Efficiency of an internal audit of companies' business processes

Eficiencia de una auditoría interna de los procesos de negocios de las empresas
Eficiência de uma auditoria interna dos processos de negócios das empresas

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Abstract

The article suggests an approach to assessing the effectiveness of the process of "An internal audit of business processes from purchase to payment", which allows to visually monitor the dynamics and the actual achievement of the process of the specified indicators. It is explained by the fact that the objective assessment is achieved by means of correlation between factual and planned values, which allows to determine how the operation of the process is close to achieving the goal. Assessment of the functioning of the process of "An internal audit of business processes "from purchase to payment" is advisable to carry out on two indicators: effectiveness and efficiency. Along with the implementation of the internal audit model of the business process it is necessary to improve the risk management system, document key risks and existing control procedures in the context of individual business processes.

Keywords: Internal audit, business process, control, efficiency of an internal audit, business.

Resumen

El artículo sugiere un enfoque para evaluar la efectividad del proceso de "Una auditoría interna de los procesos de negocios, desde la compra hasta el pago ", que permite monitorear visualmente la dinámica y el logro real del proceso de los indicadores especificados. Se explica por el hecho de que la evaluación objetiva se logra mediante la correlación entre los valores objetivos y planificados, lo que permite determinar cómo la operación del proceso está cerca de alcanzar la meta. Es aconsejable realizar una evaluación del funcionamiento del proceso de "Una auditoría interna de los procesos de negocios desde la compra hasta el pago" para llevar a cabo dos indicadores: la eficacia y la eficiencia. Junto con la implementación del modelo de auditoría interna del proceso empresarial, es necesario mejorar el sistema de gestión de riesgos, documentar los riesgos clave y los procedimientos de control existentes en el contexto de los procesos comerciales individuales.

Palabras claves: Auditoría interna, procesos de negocios, control, eficiencia de una auditoría interna, negocios.

Resumo

O artigo sugere uma abordagem para avaliar a eficácia do processo de "Uma auditoria interna de processos de negócios, da compra ao pagamento", que permite monitorar visualmente a dinâmica e a realização real do processo dos indicadores especificados. Isso é explicado pelo fato de que a avaliação objetiva é obtida

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por meio da correlação entre os valores objetivos e planejados, o que permite determinar como a operação do processo está próxima de atingir o objetivo. É aconselhável realizar uma avaliação do funcionamento do processo de "Uma auditoria interna de processos de negócios de compra para pagamento" para realizar dois indicadores: eficácia e eficiência. Juntamente com a implementação do modelo de auditoria interna do processo de negócios, é necessário melhorar o sistema de gerenciamento de riscos, documentar os principais riscos e procedimentos de controle existentes no contexto dos processos de negócios individuais.

Palavras-chave: Auditoria interna, processos de negócios, controle, eficiência de uma auditoria interna, negócios.

Introduction

The development and improvement of an internal audit is a complex process that is influenced by external and internal factors that require in-depth study. Improving the efficiency of management activities of the companies allows the use of regulatory activities, internal standardisation activities of the internal audit Department, adaptation to its practical conditions and particularities of the activities, the increased use of economic methods of management of production process, determination of the optimal number of staff of internal auditors, as well as the criteria for the assessment of the effectiveness and quality of specific activities of the internal auditor.

Company size also affects corporate financial reporting and risk management issues because large companies attract a greater analyst following that disseminates information to the public (Atiase, 1985; Bhushan, 1989). Traditionally, internal auditing predominantly focused on controls and operational risks. However, these tasks have been extended, with a particular concentration on financial reporting (Gramling et al, 2004). Moreover, within the audit risk model, a high-quality internal audit function (IAF) can induce a reduction of accounting-related control risks, thereby possibly reducing the risk of errors by the external auditor, increasing audit efficiency and reducing audit fees (Hogan and Wilkins 2008). Accordingly, external auditing standards explicitly recognize the potential relevance of internal auditing (Gros et al, 2017). The internal audit function (IAF) may be involved in the evaluation of certain risks of XBRL adoption, such as incorrect tagging, inconsistencies in amounts, missing data, lack of confidential information safeguards, and noncompliance with complex rules and deadlines (Abdolmohammadi et al, 2017). At the planning stage, internal auditors can design controls to mitigate such risks (PricewaterhouseCoopers, 2011).

