

# The Development of Computer Forensic Legal System in

## Mainland China

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**Abstract:** The computer forensic discipline was established around 2000 in mainland China, which was further developed along with Chinese judicial appraisal system in 2005. This paper introduces the reformation of computer forensic legal system in mainland China, the general concept of computer forensic legal system, the management of computer judicial experts, the management of computer judicial expertise institutions, and judicial opinions. The reformation of Chinese judicial appraisal system will significantly improve and develop with the implementation of China's 12th Five-Year Plan in 2012.

**Keywords:** Legal system, computer forensic, judicial expert, judicial expertise institution.

### 1. The reformation of computer forensic legal system

The reformation of computer forensic legal system in China relies on the change of Chinese judicial appraisal system. Therefore, the reformation is a compromise of the China judicial system and its national conditions. The reformation process could be divided into three stages.

#### **Stage 1: The beginning of the reformation<sup>1</sup>**

In 1998, the *Notice of the General Office of the State Council on Issuing the Provisions on the Configuration of Functions, Internal Bodies and Staffing of the Ministry of Justice (1998)* points out that the Ministry of Justice is responsible for guiding judicial expertise work. The first generation of independent judicial expertise institutions that provide services to the public was established based on the *Circular of the Ministry of Justice on Proclaiming the Judicial Expertise Institutions that Provide Services to the Public (No. 1)*. Computer forensic was included as one of the business areas of those institutions. The police force has its own investigation and forensics team. This situation could also be found in the procuratorial authorities and the courts. This implies these authorities can inspect, verify or evaluate by themselves. Therefore, it was hard to find a unified standard in different authorities.

#### **Stage 2: Lack of standards**

Lack of standards, contradicting forensic opinions and conclusions are serious problems in China. Moreover, there were many differences or even conflicts between laws and regulations in different provinces in China. These differences and conflicts highly impacted the objectivity,

independence and impartiality of forensic analysis. Therefore, it was a big challenge to establish a uniform and sound standard for judicial appraisal. This situation was not improved until the publication of the *Decision of the Standing Committee of the National People's Congress on the Administration of Judicial appraisal* on Feb. 28, 2005, also known as *Decision*). According to the *Decision*, forensics analysis should be supported by judicial expertise institutions. These institutions must be registered with the judiciary authority. Judicial appraisal independent third-parties and charge for service fee for each case. These institutions should provide forensics services for both civil and criminal litigations. Moreover, there should not be any grade differences and geographical limitations when handling cases. Furthermore, judicial experts should be independent and be responsible for his/her expert opinions, and provide independent and unbiased opinions, serve the society and get paid.

On the basis of the 4th section in the 2nd article of the *Decision*, "other authentication matters determined by the judicial administrative authority of the State Council in consultation with the Supreme People's Court or Supreme Peoples' Procuratorate, for which the judicial experts and judicial expertise institutions should be subject to register management", the administrative authority of justice established computer forensic discipline. Since then, computer forensic has been admitted by legal system in China.

### **Stage 3: The Direction**

The *Decision* only defines three categories of judicial appraisal. There are other kinds of judicial appraisal, such as asset valuation, product quality, construction works and intellectual property<sup>3</sup> which are not fell inside any of the above 3 categories. The judicial appraisal system should coordinate with the development of social requirements<sup>4</sup>. For computer forensic, according to the 42th article of the *Code of Criminal Procedure*<sup>5</sup>, the 4th section in the 2nd article of the *Decision* and the description of "other provisions" in the *Provisions on Several Issues concerning the Examination and Judgment of Evidence in Death Penalty Cases*<sup>6</sup>, digital evidence is one type of evidence according to the by law.

The other important trend is to ensure professional practice of judicial experts and judicial expertise institutions to provide independent expert opinions. Moreover, forensic analysis and investigation should be separated<sup>7</sup>. On the other hand, the police force and other agencies have the advantage of "self-investigation", i.e., investigation then forensic analysis by officers from the police force. Thus criminal prosecution has been almost monopolized for a long time, even though the *Decision* sets the requirements of neutrality and independence of judicial appraisal. In order to unify the forensic legal system and provide services to the public, one proper way is to gradually restrict the self-investigation right of the police force and other agencies.

