

**REPORTS OF THE NATIONAL ACADEMY OF SCIENCES  
OF THE REPUBLIC OF KAZAKHSTAN**

ISSN 2224-5227

Volume 6, Number 316 (2017), 11 – 14

UDC 303.06

**A.N. Lambekova**NARXOZ University, Almaty, Kazakhstan  
Aygerim.lambekova@mail.ru**EFFICIENCY OF INTERNAL AUDIT:  
LARGE DATA ANALYSIST**

**Abstract.** Internal audit is one of the most effective tools of efficiency growth and the main component of a management system, which is aimed at enhancing stability and achieving the goals set for the organizations. The article reviews the impact of new technologies on the work of internal audit of organizations.

**Keywords:** effectiveness of internal audit, the analysis of big data, traditional data analysis, technology audit.

As the entities develop and adapt to work in difficult economic conditions, the expectations of interested parties from internal audit also increase. The use of methods and tools for data analysis can radically change how internal audit responds to ever-increasing expectations, including improving its performance, gaining a deeper understanding of business, and improving monitoring approaches.

These advantages can be realized only if internal audit not only uses data analysis methods to automate certain procedures within the framework of conducted inspections, but also fully integrates these methods into the life cycle of internal audit. The ultimate goal is to create an internal audit function that includes critically thinking employees who apply methods and tools of data analysis in all aspects of their activities.

Porter said that technology has always played a major role in the creation of wealth and is today accepted as a key source of competitive advantage [1]. Technology represents the most pervasive force influencing human lives today. It is also identified as a key driver in the evolutionary development of man [2]. Therefore, that is the area where investment in technology development should be concentrated [3].

Zuma Medeiros in his study illustrated how technological capabilities developed in the sector fits into the ‘catch-up’ model exhibited by many latecomer firms and industries in industrialising countries. It has followed a pattern of foreign technology acquisition over several distinct phases during which the leading firms have moved from the ‘reactive’ to the ‘strategic’ category as described in the CAT[4].

Over the past decade, many internal audit services have appreciated the potential of data analysis. For example, three years ago in the PwC study "The Current Status of the Internal Auditor's Profession" from 2013, most managers and directors of internal audit services recognized the importance of using data analysis methods to quantify the identified deficiencies, expand areas covered by audit procedures and gain a deeper understanding of the risks.

Many entities decided to invest in the development of opportunities for applying data analysis within the framework of internal audit work, but the implementation of this decision ended with varying degrees of success. Some entities have made a significant profit from these investments, others have found that their initiative does not develop at the required speed and they experience difficulties in implementing data analysis methods in the audit process and other internal audit processes. Nevertheless, interest in the methods of analyzing data from the profession remains high.

The pressure from stakeholders also creates the need for successful implementation of programs related to the development of the data analysis method use. In the face of changing business environment,

IT landscape and tightening of regulatory requirements, the expectations of stakeholders from internal audit are growing, while the complexity of the business also grows.

The PwC study "Current Status of the Internal Auditor's Profession" from 2016 showed that 62% of stakeholders expect more from internal audit, while half of respondents reported that their internal audit services are already making a significant contribution to the entity activities.

The stakeholders expect from the internal audit a deeper evaluation of the entity's activities, analysis of cause-effect relationships of problem issues, interaction with business to create value for the entity. In such circumstances, data analysis can help internal audit to be of great benefit, allowing entities to respond more quickly to risks by analyzing large amounts of data and identifying the most important problems and issues.

The implementation of analytical tools in the work of internal audit can also help in developing the skills of employees, increasing their knowledge of the entity's activities, enabling them to obtain useful and interesting experience, which in turn makes the profession of the internal auditor more attractive in the labor market. Regardless of how widely the entity currently uses tools and methods for analyzing data within the life cycle of internal audit, the importance and benefits of data analysis are obvious.

This publication explores the ways in which you can avoid the most common mistakes in the transition to the application of tools and methods of data analysis, and how to achieve the management's expected results more quickly.

It may be necessary to introduce a preliminary planning process before the standard procedures for planning an audit. The preliminary planning process allows the timely collection of data, as well as developing an approach to the data analysis that will be used during the audit.

The preliminary planning process can greatly affect the planning of resources within the service, the notification and participation of audit objects in the audit and other issues. Validation of results. The application of data analysis methods and tools allows testing of a 100% data set. With this level of coverage, each test performed can yield a huge amount of results.

The methodology of data analysis may require the inclusion of an additional step related to the refinement of the methods used to reduce the number of false positive results. In addition, internal audit may need to develop a way to document false positive results or develop an approach and criteria by which auditors can determine what results require further action. All this should be enshrined in internal audit policies and procedures so that the process of analyzing data and using the results obtained is integrated into the methodology of the service and not be considered separately from existing procedures.

If data analysis is performed using programming languages such as SQL, ACL, Python or R, as well as data visualization technologies, employees and the service management need to ensure that the data analysis is performed correctly. Meanwhile, it is obvious that not all employees possess sufficient qualifications and knowledge necessary to check and evaluate the technical correctness of analytical scripts.