Methods

In order to define process results it is necessary to set indicators of its work. The following indicators are formulated for the process of "An internal audit of business processes "from purchase to payment":

$K1$ – compliance with the terms of development and approval of the Program (and other internal audit related documents);
$K2$ – compliance with the terms of an internal audit procedure;
$K3$ – total number of irregularities detected during an internal audit on-site for the reporting period;
$K4$ – number of irregularities detected during a repeated internal audit on-site for the reporting period;
$K5$ – number of employees who have not passed internal audit testing;
$K6$ – number of cases of discrepancy between data of electronic survey and data of an internal audit on-site;
$K7$ – compliance with planned deadlines of report preparation;
$K8$ – number of irregularities detected during an internal audit for the reporting period. $K8$ is an indicator that shows the results of "An internal audit of business processes "from purchase to payment".

Various manifestations of indicators form a gradation. The set of gradations, that exhaust all possible manifestations of the indicator, forms a scale of its measurement. The ranking takes into account the contribution of each specific indicator to the overall performance of the process.

In order to define the values of indicators $K1...K7$, parameters $P1...P7$ are entered, they reflect the

degree of goal achievement and planned results of the process. They are the difference or relation between the actual parameter achieved and its planned value.

The formulas to calculate the values of R1...P7, as well as the conditions for assigning values to the indicators K1...K2 are developed. In addition, the coefficient of weight ai for each of the indicators is determined by the degree of importance of the indicator and the degree of its contribution to the overall effectiveness of the process "An internal audit of business processes "from purchase to payment" of the investigated organization.

The calculation of weight coefficient ai for each of the indicators is carried out by the following formula (using an expert method):

$$a_i = f(\frac{\sum_{k=1}^{N} a_{ik}}{N}),$$

(1)

where, N – number of experts taking part in an expertise;
ai – weight coefficient of a qualitative indicator of i;

aik – numerical weight value of i's qualitative indicator given by expert k.

The value of weight coefficient is periodically reviewed depending on the changes in the objectives of the process "An internal audit of business processes "from purchase to payment" and achieving the level of efficiency. Table 1 shows the indicators K1...K7, formulas for calculation of parameters P1...P7, conditions of assignment of values to indicators and value of weight coefficient for K1...K7.

Table 1. Calculation of efficiency indicators

Indicator, Ki	Parameter, Pi	Numerical values of the indicator	Weight coefficient, ai
К1	P1 = N11 – N12	К1 = {1, 0 = < P1 =< 7 {0, P1 > 7	0,02
К2	P2 = N21 / N22	К2 = {1, 0 = < P2 =< 0,3 {0, P2 > 0,3	0,03
К3	P3 = N31 / N32	К3 = {0, P3 < 1 {1, P3 >= 1	0,05
К4	P4 = N41 / N42	К4 = {1, P4 < 1 {0, P4 >= 1	0,20
К5	P5 = N51 / N52	К5 = {1, P5 < 0,3 {0, P5 >= 0,3	0,20
К6	P6 = N61 / N62	К6 = {1, P6 < 0,1 {0, P6 >= 0,1	0,40
К7	P7 = N71 – N72	К7 = {1, P7 = 0 {0, P7 > 0	0,10

The value of K8 is calculated as the ratio of the number of irregularities detected by an external auditor in the current period to the number of irregularities detected by an external auditor in the previous reporting period. If K8 < 0.5 (i.e. the number of irregularities has been halved), it

is considered that the process "An internal audit of business processes "from purchase to payment" is functioning effectively, otherwise it is decided that the process requires intervention in order to identify and eliminate the reasons that led to the decline in efficiency.

