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*O.M. Beketov National University of Urban Economy in Kharkiv, Kharkiv***STRATEGIC MONITORING OF CORPORATE CONSTRUCTION ENTERPRISES' ACTIVITY IN SYSTEM OF THEIR ECONOMIC SECURITY**

*Issues of strategic monitoring of the main stages of corporate construction companies' activity - supply and construction processes – in system of economic security have been examined in the paper. The algorithm for evaluating and selecting suppliers of materials of construction enterprises has been proposed. Proposed algorithm of supplier assessment includes the following stages: search of supplier, supplier's audit, data gathering on supplier's production quality, evaluation of supplier and supplier selection. The essence of the main stages of construction in progress monitoring have been defined. Construction process monitoring is proposed to be implemented by the following directions: research and assessment of internal control system of construction enterprise, study of managerial accounting, checking documentation, engineering analysis, financial supervision of the project and risks analysis.*

**Keywords:** *strategic monitoring, economic security, corporate construction companies.*

**Introduction.** To ensure effective and sustainable development of corporate security system it is necessary to implement a set of measures for the establishment of adequate market conditions management mechanism, the most important component of which is monitoring. Lack of development of monitoring functioning and development of corporate security theory and methodology is one of the reasons that make it difficult to take decisions to improve the efficiency and sustainability of the system.

Strategic monitoring of activities, including monitoring of supply, production and sale of building products, is essential for ensuring economic security of business building business, taking into account the long duration of construction process. Timely detection of defects in processes of materials supply and during construction process will not only ensure the timely implementation of the construction project, but also will promote the economic security of the construction firm.

Today, most Ukrainian construction companies do not pay enough attention to monitoring of their activity, which leads to faults in the process and untimely supply of a construction project, which undermines the image of construction companies and is a negative indicator of the level of economic security. Research on monitoring of construction enterprises' activity in the system of economic security is insufficient in Ukrainian literature, which leads to the need for further research in this area.

**Background of study.** Recently, much attention of Ukrainian and foreign scholars is paid to corporate security of enterprises, the operation of which depends largely on changing external environment. In particular, much attention is paid to the management system of financial and economic security of enterprises [1-3], the

problems of enterprises activities monitoring [4-5], but the problem of corporate construction companies monitoring in the system of economic security based on industry specifics are not investigated. In addition, insufficient attention is paid to the monitoring of construction enterprises by the main stages of the construction process, including monitoring of supply and construction process monitoring, on which largely depends the success of construction companies and security of building business in general, in Ukrainian scientific literature. Therefore, it is necessary to study the problems of strategic monitoring of basic processes of corporate construction companies in the system of economic security based on international experience.

**The purpose of the paper.** The paper aims to develop recommendations for the monitoring of supply process and of construction process to ensure continuity of these processes and the economic security of the construction companies in general.

**The main results of research.** To ensure effective and sustainable development of corporate security it is necessary to implement a set of measures for the establishment of adequate market conditions management mechanism, the most important component of which is monitoring [6]. Lack of development on the theory and methodology of monitoring of functioning and development of corporate security construction enterprises is one of the reasons that make it difficult to manage decisions to improve the efficiency and sustainability of enterprises. In modern conditions it is necessary to perform monitoring of supply and construction in progress for the effective management of corporate security

The choice of reliable suppliers is one of the pillars of corporate policy. Assessment of the reliability of suppliers as an element of corporate security allows enterprises to reduce risks associated with losses from delays in product delivery, low product quality and instability of suppliers.

The choice of reliable suppliers will positively affect the reduction of operational risks and reduce the loss of production. Methods of assessing the reliability of the supplier evaluation system involves the selection of performance indicators and includes the following steps (Fig. 1):

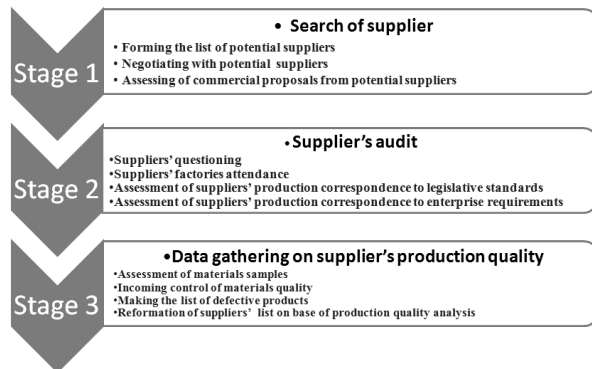


Figure 1. Main Stages of Supplier's Assessment

A well-organized system of logistics allow the company to reduce costs, on the one hand, and guarantee the supply of products of required level and quality at an affordable price, on the other.