One key requirement of professionalism is continue professional development. It is therefore necessary to provide continuous training and improving the operational capacity of judicial experts. Meanwhile, judicial expertise institutions have to be recognized and certificated. As the rapid development of information technology (IT), computer judicial experts must have professional IT knowledge, profound legal knowledgement and high ethical standards. These require computer judicial experts to have continued professional development, and should be supervised and trained regularly by the administrative authority of justice and the professional body of judicial appraisal. Moreover, judicial expertise institutions should be certified with

corresponding national certification, such as quality management, CNAS authentication and etc. In the past few years, the number of registered judicial expertise institutions and judicial experts is increasing gradually. On the other hand, the proportion of judicial expertise institutions established by health, education and research units is decreasing, while the number of judicial expertise institutions set up by enterprise, professionals and community group and is growing steadily. The proportion of computer forensic business units, including computer forensic service, digital evidence analysis and digital investigation, is still very low. On the other hand, a rapid growth in the number of computer forensics business units is observed. In 2010, computer forensics received lots of attentions<sup>9,10,11</sup> and was increased by 63.3%.

## **2. How to become a computer judicial expert<sup>12</sup>**

In mainland China, qualified judicial experts should get the practicing qualification certificate from the corresponding authority. The practicing certificate is a legal proof that the person can engage in judicial appraisal. Judicial experts should meet the qualification requirements of the practicing certificate.

### **(1) Qualification requirements to engage in computer forensic**

Following are basic qualification requirements to practice computer forensic in China:

- a. Has a senior professional technical title relating to computer forensic;
- b. Has professional practicing qualifications relating to computer forensic, or has a university diploma relating to computer or information security or higher education, or has an intermediate title of relevant specialty, and has pertinent working experience of 5 or more years;
- c. Has 10 or more years of working experience relating to computer forensic and has relatively professional technical skills.

Anyone who has a record of criminal offences, has been dismissed from a government position, or is a deregistered judicial expert, shall not engage in judicial appraisal.

### **(2) Judicial expertise institution**

A judicial expert should practice judicial appraisal in a judicial expertise institution. All judicial appraisal requests should be submitted through judicial expertise institutions and then conducted by individual judicial expert. A judicial expert should avoid potential conflict of interests in the following scenarios which may lead to bias opinions:

- a. The judicial expert is the plaintiff/defendant or a close relative of the plaintiff/defendant;
- b. The judicial expert or his/her close relative has an interest in the case;
- c. The judicial expert has been served as a witness, advocate or defender in the case;
- d. The judicial expert has an interest with the plaintiff/defendant in the case.

### **(3) Judicial expert's responsibility**

A judicial expert's responsibility system should be adopted for judicial appraisal. Judicial expert is a neutral third party to provide independent and unbiased opinions. When conducting computer forensic examination, there should be two or more qualified judicial experts. One judicial expert will conduct forensic analysis and be liable for the expert opinion in the report. He/she will affix his/her name or seal on the expert report. The other qualified judicial experts are responsible to validate the examination process and check the report.

Expert report contains expert opinions and/or facts. The court usually relies on the expert report when a verdict is made when the report covers specialised knowledge in a particular subject beyond that of the average person. On the other hand, the judicial appraisal will be affected by many factors. The accuracy of expert opinion will be more or less affected. For example, judicial experts will design and carry out different tests in each case which depends on their own background and experience. Therefore, it is possible that different judicial experts may draw different conclusions. If a judicial appraisal is jointly conducted by two or more judicial experts and different forensic conclusions were drawn, they should be noted in the expert report. Once an expert is identified to be the judicial expert of a case under legal procedures, he should perform the forensic analysis by himself, and make a signature on the expert report. The expert may require to appear at the court as expert witness when he/she receives a court order or the prosecutor/defender request.