Determination of the integrated performance indicator. Due to objective reasons (because an external audit is conducted less frequently than assessment of process efficiency), the indicator K8 can be applied not in each reporting period (Ismagilov & Khasanova, 2014).

The calculation of the efficiency of the process "An internal audit of business processes "from purchase to payment" is carried out by the formula:

$$R = \sum_{i=1}^{7} a_i \ K_i$$

(2)

where, a_i - weight coefficient of each indicator, if the following condition is complied:

$$\sum_{i=1}^{7} a_i = 1$$

(3)

In the case, when the process reaches the highest level of efficiency (since the R value gets into the last scale interval), it is expedient to determine the actions directed towards the improvement of the given process and to review the current values of process indicators moving upwards. In the case where the value of R is close to one (the effectiveness has reached saturation) or R = 1, the analysis of the functioning of the process is necessary.

According to the analysis of the data, they made a qualimetric scale for assessing the efficiency process, depending on the value of R (table 2).

Table 2. Qualimetric scale of the efficiency assessment

Range of values of R	Process characteristic
0 < R < 0,4	The process is not effective. Goals and objectives have not been achieved, corrective actions are needed to identify and eliminate the causes of irregularities.
0,4 < R < 0,6	A low level of process efficiency. This process needs the analysis.
0,6 < R < 0,8	The process is efficient. The aims are close to being achieved, it is necessary to develop and implement measures to prevent irregularities.
0,S < R < 1	A high level of process efficiency. The aims are achieved almost in full.

Analysis must include the following:

- review of the process objectives;
- development of new, reasonable (corresponding to the developed objectives) indicators of efficiency;
- development of parameters and formulas for the calculation of efficiency indicators;

- setting of new numerical values.

The proposed approach to efficiency assessment allows the principle of continuous improvement, as well as Kaizen methodology (small continuous improvements). Thus, functioning of process occurs on an ascending spiral of improvement, i.e. at passing of a cycle and achievement of high

level of efficiency (R = 1), there is a transition to new higher level of functioning.

Efficiency is a concept that is characterized by the relationship between the results obtained (production of goods or services), on the one hand, and the resources spent (labor, means of production, finance, etc.) – on the other. There are different categories of efficiency:

- labor productivity;
- allocative efficiency;
- economic efficiency of new equipment;
- information efficiency;
- efficiency of the production process.

The problem of the efficiency assessment of the process of "An internal audit of business processes "from purchase to payment" remains unresolved until now.

In addition, to improve the level of efficiency it is advisable to monitor the functioning of internal audits, and internal and external assessment.
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Monitoring is aimed at ensuring that the activities of internal auditors comply with the procedures. It allows to make sure that the auditors perform their activities at the appropriate professional level and their competence meets the following requirements:

- internal assessments are conducted at least once every six months. The purpose of the internal assessment process (assessment of effectiveness and efficiency) – identification of reserves to improve the activities of the internal audit business processes;

- external assessments are carried out by external entities (external consultants, auditors, inspectors). The value of external evaluations is that they provide an impartial assessment of the quality and effectiveness of internal audit of business processes.

The formula for calculating the efficiency of internal audit is as follows:

$$E = \frac{R}{Z} * 100\%$$

(4)

where, E – efficiency of the process of "An internal audit of business processes "from purchase to payment";

R – results rating of the process of "An internal audit of business processes "from purchase to payment";

Z – resource costs of the process of "An internal audit of business processes "from purchase to payment";

The calculation of R is discussed in detail earlier. Since Z is the cumulative value and integrates different types of costs for the operation of the process, it is proposed to calculate the resource costs as follows:

$$Z = \frac{1}{m} \sum_{i=1}^{m} Z_i$$

(5)

where, Z_i – i-th indicator of resource costs, reflecting a particular (specific) type of costs of the process of "An internal audit of business processes "from purchase to payment".
m – number of Z_i indicators.

