

# INTERNATIONAL EXPERIENCE AND DEVELOPMENT PROSPECTS OF FORENSIC IN UKRAINE AS A METHOD OF INVESTIGATION OF INTERNAL FRAUD

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Internal fraud is one of the most important problems for the company and a rather dangerous phenomenon that has many adverse consequences (damage to business reputation and loss of profit).

To combat this phenomenon, Western companies use an effective type of control – forensics. It helps to identify potential financial and non-financial problems and aims to analyze both the internal and external environment of the company (corporate intelligence) – analysis of related parties, personal dynamics of the financial condition of the top manager [1].

In Ukraine, forensic investigations are conducted by companies from the "big four" and many other audit and consulting firms, but forensic is still more popular in theory than in practice. This word is not known at all to most small and medium-sized companies.

Ukrainian business admits that it faces fraud, but is afraid to order an independent investigation, not wanting the unhealthy situation at the company to become known to others.

In general, the development of the forensic system as an effective method of investigating internal fraud cases in Ukraine is constrained by the following factors:

1. Lack of standards governing this type of control and a single methodology established at the legislative level.

For example, in Australia, the process of regulating the activities of forensic specialists is carried out by three professional organizations: the Institute of Chartered Accountants of Australia and New Zealand (ICAAANZ); Certified Practicing Accountants of Australia (CPA Australia); Institute of Certified Public Accountants (IPA). These organizations are guided by the requirements set out in the Australian Code of Ethics for Professional Accountants, which sets out the basic requirements for the professional competence; obtaining and gathering evidence; quality control and other issues of professional activity in the provision of forensic services [2, p.10, 3, p.358].

When conducting forensics, American specialists follow the Statement on Auditing Standards No. 99 issued by the Auditing Standards Board of the American Institute of Certified Public Accountants (AICPA) in October 2002. The standard describes fraud characteristics and procedures for their detection [4].

Thus, the standardization of forensic activities greatly facilitates the work of the expert, as it provides for the unification of approaches to this type of control.

2. Lack of a unified system of training forensic specialists and a very narrow range of services in this area.

Today in Ukraine, the forensic service is provided mainly by auditors, but the specifics of conducting financial investigations imply that the auditor has specific knowledge that a practicing auditor may not have.

However, in many countries, including Australia, Canada, USA, Ireland, India forensic services are provided by certified forensic specialists.

Thus, in Canada, training of specialists in this field has been established within the joint work of the University of Toronto and the Alliance for Excellence in Investigative and Forensic Accounting

(IFA Alliance). These institutions have developed a special two-year training program "Diploma in Forensic Accounting (DIFA)", designed to provide a graduate professional accountant, or equivalent, with the skills, knowledge, insights and professional characteristics necessary to successfully respond effectively to:

(1) the challenges of investigating fraud, other aspects of white-collar crime, and other financial disputes, and

(2) the provision of reports, advice and evidence to clients, lawyers and courts for the resolution of situations relating to possible or pending civil or criminal legal proceedings [5, p.37].

In the United States, the program of the second cycle (master's degree) of the Florida Atlantic University includes 9 courses in the training of forensic specialists.

In the United States, in order to be a certified forensic specialist, a candidate must have:

- bachelor degree;
- professional experience of at least two years;
- submit documents for passing the exam to the Association of Certified Specialists in Crime Investigation.

Most forensic experts have certifications and the status of Certified Fraud Examiner (CFE) and CPA (Certified Public Accountant). To obtain a CFE certificate during the year a candidate must pass an exam in the following subjects:

- fraud in financial transactions;
- legal aspects of fraud;
- fraud investigation;
- criminology and ethics.

The National Association of Certified Valuation Analysts (NACVA) conducts certification under the Master Analysts in Financial Forensics (MAFF) program. To obtain a certificate, it is necessary to confirm knowledge in the following areas:

- assessment of economic damage;
- insolvency, bankruptcy and restructuring;
- assessment of business during litigation;
- violation of intellectual property rights and damage to business;
- financial investigations;
- risk management of fraud.

In Australia, the activities of forensic specialists working in government agencies are subject to mandatory licensing. Experts conducting external investigations to detect fraud (for example, the Australian Tax Office, ATO) are required to obtain a Certificate IV in Government (investigations), and for internal experts – certificate of specialist in fraud prevention (Certificate IV in Government (fraud control)) [6].

Australian higher education institutions offer prospective forensic professionals both stand-alone degree programs (eg, University of Melbourne, Queensland University of Technology, etc.) and separate fraud and financial investigation courses (eg, RMIT), University of South Australia, etc.) [7, p.198].

In order to develop this type of service in Ukraine, it is also necessary to take into account foreign experience in the process of training forensic specialists. Namely, it is necessary to start training forensic specialists by including specialized courses in the curricula of higher education institutions. Cooperation of Ukrainian professional organizations with foreign professional organizations should also be developed in order to provide specialists with the opportunity to obtain international certificates, as well as to involve audit, legal and consulting companies in the process of professional training in forensics.

In order to improve the methods of conducting forensics, we propose to use special indirect methods based on mathematical models, namely:

1) Benford's law testing method indicates unwarranted or suspicious duplication of data. The mathematical value of this method allows to find the limits of expected (normal) duplication, and duplication above the allowable limit is defined as abnormal or redundant.

Analysis of numerical data during forensics should reveal abnormal records, as well as the fact that they are likely to indicate wrongdoing. Further such records are studied in more detail. Forensic experts offer a concept of scoring, where the maximum score correlates with the most suspicious record. The technology of such analysis is based on Benford's law.