#### **(4) Rights of judicial experts**

As a participant of legal proceedings, a judicial expert may enjoy the following rights:

- a. Access the information and materials relating to the judicial appraisal, and interview the plaintiffs, defendants or witnesses relating to the judicial appraisal;
- b. Require the instructing party of the judicial appraisal to freely provide materials and samples as required by the judicial appraisal;
- c. Carry out the relevant inspections, examinations and simulated experiments as required by the judicial appraisal;
- d. Refuse to accept any request of judicial appraisal that is illegal, fails to meet the requirements of judicial appraisal or is beyond the practice scope as registered;
- e. Refuse to answer any question irrelevant to the judicial appraisal;
- f. Preserve different views in the case of any inconsistency of expert opinions about the findings;
- g. Receive continue professional development as required by the profession;
- h. Obtain remunerations;
- i. Enjoy any other right as prescribed by law and regulations.

#### **(5) Duties of judicial expert:**

A judicial expert possesses the following obligations:

- a. Designated by his/her judicial expertise institution to conduct forensic examination according to the relevant provisions in a timely and independent manner and to produce expert reports;
- b. Responsible for the expert opinions as produced;
- c. Avoid cases that may have conflict of interests;
- d. Preserve the materials, samples and other relevant information of the judicial appraisal in a proper manner;
- e. Observe confidentiality when handling information and materials of cases, which includes state secrets, commercial secrets as well as individual privacy;
- f. Appear in a court as expert witness and answering any query relating to the judicial appraisal;
- g. Subject to audit and inspect by authority of justice;
- h. Attend proper training and continue professional development of judicial appraisal;
- i. Perform any other obligation as prescribed by law or regulation.

### **3. How to build a Judicial expertise institution<sup>13</sup>**

Judicial expertise institution is an institution where a legal person or any other organization can apply for practicing in judicial appraisal. It must satisfy the following conditions with respect to the current law in China:

- a. Have its own name and premises;
- b. Have a capital of at least 0.2 million RMB and up to 1 million RMB;
- c. Have clear defined practicing scope;
- d. Have instruments and equipment that can meet the needs of judicial appraisal within its practicing scope;
- e. Have a testing lab which has passed measurement certification or laboratory accreditation and can meet the needs of judicial appraisal within its practicing scope;
- f. Have 3 or more judicial experts for each judicial appraisal practicing scope.

Where a legal person or any other organization applies for practicing in judicial appraisal, the administrative authority of justice shall not accept it and shall produce a Decision on Rejection under the following circumstances:

- a. Where the legal person representative or the person in charge of judicial expertise institution

has been subject to criminal liabilities or has been dismissed from a public body or government department;

- b. Under any other circumstance as prescribed by law or regulation.

The administrative authority of justice that has decided to accept an application shall produce a Decision on Acceptance and shall conclude the relevant examination according to the statutory time limit as well as statutory procedures. The administrative authority of justice shall organize experts to carry out an examination on the equipment and the testing laboratory as required for the applicant to engage in the designated judicial appraisal practicing scope. The time for the examination shall not be calculated into the time limit of the examination.

As to any institution that meets the relevant requirements upon examination, the administrative authority of justice at the provincial level shall make a decision on approving the registration and issuing a Judicial Appraisal License. For any institution that fails to meet the relevant requirements upon examination, the administrative authority of justice at the provincial level shall make a decision on disapproving the registration and inform the relevant applicant in written form with explanation.

The Judicial Appraisal License is the practice certificate of a judicial expertise institution. The judicial expertise institution shall carry out its activities of judicial appraisal according to law upon the strength of the Decision on Approving the Registration as issued by the administrative authority of justice at the provincial level as well as the Judicial Appraisal License. The valid term of the Judicial Appraisal License is 5 years.

The administrative authority of justice shall offer guidance on procedures, which includes administration and examination procedures, for judicial expertise institutions as well as their activities of judicial appraisal. The professional body of judicial appraisal shall establish professional practice of judicial appraisal according to law.

Judicial expertise institution established by an investigating authority for the purpose of investigation should not accept judicial appraisal request from the general public. Moreover, the people's court or the administrative authority of justice cannot have its own judicial expertise institution. There is no hierarchical relationship among the judicial expertise institutions. A judicial expertise institution is not subject to any geographical restriction when accepting judicial appraisal requests.