In the course of solving the problem of assessing the effectiveness of the process of "An internal audit of business processes "from purchase to payment" various costs used in the operation of the process such as time, material costs, costs of the use of premises and energy and etc. were revealed. However, when assessing the effectiveness of the process of "An internal audit of business processes "from purchase to payment", some types of costs (for example, energy costs and costs of the use of premises) should not be taken into account, since their

value is insignificant for the studied organization. Therefore, after analyzing the weight, it is proposed to take into account the following types of costs.

Time costs: time to prepare for the audit and time to conduct the audit on-site.

Costs of material resources which consist of the expenditure of technical means (purchase and operation of office equipment, purchase of expendable materials to them, paper).

Costs reflecting the competence of internal auditors and emerging from the time spent on training.

Thus:

Z1 – resources spent on preparation for the audit;
Z2 – resources spent on on-site audits;
Z3 – material resources (the consumption of technical means);
Z4 – resources spent on training of internal auditors.

Having analyzed the cost ratio at which the efficiency of the process increases, a diagram reflecting the optimal Zi distribution in time is constructed.

With the formal approach, it is obvious that the efficiency of the process increases with the

reduction of costs. Therefore, in short-sighted management there is a risk to take the path of constant cost reduction. However, there is no doubt that at a certain (low) level of costs this will lead to a sharp drop in efficiency, i.e. the process will not be able to be effective in the absence of resources: $Z \neq 0$.

It is proposed to assess the effectiveness of the process as the relationship between the planned and achieved levels of efficiency. Top management, having allocated resources, with this approach has the opportunity to assess how these resources are used. To calculate the efficiency, we introduce a planned performance indicator Eplan and an actual performance indicator Efact.

The planned value of the efficiency of the reporting period is calculated in advance based on the planned level of progress of the process and the costs that are planned to be allocated to the operation of the process in the reporting period.

The actual value of efficiency is obtained by the calculations based on the actual achieved level of progress and costs that were used in the operation of the process in the reporting period.

Therefore:

$$E_{plan} = \frac{R_{plan}}{Z_{plan}} \times 100\% \qquad (6)$$

$$E_{fact} = \frac{R_{fact}}{Z_{fact}} \times 100\% \qquad (7)$$

where, Rfact and Rplan – actual and planned value of the effectiveness of the process of "An internal audit of business processes" from purchase to payment";
Zfact и Zplan – actual and planned resource cost of the process of "An internal audit of business

processes" from purchase to payment". The planned value of efficiency for the current reporting period is determined depending on the actual values of efficiency in the past period. The planned cost value for the current reporting period is set depending on the actual costs in the past period.

Thus:

$$E = \frac{E_{факт}}{E_{план}} * 100\ \% \quad \text{и} \quad E = \frac{R_{факт} * Z_{план}}{Z_{факт} * R_{план}} * 100\ \% \qquad (8)$$

The proposed approach to assessing the effectiveness of the process of "An internal audit

of business processes "from purchase to payment" is appropriate and will allow to clearly

monitor the dynamics and the actual achievement of set indicators. This is due to the fact that the impartial assessment of the efficiency is achieved only by means of the relation of actual and planned values, which allows to determine how the operation of the process is close to the goal achievement.

Time for preparation of internal audits (Zi) is the total working time of auditors for the development, approval of the working documentation on the audit, conduct and processing of electronic survey data. The Z1 value was calculated as the difference between the total working time in the reporting period and the time spent on the on-site audit (Z3) and the training time (Z4).