The fraud investigation technique, based on Benford's law, qualifies as a high-level review. It is designed to direct the work of a forensic specialist in the following areas: identification of fraud with a large number of repeated episodes, the search for systematic errors, processing ineffective data [8, p.400-403];

2) testing method based on the mathematical model of Benisch's M-score. This model, by calculating several components of financial ratios, allows you to determine whether the entity manipulates the income or not. The values of the coefficients are obtained on the basis of financial statements and, substituting them in the formula M-score, determine the degree of manipulation of income. The calculation of the model includes a number of indicators that are defined as "signals of manipulation".

This model has the following form:

$$\begin{aligned} \text{Accruals} = & \Delta \text{ Current Assets} - \Delta \text{ Cash and Marketable Securities} - (\Delta \text{ Short} \\ & \text{Term Debt} - \Delta \text{ Current Portion of the Long Term Debt} - \Delta \text{ Deferred Taxes} \\ & \text{and some other Legal Liabilities}) - \text{Depreciation Expenses} \end{aligned}$$

These indicators are determined by the corresponding fractions, which are calculated by Benish methods of mathematical statistics, and are added. Thus, Benisch's M-score takes the following form:

$$M = -4.84 + 0.92 * DSRI + 0.528 * GMI + 0.404 * AQI + 0.892 * SGI + 0.115 * DEPI - 0.172 * SGAI + 4.679 * TATA - 0.327 * LVGI$$

If the figure is greater than -2.22, it indicates the probability that the company is a manipulator of income [9, p.30].

Thus, the application of the methods of forensic investigations considered in the paper will increase the efficiency of financial investigations in Ukrainian companies.

Among the services provided by Ukrainian audit, legal and consulting companies, there is a forensic audit service. However, forensic auditing companies (Spencer & Kaufmann Law Firm, Kreston GCG, Deloitte Consulting, Otten Consulting, Credo Audit) provide a very narrow range of services in this direction.

Therefore, in order to develop forensics in the Ukrainian market, we offer companies to expand the content of services in this area. The main content of the offered forensic services is presented in Table 1.

### 3. Slow development of computer forensics.

Computer forensics involves computer technical examination using the latest technologies and preparation of expert opinion; collection of electronic evidence; search, analysis and storage of electronic data; recovery of deleted files and decryption of protected information.

Regulatory regulation in this area in Ukraine does not keep pace with the development of technology, which exacerbates the problem of cybercrime. According to the International Intellectual Property Alliance, Ukraine is recognized as a "pirate G1" in the world.

In Ukraine, businesses are wary of cybercrime: 16% of Ukrainian respondents not only expect cyber attacks on their organizations in the coming years, but are convinced that they will be most significant to them in terms of financial loss or other consequences. Despite this, most of them are not only insufficiently prepared for cyberattacks, but also do not fully understand the risks they may face [12].

More than a third of Ukrainian companies affected by cyberattacks have been affected by malware, and only one in three (31%) has a fully functioning cybersecurity program to protect against cyberattacks [12].

**Table 1. The proposed structure and content of forensic services**

Type of services	Content of the service
Financial investigations	Analysis of the company's current security systems. Evaluation of procedures and internal policies. Checking the efficiency of activities and assessment of financial losses by processes: production, supply, sales. Establishing the facts and causes of fraud. Search for stolen assets. Organization of management and control to prevent financial fraud and fraud
Building a system to combat fraud	Preparation of an action plan to combat fraud. Organization of the corporate hotline. Organization of the work of the economic security and internal control service.
Corporate intelligence	Collection and analysis of data on the reputation of business partners. Information support during financial investigations. Search for stolen assets. Information support in lawsuits and conflict situations. Search for new business opportunities
Expertise	Extrajudicial examination – preparation of information for taking administrative measures. Pre-trial examination – preparation of information for court proceedings. Forensic examination – judicial support in Ukraine and abroad; providing expert evidence
Ethics and Compliance	Advising on risk management in the field of corporate business. Analysis of corporate structure, international structuring. Analysis of related parties, including associates and affiliates. Adherence to corporate procedures, policies, standards. Development and implementation of anti-corruption and anti-corporate fraud procedures. Development of corporate standards and business ethics, as well as risk management regulations
Protection of intellectual property, fulfillment of contractual conditions	Investigation of situations with relationships that arise in the licensing of various forms of intellectual property rights. Comprehensive investigation of problems related to the fulfillment of contract conditions
Automation of anti-fraud decisions	Diagnosis of existing fraud risk management practices. Development and implementation of a targeted system of fraud control and management. Design and implementation of anti-fraud systems

Source: supplemented by the idea [10, p.262, 11, p.136]

In such cases it is extremely important to involve experts in computer forensics to implement the necessary technological solutions that will help companies quickly and efficiently analyze events and make the necessary management decisions in a timely manner.

Competent investigation of crimes, in particular illegal actions related to the use of high technology, is one of the key issues for any state, including Ukraine.

Thus, the development of the forensic system as an effective method of investigating internal fraud cases in Ukraine is constrained by a number of factors, including: the lack of standards governing this type of control and a single methodology enshrined in law; the lack of a unified system of training forensic specialists and a very narrow range of services in this area; slow development of a variety of forensics – computer forensics.

In order to develop this type of services in Ukraine it is necessary:

- take into account foreign experience in the process of training specialists in forensics;
- to expand the range of services in this direction;

- to improve the method of conducting forensics, namely: to apply special indirect methods based on mathematical models, such as: the method of data testing based on Benford's law, the method of testing based on the mathematical model M-score Benish. The application of these methods will increase the efficiency of financial investigations in Ukrainian companies.

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