ASSESSMENT OF BUSINESS PROCESSES “FROM PURCHASE TO PAYMENT” IN THE SYSTEM OF AN INTERNAL AUDIT

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Abstract

Purpose: The article suggests an approach to the assessment of the efficiency of work with suppliers. It allows monitoring the dynamics and factual achievement of set targets. Within the framework of an internal audit of business processes “from purchase to payment” we suggest the system of assessment of suppliers which includes indicators that fairly reflect the work of suppliers of material resources.

Methodology: This is analytical-logical research that has been done through content analysis and documentary and library research.

Result: Record of any changes, knowledge of complete and reliable information, well-timed assessment of suppliers’ work and control will allow to decrease expenses connected with the stoppage of the production process and to increase the activity efficiency of joint-stock company “HR”. Expert surveys carried out among the top specialists and management of the company proved the validity and acceptability of the given approach to an internal audit of business processes “from purchase to payment”. This system is developed using the method of expert assessment by means of a survey. The article represents a specification of the order of calculation of the coefficients of the significance of indicators – criteria of the assessment of suppliers.

Applications: This research can be used for universities, teachers, and students.

Novelty/Originality: In this research, the model of business processes “from purchase to payment” in the system of an internal audit is presented in a comprehensive and complete manner.

Keywords: Internal audit, business process, control, efficiency of internal audit, business, sustainable development, assessment, audit, Liability Company.

INTRODUCTION

Nowadays there is no standard decision on how to create the system of internal audit indicators of business processes “from purchase to payment”, the efficiency and useful results of basic methods of an internal audit. However, it is possible to focus on the factors that may serve as the basis for creation of an assessment system. Among them are (Sadig, Governatori, Namiri, 2007; Oriens, Heuvel, Papazoglou, 2008; Iida, Denker, Talcott, 2009; Dirgahayu, Quartel, Van Sinderen, 2008; Hao, Ding, 2012):

- Straight quantity effect from the activity of an Internal Audit Service, i.e. quality of the revealed violations, the amount of violations, amounts recovered from delinquents and etc.;
- Indirect quantity effect from the activity of an Internal Audit Service that implies the decrease in value of an internal audit and consulting services;
- The effect of the preventive measures recommended by the members of an Internal Audit Service;
- The effect that deals with the rise of relevance of managerial decisions made due to the results of a test audit carried out by the Internal Audit Service.

Within the frameworks of an internal audit of business processes “from purchase to payment” the indicators showing the efficiency of work with suppliers may play the role of such an assessment criterion (Komoto, Futatsugi, Yoshioka, 2016; Andersson, Bider, Perjons, 2004; Ismagilov Khasanova, 2016; Espahbodi, Espahbodi, 2019; Wang, Li, 2011).

The assessment carried out by the Internal Audit Service may be based on a number of different indicators. Among them are:

- Correlation of expenses on the Internal Audit Service and the real advantages of its work;
- Activity courses of the Internal Audit Service;
- Status of the Internal Audit Service within the company;
- Professional level and the development of personnel of the Internal Audit Service;
- Projects of the Internal Audit Service;
- The methodology applied for an internal audit;
- Technologies applied for an internal audit.

The Head of the Internal Audit Service defines a specific list and figure values in accordance with the top management of the company. In order to carry out the analysis of the Internal Audit Service activity top management rests upon consolidated figures, and Heads of other units and services of the company analyze detailed figures. An additional point to this is that the system of indicators has to provide the assessment of the Internal Audit Service activity and the contribution of every particular employee to the activity indicators of the company in general as well as to its separate business units and separate business processes.

METHODS

This is analytical-logical research that has been done through content analysis and documentary and library research.

RESULTS AND ITS DISCUSSION

In a joint-stock company “HR” the systems of an internal audit and control are integrated into all business units. In such conditions in order to assess the efficiency of the methodology of an internal audit of business processes “from purchase to payment,” they use such important indicators as the one showing the efficiency of work with suppliers.

In the given system the emphasis is put on the maintenance of the stock of materials and components necessary for production. As it was mentioned above the usage of this system is viable when the producer doesn’t have the exact information about the required terms of production and the amount of product in a short production cycle. In this case in a joint-stock company “HR” there is a large assortment of production which is produced in advance and stored in a warehouse for semi-products, details, and instruments.