Results

Table 3. The value of the cost level for the operation of the process "An Internal audit of business processes "from purchase to payment"

Indicator value	2017, 2nd half			2018						2019, 1st half		
				1st half			2nd half					
	plan.	fact.	Zi	plan.	fact.	Zi	plan.	fact.	Zi	plan.	fact.	Zi
Z1, hours	100	80	0,8	80	220	2,4	220	360	1,7	360	360	1
Z2, hours	200	576	2,9	576	708	1,2	200	220	1,1	220	200	0,9
Z3, rubles	4000	5000	1,2	5000	6000	1,2	4000	4000	1	4000	4000	1
Z4, hours	16	16	1	16	16	1	30	40	1,3	40	60	1,5
Z		1,5			1,5			1,3			1,1	

The time spent on internal audits (Z2) was calculated as the total time spent on-site during the reporting period in terms of the number of auditors.

The amount of material costs (Z3) consisted of the cost of consumables (for the work of internal auditors for the reporting period). The value of this cost element is estimated by the use of the materials during the reporting period.

The amount of time spent on training (Z4) is calculated as the amount of time spent on training and assessment of competence of internal auditors at the enterprise in the

reporting period in terms of the number of auditors. To estimate the values of this type of costs, it is proposed to keep a journal of auditors' training, where the date of training, the number of hours, the composition of the group of trained employees is fixed. Based on the data of the journal, the total time spent on training auditors in the reporting period is quickly calculated. On the basis of E efficiency values there is the diagram (Fig. 9), which reflects the trend of changes in the efficiency of the process of "An internal audit of business processes "from purchase to payment".
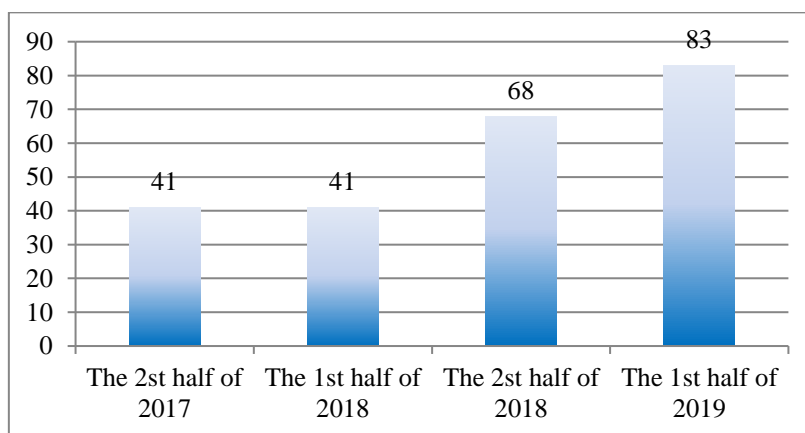

Fig. 1. Dynamics of changes in the efficiency of the process of "An internal audit of business processes "from purchase to payment"

The practical implementation of the efficiency calculation algorithm was carried out as follows. When achieving the efficiency of the repeated value 41 (the 1st half of 2018), the condition $\Delta Ei + 1 \succ \Delta Ei$ does not work, and it is necessary to conduct an analysis in order to identify the reasons for the low level of efficiency. The progress in the 1st half of 2018 was 0.6. The analysis showed that the total cost remained the same as in the previous reporting period and amounted to 1.5. However, a detailed examination revealed that the components of Z1-Z4 have changed significantly. For example, time spent on on-site audits (more than 1.2 times) and on audit preparation (more than twice) increased significantly. In addition, material costs for the operation of the process of "An internal audit of business processes "from purchase to payment" have significantly increased.

In order to increase the efficiency of the business process, it was decided to reduce costs as follows. It was found necessary to significantly reduce the time for the audit on the spot, however, to improve the competence of auditors by conducting additional training, the time for which is proposed to increase. The analysis of the actual cost values of the subsequent reporting period (the 2nd half of 2018) showed that it was practically possible to achieve the established targets. For example, it was possible to reduce the actual values of Z2 (time for an on-site audit) from 702 to 220 hours (the 1st and 2nd half of 2018). However, the amount of time required to prepare an internal audit has increased. This type of costs adds value to the internal audit, so it was decided not to reduce this type of costs in the formation of planning indicators Z. The time spent on training internal auditors increased by 1.3 times. This increase is due to the fact that in the preparation of training programs there was a need to include more auditors in the group and to have additional hours of training. After analyzing the impact of this type of costs, it was decided not to reduce the value of Z4 when planning for the next reporting period.