One of the main problems in the management of procurement of material resources is the choice of supplier. The importance of this problem is due not only to the fact that a large number of suppliers operates on today's market of material resources, but mainly to the fact that supplier must be a reliable partner in the implementation of enterprise logistic strategy. A large number of potential suppliers of material resources increases the relevance of the choice of those supplier, who could provide the highest reliability of logistic processes.

In modern conditions any company constantly faces with the choice of supplier. To ensure the reliability of logistics processes of an enterprise it is constantly needed to analyze potential suppliers and to evaluate an available suppliers. Starting work with a new supplier is always risky for the company to some extent. In case if supplier is unscrupulous failures can occur in the performance of enterprise production programs or direct financial loss. In this regard, it is necessary to use methods that can detect dishonest suppliers and determine optimal. A necessary condition for the strategic approach is the existence of permanent relationships with suppliers and long-term planning.

To determine the criteria of reliability of suppliers in the international practice method of scoring the most

important indicators is most commonly used. In particular, Australian scientists Dr. Frederick E. Frost and Fiona Long from Curtin University of Technology conducted a study to identify these parameters [7]. In terms of activities 14.2% of respondents were representing agriculture, the same - business services, 7.1% - mining, 36.5% - production, 10.8% - were employed in the transport sector; 7.1% - communication, 5.3% - in the electrical industry, 10.8% - in construction. The main finding of Long and Frost study and is that requirements to suppliers in different areas do not differ from each other. The four most important criterion are: delivery time, quality, service (repair) and price [7, p. 360-362].

Therefore, taking into account international experience, evaluation of suppliers of construction enterprises is appropriate to be conducted by a point system of evaluation according to above mentioned basic criterion [8-9].

Further the possibility of regulation of this procedure is observed. Evaluation of suppliers is advisable to be made in points by the following main characteristics:

1. Indicator "quality level" set of raw materials can be evaluated within the "0 - 10 points" with the following parameters describing the properties of materials:

- Quality of raw materials at the time of delivery;
- The quality of raw materials during processing;
- Stability of quality from delivery to delivery;
- The proportion of low-quality raw materials in each party;
- Price / quality ratio.

Indicator "quality level" is defined as an integral characteristic, each of these properties is assessed within the "0 - 2 points." Value for money is corrective (compensating) for other characteristics, can compensate for lost balls vendors offering raw materials with acceptable quality, but has some deviation, with substantial price differences with respect to similar, higher quality, but much more expensive providers.

2. Indicator "level of supply" can be evaluated within the "0 - 10 points" with the following characteristics:

- Adherence to delivery schedule;
- The rhythm of supply;
- Timely compensation for loss of defects;
- Completeness and compliance with supporting documentation of each party;
- Warranty service (for equipment, instruments and components).

Indicator "level of supply" is defined as an integral characteristic, each of these properties is assessed within the "0 - 2 points".

3. Indicator "degree of supplier loyalty" can be evaluated within the "0 - 10 points" with the following characteristics:

- Completeness of inclusion into the contract enterprise requirements of set out in the protocol differences, additional agreements and other documents;
- Prompt response to the claim;
- The effectiveness of claims;
- Performance analysis and elimination of the causes of defects;
- Availability of information provided in the initial testing, regulatory documents.

Indicator "degree of supplier loyalty" is defined as an integral characteristic of each of these properties is assessed within the "0 - 2 points".

4. Indicator "level of supplier prospects" (his potential for QA) can be estimated within the "0 - 10 points" with the following characteristics:

- The use by supplier of approved quality system;
- Initiative of supplier in hardness standards of quality;
- Compliance with the policy of supplier in the field of quality objectives of the company;
- An ability to be an effective partner in the development of products and technologies;
- An ability of the supplier to operate in a competitive environment.

Indicator "level prospects supplier" is defined as the integral characteristic, each of these properties is assessed within the "0 - 2 points".

Final rating of supplier is defined as the sum of scores for each of the main characteristics of reliability.

The next stage of the assessment and selection of suppliers is their categorization by reliability [8-9]. Based on the statistics data of quality management, reports made during external audit, the results of the survey, estimated (in points) of the main criterions purchasing department should evaluate and select supplier (table 1).

Implementation of assessing the reliability of suppliers can:

- 1) significantly reduce the cost of production (as the cost of procurement is from 40 to 60% of production costs);
- 2) increase the profit (according to American experts, for every percentage of reduction in procurement costs level of profit growth is 12%).