When the orders are received the final assembly is carried out from warehouses of unfinished goods and delivered to clients.

Auditors in the company do not use the strictly regulated methodology for the accounting of suppliers. Within the frameworks of an internal audit of the business process “from purchase to payment” there is a system to assess suppliers which includes indicators that fairly reflect the work of suppliers of material resources. The given system is worked out using the method of expert assessment by means of a survey. Five experts were involved (three employees of joint-stock company “HR” who deal with management of material resources and two independent). Among them are:
- Specialist in purchasing department of a production and commercial center of joint-stock company “HR”;
- The chief engineer of joint-stock company “HR”;
- Forwarding agent of joint-stock company “HR”;
- Purchasing manager of limited liability company “STR”;
- Commercial director of limited liability company “System installation center”.

Limited liability companies “STR” and “System installation center” are the business partners of joint-stock company “HR” since 2013 and experienced enough in the delivery of components.

| Table 1: Supplier assessment survey data of joint-stock company “HR” |
|-----------------------------------------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| Indicators                                     | Specialist of purchasing | Chief engineer | Forwarding agent | Purchasing manager | Commercial director |
| 1. Efficiency of deliveries                    | *                | *               | *                | *                | |
| 2. Price                                       | *                | *               | *                | *                | *                |
| 3. System of payment                           | *                | *               | *                | *                | |
| 4. Quality of components                       | *                | *               | *                | *                | *                |
| 5. Other                                        | Suppliers’ economic capacity | Assessment of quality of business cooperation |

According to the set of criteria of supplier assessment six necessary criteria have been identified by the experts. The quality of components was noted by all experts; the price was noted by four out of five as well as the efficiency of delivery in the case of unscheduled requests. Among other criteria were the system of payment, suppliers’ economic capacity and assessment of quality of business cooperation.
The next step is to identify the significance of indicators. The significance of indicators is determined by the survey method. The survey includes six quantitative indicators mentioned above. It was suggested to rank these groups according to the significance of the impact on the assessment of suppliers. The survey data is shown in table 2.

### Table 2: Survey data to determine the significance of indicators

<table>
<thead>
<tr>
<th>Name of indicator</th>
<th>Expert assessments</th>
<th>Sum of ranks (R_j)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Efficiency of delivery</td>
<td>3 2 3 3 3</td>
<td>14</td>
</tr>
<tr>
<td>2. Price</td>
<td>1 3 2 1 2</td>
<td>9</td>
</tr>
<tr>
<td>3. System of payment</td>
<td>5 6 5 4 4</td>
<td>24</td>
</tr>
<tr>
<td>4. Quality of components</td>
<td>2 1 1 2 1</td>
<td>7</td>
</tr>
<tr>
<td>5. Suppliers’ economic capacity</td>
<td>4 5 6 6 5</td>
<td>26</td>
</tr>
<tr>
<td>6. Assessment of quality of business cooperation</td>
<td>6 4 4 5 6</td>
<td>25</td>
</tr>
<tr>
<td><strong>Total:</strong></td>
<td></td>
<td><strong>105</strong></td>
</tr>
</tbody>
</table>

Further, it is necessary to calculate the coefficients of indicators’ significance, the criteria of suppliers’ assessment. The significance of indicators must meet the following requirements:

- The most significant criterion must have the highest value;
- The sum of coefficients of significance must be 1.

That is why in order to meet the requirements K_in is calculated using the following formula:

\[
K_{in} = \frac{1 - \frac{R_j}{\sum R_j}}{\sum (1 - \frac{R_j}{\sum R_j})}, \tag{1}
\]

Where \(R_j\) is the sum of rank values of each criterion;

\[\sum R_j\] – the total sum of all rank values for all indicators.

As a result of processing the received data within the frameworks of an internal audit of business processes “from purchase to payment,” we developed and suggest the following system of assessment of the suppliers of joint-stock company “HR”, represented in table 3.