Next, we will conduct an audit of the ranking of processes, which is performed at the preparatory stage, when it is necessary to characterize each major process of the company and decide which of them should be improved first. At the first stage, we will make a list of the main business processes of the organization (table 4).

Table 4. Audit of ranking of business processes

The importance of the process/status of the process	High efficiency	Average efficiency	Low efficiency
Very important process	Process 1	-	Process 2
Important process	Process 6	Process 3	-
Second-rate process	Process 5	Process 7	Process 4

The analysis of table 4 shows that process 2 (purchase of new equipment) is very important for the activities of the organization under study and at the same time the least effective. Thus, first of all it is necessary to focus efforts on the analysis and reorganization of the 2nd process.

Next, we will conduct audit procedures to verify the production activities of the business entity, which are based on the organizational model of the audit and include the definition of objects, sources and methods of verification.

Audit of the business process "Production" should start with checking the order of execution and compliance with production plans according to the responsibility centers. Such verification should be carried out in a continuous manner. Subsequent stages of the production cycle check should be carried out in a selective manner. When checking contracts, orders for the supply of raw materials, it is necessary to pay attention to the fact that the document, in which the order is reflected, includes a legible signature, as well as the official who made the document, the specific customer, legal address, and etc.

Discussion

The modern stage of the history of unification of requirements to the system of internal control over the activities of enterprises began in 1985 in the United States, where, with the participation

and at the expense of five professional self-regulatory organizations: American Institute of Certified Public Accountants (AICPA), American Accounting Association, Financial Executives Institute (FEI), Institute of Internal Auditors (IIA), Institute of Management Accountants, – National Commission on Fraudulent Financial Reporting – Treadway Commission (named for its chairperson, James C. Treadway), was found.

The issues of conducting internal audit are considered in the articles of such authors as Scarbrough, Rama, and Raghunandan; Oxner, Hawkins, Rivers; Spira and Page; Hutchinson; Roussy and Brivot (Scarbrough et al, 1998; Oxner, 1995; Spira & Page 2003; Hutchinson, 2010; Roussy & Brivot, 2016).

The role of internal auditing in corporate governance is considered by Mihret and Grant; Alzeban and Sawan; Al-Akra, Abdel-Qader and Billah; Alzeban and Gwilliam (Mihret & Grant, 2017; Alzeban & Sawan, 2015; Al-Akra et al, 2016; Alzeban & Gwilliam, 2014).

The order of application of transformations in the analysis is revealed in detail in scientific papers of Ismagilov and Khasanova (Ismagilov & Khasanova, 2014; Ismagilov & Khasanova, 2016).

The internal control system is based on the principles of the Committee of Sponsoring Organizations of the Treadway Commission (referred to below as COSO), published in the United States in 1992 in the Integrated Internal Control Framework.

The significance of this concept lies in the fact that it sets out the basic concepts and key elements of internal control, emphasizes the responsibility of management of the organization for its condition.
Particular emphasis in the COSO model was placed on the responsibility for the state of control of the company's management. It also provided basic concepts, definitions of internal control and its fundamental components, based on the following key assumptions:

- internal control is a process, i.e. a means of achieving a goal, not an end in itself;
- internal control is carried out by people, so the rules, procedures and other guidance documents are not so much important as the people at all levels of the organization;

- from internal control, the owners and management of the enterprise can expect only a reasonable level of assurance of achieving the goals, but not an absolute guarantee of error-free work;
- internal control ensures the achievement of an objective or several objectives in related fields of activity.