The proposed algorithm for evaluating the reliability of suppliers can detect unreliable suppliers with a view to diversify and ensure the smooth operation of the enterprise, and contributes to the profitability of the company and the stability of its operation in the long-term perspective.

Table 1. Suppliers distribution by reliability categories

Category	Characteristic	Sum of points	Possibility of further cooperation	Supplier's characteristic
1 <sup>st</sup> category	"excellent suppliers"	40	Advantage in contract conclusion	Implement production, which corresponds to basic requirements on quality and safety, authenticity of disruption is small.
2 <sup>nd</sup> category	"reliable suppliers"	32-39	Contract is possible.	Supplies quality may have insignificant disruptions in terms and volume, commercial disruptions, but materials quality is ensured.
3 <sup>rd</sup> category	"unreliable suppliers"	25-31	Contract is possible only in special conditions.	Suppliers, who do not fully satisfy requirements to quality, price supply conditions.
4 <sup>th</sup> category	"unsatisfactory suppliers"	less than 25	Contract is impossible.	Suppliers, who need considerable changed (of their production, activity, policy in field of quality) without taking measures on drawbacks movement.

The need and urgency of the implementation of financial and technical audits (monitoring) is caused by extraordinary usefulness of the results for existing and potential investors, banks and investment funds, general contractors and other stakeholders. It is possible that construction project, which was considered to be economically efficient at the design stage, coordination and beginning of work is eventually flawed, inefficient or underfunded. Transformation of construction project from profitable to unprofitable usually happens when most of the construction work has been funded. Then the question of obtaining economic benefits from construction, at least the at amount of investment, is problematic and requires additional expenses for the solution. Financial and technical audit realization significantly reduces investment risks, because in some cases it may be bound for getting financing or loans.

Financial and technical audit is considered to be the system of control measures, which are aimed at monitoring the effective use of trust funds investment,

to identify the real state of a construction project, and to identify potential risks associated with construction. Sometimes financial and technical audit of construction process is called auditing, financial and technical control (monitoring).

The purpose of the financial and technical audit is an independent expert evaluation of the construction process, which is based on guarantees and a certain level of confidence to investors that the construction works are performed qualitatively, the actual construction costs are not too high, the risks (investment, tax, legal and others) are minimized [10].

Financial and technical audit may be carried out throughout the building process (as support) or periodically.

Financial and technical audit may be appropriate both in the design phase and construction phase. But at the design stage it is rightly regarded as a feasibility study (the possibility of construction performing, and the possibility of the investment project realization) or similar process. Financial and technical audit at the design stage is used to determine the potential of the land selected for the construction, including the availability of utilities and technical feasibility of a new object necessary utilities (electricity, gas, heat, water, sanitation, etc.). and clarification of the necessary funding and its sources. It seems more appropriate to link financial and economic audit of the unfinished building [11].

Financial and technical audit is a multi-system process that includes a significant list of operations [12].

First, research and assessment of internal control system of construction enterprise is conducted (including analysis of relevant internal regulations of the customer (budgets, policies, regulations, instructions, procedures and other documents) related to construction projects). Survey and evaluation of the internal control system can detect areas of risk on construction sites, and help to plan appropriate audit procedures.

An important step in the financial and technical audit is the study of managerial accounting of construction company. Management accounting is not regulated in terms of legislation, so its regulations are developed individually by construction enterprises with regard to their own specific features, characteristics and classification of cost accounting, pricing structure and other factors. Confirmation of authenticity, efficiency and reliability is carried out by checks of primary accounting and economic documents, including documents confirming the volume of construction work and, most importantly, the technology of their production. Specialists who perform this stage of financial and technical audit should be sufficiently familiar with construction industry accounting features.

During the financial and technical audit the considerable attention is paid to providing documentary of construction process. For this purpose project, initial documentation are scanned, and examination is carried out of contracts with contractors and suppliers. To verify the work acceptance procedure and payments for work on their compliance to the contract, regulations and applicable laws they are examined at this stage. The analysis of existing legal and permits, defined list of additional documents required for commissioning is done for assessing the risks associated with their receipt. Documentary analysis of software aims to establish its legal powers, legality, compliance with the construction project, implemented to identify fictitious contracts, excessive volumes of purchases and so abnormal.

An important role in the financial and technical audit, of course, is played by engineering analysis. Thus, a detailed study and analysis of the subject plan (schedule) of works and finance contractors (about spending money), technical supervision of the construction for compliance with the scope of work for acts performed in real time, their compliance with the construction schedule and quality and matching of purchased materials to actually used in construction process is performed. Quality control of materials, on-site monitoring on compliance with safety regulations, fire safety, and occupational safety must be also carried out. Special attention should be paid to the detection of hidden, fictitious, additional work. Reverse engineering is carried out by means of visual and instrumental surveys to assess the quality of the works, compliance with the requirements of the work with the working draft, photofixation defects and deficiencies, defects compiling information.