### Table 3: System of assessment of the suppliers of joint-stock company “HR”

<table>
<thead>
<tr>
<th>№</th>
<th>Indicators</th>
<th>Coefficient of significance</th>
<th>Interval of values</th>
<th>Criteria for indicator calculation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Quality components</td>
<td>0,187</td>
<td>0-1</td>
<td>1 - availability of quality certificate, certificates of various competitions and exhibitions; 0 - the absence of a certificate</td>
</tr>
<tr>
<td>2</td>
<td>Price</td>
<td>0,183</td>
<td>0-1</td>
<td>1 – the lowest price on the market ( 2% price increase - decrease by 0.1 points)</td>
</tr>
<tr>
<td>3</td>
<td>Efficiency delivery in case unscheduled request</td>
<td>0,173 0,9</td>
<td>0-0,9</td>
<td>0,9 – delivery time less than 10 days; 0,45 – from 10 days to 1 month; 0 – more than 1 month.</td>
</tr>
<tr>
<td>4</td>
<td>System payment</td>
<td>0,154</td>
<td>0-0,8</td>
<td>0,8 – delay in payment for a period of more than 3 months; 0,6 – delay in payment for a period of 1 to 3 months; 0,45 – delay in payment for a period of 7 days to 1 month.; 0,3 – delay in payment for up to 7 days; 0,15 – 50% prepayment, 50% within 7 days; 0 – 100% prepayment.</td>
</tr>
<tr>
<td>5</td>
<td>Assessment of quality of business</td>
<td>0,152 0,8</td>
<td>0-0,8</td>
<td>0,8 – cooperation more than 3 years; 0,35 – cooperation less than 3 years;</td>
</tr>
</tbody>
</table>
Accordind to this methodology, the interval of indicators’ values is set corresponding to the coefficient of significance. The value in the range from 0 to 1 takes the indicator with the highest value. The upper bounds of the remaining intervals are calculated as the ratio of the coefficients of significance to the highest value. For instance, in our case the criterion of product quality has got the highest coefficient of significance that is 0,187. Therefore, the quantitative indicator for this criterion takes the value from 0 to 1. The significance coefficient of delivery efficiency is 0,173. The indicator of this criterion changes in the range from 0 to 0,9 (0,173/0,187=0,9).

Thus, within the frameworks of an internal audit of business processes “from purchase to payment” the process of work with suppliers is considered to be unbroken. Record of any changes, knowledge of complete and reliable information, well-timed assessment of suppliers’ work and control will allow to decrease expenses connected with the stoppage of the production process and to increase the activity efficiency of joint-stock company “HR”.

Expert surveys carried out among the top specialists and management of the company proved the validity and acceptability of the given approach to an internal audit of business processes “from purchase to payment”.

**CONCLUSION**

When assessing an internal audit of business processes “from purchase to payment” first of all it is necessary to consider its capability to achieve the planned results. For practical implementation of the methodology of an internal audit of business processes “from purchase to payment,” it is necessary to assess the results of work of the whole chain of business processes. The task is to determine how successful and efficient the process “Internal audit of business processes “from purchase to payment” is. Possible indicators, measurement methods and sources of information necessary for the analysis are shown in table 4.

**Table 4: Efficiency indicators of the process “Internal audit of business processes “from purchase to payment”**

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Source of information</th>
<th>Measurement method</th>
</tr>
</thead>
<tbody>
<tr>
<td>The reduction in the number of repeated non-compliances according to the audit results</td>
<td>Protocols and reports</td>
<td>The previous and reporting periods are compared</td>
</tr>
<tr>
<td>The absence of cases of untimely execution of corrective actions</td>
<td>Protocols and reports</td>
<td>The planned and actual dates of corrective actions are compared</td>
</tr>
<tr>
<td>The efficiency of proposals for improving, made by the auditors</td>
<td>Reports</td>
<td>A survey of heads of departments (processes). Expert assessment of the result achieved by means of implementation of recommendations for improvement</td>
</tr>
</tbody>
</table>

For the process of "Internal audit of business processes “from purchase to payment”, as well as for another process, the owner develops indicators for the assessment of efficiency. After that, numerical values are set for each indicator. The actual values of indicators are defined and registered. Determination of the effectiveness of the process “Internal audit of business processes “from purchase to payment” allows assessing the functioning of the process, basing on the criteria approach and feedback.

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**REFERENCES**