According to the COSO concept, internal control is a process carried out by the highest body of the company that determines its policy (for example, the Board of Directors representing the owners of the company), its top-level management personnel (management) and all other employees, sufficiently and justifiably ensuring the company's achievement of the following goals:

1. Productive and financial efficiency of operations.
2. The accuracy of reporting.
3. Compliance with legislation and regulatory requirements.

Almost simultaneously with the COSO concept, three more concepts are being developed in the late 1980s and 1990s to define, evaluate, describe and improve internal controls:

1. Directive on the review of the internal control structure in the audit of financial statements (SAS 55 of 1988), approved by the American Institute of certified public accountants, as amended (SAS 78 of 1995).
2. SAC report prepared by the Institute of internal auditors research Foundation (1991).
3. The Control Objectives for Information and related Technologies (COBIT) standard, developed by the Information Systems Audit and Control Association (ISACA) (1996).

The COSO concept is a widely used and accepted system of internal control in modern structures based on the level of corporate governance. Also, to a large extent, the COSO concept complies with the stated audit standards No. 78 (SAS 78).

Notably, COSO and SAS 78 are the basis for internal controls based on five principles:

1. Control environment.
2. The implementation of the control.
3. Risk assessment.

4. Information and communication systems.
5. Monitoring.

Many SAS 78 Type I and Type II audit reports are discussed in descriptive form, based on the above principles and are closely related to the COSO concept.

The comparative characteristics of these concepts of internal control in international practice are shown in table 5.

Table 5. Comparative characteristics of these concepts of internal control in international practice

Indicator	Conception			
	COSO	SAC	COBIT	SAS 55/78
I	2	3	4	5
Main target group	Management	Internal auditors	Management, users, auditors of information systems	External auditors
Internal control	Process	Set of processes, functions, actions, subsystems and people	Set of processes, including norms, procedures, techniques and organizational structures	Process
Organizational objectives of internal control	Effective and efficient operations. Reliable financial reporting. Compliance with laws and regulations.		Effective and efficient operations. Confidentiality, integrity and availability of information.	Reliable financial reporting Effective and efficient operations. Compliance with

Continuation of table 5

I	2	3	4	5
			Reliable financial reporting. Compliance with laws and regulations	laws and regulations
Components or zones	Components: - control environment; - risk-management; - control actions;	Components: - control environment;	Zones: - planning and organization; - acquisition and implementation;	Components: - control environment; - risk assessment; - control actions;

	- information and communication; - monitoring;	- manual and automatic systems; - control procedures;	- shipping and support; - monitoring;	- information and communication; - monitoring;
Focus	All organization	Information technologies		Financial reporting
Assessment of the efficiency of internal control	At the time	Over a period of time		
Responsibility for the internal control system	Management of the organization			

Since the concepts presented in table 5 have been developed by different bodies for different target groups, there may be some inconsistencies between the documents. However, each document focuses on internal control and a specific target group (for example, internal auditors, management, external auditors), and focuses on creating and evaluating internal controls. Thus, a comparison of the internal control concepts expressed in these documents is of interest to all target groups.

Comparison of the above concepts shows that each of them uses the ideas of the previous documents. COBIT includes materials of primary sources COSO and SAS. The definition of COBIT control is taken from COSMO, and the definition of its control objectives is taken from SAC. SAC includes internal control framework developed in SAS 55, COSO uses the concept of internal control from both documents SAC and SAS 55. SAS 78 amends SAS 55, reflecting the contribution of the concept of COSO in internal control. In particular, SAS 78 takes into account the requirement of consistency between the internal control concepts presented in the reports of COSO and SAS 55.

Documents COBIT, SAC, COSO and SAS 55/78 define internal control, describe its components and provide assessment tools. SAC, COSO and SAS 55/78 also offer options for reporting on internal control issues. COBIT additionally offers a comprehensive analysis of the model implementation and discussion of internal control issues.