#### **4. Expert Opinion**

Expert opinion plays an important role in the court. If the plaintiff or defendant's claim is a fact which or can be supported by evidences, the claim can be accepted by the court. Otherwise, the claim's validity could not be established. Under normal circumstances, the plaintiffs or defendants will use documentary evidences, physical evidences, witness testimonies and other evidences to support their claims. On the other hand, judicial expert can draw a conclusion on

the disputed arguments through analysis, identification and judgment, which is called the expert opinion. The weight of an expert opinion for a case depends on its relationship with the case. Under normal circumstances, the weight of the expert opinion which is based on facts is higher than others. Secondly, the weight of an expert opinion about a person is higher than the expert opinion about a matter. Thirdly, the weight of an expert opinion on identical identification is higher than the species identification. Fourthly, the weight of an expert opinion about true or false, yes or no, cause or result, and degrees is higher than others.

In mainland China, expert opinion could be used as evidence in legal proceedings. The specific definition could be found in Civil Procedure Law, Criminal Procedure, Administrative Procedure Law and the Supreme People's Court, especially in *Some Provisions of the Supreme People's Court on Evidence in Civil Procedures*, *Rules of the Supreme People's Court on Some Issues concerning the Evidence in Administrative Procedures* and *Interpretation of the Supreme People's Court and the Supreme People's Procuratorate Concerning Some Issues on the Specific Application of Law for Handling Criminal Cases of Infringement upon Intellectual Property Rights*. The judiciary and plaintiff/defendant could submit expert opinions in the legal proceedings.

Expert opinion should draw a fair and unbiased conclusion according to the facts, and assist the judiciary to understand the technical and legal status of those facts. Based on the conclusions drawn by the expert opinion, the judiciary could then make a judgment.

For the plaintiffs and their advocates, expert opinion could advise them with a correct and objective judgment on the prospects of legal proceedings, and then decide to pursue with warning, negotiation or legal proceedings for the dispute. Moreover, expert opinion could help them to decide whether to take any measure to reduce the risk of legal proceedings.

For the defendants and their advocates, expert opinion could be used to confirm whether to constitute a tort or not. Expert opinion could also help them choose corresponding defense strategy, e.g. reconciliation, declaration of the invalid right of the plaintiff or non-infringement defense. Furthermore, the defendants could assess whether there are sufficient reasons to support the invalid right of the plaintiff or non-infringement defense.

In a legal proceeding, expert opinion plays an important role. It could be used to identify the facts objectively for both plaintiffs and defendants, which can reduce the risk and the cost of the proceeding. During the legal proceeding, the plaintiffs or defendants could request for judicial appraisal from the court, and the request should be applied within the time limit to produce the evidence. Otherwise, it will bear the responsibility of unable to produce the evidence. On the other hand, if the court decides to carry out the judicial appraisal, the decision should be made during the court trial or discussion in the adjournment. Once the expert opinion is made, it will be served as important evidence in the court.

In addition to the general characteristics of evidence, expert opinion has its own special characteristics:

1. Transformation: Other evidences could be transformed to expert opinion through the judicial appraisal. Ordinary evidences provided by the plaintiffs or defendants become crucial evidences.

2. Verification: Expert opinion can act as a standard to verify the authenticity of other evidences. As mentioned before, the judge tends to adopt expert opinion rather than other evidences.

More and more new technologies are used by judicial experts when they are preparing their expert reports. It is no longer factual determination. Judicial experts put efforts into recognizing "scientific evidence" and identifying "pseudoscience". To this extent, judicial experts are regarded as "scientific judges". Therefore, the importance of expert opinion in the judicial activities can never be doubted.

## 5. Conclusion

With the development of judicial appraisal system in China, the development of computer forensic is increased significantly, which includes standardization and legalization. Computer forensic teams and institutions have achieved remarkable success in the past few years. Also, the credibility and functionality of judicial appraisal has become more and more important. Meanwhile, some requirements about judicial appraisal system in mainland China were published by the Ministry of Justice, as well as the National People's Congress and Chinese People's Political Consultative Conference. Therefore, in order to move forward and catch up with the rest of the world, more efforts should be put into the computer forensic area in mainland China, which include research, development and professional practice.

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