Therefore, it may be necessary to introduce alternative procedures that ensure proper monitoring and verification. To do this, one can implement procedures to check the work of colleagues, hire a data analysis officer to conduct technical inspections, or train auditors in carrying out end-to-end data checks. In all these cases, the emergence of new procedures is inevitable.

Many managers of internal audit services have encountered problems in the implementation of data analysis methods and tools in the work of their services, no matter what stage of the process they are at. Although the approaches to using data analysis methods are individual for each entity and depend on the adopted approach to risk management and the industry in which the entity operates, and other factors, any approach should be based on a strategic plan that determines how the internal audit will transform its activities. The managers of internal audit services are recommended to review their data analysis

strategies, taking into account all the common mistakes listed above, in order to assess the success of data analysis initiatives.

The ability to avoid these errors will speed up the achievement of the goals set and will allow the internal audit service to successfully use data analysis methods in order to:

- plan audits considering risks;
- identify areas requiring additional audit procedures;
- understand the causes of events and identified shortcomings, presenting findings in a form demonstrating the value of the service;
- separate important problems from less important ones.

If existing approaches to analyzing data do not bring the desired results, it may be time to return to the very beginning and make sure that a strategy has been developed that considers the knowledge and experience accumulated in other departments, describes the operational model, activities of organizational change management, specific methodologies and a road map on the application of data analysis methods not only during the audit procedures, but also at other stages of the internal audit life cycle.

Data collection and analysis could be used as a basic description of the work of any auditor, but in recent years, internal audit teams have become much more interested in the discipline of "data analytics", which is essentially the use of software – from simple to complex – to find important trends in large amounts of data. **Big data** 'suggest something more than just an analysis of huge amounts of information.

Characteristic	Traditional data base	Big Data Base
Volume of information	from gigabyte to terabyte	from petabyte to exabytes
Storage method	centralized	decentralized
Structured data	structured	semi-structured or not structured
Model storage and data processing	vertical model	horizontal model
The relationship of data	strong	weak
Data sources	internal data	internal data and external data

Figure 1- Traditional data base and Big Data Base  
Note: compiled by the author

The key to successful application of data analysis methods in internal audit is the symbiosis of employees with technical competencies, which are supplemented by the knowledge and skills of traditional internal auditors. I would like to emphasize the fact that data analysis methods expand the functionality available for the work of the internal auditor. However, the key to the successful implementation of new technologies in the everyday life of the internal auditor are precisely the employees who possess the necessary competencies and are able to modify methods of conducting inspections and use new technologies correctly.

#### REFERENCES

- [1] Porter M E. (1998), The technological Dimension of Competitive Strategy. Strategic Management of Technology and Innovation. First Edition. Irwin; pp: 211-212, Journal.
- [2] Khalil T M. (2000), Management of Technology – the key to competitiveness and wealth creation. McGraw-Hill, Journal.
- [3] Rieck M and Dickson K E. (1993), Practitioners' forum: A model of technology strategy. Technology Analysis & Strategic Management; Vol.5, No.4. Journal.
- [4] Zuma Medeiros, M. 2010. Industrial development in a high tech sector of a developing country: New directions and the unfinished technological transition in the Brazilian vaccine industry. Ph.D. diss., University of Sussex, Brighton.

ӘОЖ 303.06

**А.Н. Ламбекова**

НАРХОЗ Университеті, Алматы, Қазақстан

### **ІШКІ АУДИТ ТИІМДІЛІГІ: АУҚЫМДЫ МӘЛІМЕТТЕРДІ ТАЛДАУ**

**Аннотация.** Ұйымның тұрақтылығы мен оның алдына қойған мақсатына жету барысындағы басқару жүйесінің құрамы және ең маңыздысы тиімді өсудің нәтижелі көрсеткіші – ішкі аудит болып табылады. Берілген мақалада ұйымдардағы ішкі аудит жүйесіне аудиттегі жаңа технологиялардың әсер етуі қарастырылған.

**Тірек сөздер:** ішкі аудиттің тиімділігі, ауқымды мәліметтерді талдау, мәліметтерді дәстүрлі талдау, технологиялық аудит.

УДК 303.06

**А.Н. Ламбекова**

Университет НАРХОЗ, Алматы, Қазақстан

### **ЭФФЕКТИВНОСТЬ ВНУТРЕННЕГО АУДИТА: АНАЛИЗ БОЛЬШИМИ ДАННЫМИ**

**Аннотация.** Внутренний аудит является одним из наиболее результативных инструментов роста эффективности и главной составляющей системы управления, которой ориентирован на повышение стабильности и достижение поставленных целей перед организацией. В статье рассматриваются вопросы влияния новых технологий на работу внутреннего аудита организаций.

**Ключевые слова:** эффективность внутреннего аудита, анализ большими данными, традиционный анализ данными, технологический аудит.