While the definitions of control essentially contain the same concepts there are some differences. COBIT views internal control as a process that includes rules, procedures, practices, and organizational structures that support business processes and goals. SAC emphasizes that internal control is a system, that is, internal control is a set of functions, subsystems and people and their relationships. COSO distinguishes internal control as a process, i.e. internal control should be an integral part of the current business activity. SAS 55/78, while using the definition of COSO, emphasizes the reliability of the purpose of financial reporting.

People are part of the internal control system. COBIT classifies people (defined as employees' skills, awareness and productivity in the planning, organization, acquisition, supply, maintenance and monitoring of information systems and services) as a core resource managed by a variety of information technology processes. The participation of people becomes more evident when the number of documents increases. SAC clearly defines people as an integral part of the internal control system. COSO and SAS 55/78 note that people involved in internal control, are members of the Board of Directors, management and other personnel. The documents consistently determine that management is the party responsible for the creation, maintenance and monitoring of the internal control system.

All the concepts presented in table 5 emphasize the concept of reasonable assurance as it relates to internal control. Internal control does not

guarantee that the organization will achieve its goals or even remain in business. Rather, internal control is organized to provide management with reasonable assurance regarding the achievement of objectives. The documents also recognize that there are inherent limitations to internal control and, due to cost/benefit considerations, not all possible controls will be implemented. Inherent limitations may cause internal controls to be less effective than planned.

Summary

Thus, the results of the analysis showed that the evaluation of the functioning of the process of "An internal audit of business processes "from purchase to payment" is advisable to carry out on two indicators: efficiency and effectiveness (table 6).

Table 6. Functioning indicators of the process "An internal audit of business processes "from purchase to payment"

Indicator	Formula for calculating
Effectiveness, R	$R = \sum_{i=1}^{7} \alpha_i * K_i$, $\sum_{i=1}^{7} \alpha_i = 1$
Efficiency, E	$E = \dfrac{R}{Z} * 100\%$ where, Z – the cost of functioning of the process $Z = \dfrac{1}{m} \sum_{i=1}^{m} Z_i$ m – amount of types of costs

The setting of planned values of effectiveness, costs and efficiency for the reporting period is based on the values that were achieved in the previous period (Ismagilov & Khasanova, 2016). After the reporting period, the actual values are used to calculate: the effectiveness of the Rfact, Zfact costs and the efficiency of the Efact, as well as the ratio of the actual and planned values of E efficiency.

$$k = 1 + \frac{\Delta E}{100\%}, \quad \Delta E = E_{i+1} - E_i$$

The functioning of the process of "An internal audit of business processes "from purchase to payment" on this contour of the algorithm is positive, as in this case there is a positive dynamic and increase in the efficiency of the process. However, if the positive dynamics of the efficiency change ($\Delta E \leq 0$) cannot be achieved, that is, the efficiency of the current period is less than or equal to the efficiency of the previous period, respectively, the rate of efficiency growth takes a negative value. In this case, it is necessary to carry out an analysis in order to identify the reasons for the poor functioning of the process of "An internal audit of

Next, we compare the efficiency of the current (Ei+1) and previous periods (Ei), and analyze the rate of efficiency growth.

If the rate of efficiency growth (ΔEi+1) of the current reporting period exceeds the rate of efficiency growth of the previous period (ΔEi), the planned values for the next reporting period are revised k times

(9)

business processes "from purchase to payment". The results of the analysis are corrective measures and the establishment of new planned values of effectiveness indicators, costs and efficiency for the process of "An internal audit of business processes "from purchase to payment".

Conclusions

The efficiency of the internal audit model of business processes "from purchase to payment" depends on compliance with generally accepted standards of activity, as well as the introduction of new regulatory requirements. There is no

generic set of parameters. The priority of the selection of indicators differs in each organization and depends on management's strategic goals and objectives, organizational structure, the use of a risk-based approach in the implementation of key activities. Along with the implementation of the internal audit model of the business process "from purchase to payment", it is necessary to improve the risk management system, document key risks and existing control procedures in the context of individual business processes.

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