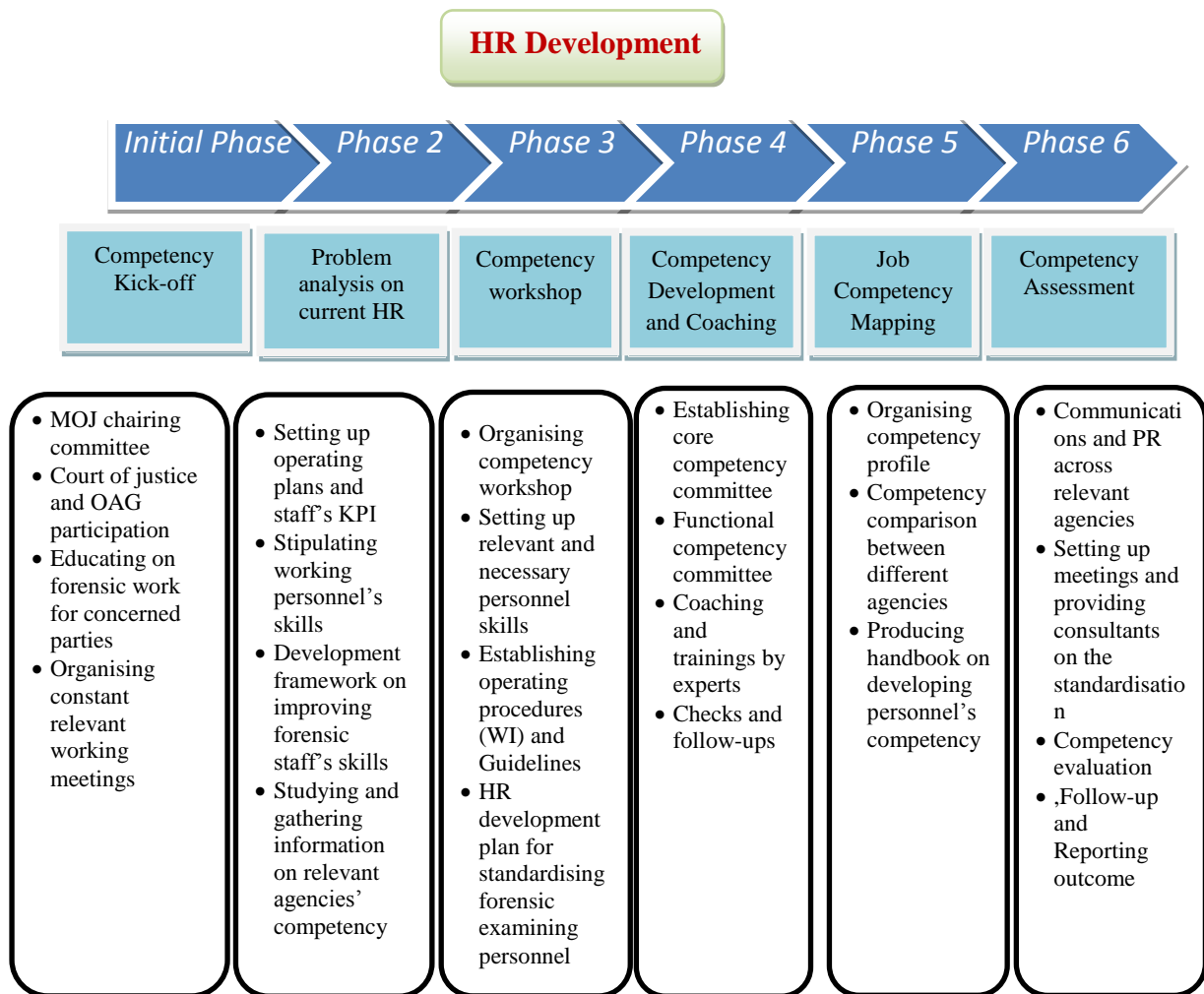
With respect to the respondents' opinions upon international standards, 3 most highly valued issues are namely (1) standardising evidence examining process up to international standards will result in higher credibility, (2) international forensic examining standards require and demand the working staffs' knowledge and understanding, and (3) the respondents perceive that it is of utmost urgency that forensic examining standards must be brought up to international standards.

Vis-a-vis the accessibility and availability of information which can be collaboratively utilised towards developing forensic examining standards, it is discovered that the most important aspect, ranked at the top, lies with the issue of accessibility and availability of relevant information, followed by providing useful and relevant information so that the development can be consistent and up to the desired standards, and lastly, an issue concerning the giving out of relating news and information concerning international standards that can be utilised in the improving of Thailand's forensic work.