Financial supervision of construction during the financial and technical audit means analysis of timeliness and adequacy of financing the construction, checking rates, rules and factors inherent in the estimates, the correct application of rates in acts, ratios, norms of indirect costs and regulatory compliance rates, conducting analysis of current operating costs for their intended use, and assessing the costs incurred and the volume of work performed on objects of completed construction. In some cases an assembly of alternative estimates and calculations for the purpose of verification to identify existing differences may be appropriate. At this stage, financial and technical audits much emphasis on reconciliation of actual purchase (contractual) cost of building materials and the average price.

Risk analysis in the financial and technical audit involves their identification, qualitative and quantitative analysis, risk grading by the degree of influence on the outcome of the construction process, assessment of the likelihood of the risk and assessment of the effects of their occurrence. Based on the analysis of risks it is

possible to develop preventive measures to prevent the onset of construction risks: quality deterioration, disruption of construction terms, the increase in the cost of construction or effective procedures for liquidation of consequences of building risk. In some cases, financial and technical audit may also include identification and assessment of damages that may be incurred by the construction company due to emergencies, accidents, various acts or omissions, and others.

The final stage of the financial and technical audit is to create the report. While forming the report audit team should be aware that its membership include:

- civil engineers (calculator, planners, engineers with technical supervision);
- lawyers experts in the "construction" of law;
- sector auditors specializing in auditing of construction companies;
- experts from industry management accounting.

As a result it is considered fair to conclude that the financial and technical audit helps preventing:

- unreasonable increases of the budget (estimates) of construction contract and its value;
- misuse expenditure invested in construction projects funds;
- unreasonable deviation from the technical requirements for construction products;
- violation of deadlines of construction facilities;
- suspension of construction due to disputes between the parties of construction project (customers, contractors, lenders, etc.);
- «frozen» construction projects as a result of lack of funds for its successful completion and others.

**Conclusions.** Thus, we can conclude that strategic monitoring phases of the construction process as the supply and construction are crucial for the success of the corporate construction companies. Monitoring of the supply of raw materials and working with suppliers helps to avoid the risks associated with delayed delivery of materials and disruption in the supply on the blame of supplier, which could lead to delays in project implementation and adversely affect the effectiveness and economic security of corporate construction companies. Monitoring of construction, which is called by the most economists as financial and technical audits is also very important in ensuring the economic security of corporate construction companies, as well as to avoid such risks of construction process as inappropriate spending and delayed works. Therefore, monitoring of the main stages of construction enterprises as supply of materials and construction must be an integral part of the strategy of economic security. However, analytical support is necessary for quality monitoring of construction enterprise activity, which will be the focus of future research.

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### **СТРАТЕГІЧНИЙ МОНІТОРИНГ ДІЯЛЬНОСТІ КОРПОРАТИВНИХ БУДІВЕЛЬНИХ ПІДПРИЄМСТВ В СИСТЕМІ ЇХ ЕКОНОМІЧНОЇ БЕЗПЕКИ**

Т.В. Момот, Г.М. Шаповал, М.В. Кемечиджисєва

*В статті досліджуються питання стратегічного моніторингу основних етапів діяльності корпоративних будівельних підприємств – процесів постачання та будівництва – в системі їх економічної безпеки. Розроблено алгоритм оцінки та вибору постачальників матеріалів будівельних підприємств. Визначено сутність основних етапів моніторингу незавершеного будівництва.*

**Ключові слова:** стратегічний моніторинг, економічна безпека, корпоративні будівельні підприємства.

### **СТРАТЕГИЧЕСКИЙ МОНИТОРИНГ ДЕЯТЕЛЬНОСТИ КОРПОРАТИВНЫХ СТРОИТЕЛЬНЫХ КОМПАНИЙ В СИСТЕМЕ ИХ ЭКОНОМИЧЕСКОЙ БЕЗОПАСНОСТИ**

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*В статье исследуются вопросы стратегического мониторинга основных этапов деятельности корпоративных строительных предприятий - процессов снабжения и строительства - в системе их экономической безопасности. Разработан алгоритм оценки и выбора поставщиков материалов строительных предприятий. Определена сущность основных этапов мониторинга незавершенного строительства.*

**Ключевые слова:** стратегический мониторинг, экономическая безопасность, корпоративные строительные предприятия.