### **Cooperation Framework on Thailand's Forensic Examining Work and Development**

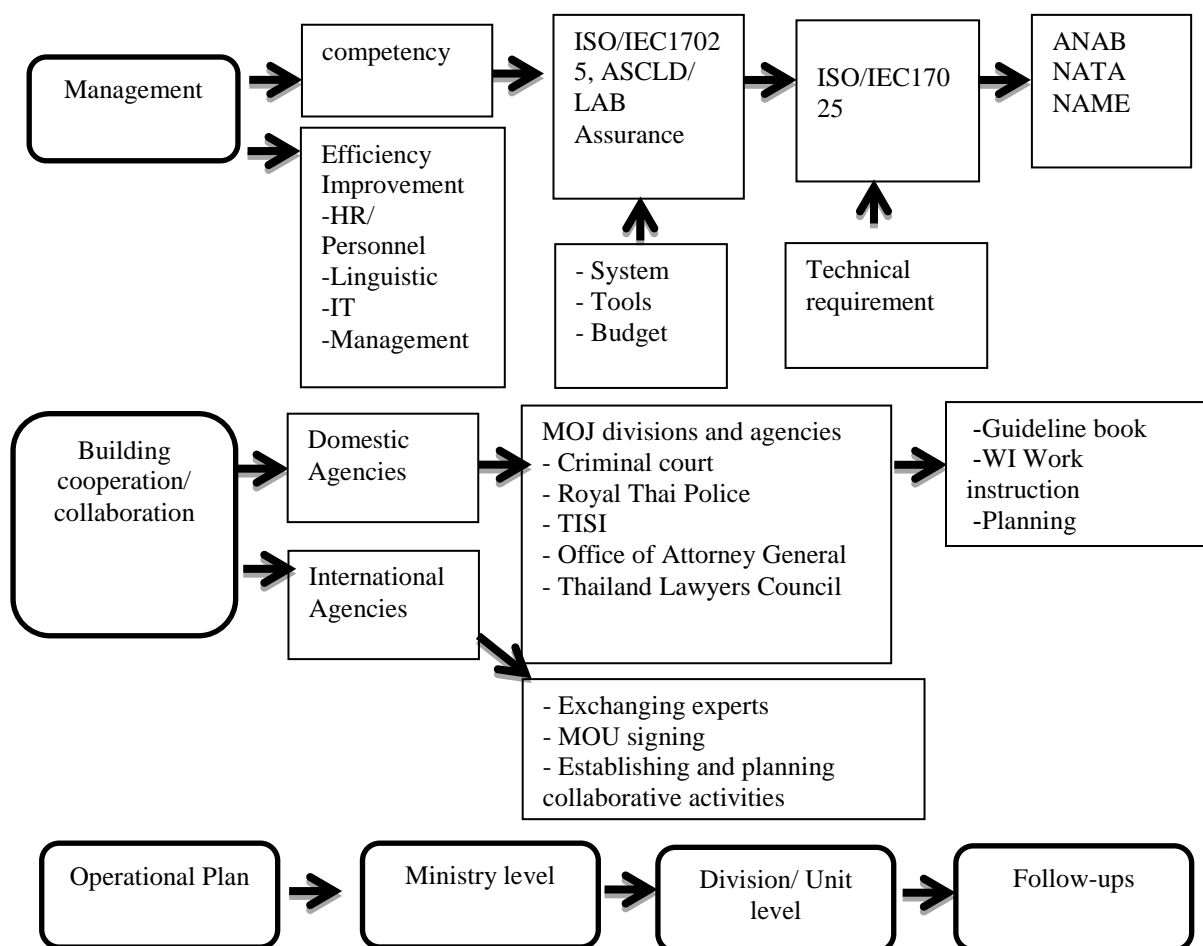
From the study, it is identified that with respect to the development of cooperation framework of Thailand's forensic sciences, 3 outstanding collaborative aspects must be fostered and facilitated i.e. (1) Standard Improvement, (2) Management, and (3) Human Resource Development. The details can be found below in the displayed diagrams.





### **Cooperation Framework towards the Development and International Standardisation of Forensic Examination that is Consistent with the 2016 Forensic Act**

The research findings reveal that the accomplished and effective plan would need to focus on the outcome-base organisation management policy, in which the plan is required to take into account other relevant factors, for example, factors regarding procedural operations such as human resource, fundings, financing, and tools. These factors would ultimately support and steer the organisation towards achieving human resource development and essentially level up the organisation's international practising standard. The aforementioned framework including its proposed procedures in order to be asserted and certified by ANAB internal standard is demonstrated below.



## Research Recommendations

### Policy Recommendations

1. All relevant forensic agencies should generate collaborative framework and operative plans regarding standardising forensic work standards.
2. Concrete policies should be issued for the purpose of achieving international standards e.g. TISI's ISO/IEC 17025, ISO/IEC 17020, organisation standards such as ISO 9001:2008, international standards of ANAB (FBI Standard), NATA (Australian Standard), NAME, and long-term Pathology standards.
3. Collaborative networks between experts and working personnel should be established, including relevant trainings organised for enabling and achieving the examining staff' work effectiveness and efficiency.
4. Supports and encouragement should be provided for those working in forensic sciences, as well as organise and facilitate activities that can nourish and foster knowledge and know-how exchanges between national and international forensic players.
5. All relating agencies should set out rules and regulations that are consistent with the current legislations i.e. the 2016 Forensic Act so that desirable goals can be achieved.

### Practical and Operative Recommendations

1. MOU signing between relevant agencies, setting out cooperative framework towards the implementation of forensic examining work so that same policy and operating direction can be achieved
2. Organising expert meetings between relating organisations and agencies, assigning working committee to follow up the outcomes

3. All forensic sciences related agencies should come up with their carefully drafted KPI in order to oversee their operations i.e. setting up collaborative and cross-examining working indicators (WIs).
4. Guidelines on all forensic examining protocols should also be established, including organising trainings that are asserted and supported by the Thai Industrial Standards Institute (TISI).

#### **Recommendations for Future Studies**

1. In-depth analysis should be carried out to the operational levels so that unified standards regarding forensic examining practices can be identified and internationally standardised.
2. Researches on the implementation of Thailand's standardised international forensic examining practices
3. Studies on establishing cooperations and collaborations between relating forensic agencies e.g. CIFS and the Thai Royal Police.
4. Comparative studies on establishing and developing cooperation framework of Thailand international standardised forensic work, domestically and across the ASEAN

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